

XIX
REPORT

OF THE

FRUIT GROWERS' ASSOCIATION

OF ONTARIO,

FOR THE YEAR 1887.

Printed by Order of the Legislative Assembly.



Toronto:

PRINTED BY WARWICK & SONS, 26 & 28 FRONT STREET WEST.

1888.

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To the Honorable

DEAR SIR,
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NINETEENTH ANNUAL REPORT
OF THE
FRUIT GROWERS' ASSOCIATION
OF ONTARIO.

To the Honorable the Commissioner of Agriculture :

DEAR SIR,—I have pleasure in transmitting to you the Nineteenth Annual Report of the Fruit Growers' Association of Ontario, a volume containing an immense amount of the most valuable information on the subjects of fruit, flowers and forestry.

Three public meetings for discussion have been held during the year, continuing for two days each. A most careful report of these meetings has been made by the aid of an able stenographer, which will, no doubt, aid materially in the progress and development of horticulture and silviculture in our country.

A volume of *The Canadian Horticulturist* for 1887 also accompanies this Report, a monthly journal which is highly appreciated by the members of our Association as a medium of communicating individual experience in practical horticulture.

Trusting that the earnest efforts of the past year may be esteemed worthy of your approval,

I have the honour to be, Sir,
Your most obedient servant,

L. WOOLVERTON,
Secretary.

THE PRESIDENT'S ANNUAL ADDRESS.

At the annual meeting of the Association, held at Grimsby, in the county of Lincoln, on the 28th and 29th of September, 1887, the president, Alex. McD. Allan, Esq., of Goderich, delivered the following address :

LADIES AND GENTLEMEN, MEMBERS OF THE ONTARIO FRUIT GROWERS' ASSOCIATION :—
Probably no point in this Province could have been so appropriately chosen for our annual gathering as this beautiful village of Grimsby, embedded in the midst of the fruit Eden of Ontario.

A few amongst us, whose heads have grown hoary under a weight of years, can look back to the early days when this great Niagara district, as well as the rest of our Province, was largely a forest, broken only by occasional small clearings and rough roadways leading to small villages of seldom more than a dozen cottages each. Society, as understood now-a-days, had no place in our country then, and yet these old pioneers assure us that those were among their happiest days. Along with the hardest of daily toil they held converse with nature and all her charms. Neighbours were dear to each other, they consulted together in everything ; their feelings and interests were the same ; a universal friendship prevailed.

“ There *is* a pleasure in the pathless woods,
“ There *is* a rapture by the lonely shore,
“ There is society where none intrudes,
“ By the deep sea, and music in its roar—
“ We love not man the less, but nature more
“ In these our interviews.”

And yet now-a-days we frequently hear of those whose great desire is to leave the farm and seek the town or city in quest of so-called society. The question is often asked, “ Why do young men leave the farm ? ” Looking at this question from a horticultural standpoint, I am satisfied that, amongst other replies, it may be answered that early training has much to do with it. If boys were trained to give a reason for every piece of work done ; to know something of the science of tilling the soil, the “ whys ” and “ wherefores ” of everything connected with agriculture and horticulture, and above all, to create in the youthful mind a desire to search more deeply into nature and its great works, we would hear less of this desire to keep aloof from the industry of agriculture. Interest each child in some plant or flower, and as he or she grows older that interest will grow, and the desire will become keener to search more deeply into nature's great fields. There is nothing that will make so marked an impression for good, for tender, refined feeling in our children as to lead them into a study of the works of our great Creator in the forest as well as the fruitful fields, orchards and gardens. These early lessons are remembered through life, for the interest is kindled in school days when habits are forming. The school house as well as the school yard should contain a sort of

Kindergarten or object lesson, and every child should have some special tree, plant or flower to care for. I believe this matter should receive the deepest attention, not only from all parents, but also from our educational departments and seats of learning, and I trust this Association will continue to work towards such a desirable end. I believe our common school system of studies is getting beyond the requirements of our country and its best interests, inasmuch as it is calculated to induce our young men and women to leave the field and orchard and seek some profession or other calling in life. Agriculture and its sister horticulture demand the brightest and best of our sons and daughters, and the best interests of our country demands their study and labour too. If an interest in these studies were created in schools I believe ere long we could find a more general desire, and a more intelligent desire in the rising generation to excel in these sciences. Such a study would tend to make better men and women of our children. Lead a boy to take an interest in the cultivation of some tree, plant or flower and you make an impression upon his young mind that will deepen with age; it will have an elevating tendency in his nature, a refining influence on his character that will, as he grows older, lead those he comes in contact with, to point up to him as one of "nature's noblemen." Under the influence of such studies we would have fewer criminals and a more prosperous as well as a better and happier people.

Since our last annual meeting it has been my pleasant lot to assist in representing Canada at the Colonial and Indian Exhibition in London, England, in the interests of fruit growers and shippers. As you are already well acquainted with the nature and extent of our fruit display on that occasion, it is not necessary to enlarge upon that. Suffice it to say that it was at once the largest and finest display of fruits ever seen, not only in Britain, but in all Europe. Our Dominion Government could not have done anything to so thoroughly correct the erroneous impressions of our country held by the people generally in the old world as by placing before them to see, feel and taste the luscious fruits of our orchards, gardens and vineyards. That exhibit did more for our country than all the literature and emigration agents could have accomplished in a quarter of a century. Our fruits told dwellers in Britain of a climate far superior to anything they had given Canada credit for, and the variations of that climate stretching from the Atlantic to the Pacific. Some years ago I made the statement at one of our meetings that I believed we could grow the finest apples in the world. My experience in Britain's markets, where I met apples from almost all other fruit growing countries, has confirmed the impression. We have struck the happy medium in climate and soil in order to produce apples of the highest degree of excellence in flavour, form and colour.

Our apples have taken the British buyers by storm, and consumers there will not purchase any others so long as they can obtain a suitable article from us. Britain wants the best, and the best only. There is no better market for a choice article, and I do not know so poor a market for an inferior article. Canada has gained a good name for generally honest culling and packing, and it is absolutely necessary that we do not allow a spot to tarnish our character. I wish my words could reach the ears of every orchardist as well as shippers in our fair country. I would entreat of them, not only for their own best interests, but also for the sake of the fair fame of our country, to exercise the greatest

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care in the cultivation, selection and packing of our fruits. Let the grower see to it that he leaves nothing undone that can be done to excel in the production of the choicest fruits, and that when he comes to dispose of it, to allow nothing pass to the shipper but the best. Above all things, teach your children to be scrupulously honest in picking and culling out the apples ready for packing. Never encourage a child to think it smart to get a spotted or wormy apple off on the buyer, by hiding it in the middle of the basket or barrel. Be honest towards your children, yourself, your customers and your country, and you will not only have the satisfaction of reaping reach pecuniary rewards but of being a benefit to your country, a guide to your associates, and an instructor for everything that is just and right in your own family. Let the shipper see to it also that he acts in strictest honesty with his customers. Let the brand always indicate truly what the barrel contains. Let every specimen be sound and clean for a good brand of fruit. And if a *choice* lot is wanted, they should be made of even size and good colour in the barrel. Under no circumstances let the brand indicate anything better than the fruit in the barrel fairly demands. A more difficult question now comes, namely, to whom shall we ship? All the fruit markets of Britain are full of so-called fruit brokers, whose only desire seems to be to make their commissions, and they always do this, no matter how they may sacrifice the interests of the shipper. This class of brokers are what we know as curbstone brokers, and are irresponsible. In conversation, they are quite persuasive, "child-like and bland," as Bret Harte would put it; but do not trust them. Then there is a large class of brokers who, although they are financially responsible, they have not the accommodation to hold fruit in storage, or they do not care to so far consider the interests of the shipper as to hold for favourable markets, but force everything off at auction no matter what may be the state of the market. By all means, it is to our best interests to avoid this class. There is a class of brokers again, who are interested in retail fruit stores, the result of which is that when they handle fruit on consignment the interests of the shipper are cruelly sacrificed, and these retailers are supplied at prices that ensure large profits to the broker. But there is still left a thoroughly responsible and trustworthy class who do all they can to protect the interests of the shippers, and where there is any possibility of realising prices that will ensure profit to the consignor, they will invariably accomplish that desirable end at a very reasonable cost. You will find this class of dealers often at the dock or railway depot examining the goods sent, and trying to make sale to some retailers without incurring cartage or market expense.

During my four months' stay in Britain I visited all the fruit markets, searched out the various classes of dealers and their ways of doing business, and hence I know whereof I speak. It would take up too much space to attempt to name firms, but at any time I will be pleased to give every information in my possession to those who desire to ship. I can recommend good responsible houses in most of the chief towns and cities, whose business records have been looked into or tested. Generally speaking, it is a mistake to ship on consignment to any but the three great distributing centres of trade, I mean London, Liverpool and Glasgow. There is another important point I desire shippers to notice, it is this: That the experience of the past has shewn that fruit shipped to London direct by water, has received much more damage in transit than when shipped *viâ* Liver-

pool and thence by rail to London. It is a very common thing to find in cargoes shipped direct to London by water, barrels with only a few pecks in them, and from the fact that the few left are clean, fine samples, it is natural to conclude that they have been tampered with either when passing up the Thames or when in charge of the dock companies. I have made frequent visits to the docks to see cargoes discharged, and almost always remarked an amount of careless handling that was startling. Barrels of apples standing in the storage sheds open and passers by having every chance to pilfer that could be desired. I remonstrated with these dock companies, and for the time being things were attended to better; but, no doubt, when my back was turned the same carelessness was repeated. I would, therefore, advise shippers to ship to London always *via* Liverpool. This has a further advantage of an extra market, as if the consignee in London finds he can sell to advantage considering the difference in freight by stopping the cargo and disposing of it in Liverpool, he will do so. British railways are a huge monopoly, the result of which is that they so combine in freight charges as to put it beyond the interests of shippers to send consignments direct to inland cities and towns. They do not carry at a proportionately low rate compared with our through rates to British ports.

Our markets for apples are extending, and there is no doubt but they will extend still farther within a few years, as the high flavour, beauty in form and colour and keeping qualities of our apples becomes more widely known. A very fine line of business was opened last year with buyers for the markets of Norway, Sweden and Denmark, and by exercising care in selecting and packing, this trade can be largely increased. I am confident that by proper management a good trade can be established with these countries in dried fruits as well as canned goods. Then, with the connection of a fast line of steamships on the Pacific Ocean with our Canadian Pacific Railway, our apples will find a profitable market in the far East. There is still another market nearer home that will prove one of the most important to growers in Ontario. I refer to our own great Northwest. Even now, although the population is small and very scattered, the trade has assumed wonderful proportions. And it has one very desirable feature, in that it is a market for our early and fall apples, that would otherwise be of comparatively little value. Of course there are some fall apples that we can ship to Britain profitably under some circumstances. If the British, Belgian and German crops are short, then our fall apples, if carried in good order, will command about the same prices in Britain that winter sorts bring. But if there is a surplus in the countries that supply Britain with that class of apple, as well as a fair crop in Britain herself, then we must seek another market for early and fall kinds. The same thing does not hold good to the same extent as regards winter varieties. Nearly all the kinds grown in Belgium and Germany for export are what we would call fall cookers; they have very little if any colour and their flavour is generally somewhat insipid. The result is that however large these crops may be (the British crop included) they cannot find profitable sale when our winter fruit appears in the markets. Of fall varieties we have one that is sure of ready sale at high prices. I refer to the Gravenstein. Even this season it has sold as high as \$6.00 per barrel; St Lawrence has made \$4.20, and Colvert \$4.05 for good samples.

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If our steamship companies would provide a cold blast for the compartment where fruit is stored it would be a boon to shippers and consumers alike, as that would ensure fruit carrying without the slightest damage by sweating. The introduction of a cold blast would not necessitate much if any expense to the Company, and would, I believe, greatly facilitate and ensure the interests of all concerned. With its aid we could successfully ship such apples as Duchess of Oldenburg, and realize high prices. And if the market demand would permit, even such pears as Clapps' Favorite, Bartlett, Flemish Beauty and Boussock could be shipped.

In shipping our winter apples, shippers would find it greatly to their advantage to provide good storage so that varieties could be sent forward in proper season when the market demand is best for each particular variety. It is folly to send a mixed cargo at an early season, as there is then no proper demand for a long keeping kind. Shipments should continue through winter until early spring. Such a season as the present, if I were advising shippers as to the order in which special kinds should be shipped, it would be thus: In September and first week of October ship all Twenty-Ounce, and Ribston's, and Blenheims; follow this with Kings. Send some Baldwins and Greenings through November and December, finishing shipments of these kinds in January. The first Spies should be sent forward in December, and continued on through January into February. Ontario and Wagner will also cover the same season. Hold the Russets until March, if possible, along with Mann, and send them forward then as the demand rises, taking care to examine every barrel before leaving the storehouse to see that there is no decay or shrinkage. Other kinds that I have not named can be sent forward in their proper season for using. But the time for shipping must be determined each season according as the crop matures early or late. It is invariably a good time to ship extra large and fine specimens about the first of December, so as to get the Christmas market on or about the 15th of that month.

In any case, it pays to store long keepers here rather than ship early, as they will realize much better prices, besides keeping better in this dry climate than in the damp and clammy winters of Britain.

The large grape crop of the present season and the exceedingly low prices, causes the growers to ask what are the prospects of obtaining markets for an increasing supply? I firmly believe that if proper cold storage can be secured on the steamships, Britain will soon prove to be a good market for our open air grapes. But as the taste for them is one that must be acquired largely, such a trade must be approached with all due care. The only class of grape consumers in Britain are those who can afford to pay very high prices for hot-house varieties, and those who are satisfied with the poor quality of the ordinary Spanish white grape of commerce. I have no doubt at all that our grapes would find a ready class of consumers if once introduced in competition with the Spanish grape. It will be necessary to test various ways of carrying our grapes and various packages, so as to ensure their arrival in perfect condition. Those packed in berry boxes tightly enclosed in a case containing some ten or a dozen such boxes, carried better than in any other way to the Colonial at London last year. The square boxes used last year for apples and pears were not after all so serviceable as good neat barrels. Fruit could not be packed tightly in the

boxes, and hence bruised badly. Undoubtedly the barrel is by far the best package yet tried for apples and when the quarter hoops are driven down far enough to allow the barrel roll upon them, it saves the fruit from bruising in the bilge of the barrel.

I cannot too severely condemn employees of railways and steamships for the rough manner in which they handle every kind of fruit package. Of the fruits shipped to the Colonial Exhibition, fully ten per cent. of the apples were damaged, twenty per cent. of pears, and ninety per cent. of plums and grapes. The express companies were no exception. It is high time that something were done to compel these corporations to exercise necessary care in handling packages.

Both growers and shippers will be anxious to hear something about market prospects. Reports in the newspapers have been discouraging alike to grower and shipper, but as I was receiving widely different reports at the same time, I concluded that the published reports were from a class of fruit brokers who would like very well to see shippers make a little profit in order to hold their trade, and hence they sent out word that export apples should be purchased at thirty to forty per cent. lower than last year, as the British and European crop was very large. These brokers would like to see shippers make their profit on this side of the ocean by reducing the price to the grower, instead of in the markets of Britain. No doubt early prospects were in favour of a generally good crop in Europe, but what are the facts now? Britain passed through a long, tedious and severe winter, a cold, backward spring, and a summer of unusual heat and drought. It is generally admitted throughout Kent (and this county sends more apples to the London market than any other) that the aggregate yield of marketable fruit will not exceed an average crop, and these are mainly early kinds. In midland counties prospects are less favourable than last year. Orchards have suffered severely from continued drought and blight, and growers agree that the crop will be under an average. The west or cider counties report a small crop of doubtful quality. In the north, where the cultivation of the apple is only nominal, indications point to an average crop of fair quality. Taken altogether, we are safe to conclude that the apple crop of the United Kingdom will not exceed that of 1886, with quality and size of samples inferior. Another point I may here mention that is well worth remembering; it is this: that British apples are mostly cookers, and it is rare to find an apple grown there combining both cooking and dessert qualities. This and a most important point, they concede readily to Canada.

Advices from the chief shipping ports of France, as well as the interior, agree that the quantity of apples suitable for the English markets will about equal that of last year. In the south-west Rennets and Dieudonne's promise fairly, but it is admitted by shippers that the quantity available for export is yearly less important; it is said that the shade of the apple trees is injurious to the vines amongst which they grow, and that when the trees die out they are not generally replaced.

Reports from the apple sections of Belgium and Holland indicate an average yield of early kinds, which are all disposed of before this date. Late varieties, which are extensively grown for the English markets, are a fairly good crop, and shippers claim the winter export trade will be fair. The outlook in Germany is favourable, but advices from Hamburg, Stettin and the interior cannot at present be relied upon with any degree

of certainty. Hence that local consum

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of certainty. However, the quantity available for export is never large, and it is probable that local consumption will exhaust the supply.

Shipments of early apples from Portugal commenced in June. Prices are low owing to the inferiority of this fruit. Crops are reported light, and arrivals after September, if any, will have no influence on the British markets.

Therefore, I conclude that shippers should make more money in the British markets this year than was realized last year, and if they fail to do so it must certainly be on account of the inferiority of their brand.

After visiting many orchards in various parts of Britain and discussing apple-growing with growers and dealers, I have arrived at the conclusion that British growers have become discouraged, and hence the fact that hundreds of acres of orchards are sadly neglected, and are in a state of decay. Many kinds have been grown that are mere cumberers of the ground. Indeed, for many years past, there has been a practical dearth of home grown apples in the British markets, in consequence of inclement weather in the autumn preventing the maturing of the wood, and keen frosts in late spring destroying the blossom. Apple growing in Britain is rapidly waning, and there are some like indications throughout Europe. In the United States the crop varies as it does in our own country. We do not find that competition in our own North-west that we have had on account of the smallness of the crop, even of early fruit in Missouri. The apple crop for all Western States, taken as a whole, is under the average considerably. In New York there will be about half a crop, with Newtown's scarce, and in the Eastern States the crop is scarcely any better. Altogether, the apples for export from the States will be under that of last year considerably.

The Nova Scotia crop is scarcely up to a half.

Our own crop for export will be under that of last year, but the sample of fruit will be better. There is rejoicing all over our land by growers and shippers on account of the absence of the fungus spot, even Fameuse is perfectly clean this year, and contrary to earlier expectations samples will be fully up in size with superb colouring.

A word still to the shippers and I leave this question. Packed and ready for shipment, it is for the exporter to decide with promptitude, if he has not already done so, as to the market to which he will consign his fruit. It is a mistake to have fixed ideas on this subject. Putting all your eggs in one basket means success or failure, and is opposed to the best rules of business. It may be difficult for shippers to come to a decision as to the best market to take. Too much reliance should not be placed upon market reports mailed from broking firms, for they are, as a rule, apart from prices actually realised, couched in language sufficiently encouraging to induce shippers to consign to Liverpool when they should take London or Glasgow, or *vice versa*. Market forecasts too are usually held out as one would wish them to be, rather than as they are likely to be. The necessity of always making arrangements with the steamship agents well in advance of contemplated shipments, in order to avoid being shut out, must also be borne in mind. Those who have had their fruit shut out, and have been compelled to await the following steamer, know from experience the value of this suggestion. Influence should also be brought to bear on the agents in regard to the storage of the fruit. Apples should never

be stowed unde. or mixed with general or any other cargo, and they should always be stowed away from all heating influences.

Among new fruits likely to find a place in general cultivation, I would name my old friend Mr. P. C. Dempsey's new pear, which I shall here name "Dempsey." It is a cross between Bartlett and Duchess D'Angouleme, and bears not only the markings of both parents well blended together, but also flavour and season of ripening well defined. I believe this pear will yet come in as one of the most valuable on our list. I earnestly wish growers would strive, by hybridization and the growing of seedlings, to produce a winter pear of size and excellence. Take for your aim, for example, the Vicar for size and Josephene De Malmis for quality. Mr. Dempsey has also produced a new apple, the Trenton, by crossing the Golden Russet and Spy. The Trenton has the appearance as if of the Fameuse family; form and size goes with the Russet parent; flavour richer than Fameuse and colour more intense and covering.

In plums, I do not know anything that has taken my fancy for general purposes as the Prune, grown at Collingwood. I have had an opportunity of tasting the fruit this season and, if I may judge by the few specimens sent to me, I must pronounce it much superior to the well known German Prune in flavour. It is of good size and in general appearance resembles German Prune, and is a splendid shipper. Growers in Collingwood report that they can make more money out of this than any other variety.

The system of judging fruits at Fairs must be improved upon and conducted scientifically or exhibitors will not derive any practical benefits, and growers will be kept in the dark, as in the past. A scale should be adopted with maximum points for each variety, the highest number being the maximum of the most valuable fruits. A scale of one to ten would cover all, and if introduced and used by all judges, we would find a decided improvement in the growing of only the best kinds. All fruits should be judged upon points, and the man who is not able to give such a judgment should not be employed. The single judge system would have the effect of weeding out incompetent men, and I believe the sooner it is adopted by Exhibition Associations, in the horticultural department at all events, the better for all concerned.

The English sparrow is still widening its field of mischief. This season I lost two trees of Huling's Superb plums by the sparrow, and many others complain of its depredations among the plums and grapes. As soon as the fruit ripens well they seem to pick holes to extract the juices, probably to quench thirst; at all events they take a marvelously short time to destroy a crop of plums. My two trees of Huling's Superb were loaded and I was not able to find a whole plum in three days from ripening. Growers are reporting some new feature of evil in the sparrow from time to time, and I hope this Association will take the matter up at an early day, and if possible suggest a remedy.

After a winter of more than usual severity and a summer of extraordinary heat and drouth, we are early into fall weather. Already we can almost say:

"Leaves are dead and woods are red,
Autumn skies are soft and pale."

The orchardist should make early provision for winter.

Our thanks as fruit-growers are due to the Dominion Government for the good done

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in our interests and for our country through the Colonial Exhibition. Personally, I would not feel that I had done justice if I neglected to refer to the very many courtesies, the prompt attentions and interest in the welfare of Canada, expressed in the actions of Sir Charles Tupper, our High Commissioner, who was ever ready and willing to do all that was possible in every way to advance the fruit interests of Canada. Nor can I forget the cheerful attentions and quick, executive ability of Mr. C. C. Chipman, the Canadian Accountant in London. And I feel under deep, personal obligations to Mr. J. B. Thomas, of Covent Garden Market, London, one of the oldest and foremost fruit dealers of Britain, for innumerable acts of kindness in assisting me to gain information concerning the trade.

And now, my friends, before closing, let me ask one and all to work, speak, write and think for the interests of horticulture. Enlist the sympathies of your friends and neighbours; spread everywhere the necessity of cultivation, more planting, growing only the best varieties, and buying and selling honestly. In our Association we want all classes of our people, especially do we want the influence of woman, and I believe even now our women are fairly enlisted and willing to work for the grand elevative interests of horticulture. Let us work up enthusiasm in our subject, and thus solidly and surely elevate the standard of everything that is good. There is room always for improvement, and we should never rest fully satisfied with the results of past experiments, but go on working up to a high ideal and encouraging others to work too.

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THE WINTER MEETING.

The Winter Meeting was held in the Town Hall, Chatham, on Wednesday and Thursday, the 9th and 10th of February, 1887.

The President, A. McD. Allan, Esq., in calling the meeting to order, expressed a hope that the local members and visitors from the County of Kent, of whom there was a fair attendance, would freely avail themselves of the opportunity of taking part in the debates of the Association, one of the especial objects of holding the meeting in Chatham being that points in regard to fruit culture in the County of Kent might be brought forward.

A CIVIC WELCOME

Mr. H. A. Patterson, Mayor of Chatham, then extended a welcome to the Association, on behalf of the Town Council and inhabitants of Chatham, in the following terms:—

GENTLEMEN,—It affords me great pleasure to have the honour of welcoming your Association to Chatham. I have no formal address to offer—no written address,—but will, in a few words, offer you that welcome on behalf of the inhabitants of Chatham. There are few parts of this Dominion in which the fruit-grower has so many things lavished upon him by nature as in this County of Kent, and I much regret that a far more lively interest has not been evinced in this meeting by the fruit-growers of this vicinity, though I am confident that later on in your proceedings you will find a great increase in attendance. I again bid you welcome to Chatham, and am confident that your treatment here will be such that you will go away, feeling that Chatham is at least not the most forsaken place in the world.

The President, on behalf of the Association, thanked the Mayor for the cordial welcome extended, assuring him that the meeting at Chatham had been looked forward to with interest by them, and would doubtless be long remembered. They were well aware that Chatham was the chief town in one of the most important agricultural counties of the Province of Ontario, which was saying a good deal, and that the County of Kent was making its mark in the Province. He felt assured that the attendance, though comparatively small at the time of opening, would be larger during the progress of the meeting, and that the discussions carried on would be marked by ardour and ability. As he had other remarks to make at a subsequent stage of the meeting, he would not now trespass further on the time at command, but proceed with the programme.

THE FRUIT GARDEN FOR HOME USE.

The Secretary read the following paper, contributed by Mr. B. Gott, of Arkona :

GENTLEMEN,—The word "garden" comes to us through the Anglo-Saxon tongue and is derived from the old German *gart*, and signified a piece of ground enclosed for the purpose of growing vegetables, flowers, etc., for the family. The Latins used the word "*hortus*" for the same purpose, hence also we have our significant word "horticulture." I may be allowed to remark, in the first place, that as the word garden purports so our ideas always point to an enclosed or guarded piece of ground in which flowers, vegetables,

fruits, etc., are either with the enclosure and marks or prot to be changed or small, some designed; let the home gard cattle, or unt relies, peacefu there are plant latest purchas there they wal interesting art fulness and ger and foster the

The fence large or small, essential idea. garden fences a serviceable fence are recommend tion to that wi need not necess not necessarily within, but it r of the home ga the character a us is that of an habitation of a f here and hereaft of our beautiful different ages, f means difficult t will require the but little differ The whole shoul fruits of the sea as apples, pears, culture. Neith tion of soil, layi at all or not. (I would suggest tion and the fa squares regular; plants need not i plan of some so may know how some flowers in t with me, but on love to see the f ever-varied and strongly tempted they are such an

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fruits, etc., are properly cared for and grown. We, therefore, have but little sympathy either with the teachings or practices of some in our day, who discard the idea of an enclosure and place their feeble efforts at gardening anywhere in the open field without marks or protection, and are at once liable to the inroads of cattle and depredators, and to be changed from year to year. On the contrary, we say, fence a spot of ground, large or small, somewhere on the farm most convenient and best adapted for the purposes designed; let that spot of ground become sacred to those purposes and forever known as the home garden, and untrod by depredators of any kind and unbrowsed by hungry cattle, or untouched by devouring pig. There the various fruit, floral or vegetable relies, peacefully, securely and tenderly rest and thrive from year to year, and there are planted for future bloom or fruit the newest and choicest importations and the latest purchases obtainable. There the members of the family stroll at eventide and there they walk at early morn to see the late developments. There they practise their interesting art and tickle the fertile earth, and there they learn over new lessons of usefulness and genial profit. From thence they minister to each other wonder and delight, and foster the good of each.

The fence about the plot, whether square, rectangular or oblong in form, or whether large or small, may be both ornamental and useful, but, of course, the useful is the essential idea. It should be straight, strong, light, and as durable as possible. The best garden fences are made of good cedar posts and durable pickets, but many beautiful, serviceable fences are lately being made of posts and wires, ornamentally fashioned, and are recommendable if not made of barbed wires. The idea attached to a fence is protection to that within and freedom from harbourings of all nuisances and all destroyers. It need not necessarily be very expensive, but it must be effective and as durable as possible, not necessarily close and high, like an old English fence, to hide from view all that is within, but it must be strong and it may be as beautiful as possible. The requirements of the home garden differ very greatly in accordance with the position, the intelligence, the character and the number of those composing the home. The best idea of home to us is that of an assemblage of friends and those we love under a common roof. It is the habitation of a family of friends mutually working for each other's good and well-being both here and hereafter. Let us then picture to ourselves such a home amongst the middle classes of our beautiful country, where we have many of them, and consisting of eight persons of different ages, father and mother and six children, half boys, a circumstance not by any means difficult to find, and may fitly be called a model family. The family so constituted will require then a plot of ground liberal in its dimensions, the form and shape of it makes but little difference, but it should be convenient and a rich, well drained loamy soil. The whole should be thoroughly and systematically planted with all the various and best fruits of the season. I shall not attempt in this connection the larger or orchard fruits, as apples, pears, etc., since these cannot properly be brought into the list for home garden culture. Neither shall I take into account here the questions of culture and preparation of soil, laying out the beds their sizes and shapes, or whether there shall be any beds at all or not. Our duty will be rather the consideration of the kinds of fruits to plant. I would suggest that regularity of design or plan be adopted as may best suit the location and the family tastes and needs. The old forms of dividing the plot into exact squares with posts from 6 to 8 feet in width, leading all round and the borders of these squares regularly planted with gooseberry or currant bushes, raspberry or strawberry plants need not necessarily be followed, but I would strongly recommend a system or plan of some sort simple and easily worked, and according to which even the visitor may know how to find the class of fruits he is in search of. I may suggest, too, some flowers in the garden. I do not know here how far you will be disposed to agree with me, but on account of my prevailing whim, I venture to broach it. I do so much love to see the flowers "that ever turn towards the sun," as the Helianthus and the ever-varied and gay-coloured Phloxes, with many other favourites, that I should be strongly tempted to stick them into every vacancy to bloom by the pathway. And then they are such an attraction, you know.

The implements and accessories of the garden should be plentiful and efficient. The ordinary implements for stirring the soil, and keeping it well pulverized and free from

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weeds, must be close at hand for ready and constant use whenever needed. Implements for pruning, training, grafting, shearing, clipping, etc., must also be in good condition and ready for use in proper time and season.

I would further suggest that a cheap but serviceable greenhouse be provided. Perhaps you will think this superfluous, but in the experience of many years it is found to be advantageous and profitable. How many new kinds of fruit plants you receive in an enfeebled condition, or perhaps in the cold of winter, could be nursed and cared for here and brought safely through? Again, how much profitable testing, experimenting and propagating may be quietly done here, even in the slack months? This is all very interesting and very profitable. In this connection cellars and storehouses are absolutely needed and must be provided. These must be ample and commodious, free from excessive dampness and from frost and vermin. Their inside must be well ventilated and pure, and provided with slatted slide boxes and cribs for the hardier fruits, and commodious shelves for the smaller ones during the winter. These must be directed by circumstances.

I should like to say a word or two about fruit preservation. This is one of the most important questions connected with the whole subject of fruit supply. The methods of canning and preserving that must be understood are now so many and so varied that this alone would form an ample theme of itself; but they must be all known and practised in order to have a liberal supply of good and wholesome fruit for the table whenever the supply outside is no longer obtainable. Evaporation by means of artificial process, as is now practised, is one of the best methods for supplying the larger and fleshy in all seasons. For the berries and other delicate fruits, canning and conserving are the methods most resorted to, and eminently good and satisfactory. After those necessary digressions that will meet your approval, I shall come at once to speak as briefly as possible of the fruits themselves in order.

The strawberry, in its earliness, its simplicity of treatment and ready growth, and in its fine and delicate internal and external qualities, must be the first on the list of desirable fruits for family use. In obtaining plants of this fruit the question of length of season should be in view.

We advise to secure good healthy plants, as near at home as possible, and plant them in the spring of the year, in rows 2 feet apart and 12 inches in the rows, on good dry previously prepared soil. I cannot now detain you by descriptions of the varieties mentioned, but shall simply state the names of those I think the most deserving of notice and in the order of their qualities and season of ripening. For early, Canada, Bidwell, Crescent, Ontario, Manchester, Daniel Boone, Wilson and Mr. Henderson's new one "King of the North." For medium, the Crimson Cluster, Henderson, both new ones. For late, Prince of Berries, Maggie and Jewel. The last mentioned is Mr. Augur's new strawberry from Connecticut, and is by many strides the most valuable and promising berry I have yet seen. The whole of those named need not necessarily be planted at once, unless the demand is for novelties and variety, but enough of them may for good family supply.

The raspberry is properly the succeeding family fruit of the season, and cannot now be dispensed with. It is very popular, easily grown on almost any soils, and possesses so many really good qualities of merit, that it asks or need no recommendations from me. The varieties, like those of the strawberry, are fortunately very various and very many to choose from. For early reds, the Hansell, Marlboro', Herstine, Turner, Red Antwerp and Franconia. For late, Clarke and Cuthbert, the last having more good qualities in it than any other one berry amongst us. For early, black, Tyler, Souhegan, Seneca. For late, Mammoth Cluster, Gregg and Shaffer. For beautiful yellow or white nothing can be finer than Caroline and Brinckle's Orange. The last mentioned is the highest and best flavoured of all, and although a little tender in the cane, yet by selecting favourable spots to grow it, or by laying it down in the winter, it may be made eminently successful.

The blackberry, for family use, is not so greatly favoured as the fore-mentioned, and chiefly for the reason that the canes cannot be made so snug, neat and inoffensive as they, but the fruit is most delightful and highly relished. Though we acknowledge, to some extent, the justness of this complaint, yet we insist that there need not be so much com-

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The varieties these is a very imp as the best early g popular and is a ve also as Roger No. 4 we say Brighton is are good and shou indeed. For white Lady, and the next and we know that we should think tha

plaining if proper methods of pruning and training are adopted. It is well known that the Americans grow acres upon acres of them, and without unusual trouble. The new Canadian blackberry, called Gainor, is said to have many good qualities, and we know the Snyder to be almost all that could be desired. But no blackberry has appeared with such large, fine and delicious flavoured fruits as the famed Kittatinny, which you may plant.

Gooseberries are becoming more and more a popular fruit, in great demand, and no family fruit garden could, for a moment, be considered well stocked without a liberal supply of these in their best sorts. The new American gooseberry, Industry, offered by Mr. Barry, is known to be very good, hardy and productive. Good things are also said of Prof. Saunders' Pearl. We have had a large experience with Houghton, Smith's Improved and Downing, all very good. The English sorts Crown Bob and White Smith, may be grown, with care, and are then very large and fine. All these sorts may be improved by sulphuring as a precaution against mildew, etc.

Currants must also form a part of every collection of family fruits. They are good growers, sure bearers and always reward the care and attention given to them. The famed Fay's Prolific is good, but is nothing better or different, as we can see, from the older and tried sort called Cherry. Both will yield results as nearly identical as possible. Raby Castle and Old Red Dutch are very prolific and good. For black, Lee's Prolific and Black Naples can be relied upon. For white, the White Grape and the White Dutch are both delightful and will fill the bill.

I scarcely know whether I shall have space or whether you will forbear with me should I include in this list the popular and delicious fruits known amongst us as cherries, plums and peaches. They are all very attractive, and in their place and season, there is nothing that can supplant them. All families like them, and when the fruit can be had in proper quality and quantity they are very profitable. But there's the "rub," for during the last few years past these fine fruits have been conspicuous by their absence, and in many localities they were not very encouraging. Nevertheless, it may be well for a family to attempt a few of them in their most desirable varieties.

Hardy grapes are, perhaps, the most popular fruits produced amongst us, and can be grown so easily in greater variety and greater excellence in all the colours of red, white and black than any other. It is our firm belief that any family owning but a small piece of ground can make grapes the best fruits to plant, and can grow more of them than any other. Even outside locations all along by the fences, and even the walls of the buildings, may be made very serviceable for grapes, and the general appearance of the whole improved by them. We would advise then, every family, by all means to plant some grapes. Plant a sufficiency for the liberal use of the family and enough to last till grapes come again. For a family as presupposed, a vineyard of say 50 plants, well cared for, will give them a return that will be at once grateful and gratifying. Plant two-year-old plants in well prepared ground eight feet by twelve feet, thoroughly cultivate the ground and keep it clean. In two years the vines will begin to show a supply of tempting and delicious fruit. If in the open air ground, they should then be trellised by planting eight feet posts in the rows between the plants, and firmly fixing three wires to them, and have the canes fastened to these. We have known vines trellised thus to produce 20 lbs. each the third year. Last year our own 200 vines produced an average over the whole of 22½ lbs., and realized for us a good sum.

The varieties of grapes are now very great and very different, and the choice of these is a very important matter. For black, we give the preference to Moore's Early as the best early grape on the list, and Worden's seedling next. Concord is the most popular and is a very good and profitable grape. Wilder is very large and very good, known also as Roger No. 4; it is, indeed, the largest grape in cultivation amongst us. For red, we say Brighton is at the head of the list; it is also very profitable. Lindley and Delaware are good and should not be omitted. We fruited Jefferson last year, and it is very fine indeed. For white, the claimants are being multiplied, but the best in our culture is Lady, and the next Jessica. Niagara has a good deal said about it and it may be good, and we know that Golden Pocklington is so. From four readings of the recommendation, we should think that the new grape "Empire State" is something immense, that's all we

know about it. Any family who takes these fine fruits and succeeds with them to anything near their capabilities, will be so far pleased with the results that they will not regret any amount of labour or pains spent upon them.

Of nectarines and quinces, I do not know how to recommend them. The nectarine is, indeed, a very desirable fruit, but it is in vain to try to grow it in exposed places or where you cannot succeed with plums. Quinces are not grown as much as they should be, and for the reason that their use is not understood. It is a question just where they come in, in family economy. The best quince is the Orange that can be nicely grown in favourable places.

Of mulberries, dewberries, huckleberries and cranberries, it is scarcely necessary for me to speak, as almost all families are already pretty well acquainted with them. It is well known that in the case of cranberries that they cannot be produced only in special favourable locations. Huckleberries are in varieties, and can be made serviceable and good. Dewberries have not been very successful, but the late new one called Lucretia is very fine and good. Mulberries are also in variety. Downing's everbearing is one of the oldest and best. The newer one called Russian has a good deal said about it, but though smaller than the other, is in nothing better as we can see. It would be well to plant some of these fruits by way of experimenting, for it is quite possible to learn much by mere experimenting. Some locations are better suited to their needs than others, and so in what I might fail might be another man's abundant success. In this way we each of us add something to the general fund of knowledge, one of the prime objects of life, you know.

You will say of figs and oranges, that this sounds too much south to be relishable in our snows, but we have tried them, and, in a small measure, have succeeded; but we must acknowledge that the luxury is hardly worth the expense. The best way to do with these is to have them in large tubs and remove them to frost-proof underground cellars in winter.

Hardy nuts may be made profitable in properly planted orchards, but it is only in some sorts that they can be used for family gardening. It is a great pity that some of our fruit and best nuts are forbidden fruit to us by our climate. I believe that the filbert nut may be grown in sheltered and favourable locations, but not to such perfection of size and quality as in England. I would recommend its being tried. The same remarks will apply to the Spanish chestnut, a rich and desirable product when it can be procured. I believe, too, that under very favourable locations and conditions the American hard-shell almond might be profitably produced, and so also with the Japan persimmon. Why not experiment in these fine nuts? But what I hang my fancy over the most is the American peanut. I do most decidedly think that this serviceable nut may be grown, if properly considered. And now I think I have exhausted my list and my task is done, how well, you will judge. Not half has been said that might profitably have been said, but I have aimed at being but merely suggestive, confident in your mature wisdom to fill up anything lacking on my part. Let us hope that our efforts at producing good fruits may be steadily progressing as is our country.

F. W. WILSON.—It gives me great pleasure to have the privilege of being present at this meeting, as I have always taken a very lively interest in the proceedings of the Association; and felt great satisfaction on learning that the present meeting was to be held in the town to which I belong. Speaking of fruits best adapted to this county, I may say that my experience leads me to the conclusion that, for the basket, the Marlborough for an early red raspberry, and the Cuthbert for late, are the best, while one not mentioned at all—the Ohio—is the best black. It is hardy, productive, of good colour, and well adapted to our climate; the bushes are well shaped and stand up well, and I think it is in every way the best black raspberry of all. The Souhegan and Gregg are also good. The Ohio is also a good evaporating raspberry, which is likely to be of great advantage in disposing of surplus stock. Of gooseberries, I think the Downing is a long way ahead of any of our well tried varieties. I believe that the Industry, which I

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have been growing, is going to be one of our best. It is a very fine red fruit, and almost mildew proof. In grapes the Champion is the most profitable, but it is almost unfit to eat; therefore, for home use, and markets we wish to hold, I would prefer Moore's Early, the Worden and the Concord as the best black grapes, and the Lady and the Niagara as the best white.

The PRESIDENT.—Have you any vineyards in Kent?

Mr. WILSON.—Very few. In the southern corner of the county, among the islands, they grow very large quantities, some in this county, and some in the adjoining county of Essex. I was never there to see myself, but I believe on the islands there are many hundreds of acres. Plums are almost a failure here; I think the Early Canada is the best, because the hardiest. For cherries I believe in the Early Richmond, which is much the best variety of English cherry, on account of its extreme hardiness and productiveness.

MACKENZIE ROSS.—I believe I am one of the oldest members of the Association in the County of Kent, and may fairly claim the honour of being the father of the Horticultural Society in 1877. We are very much indebted to Mr. Smith for sending us two things, the Niagara, and another white grape giving promise of great things, the little Jessica—which is going to take the lead of any other grape. I do not do much in small fruit, but there is a berry—the Shaffer—of which I had a large quantity last year, and realized fifteen cents clear, while others were going for five cents.

A. R. EVERETT.—The Hansell and Cuthbert are the best red raspberries I have tried. The Mammoth Cluster was prominent for a long while, but it does not stand out now like the Gregg, which is as good as the Ohio. In grapes I have the Delaware. In strawberries I have had success with the Sharpless and Crescent. I have grown the Wilson and the Crescent together, and the Crescent has yielded me almost one third more—a hundred bushels to the half acre—last year, and the land was not in the best condition either. With cherries I have not had much success; of gooseberries I never tried many, but the American varieties seem to be the best. I think the old Duchess is the best white grape I have. I have tried black currants—Lee's Prolific—and they did first rate.

A MEMBER.—Did you find the Gregg perfectly hardy here?

Mr. EVERETT.—It has been with me.

F. W. WILSON.—I have great respect for the opinion of Mr. Everett, who I know to be a highly practical gardener, but I must adhere to what I have said about the Ohio, which, with me, has done very well. When speaking before I omitted to make any mention of strawberries, a fruit for which the soil of this county is particularly well adapted. I have been growing about eighteen kinds, covering an area of about a quarter of an acre, and I gathered from them last year a crop amounting to 192 bushels per acre.

The PRESIDENT.—Do you give the preference to any particular varieties?

Mr. WILSON.—For bearing I think the Crescent is the best, with the Wilson and Bidwell next, and then, probably, the Manchester. The James Vick I find inclines too much to vines, and does not grow much fruit. It fertilizes well.

Mr. SMITH.—Did you ever attempt to grow it away from other varieties?

Mr. WILSON.—No. In fertilizing it is necessary to select varieties which bloom within three days of each other; the Manchester and the James Vick, and the Wilson and the Crescent grow best together. The Sharpless I find almost a failure; it grows the best berry, but scarcely any of them. Peaches do not succeed very well here. The Spanish chestnut, I think, would be a profitable fruit to grow in this section, and the dwarf English walnut, which comes into bearing at about three years of age, and with fruit fully as large as the ordinary English walnut, is a lowheaded tree, and said to be giving great satisfaction in other parts of the country where similar conditions to those prevalent in this county are found.

Mr. BARKWELL.—The Concord is the best grape, but the Lady is good and takes my fancy. The cherry currant succeeds well, and is a fine grower. In black currants I grow chiefly the Black Naples variety. I think, for strawberries, nothing can beat the Wilson and Sharpless. In raspberries the Mammoth Cluster appears to do well enough with me. In cherries I have the English May Duke, but it does not seem to do very well; the blight affects it; I would like to know what we can do for that.

Mr. WILSON.—My experience is that the only early cherry that will give any satisfaction is the Early Richmond.

Mr. BARKWELL.—In regard to grapes, the Concord is the grape grown by all large growers, but I believe for profit, after that, the Champion.

The PRESIDENT.—Do you recommend the Champion for home consumption?

Mr. WILSON.—No, the Champion is good for somebody else to eat, but I don't want the job; but it is a good grape to make money out of, if you can get somebody else to suck it.

Mr. MACKENZIE ROSS.—I find that the Champion gives more money, because it goes into the market here two or three weeks earlier than any other variety, selling for fifteen or twenty cents a pound, and I think most of you will go in for what yields the most money. It is not a very luscious fruit, but for a person so constituted that he wants some acid early in the season the Champion is all right.

The SECRETARY.—You will observe that the subject of grapes comes up for discussion further on in the programme, under the head of "Grapes for the market." We are at present discussing fruit for home use—everyone wants to know what to plant in order to secure a supply for their families. Keeping that in view, I would suggest the following list, which will give a family a variety of the different colours of grapes for home use. For black grapes I would suggest Moore's Early, the Worden and the Concord; I would leave out the Champion altogether, because Moore's Early is just as early, and a grape of good quality; while the Worden just comes between the two, and the Concord can be kept for a long time. For white grapes I would recommend the Niagara and the Empire State. I had the privilege, with Mr. Smith, of testing the Empire State at Rochester, and its quality is excellent, which, for home use, is a most important consideration. I would also add the Pocklington, though I do not think it succeeds very well everywhere, not being as hardy as the Niagara, but at Grimsby we have had good success with it, and some very fine shipments have been made. Among the reds I would suggest the Lindley and the Brighton. There is one criticism I want to make on this paper in regard to the home garden, and that is the idea of fencing in a little square with a high fence, for a home garden. That was the kind of garden I had to begin with—the kind my grandfather had, and which was the prevailing kind in days gone by, when they had more time to work with the spade and hoe, and pull weeds by hand, than we have now. In a garden of this description, into which you cannot get a horse, and in which the fence is in your way, you must do everything with a spade and hoe, and my memories of the past are that it was pretty hard work. I have now torn away all this fence around the garden, so that I can get a horse and a little plough in, and I plant everything in the garden for home purposes in nice long rows, side by side, so that I can cultivate nearly everything with a horse, and do as little digging as possible. Besides this, where you have a fence all around the edge of your garden it is sure to be a mass of weeds, unless you have more time than I have; and it also harbors insects.

MACKENZIE ROSS.—I propose, Mr. Secretary, that you add to your list of grapes the Jessica, which is one of the most delicious I know of. And then there is the Lady, which cannot be beaten.

A MEMBER.—I think the Triomphe de Gande is the sweetest berry we have, and the Crescent and Wilson next. In currants I think the White Grape and Cherry are both good home fruits, but not very profitable. I have not tried Fay's Prolific. In blackberries I think there is nothing better than the Kittatiny. The dewberry is a nice fruit for the home garden, and should be more looked after than it is; I tried one and found big berries on it. They stand the winter well, and if cultivated would, I think, yield a large crop. As for the garden itself, I would have a long fence, but fenced in.

The SECRETARY.—You would have it so that a horse could be got in?

A MEMBER.—Yes; you could work it easier and better, and with more satisfaction. I believe in long rows.

Mr. DEMPSEY.—I will give you my opinion of what the home garden should be, and how and where to select it. I would select, if possible, a site that was long, as has been already suggested, and which might be cultivated with a horse; and I would have it, if at all practicable, thoroughly protected from the wind. The question arises how this

should be done. and grapes, running might shine on between these rows any other way, and kept up in this way come from long distance the piece of land a man to do that. trees on the trellis for them, and they heard a man advocate that I felt like stic power to stamp out. But it is not profit them next year, at one time there was Belleville the Champion would carry home between them and

The PRESIDENT

Mr. DEMPSEY.— nothing for an early grapes, but I would ground and make the labour's ground is safe

MACKENZIE ROSS could be protected a better than that, and maple are the worst their roots are very shelter; I am fence impression that we

Mr. WILSON.— north. I also found fertilizer around as

W. E. WELLIN but I think we have more in regard to the more definite enough may be recommended as here, will not do it to define distinctly. I make this remark subscribers to the "ing," "You are not e while some recommend report; but we do effect of the soil or here—as far as I understand, Gregg and Car quite agree with Mr I think for home a market berry it is but for home use it or acid flavour, which

should be done. I would plant firm trellises for all my little apple trees and pear trees and grapes, running the whole length of the garden, north and south, so that the sun might shine on both sides of them at different times of the day, and then cultivate between these rows. You can grow any variety of fruit on trellises just the same as in any other way, and grow them in any form you like. I assure you a garden planted and kept up in this way is one of the most ornamental spots you could visit, and people will come from long distances to see it. All you will need to do yourself will be to cultivate the piece of land between the trellises with a horse, and it takes very little time for a man to do that. You will find the ladies will get into the notion of looking after these trees on the trellises, and do all the pinching and tying necessary. It is good and healthy for them, and they take a great pride in training these plants. As to varieties, I think I heard a man advocating the Champion as a grape to be grown for profit. When I heard that I felt like sticking up the danger flag. I think we should do everything in our power to stamp out any fruit that is unfit to eat, as was said of this grape. (Applause.) But it is not profitable after all, because parties who buy them this year will not buy them next year, at least that is my experience. I have only fifty vines, and I thought at one time there was going to be some money in the fruit, but I find in our little town of Belleville the Champion will not sell for anything, I hardly think people who knew them would carry home a basket if they were given to them. There is only five or six days between them and the Worden, and we can surely wait that long.

The PRESIDENT.—What about Moore's Early?

Mr. DEMSEY.—It does not produce enough fruit, it is very shy bearing. There is nothing for an early grape to equal the Worden. There are a great many varieties of grapes, but I would advise any person who wants to plant them to go to their neighbour's ground and make their selection while they are ripening. What will ripen in your neighbour's ground is safe enough for you.

MACKENZIE ROSS.—Talking about tearing down fences; of course a man's property could be protected without fences, but we have fences here. I consider there is something better than that, and that is trees. Some trees we have are not fit for the purpose; soft maple are the worst trees that can be planted, because they run all over the ground, and their roots are very injurious to other trees. Scotch pine makes a beautiful shade and shelter; I am fenced from the west, north-west and north by them, and am under the impression that we are very considerably warmer on account of it.

Mr. WILSON.—I quite agree with Mr. Ross as to the necessity of shelter from the north. I also found that where we had maples we had to put about three times as much fertilizer around as anywhere else.

W. E. WELLINGTON.—I have been listening to the remarks so far made with interest, but I think we have been a little mixed; that is to say, some of us have spoken more in regard to the market than for home purposes. And then, again, we have not been definite enough as to localities, which is a very important element, because what may be recommended for this county or counties where they have about the same climate as here, will not do for places further east. I think it will be necessary for every speaker to define distinctly the locality he resides in, and give us a general idea of the climate. I make this remark because I have been frequently met with the complaint made by subscribers to the *Horticulturist* who take the report and are interested in fruit growing, "You are not explicit enough as to the climate that certain varieties are adapted to; while some recommend them as being very successful, others will give a very contrary report; but we do not know from reading the report what is the cause, whether it is the effect of the soil or climate." Now, for a home garden in such a climate as you have here—as far as I understand it—I should recommend in raspberries the Herstine, Cuthbert, Gregg and Caroline, and last, but not least, Shaffer's Colossal; in regard to which I quite agree with Mr. Ross, who, I believe, is the only gentleman who has mentioned it. I think for home use it is one of the finest varieties that has ever been introduced. As a market berry it will never become popular, its colour being against it with the masses, but for home use it is unsurpassed. It is very large in size, and has a peculiarly sprightly or acid flavour, which makes it invaluable for canning. This season, after trying all the

varieties raised,—because in our own home we use a great deal of canned fruit—I have come to the conclusion that Shaffer's Colossal surpasses every other variety. The Caroline has not been mentioned. It is a yellow variety, of good quality. This is the first year we have fruited it extensively, though we have had it out for several years in limited quantities. For a shipper I do not recommend it, but for home use it is of good quality and is rendered very attractive for the table by its beautiful appearance. I am sorry to say that I am unable to agree with Mr. Wilson as to the Ohio. I am not speaking merely of my own personal experience, but I find from my own experience and that of others, that, as a general rule, it is a small berry, and in no way to be compared with the Gregg, which I consider is ahead of all the black-caps that have ever been introduced, except it may be the Hillborn, which we have not yet tested to any great extent. From what I have heard of the Hillborn, I am inclined to think it may possibly supersede the Gregg on account of hardiness. Samples of it which I have seen were equal in quality to the Gregg, and surpassed it in appearance on account of its bloom and glossiness. I am also told it is hardier. The Gregg is a little on the tender side, but I think in this section, or sections west of Hamilton, that may be classed in the Niagara District, it may be termed perfectly hardy. It succeeds further east,—in Montreal,—but there the snow fall protects it. It also succeeds in the vicinity of Toronto, unless when we have unusually severe winters. In grapes for home culture and the table, I would not want either the Pocklington or Niagara, neither of which are in my opinion a high quality of grape. I would put in my garden Moore's Early, the Jessica, the Empire State, the Brighton, and a grape that has not been mentioned, Rogers No. 4, which I consider the best of the Rogers' varieties, being both productive and of good size. I would recommend it both as a home and market berry. Then there is another variety that I would strongly recommend, but only in sections where the Concord will ripen; the Vergennes, which is a grape of good quality and excellent appearance, and valuable for the home garden. Now, we come to gooseberries. I think most of the speakers this morning have looked at gooseberries from a market point of view solely. Certainly the Downing and Smith's Improved are old and reliable varieties, but we have another, the Industry, far surpassing them, and, so far as it has been tested, well adapted to this country, having been tested widely in the United States. At a large horticultural meeting which I attended last June in Washington, it was spoken of as the leading gooseberry, and I am strongly in favour of it, both for home and market uses. Its productiveness is enormous, its quality good, and its size and appearance will always make it valuable. In currants, the Cherry and White Grape have been the leading varieties, but I believe Fay's Prolific is superior, not only for its productiveness, but for its size and appearance. In quality it is much like Cherry. White Grape is superior to either of them in quality. The best red currant for quality is Moore's Ruby, a cross of Cherry and White Grape, originated by Jacob Moore, the originator of the Brighton Grape. This is superior in quality, but not quite so large as the Cherry, though more productive than either Fay's or Cherry, as far as our testing of the last three years has demonstrated. In strawberries for the garden, I value the Manchester very highly. Crescent, I am not fond of, except for the market. I don't consider it of high quality, and, for the garden, I would prefer berries of a superior quality. I consider Manchester, as I have said, at the head of the list, but in addition would plant the Bidwell and the Sharpless, and also the Wilson, than which, when fully ripened there are few better berries.

Mr. BEALL (of Lindsay).—You spoke of the Caroline raspberry; how does that compare with Brinckle's?

Mr. WELLINGTON.—I do not think it is fully up to Brinckle's Orange in quality, but that is a different question in most sections. I intended to have spoken of the new Golden Queen. We have not tested it sufficiently yet to speak positively, but from reports I think it is a berry destined to be largely sought after. It is said to be a seedling of the Cuthbert,—at least it was found in a plantation of Cuthbert and has the same appearance,—and, what is very desirable, it has good shipping qualities. I would not recommend anyone to plant largely of it until further tested for a year or two, but at the same time I am satisfied they would be safe in trying it in small quantities. From what I have learned of it I believe it is going to be a very desirable variety, and in its colour

will be quite the equal of the Caroline berry for general use.

Mr. WILSON.—I am sorry to do with their best black raspberry, is not it been observing for keep, and if you can

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President LYON, at the meeting, and discussed the territory this morning, and the geographical or political difference in

anned fruit—I have variety. The Caroline is the first year in limited quantity. It is of good quality. I am sorry to say I am not speaking from experience and that of course compared with the others been introduced, to a great extent. From possibly supersede the others equal in quality and glossiness. I but I think in this regard District, it may be—but there the snow less when we have it. I would not want on a high quality of Empire State, the which I consider the I would recommend at I would strongly Vergennes, which is for the home garden. Morning have looked owning and Smith's variety, far surpassing having been tested which I attended last year. I am strongly in enormous, its quality warrants, the Cherry Prolific is superior, quality it is much like best red currant for ed by Jacob Moore. It not quite so large as far as our testing garden, I value the he market. I don't f a superior quality addition would plant when fully ripened

will be quite the equal of the celebrated Cuthbert, which I regard as the best red raspberry for general use that has ever been introduced.

Mr. WILSON.—Different people have different experiences, and that has a good deal to do with their opinions. I have not at all withdrawn my idea that the Ohio is the best black raspberry. The Mammoth Cluster is dwindling out, and the Gregg, though a good berry, is not nearly as good in colour as the Ohio. As for the Caroline, which I have been observing for several years, although it is hardy and a heavy cropper, it will not keep, and if you cannot take the berries just when they are ripe, they are gone.

Mr. WELLINGTON.—They are not shippers. I spoke of them only for home use.

Dr. McCULLY.—The berry that did best with us last winter was an old-fashioned one, not much spoken of now—the Mammoth Cluster. It was a dry season, and its flavour was superior, though it was not so large as some other berries. A gentleman who lives near me had the Gregg and other improved berries, and it was freely admitted that the dry weather affected mine less than the others. We were thinking that we would have had to take a back seat with our old Mammoth Cluster, but we did not have to do it, for, taken all in all, it held its own with any other berries we had on the lake shore. In regard to strawberries, I was glad to hear another old kind spoken of, the Wilson, for I believe it is the best market berry we have in this section of the country. The Triomphe de Gand I have not heard mentioned this morning, but it certainly has not lost its name with us yet, and I understand from gentlemen who grow it in our section that they get a cent a quart more for it in this market than any other variety, and sometimes sell all they have before there is a market for the others at all, which is a very great triumph, indeed, I think.

The PRESIDENT.—Leaving aside the market, what do you consider the best for home use?

Dr. McCULLY.—I like the flavour of the Triomphe better than that of any other berry I have ever had, though, of course, it is not an early berry. There are some new varieties—the Sharpless, for instance—which are very nice, but I doubt if they are equal to the Triomphe, though growing larger; I don't think the taste is superior to the Triomphe, though the berries are very fine. I have not had much to do with berries except for my own use, and the old Mammoth Cluster did so well last year that I have thought perhaps I could not get anything better.

The PRESIDENT.—Do you grow currants?

Dr. McCULLY.—No; we grow a great many other things, and currants require so much care that we have given them up. We grow a great many cherries, which take the lead of almost everything. We grow just the common Kentish cherry; they are very fine. I have one kind that comes in later than the rest, which I have not been able to find anywhere else; I do not know its name, but it is a very red cherry, growing in clusters, sour in taste, but pleasant in flavor. It is a good bearer, bearing every year; and if I knew its name I should be inclined to have a good many more.

The PRESIDENT.—Do you grow any grapes?

Dr. McCULLY.—I do not, but my neighbours grow the Concord largely. Of course there are other grapes grown, but it seems to take the lead. We have not fruited the Pocklington or Niagara yet. They are high in price, and we thought we were doing more for the nurseries than ourselves in buying them, and did not go in for them.

A. M. SMITH.—There is a raspberry which has not been mentioned, I think, which is valuable not only for home use, but for the market, on account of its earliness and good qualities. I refer to the Souhegan, which comes in ten days before you get the Gregg and some other varieties. In regard to the Caroline raspberry, I must beg leave to differ a little from Mr. Wellington. It certainly is a hardy, productive and fine-looking berry, but, as far as my judgment goes, most insipid in taste; the most insipid in the whole collection.

President LYON, of the Michigan State Horticultural Society, was invited to address the meeting, and did so in the following terms: I am a little out of my own territory this morning, but I have discovered that a little difference in the geographical or political situation of my state and this province does not make much difference in the people. Although we are supposed to be talking exclusively

how does that compare in quality, but spoken of the new positively, but from is said to be a seed rt and has the same ities. I would no r or two, but at th itities. From wha ; and in its colour

about fruit for the family, we find it almost impossible to forget altogether the "almighty dollar," which is, of course, a very important consideration, and cannot be kept entirely out of sight, even in the discussion of what to grow for home use. I observe this particularly in strawberries, which is naturally the first fruit we talk about, being generally the first we eat. Some years ago, not very far from here, I received four varieties from Mr. Arnold. I have not heard it mentioned here to-day, and yet with me, after seven or eight years' experience, one of these, the Alpha, is preferable for an early strawberry. It is of good quality and fair size, and ripens early. There are two or three others a little earlier, but they are unproductive, and, even for family use, we must have something fairly productive. I hear a number of varieties of other fruit spoken of, and am rather surprised at hearing some of them recommended for the home garden, particularly the Gregg raspberry, which, to my apprehension, is one of the poorest berries of its class grown, as far as quality is concerned. It is productive, and you get money for it in the market because it is large. If you were to hand out half a dozen apples to a child he would pick the biggest one, even though it was good for nothing, and it is the same way in the market; and we have to remember that fact when talking about berries and other fruit for our own use. We would hardly think, in our state, of growing the Gregg for home use. It is a late berry, coming along a little later even than the Mammoth Cluster, which is far better in quality. The Souhegan and the Tyler seem to be so nearly identical as to be practically the same. I would add one or the other of them for family use, though they are not, perhaps, so profitable. I think a good deal of the Caroline and Brinckle's Orange for home use. It is perhaps true, as has already been said, that Brinckle's Orange is nearly out of the question by reason of its unproductiveness and want of hardiness, but as to the Shaffer—we always drop off the extra handle and call Shaffer's Colossal the Shaffer—it is one of the most vigorous and productive we have, and of good size. I call it a good market berry. The market will require a little talking up before people will accept it, but when once it is known in the market it commands a good price, and is probably as profitable as anything we have. I certainly consider it very desirable for the home, because it is productive, large, and of good quality. There has been a fruit mentioned here, which, it seems to me, will bear more consideration than it has received, though it is comparatively new—the dewberry. There are a number of varieties which are comparatively unproductive and undesirable, but within the last six or eight years we have taken up the Lucretia, which for the past five or six years has borne very fine crops. It possesses the merit of coming in at a time when there are no blackberries in the market, and on that account seems to me to be very desirable. It is a difficult berry to handle, but for our own use we find it good. I have not heard many cherries mentioned. The Montmorency is somewhat superior in size, and fully equal, it seems to me, to the Early Richmond and the Kentish, and I know no reason why it should not in part take their place. It ripens a little later than the Early Richmond, but is very similar in most respects. In regard to grapes, I will venture to ask the question, why the Lady was not introduced into the family list? It is comparatively unproductive, but it seems to me to do better as it gets older; and being a child of the Concord, possesses the hardiness, though not the vigour of that variety; and when you come to the particular taste required for the family, the fruit, it seems to me, is head and shoulders above everything else. It is earlier than Moore's Early with us, or any other satisfactory variety that has been well tested, and I think should occupy a very prominent place in the list for the home garden, where you do not want so much quantity as a suitable quality. We are yearly thinking more and more of the Brighton in our state; it is being shown extensively at our fairs, and is very highly esteemed, as well for its quality as its productiveness. I know it has been claimed that it is a little liable to mildew, but I do not think the difficulty in that respect is a serious one, and it seems to me worthy of a prominent position. The Worden, within the last two or three years, has taken a more prominent place with us than formerly, on account of its being earlier than the Concord, and at the same time equally hardy and productive. I think it stands quite well with us. I do not like to speak of quality when discussing the Concord, for I don't think it is quite so high as some of the gentlemen have placed it. I think more of quality than I do of quantity when you come to the home garden. I was a little surprised when I heard the Empire State men-

tioned; I would not have been with me, but I have not tried it for some time.

Mr. WELLS
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A. M. S.
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A paper on

Whilst the list, in the cold those fruits which of the horticulturists as far as twenty fruits, including those with contentment. When states above refer to generous soil, then when the berries are delicious and forgotten. The gap at that June, July, August, berry, the goose what is called the gardener, every who has a brick how much facilitate the various methods of fruits; but not shipped at all purity of aroma, hand. I think we are talking not successful contrary to my vote for free an inch of inhabitation his mansion on six months' fresh fruit can be made to some well-trying. Second, raspberries and if you want Fay's Prolific. the berries, with

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tioned; I would like to know if it has been really tested in this province at all. It has not been with us, so far as I have learned. We have heard a great deal of it, but have not tried it far enough to recommend it for any purpose.

Mr. WELLINGTON.—We have fruited it for two years.

President LYON.—It takes a number of years fruiting to settle the qualities of any new variety. I notice in gooseberries that the Industry is coming into favour. There is one thing, however, which I notice in almost every foreign variety—They succeed for a few years with reasonable treatment in good soil, while, unless they have special care, they soon after fall under the influence of mildew. It is only by special treatment from persons who know how to handle them we can permanently succeed.

A. M. SMITH.—I will supplement the remarks of the last speaker in regard to the Industry, by saying that a year ago last spring I raised some plants, and a couple of them which were planted in a corner were almost forgotten, and consequently neglected. When I came to investigate these plants last summer I found a few berries on them, and they were badly mildewed.

ON SMALL FRUITS.

A paper on this subject by P. E. Bucke, of Ottawa, was then read, as follows:

Whilst the warmer portions of our climate is devoted to the growth of a general fruit list, in the colder portions of the Dominion an intensified attention should be given to those fruits which can only be raised with a fair amount of success. The principal hope of the horticulturist in the clear and bracing air of the lovely valley of the noble Ottawa, as far as twenty years of practical experience has taught me, is still centered in the small fruits, including grapes. It seems strange to me that so many look upon this berry business with contempt, whilst others treat it with indifference, and the rest of mankind with neglect. Where people can and do cultivate the larger fruits successfully, the three rural states above referred to may be pardoned, but where no others can be extracted from the generous soil, the free air and the azure sky, owing to climatic influences, it seems a shame when the breast of mother earth gives us the opportunity of sucking the sweets of these delicious and promptly responding fruits, that they should be so slighted, neglected, or forgotten. There are no fruits which give so long a period of freshness, or which supply the gap at that season when this article of diet is so much required by the human system. June, July, August, September and October are the seasons of the strawberry, the raspberry, the gooseberry, the currant and the grape, and it is during these months we have what is called the "heated term," when fresh fruit is so acceptable. Every farmer, every gardener, every man who has a city lot, every man who has a thousand acres, every man who has a brick-yard or a saw-mill, should also have his small fruit patch. We all know how much facilities have increased for shipments, how much they have been improved by the various means of handling, by the diversity of packages suitable for the various classes of fruits; but no one will for a moment contend, that knows the difference, that fruits shipped at all are to be compared for a single instant, either for brightness of colour or purity of aroma, to those which are gathered and placed on the table by the same delicate hand. I think I hear some of the shippers in the audience say, "My dear Bucke, you are talking nonsense;" but I know, and I say in these election times, without fear of successful contradiction, that by far the largest majority will say I am right when I give my vote for fresh-picked fruit for immediate table use. And I further say, there is not an inch of inhabited territory in Canada to-day, except some original character has placed his mansion on some high and lofty boulder, that cannot be made to produce four or five months' fresh fruit for the season when it is most required, and with proper canning it can be made to last the family throughout the year. What then shall we plant? First, some well-tried varieties of strawberries, such as Wilson's, Manchester, or Crescent. Second, raspberries—Franconia for early, Cuthbert for a good cropper and later berry; and if you want more raspberries, plant more Cuthberts. Shall we plant currants? Yes; Fay's Prolific. This variety gives longer bunches, which makes it more easily picked, and the berries, with high cultivation, are very fine. Shall we plant white currants? Yes;

a few bushes of White Grape, just to eat fresh. They look like pearls amongst the cream and sugar setting; when thoroughly ripe are juicy and sweet, but the colour does not suit the tidy housewife for canning or jelly, so we will only have a few bushes for fresh fruit. Shall we have black currants? Yes; we will have Lee's. Not that it is so prolific that it has been cracked up to be, but it is sweeter and has a nicer flavour than the old Naples. There is nothing better for a first class roly-poly pudding. What shall we have next? We will have some gooseberries. What sorts? Well, Smith's and Downing—the latter to plant in the shade of trees or fence, as they do not endure the sun so well, and further, when they are to be had, the Conn and Ottawa. Well, Professor, what next? Why, some grapes, of course. What are the most successful cultivated at Ottawa? In favoured localities almost any variety may be grown with a fair amount of success, but for general culture we will recommend a few Champions; they are not by any means a first-class berry, but they are sure to ripen, and make an excellent wine. Do you recommend the use of wine? Yes, "home made;" but not sherry or any imported, doctored stuff. Then we will plant Moore's Early, Rogers' 9, 14 and 15, also some Brightons. What about the Niagara and Pocklington? Both good grapes, but too late for the north.

How sweet are the cornfields that spring from the earth,
 Much sweeter the flowers that grow from hid roots;
 Of all the rich blessing that follow us north,
 The best is the fairy-like, healthy small fruits.

The meeting then adjourned at 12.30 until 2 p. m.

On resuming in the afternoon a Committee on fruits was appointed, consisting of Messrs A. M. Smith, F. W. Wilson, and W. E. Wellington.

QUESTION DRAWER.

The Question Drawer was then opened, and the following questions read and answers given.

KNOTTINESS IN PEARS.

QUESTION.—Is there any well ascertained cause or remedy for knottiness in the fruit of the pear?

Mr. DEMPSEY.—I can only answer that question by saying I do not know. There are varieties which are all knot. We imported several varieties some years ago, which were said to be very fine in Europe, and there is nothing but knots in them now, and they are unfit to eat. I made some experiments last year upon an apple and pear tree, and may say I was successful in a small way, but I cannot at present give any certain remedy.

THE ONTARIO APPLE.

QUESTION.—Is the Ontario Apple attracting attention, and is it a profitable fruit for shipment to Britain?

The PRESIDENT.—The Ontario, as far as export is concerned, is a new apple. Not very many were exported this year, but I sold fair quantities of it sent from different shippers at prices ranging from seventeen shillings to twenty-two shillings per barrel. It is an apple that does not spot, and in the future will command a high price in the British market; where, as far as it is known, it is well thought of now. I am confident that in the future it is going to be a valuable apple, as it has points in its favour as between the Wagener and the Northern Spy, which make it valuable. Shippers sending it have lost little or nothing in the shipping, as it carried well; and I consider that the prices it brought, for a new variety going into the market, were extra good.

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MULCHING.

QUESTION.—Do you approve of mulching strawberries, raspberries, currants, gooseberries and blackberries with sawdust; if not what with, and when?

A. M. SMITH.—It all depends upon what kind of sawdust. I do not think pine sawdust is a very good article for mulching. If you get hardwood in a decayed state it is a very good thing for raspberries or anything of that kind. My habit of mulching strawberries is generally to cover them with a good coat of straw in the fall of the year and to rake it between the rows. Sometimes I have run it through the straw cutter, and scattered it under the leaves after the first weeding, before the ripening of the fruit.

The PRESIDENT.—Would you use straw also in the raspberries?

Mr. SMITH.—Well, if you can get it, you can use to advantage decayed sawdust and chip manure. I have had access to the yard of the Great Western Railway, where they have stored and sawed large quantities of wood, and the sawdust and bark and chips have been allowed to remain and decay. I find that a very good mulch for raspberries.

Mr. WILSON.—I do not mulch raspberries in winter, but strawberries planted near them. I manure up around the strawberries in the fall, and then, in the spring, bring it right off into the raspberries. The raspberries seem to need it much more in the summer, and the strawberries in winter.

Mr. EVERETTS.—The reason I put that question in the box was because I mulched my strawberries with soft wood chiefly—elm, oak and bass;—and they did first rate.

Mr. LYON.—I think it is very desirable to mulch strawberries late in the Fall, for the purpose of protecting them and bringing them through the winter in good condition. I am not an advocate of mulching anything during the growing season. I regard that kind of mulching as simply an excuse for neglecting and not cultivating them, and I believe cultivating will do more than mulching in the way of inducing growth. As to raspberries and blackberries I do not know that I would mulch them at all; I would rather use the cultivator; I do not know that any good effect is to be derived by mulching them in winter. It may be different in this climate, but in mine I would not do it at all.

RASPBERRY CULTURE.

QUESTION.—What causes Blackcap berries to fruit on the tops of new canes?

A. M. SMITH.—It seems to be the early growth that generally fruits in the fall; some varieties are more inclined to do that than others.

The SECRETARY.—I suppose the bushes made a mistake, and thought it was next year.

A MEMBER.—There are certain varieties of Blackcaps that invariably produce a second crop from the canes grown that season, and I suspect that the tendency is so nearly general that when a peculiar season comes round it produces the same effect upon others that do not usually do it.

The SECRETARY.—I think it is entirely owing to the nature of the season. If there is an early growth and a rest that can be compared with the winter's rest, and later in the season such climatic influences as would induce their development, it would be like another season, and thus tend to produce fruit.

Mr. WILSON.—While the raspberry is being discussed it might not be out of place to ask what is the prospect of the new raspberry that has been so much talked about and advertised, and which bears two or three times in the summer—the Earhart.

Mr. WELLINGTON.—I know nothing definite about it; only what I have read in the *Rural New Yorker* and some other papers. The *Rural* speaks rather favourably of it; they have fruited it, and think it is worthy of propagation.

LOW HEADED TREES.

QUESTION.—Which are the best for large fruit, low headed trees or high, taking cultivation and picking into consideration?

The SECRETARY.—I have had some experience in regard to this question. For the sake of picking and so on—a lazy idea, I suppose—I left a good many trees with low

heads. My experience has proved to me that it was a great mistake, for I have been pruning them up higher and higher ever since. I find them most inconvenient; I do not approve of low headed trees for cultivation, certainly.

The PRESIDENT.—Did you find any difference in the fruit of the low headed tree and the high?

The SECRETARY.—I have not found any advantage.

Mr. WELLINGTON.—I cannot agree with the Secretary in that. I believe that the best and proper way is to grow trees low headed. In the first place the stem of a high headed tree is exposed to the sun, especially early in the season, and to the action of the wind in Autumn, which I believe has a very injurious effect on its life and health generally. A low headed tree is its own shade to its stem. As far as cultivation is concerned it is true that it is easier with a high headed tree, but I would take my chances on the low headed one, and use hand cultivation where I could not get the cultivator in.

The PRESIDENT.—What would you designate a high or low headed tree?

Mr. WELLINGTON.—You will find them all the way from seven to ten feet in some orchards. They are all heights, but in taking them from the nursery I consider a tree headed at five feet is the right thing, and you can prune them a trifle higher than that as they grow, and as you make the shape of your tree.

The SECRETARY.—Mr. Wellington and I do not differ so very greatly; I would consider that a rather high headed tree. I think we should have mentioned what trees were referred to, whether apples, pears, peaches or other trees. I have been in the habit lately of heading pear trees as low as possible; they grow in a very upright way, and therefore you can get near them even though the branches are very near the ground. I have found it of great advantage to allow the branches of pear trees to grow low, because very often they are troubled with the blight, as you all know, and in that case by cutting off the tops of the trees you will have a good tree left.

Mr. WELLINGTON.—That applies with even greater force to the peach tree. I believe I can extend the life of a peach tree one third or a half by growing it as a low headed tree, and also produce better fruit than on a tall scraggy tree, such as is commonly seen in peach orchards.

Mr. PETTIT.—I quite agree with that. The tree will grow better, and you will get a better class of fruit.

Mr. WELLINGTON.—I have trees branching as low as four feet, and even three, and I find everything in favour of the low headed tree. Take it in the spring of the year, when the sun is bearing strong on the trunk of the tree, and there is a long stem exposed to it, a sharp frost afterwards bursts the bark, and I have not found the same effect in low headed trees.

Professor PANTON.—I should say a peach tree should have a trunk of about a foot and a half, and an apple tree between four and five feet.

Dr. McCULLY.—On the Lake Shore we had them so low that we could not cultivate them, but that plan was given up after a number of years, and I only know of one large orchard with trees growing in that way now. We have come to the conclusion that under the present circumstances we can get a great deal more fruit by having the trees trimmed up higher, and the rule now is to trim them up so a horse can pass under the trees without the harness and hames carrying off the bark. With a peach tree it is different; my own experience is altogether in favour of the low-headed tree. When frosts were severe on young trees, if I had low buds near the ground, the trees would start and grow after the tops were killed; I saved the tree by having the branches low. I am in favour of heading them low for the first few years until the wood becomes firm. I think it is the better plan when trees are young to branch them low. Apples, I am in favour of trimming high.

The PRESIDENT.—What length of trunk do you call high?

Dr. McCULLY.—So that a man's horse can work freely under the tree.

The PRESIDENT.—You don't require to run the horse very closely; would five feet be high enough?

Dr. McCULLY.—No; it would require six feet to allow the animal to pass freely under the tree.

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Mr. EVERETTS.—I differ from you entirely. I have seen more trees blighted by being long and leaned over with the wind than in any other way. There may be a little more hand work in having them low, but it is the best.

Mr. DEMPSEY.—There are several advantages derived from having trees low headed. In the first place, we look upon the tree as a lever and the surface of the soil as the fulcrum, and when the tree becomes a full foliaged one, the stress will come very much more on the roots in a high-headed than in a low-headed tree. I have planted low and high-headed trees at the same time, and, although the low ones would be much smaller, perhaps two or three years younger than the others, I have invariably found that they doubled the high ones in growth. This is a very great advantage, I assure you, in the low-headed over the high-headed tree. I prefer a tree about four or five feet high, and for cultivation, a good cultivator that can be swung under the tree. Then use the hoe freely ; it does not hurt us to hoe a little bit. I do not think it is wise to plough too close to the trunk of a tree, because a certain quantity of the roots would be destroyed that way.

F. W. WILSON.—If cherry trees are very low it is difficult to gather the fruit. Cherry trees should have a stem about four feet high, and apple trees between five and six feet. There seems to exist here some difference of opinion as to what a high or low-headed tree is, Mr. Wellington thinks five feet is a low-headed tree, while others believe it is pretty high. I think it should be about five or six feet. If it is less it runs on the ground, or at all events, so close as to spoil the fruit.

MACKENZIE ROSS.—I have an orchard that was planted in 1873, mostly Greenings and Ribston Pippins. I have some Ribston Pippins as pretty as ever you gazed upon, and I cultivate them every year. One year I plant it with potatoes, and the next year with corn. I contend that we get the best fruit from low trees. In the first place a storm has less effect on a low tree than on a high one, and then you can gather the fruit much easier. We see many fine articles in the papers about people losing their fruit trees when they are young, and what is the reason of it? It is simply because they do not clean them up. Some of our fruit growers should be ashamed to see their orchards, with brush piled up almost as high as the tops of the trees, harbouring rats and mice and other vermin. If you keep your trees clean, and before the winter sets in hill them up a little bit with good earth, mice will never destroy them.

The PRESIDENT.—I think you are right. What would you consider a low-headed tree?

MACKENZIE ROSS.—Beginning from three feet. When you have a one-horse plough you can squeeze it in very close to the roots ; then if the boys come along with a hoe they can clean that out ; then go back with the hoe and pack earth in, adding a pitchfork or two of light manure on the top, which retains the moisture and prevents the sun from penetrating into the roots. That is my mode of culture, and I prefer a low tree.

BLIGHT IN PEAR TREES.

QUESTION.—To what cause may blight in pear trees be attributed, and what is the best mode of treatment?

Mr. DEMPSEY.—Either cut the blight away or cut the tree down, and get it out of the way as fast as possible.

The PRESIDENT.—That is the universal experience with blight ; the knife is the only remedy.

Mr. EVERETTS.—Is it necessary to destroy the tree altogether?

The PRESIDENT.—The moment you observe the blight, cut down below it. You will find sometimes that you will have to cut pretty close to the roots to get below the blight.

Dr. McCULLY.—In 1872 I bought forty pear trees. I did not come into direct possession of them, but had the privilege of attending the trees. I hired a man from the

village, and we got some of the best, fine rotten manure we could find to put around the trees. After doing this with part of them we left, and did not go back. As far as we went with the manure those trees all had the blight, and where we had stopped, the blight stopped. This led me to the conclusion that the manure was one of the causes, and I have never put any manure to any of my pear trees since, and I have been very little troubled with blight. Whenever I see any indications of blight now I immediately use the knife, and put the wood in the cooking stove. One of my neighbours had a nice little orchard close to his barn, where the ground was saturated. He lost all his trees; they died off one or two at a time, till now he has only one tree. I had some very fine pears at the time, and he came over to me and wanted to know how it was that he could not grow pears as I could. I told him what my former experience had been, and that probably the close vicinity of his orchard to the barn was what caused the blight.

Mr. RIPLEY.—I had four pear trees, two of which were very large. They stood two and two together at about a hundred yards apart, and when I first got the place two of them were bearing very heavily. There was then a heavy sod around them. After a while I thought that in order to make them bear better I would let the hogs go in and root around them. The very next spring after I did that the blight took them, and destroyed both of the trees. I believe if I had left the sod growing strong my pears would have lived longer.

Dr. McCULLY.—I work my pears nearly every year with a plough, and I do not find that cultivating the soil has any ill effect on pears. They get no manure.

The SECRETARY.—I think the cause for blight now assigned by scientists is bacteria—a very minute form of life, whether animal or vegetable is scarcely known, which is hardly to be detected by the most powerful glass; and to which, also, are attributed many of the diseases of the human system. Scientists profess to have discovered that in all cases of blighted limbs these minute organisms are present, and they are assigned as the cause of the blight. If that is true it is possible that what has been stated by members here to-day is also true—that when pear trees are manured very heavily with barn yard manure, a very soft, succulent growth is induced, which would be more subject to the entry of these germs or minute forms of life, and therefore it might be explained in that way.

Professor PANTON.—I might say that I have here a diagram, showing the bacteria to which the Secretary has referred. Pear blight, like all similar troubles, has raised much discussion and many theories as to its cause. In the earlier stages of the discussion it was attributed to certain conditions of the weather, and then the theory was advanced that it was caused by an insect. That insect does sometimes bring about something of the nature of pear blight, but still that is not now considered to be the cause. Then came the frozen sap theory—that the alternate frost and fine weather brought about in the sap conditions of a more or less poisonous nature. Then there was the fungus theory, which I think Prof. Mills upholds, but of which, I think, no specific description has been given. The latest researches—and they seem to have been pretty accurate, and carried on with great care—trace its origin to the presence of these bacteria—exceedingly small organisms. Wherever trees are blighted these are found in the sap, and healthy branches inoculated with that sap become blighted. When the same sap was strained, and these organisms eliminated, the inoculation was not productive of blight, but wherever these bacteria are found in it it produces blight. It is not the same as the bacteria that bring about rotteness, because these minute organisms in the juice of growing pears will multiply at a great rate, which the ordinary bacteria of decay will not do, their proper condition being in decaying matter, or matter which is about to decay. The experiments have been carried on with great care, and now they have got to the source of the trouble the difficulty presenting itself is as to what is the remedy. So far the best results have been obtained from trying to work on the condition of the tree. There are three things which have to be considered in regard to all these fungi—the atmosphere at the outset. That is something almost beyond our control, but certain conditions of the atmosphere are very favourable to fungous growth. Then there is the tree or plant affected—to watch its growth and vigour, and then, again, there is the growth of the fungus itself.

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So far nothing seems to have been discovered that will work upon the fungus, but they are working on the vigour of the tree. The tree needs to be grown vigorously, but not luxuriantly, since the latter condition, as the Secretary has said, is the one in which they would be more subject to the entry of these microscopic organisms. In the case which has been mentioned, where so much manure was used, a condition of extreme succulence was induced which was favourable to the entry of this small organism. The whole thing, at present, seems to consist in bringing about a healthy, vigorous, but not too luxuriant growth. A specific cure to kill the thing itself has not yet been obtained. What has been mentioned is best—the knife. In cutting it is necessary to cut quite a piece below the blight;—to prevent the disease you must go down till you come upon the green, natural sap. If there is the least bit of the sap left that is discoloured the tree will go on and die; you must cut the green, healthy wood below.

THE BEST MARKET PEACHES.

QUESTION.—Which are the six best varieties of market peaches; three early and three medium to late?

The SECRETARY.—We have a good deal of experience down at Grimsby most years, but last year—I might say for the last three or four years—we have not had much opportunity of testing any variety. From my own experience of those I have tested I consider the following ones very reliable and satisfactory, although there are other sorts which I am growing but have not yet fruited. For the three early ones I would recommend the Alexander, Hale's Early, and the Early Crawford. The latter is certainly the best early peach, as far as quality is concerned, but it is not so hardy as the others; we frequently get a crop of Alexander or Hale's Early when we do not of the Early Crawford. The others are also earlier; indeed the three come in succession, the Alexander first, then Hale's Early, and after that the Early Crawford. For medium to late I would recommend the following three varieties:—the Old Mixon which immediately succeeds the Crawford, the Smock, a late peach which when it matures—and it does most years—is very fine, and the Lemon Cling, which, if you do not have too many, is a very good market peach.

Mr. PETTIT.—I cannot add anything to Mr. Woolverton's list. I think for six peaches you could not go astray on those he has mentioned.

A. M. SMITH.—It is so long since I have grown any peaches that I am hardly in a position to say much, but if I were confined to six varieties I think I would prefer the Rivers to Hale's Early, which I do not consider a reliable peach.

A MEMBER.—What about the Early Barnard?

The SECRETARY.—I have grown it in years gone by. It is a very excellent peach as a rule, if the tree is not neglected. It is a very fine yellow peach, but not equal to the Crawford, and for that reason I discarded it. In regard to the Early Rivers, it is rather delicate, and shows bruises very easily, which is the principal objection.

Dr. McCULLY.—You have not mentioned the late Crawford.

The SECRETARY.—It does not bear very well.

A MEMBER.—What do you think about Hale's July?

The SECRETARY.—I have not fruited it.

The MEMBER.—It will bear earlier, keep longer, and is a better producer and shipper than any other grown. They produce more or less every year. This year they were a full crop.

Another MEMBER.—What about the Foster.

The SECRETARY.—It is very good. It comes in with the Early Crawford nearly. I do not think it is superior to the Early Crawford.

Mr. WILSON.—The Early Canada appears to be hardy, and I think the Foster here is a better peach than the Crawford.

THE APPLE IN KENT.

The following paper was read by Mr. F. W. Wilson :

The first apples raised in America were on Governor's Island, in Boston harbour, in 1639.

In Kent we have the standard of excellence for their culture. We have the soil, climate, lake protection and shipping facilities to make it the fruit garden of the world, and we are making great strides toward that end.

Every man, woman and child in Kent should be thankful to our government for having our interests so well represented in the metropolis by the agency and efforts of our ex-president, Prof. Saunders, and his assistant vice-president, P. C. Dempsey, our present president, A. McD. Allan and others. The people of Kent were certainly too careless of their display at this great Colonial and Indian exhibition. Though there have been no prizes given for fruits sent: the best collection from Kent were from Mr. Ross, containing, according to our best and latest government reports, only thirty-five varieties of apples, two of pears, one of peppers; while Mr. P. C. Dempsey alone showed sixty varieties of apples, twenty-four of pears, twenty-eight of grapes, two of currants, six of gooseberries, one of plums and one of cranberries—122 varieties in all.

Orchards of good winter varieties of apples produce an annual average crop, at low estimate of first and second class fruit, of the value of \$100 per acre. And the pig feed and pasture in orchard would pay for all the work at trees and fruit. The hogs do much benefit by destroying the codling moth and other insects. If the cultivator evaporates his own fruit he gets much more than that from it all.

I believe that the most profitable varieties of apples in this locality are, in order of merit, the Baldwin, Ben Davis, R. I. Greening, Golden Russet, Northern Spy and Phoenix. They are much better than any of the new Russian and ironclad apple trees, which are used in the northern parts of the country where these better varieties will not succeed. It does not require an ironclad apple tree to stand the climate here.

One of the greatest mistakes made in our climate is we do not pick our apples soon enough. With the list mentioned we can start in the latter part of September with Greenings and Ben Davis, and finish with Baldwins, Golden Russets and Northern Spy about the middle of October. They should be handled very carefully and tastefully, having light stepladders, and wire hooks for hanging the baskets on either the limbs or the ladder. Begin by gathering the fruit off the outside of the tree before climbing into it; you are not liable to shake so many down this way. Instead of pulling the apples off with a jerk and breaking off the bud along with the apple, so that you will not have fruit for the next year or two, turn the apple up and it breaks off quite readily, and you can do it rapidly. Put the apples gently into the basket and pour them into piles very carefully and cleanly. Use only very neat, clean barrels, and keep the different varieties and qualities separate. Don't put in any very inferior stock. Shake down frequently and press closely into barrel, placing the layers near each end with the stems toward the end. After the barrels are nailed tightly and honestly stenciled, keep them on their side in preference to standing on end. It is generally most profitable to sell early, so that the fruit can be placed on the foreign markets before the arrival of apples from the more northern localities, and before the flood of oranges from Spain. The British people prefer a bright red colour, while Americans are suited with Greenings and even Bellflowers.

There are now over 7,000 acres of apple orchard in Kent county, and its export in 1886 was about 50,000 barrels of first-class apples and 15,000 bushels of bulk fruit for evaporation in York state, besides a large amount for plenteous home consumption for a population of over 50,000 in Kent, and a large amount of cider, vinegar, waste and pig feed. Wherever people are there is a demand for fruit. It is the most beautiful and valuable food in the world. Dr. Tanner's first food after forty days' fast was fruit. Fruit was the first, original and natural food of man. Many live on it only. It is a luxury, necessity, appetizer, stimulant, nerve tonic, food and medicine all in one.

The best temperature in which to keep this flower of commodities is as near freezing point as possible without actual freezing. In this way they will keep all year round.

"Cleanliness is next to godliness" as well in the fruit garden as with ourselves.

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We should be careful to have clean fences, to keep out all brush, weeds, etc., and wash the trees in early part of June with a solution made as follows: "Mix as much baking soda into water as it will dissolve, and then mix with soft soap to the consistency of ordinary house paint, and apply with a brush." It will make them shine with health and vigor, and destroy bark lice and keep away borers. The best preventative for apple spot and codling moths is to spray the trees when the blossoms are falling, and again a week later with a solution of three ounces of Paris green and three pounds of hypophosphites of soda to each thirty-gallon barrel of water, throwing the spray so it falls on the upper side of the leaves.

I consider fruit culture to be the finest occupation in the world. I must have been born a fruit grower, for when a boy I was almost always to be found among the fruits, so I can heartily say, as did Robbie Burns, "Be aye stickin' in a tree, Jock, it'll aye be growin' when ye'r sleepin'."

ARE APPLE ORCHARDS PROFITABLE?

This question was taken up in connection with that of fruit culture in the County of Kent, and elicited the following discussion:

The SECRETARY.—Are apple orchards profitable? If I am to answer that question in accordance with my experience of the last three years, I say most emphatically, no; they are not. They have been profitable, but for the last three years I do not think our orchards have averaged a bushel a tree in the yield, and they have been decidedly unprofitable. I have a neighbour in Grimsby who has an orchard of six hundred large trees, which have been twenty-five years planted. I speak of him particularly, because he has Baldwins. In all that time there have been three or four good crops, which paid well, and had such a yield been continued every alternate year, the orchard would have been very profitable; but the owner of that orchard is now feeling thoroughly disgusted with apple culture, and inclined to sell out and get away somewhere. I remember the time in our own orchard when there was never a failure like this at all. We have taken in one year from one Greening apple tree twenty barrels of apples. This, perhaps, would seem a little astonishing, but it is an enormous tree, and, I suppose, about seventy-five years of age. Now, as to what is the cause of the present barrenness in our orchards in that section? There have been a good many different theories. I was over at the Rochester meeting a few weeks ago, and the same complaint was general in the state of New York. All the reports coming in were to the effect that they had never been so unfortunate before, and every kind of theory was suggested as to the cause. One man thought it was due to an electric storm at a certain season, another that it was attributable to a lack of manure, a third that want of cultivation was the cause, and so on. Most of the speakers agreed in attributing the failure, during the last season particularly, to the apple aphid, which had been very abundant. I do not know if the people of Kent were troubled in that way, but we in Grimsby suffered with it just in the same way. When the apples were small, just about the size of a hickory nut, the trees were full of these little green aphides. It was held by some that these little insects sucked the juices of the leaves and stems, and thus caused the leaves and apples to fall off. I noticed a paper that was read the other day at the meeting of the Massachusetts Horticultural Society, in which, speaking of the degeneracy of orchards, the reader held that they were running out; that many of the varieties we have cultured so long, the Spitzenberg, for instance, were run out. I do not know, however, that that is a settled question. We can only theorize, of course, and I have been inclined to attribute the failure to a disease we do not understand fully, that has affected them with these minute fungi, whose dreadfully destructive powers we are only just beginning to appreciate. I think, perhaps, they have something to do with it. The leaves and fruit have both been found to be affected by them, and it is quite possible that the trouble is due to causes so small that we, who are in the business of cultivating fruit trees, are not able to quite understand them. I am in hopes, however, that our scientific friends, who are making a study of these things at the agricultural colleges and experimental stations, will find some means of re-invigorating our orchards by checking these fungi, and that in the not distant future we shall again see prosperity in apple culture.

I have not yet given up all hope in the apple orchard, Mr. President, though I have felt very much discouraged during the last three or four years.

Mr. PELHAM.—I planted an orchard with something like \$130 worth of trees I got from the McGill Brothers. I planted all kinds of roots between them. I afterwards sowed it with timothy and got hay off it for four years, and the blight struck it more or less every year. Since that I have had only grass, and I have not seen a sign of it. A very important thing is good trimming—to scrape the trees and keep this scruff off them. I wash my trees, and keep the bark clean and bright; I use a lye soap suds lotion. In the last eight years there has not been a sign of blight, either in apples or pears, and I have all varieties.

The SECRETARY.—Is your orchard in pasture?

Mr. PELHAM.—Yes, for the last four or five years. For eight years I got hay off, and since that it has been in pasture. During the last four years I have spread the manure from the animals there.

The PRESIDENT.—Do you generally get a medium crop every year?

Mr. PELHAM.—I get a beautiful crop almost every year. They vary a little, and I could hardly tell the average, but the trees are fit to break down sometimes it is so large. I do not believe in leaving too much top; if you have too much wood your fruit is bound to be small. There is more in working them, and keeping the bark clean and smooth.

The PRESIDENT.—Do you sell in the local market?

Mr. PELHAM.—Yes; chiefly in different parts of Kent.

The PRESIDENT.—Do you find many refuse fruit among your apples, or do they generally turn out pretty smooth?

Mr. PELHAM.—All pretty smooth.

The PRESIDENT.—Are you troubled with the codling moth in the apple?

Mr. PELHAM.—A little, but I watch for it.

The PRESIDENT.—Do you do anything to prevent its ravages?

Mr. PELHAM.—No; only the washing and scraping.

The PRESIDENT.—What do you do with the fruit that drops?

Mr. PELHAM.—I feed it to pigs. I pick it up immediately, for if you do not, that is where the harm comes in. Do not allow fallen fruit to lie there.

The PRESIDENT.—You are keeping it in pasture; what stock do you pasture there?

Mr. PELHAM.—Horses, principally. Since it has been in pasture I have not seen a limb affected, either pears or apples. I do not believe in allowing a tree to grow too high; from five to six feet, so you can get under it, I find best.

The SECRETARY.—This gentleman who has just been speaking seems to have struck on an important point—that is, with reference to keeping the bark of trees clean by some means or other. I noticed recently that an experiment had been tried by a gentleman residing in England who was very much troubled on account of moss and kindred growths on the trees of his orchard. He used kerosene, and washed his trees in the fall with it, and then in the spring scraped them clean, which was very easy to do after applying this kerosene in the autumn. He said the result was most astonishing, both in the growth of the trees and the qualities of the fruit. Perhaps some gentleman present here can give us some information in regard to this article, whether it would be safe for us to apply it freely to the bark of trees.

Prof. PANTON.—I am not prepared to say from experience, but one thing is certain, it would drive off insects.

Mr. EVERETT.—I would not like to try it very heavily. I once made use of it to kill insects and it killed the tree. Soap-suds, however, I have found to be a good thing.

Prof. SAUNDERS.—I think the use of coal oil in its undiluted state could not fail to be detrimental to the tree—you would get rid of the tree without any trouble. If the kerosene is emulsified by shaking it with soap or milk—a very violent shaking for a considerable time will convert it into a cream or butter—it can be used with water quite safely, either on the trunks or foliage of trees, stronger, of course, on the trunks than on the foliage. I have known, however, several instances in which kerosene was applied to destroy insects, where its application in the undiluted form resulted in the destruction of the trees also.

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Prof. SAUNDERS naturalist, who de His statement was is not an insect, se respects the descri the tree derives its which I would like ward any proof of and is more a prot Columbia, where tl with moss and linc He confounds para cognize the differ know that it consis as to temperature. we all know it is s uses is a heavy oil; burning oil. I thi of some of the heav expect to see result Englishman, like m —I do not mean th men, across the wa like people everyw

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CURE FOR BLIGHT IN FRUIT TREES.

The Secretary then read the following extract to which he had referred :

The Rev. Henry P. Dunster states that in six fruit-growing counties he found in all, except a few new-planted orchards, that the trees were covered with mosses, lichens, and in a state of canker and neglect. He asks, "Can anything be done to renovate our present orchards?" He says that when fruit trees are found in this miserable condition, the reason assigned is that they are decaying from age, or, if this theory be contradicted by the known age of the trees, then that their roots have worked to a cold, dead soil. Neither of these is the true reason. Trees said to be past their prime are capable of renovation, and the roots of plants find the soil that suits them as skillfully as the ferret follows the rat. He attributes the decay to the state of the bark, which fails to supply to the head of the tree what is necessary for growth and fruit-bearing. Moss, lichens and other parasites consume for their own support the sap as it rises, and deprive all other parts of vitality. The roots are generally healthy, whilst the tree slowly dies. *Trees die, not because their roots fail to support them, but they die, alas!* as many poor waifs and strays of humanity die, the victims of a *neglected and unclean skin*. The remedy for this is the application to the bark of a substance powerful enough to cleanse it, but leave the tree not only uninjured but with increased vitality. That substance is petroleum, or that preparation of the natural oil so called, which is known to commerce under the name of paraffine, the oil now so commonly used in our domestic lamps. Marvellous results have followed from its use. The discovery was accidental. An apple infected with American blight eriosoma, appeared to be dying. It was intended to give it a coat of common oil, but the oil lamp not being at hand, paraffine was tried, not without misgivings. Almost a pint was used with a painter's brush wherever the blight appeared. All traces of the blight were obliterated, and the moss, I believe, soon turned black and died. The following spring the bark was scraped clean, care being taken not to hurt the inner tissues. The success was complete, and resulted in a good crop.

Prof. SAUNDERS.—I am reminded, after hearing that, of the story of a certain naturalist, who described the lobster as "an insect which is red, and walks backwards." His statement was found to be true with the exception of three particulars, first the lobster is not an insect, second it is not red, and third it does not walk backwards. In all other respects the description was perfectly accurate. The gentleman in the present case says the tree derives its nourishment through the bark, which is quite a new idea, and one which I would like to see demonstrated—I think it would be very difficult to bring forward any proof of that being the case. We all know that the bark decays and falls off, and is more a protection than a source of nutriment to the tree. If he visited British Columbia, where the atmosphere is very moist, he would see the youngest trees covered with moss and lichens, and continuing to grow and bear fruit under the circumstances. He confounds paraffine and petroleum, which are two distinct things, and does not recognize the difference. Those who are familiar with the process of refining coal oil will know that it consists of lighter and heavier oils, which are at decidedly different points as to temperature. The heavy oils approximate more nearly to the vegetable oils, and we all know it is safe to apply linseed oil; it may therefore be that the paraffine oil he uses is a heavy oil; in which case it is quite different from what we know as petroleum or burning oil. I think it is quite probable, or at all events possible, that the application of some of the heavier coal oils might not have this detrimental effect, which I should expect to see result from the use of any of the ordinary burning oils we use. This Englishman, like many of his countrymen, has come to conclusions on insufficient premises—I do not mean that to apply to all Englishmen, but I have associated with some Englishmen, across the water, who came to conclusions on very insufficient premises, and who, like people everywhere else, required some little enlightenment.

The SECRETARY.—It looks reasonable to suppose that moss and similar growths would extract a certain amount of sustenance or strength from the tree, and that it would be advantageous to remove them.

Prof. SAUNDERS.—It is reasonable on the surface, but these mosses have no roots that penetrate the bark to any extent—they attach themselves mechanically, and derive

their entire sustenance from the atmosphere. There is no drain on the life of a tree covered with them, though I do not think it can be said that they are conducive to the health of a tree, and I think it is very much better to remove them as we would remove dirt from the human skin. We know that children who are brought up in dirty alleys often grow up robust and healthy, but that is not the result of the dirt, but of exposure to the open air. I do not think dirt is detrimental to health, otherwise we should not find so many exceptions as we do in the course of investigations.

Prof. PANTON.—It is easily seen that lichens cannot take much nourishment from the tree, for we find them on stones as well.

Mr. WILSON.—I would like to hear Professor Saunders' opinion as to what is the best substance to apply.

Prof. SAUNDERS.—I can only give my own opinion in reply to that. For a number of years I have used the following with good effect—a mixture of either soft or hard soap—it is immaterial which—and water in which some washing soda had been previously dissolved, about as much as the water would take up; make the mixture about the consistency of ordinary house paint, and apply with a brush from the base of the tree to the crotch, and sometimes over the larger branches. This will be found exceedingly useful in keeping it clean, and will also prevent the borer from depositing its eggs on the bark of the tree, which is of much more consequence than the presence of moss and lichens. The application might be made in the first ten days of June; it will form a sort of glossy coat or varnish over the tree, which is distasteful to the borer, and will prevent it from depositing its eggs on the bark, as well as in the tree.

Dr. McCULLY.—I think, from my observation as a resident of this county, that the production of fruit is not in as healthy a state as some years ago, for which I think several reasons might be given. One of the reasons is that it is not as much looked after, owing to the low prices which have been common—it is not such a fruitful source of revenue to the grower, and for that reason he is looking around after something else. Another reason is that a few years ago many of our orchards were just coming into full bearing; they were, if I may so speak, in their prime, and were not fully developed and covering the land. Now they are fully developed and the land is too small for them; there is not a sufficient amount of air and the sun's rays reaching the tree to enable them to come to full perfection, and a great deal of the fruit is stunted.

Prof. SAUNDERS.—What distance are the trees apart?

Dr. McCULLY.—All distances. A fruit tree agent comes along and wants to sell some trees, and he persuades the farmer to crowd as many into a given space as he conscientiously can, and in this way the farmer gets a few more trees on his lot than he otherwise would have done. Many orchards in my part of the country are planted as close as 25 or 30 feet, and some are planted 20 by 30, and the trees have grown so that they are interlacing one another, and many of them dying on that account. Mr. Sanderson, the owner of one of the best orchards on the Lake Shore, cut out one half of his trees. The previous year one half of his fruit was bad, and, as he said, he was determined to have less fruit and yet more fruit. The result surpassed his most sanguine hopes, and he realized a much larger revenue from the orchard. On the Lake Shore they will not now think of planting trees closer than forty feet square, and if you asked them why, they will tell you, "We have the open space in which we can grow crops, and we find at the same time that we get more perfect fruit and more of it." We crop our orchards every year, and manure too. It takes the bulk of the manure to manure the orchards: the trouble is that the orchards are starving for manure, and have to get it on a great many farms on the Lake Shore at the expense of the rest of the land. The farm yard manure has all to go to the orchard, and they grow the finest fruit you can imagine, but where they do not get it the fruit is not of the same excellent quality, and we have a larger number of orchards than we have the means of fertilizing. It has gone so far that I have heard farmers swear—you know they do break out sometimes—that they would cut down the rest of their trees that they could not manure; that the land was not yielding them what it would if in the natural state without an orchard at all, and I believe that will be the result, that many will eventually cut down their orchards. When trees die they are not planting any in their places, the vacancies are not filled up any more

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As I have already said, there are many causes why fruit in this county is not in the condition it was some time ago, but at the same time let no one imagine that this county does not grow fruit. Last year some thirty or forty thousand barrels of apples were shipped from this county, one man putting out ten thousand, and another six thousand barrels—just one half the thirty thousand, and a little more. We grow an immense quantity of apples here, but the great trouble is the want of trimming; they are not properly pruned. A great many of the trees grow up just like bushes, no trimming of any account being done to them at all, and the deep soil of this county is sufficient to grow a tremendous brush top in an apple tree, and a tremendous crop of apples besides, in spite of all these defects. Another reason why apple orchards are not in their proper state is because proper sites were not selected, the orchards being all put upon the highest portions of the ridge. There is a high ridge, and all the water dips this way for twelve miles, and for half a mile into the lake. They planted their orchards on the highest part of this land, and in dry summers these trees are dried out at the roots; I have seen trees totally die in our orchard for want of moisture. If we had them on lower ground, where the water would reach the roots, and manured them, we would have magnificent crops, because orchards situated in those places have borne well when ours on the ridge are lacking. I think it a great mistake to plant orchards in such a position, and am of opinion that one of the greatest elements of success in the culture of apple orchards is the selection of a suitable site, and then to give proper attention to pruning and so on. It has occurred to me to ask the question whether the shell bark is a protection to them, or whether it is a harbour for insects, and would be better removed, perhaps there is some gentleman here who has some experience that will enable him to say. Of course this new, fresh bark is exposed to the blasting winds of winter, and I have often thought that perhaps the removal of the shell bark was hurtful to trees. Of the different varieties of apples the Greenings are the favourite with us. There are other good apples too, such as the Russet, which is a favourite. The Ben Davis is not a very great favourite; we think most of the Baldwins, Greenings and Russets, and there are men in our section who out of a thousand trees have planted nine hundred and ninety-nine Greenings. The Spitzenberg we do not grow at all, it does not amount to anything with us, but in from the shore, on clay ground, they can grow the finest Spitzenbergs I have ever seen.

APPLES AS FODDER FOR STOCK.

The PRESIDENT raised this subject by the question,—How do you use your refuse apples?

Dr. McCULLY.—I mostly feed them to the stock on the farm. We gave a large quantity of apples as a bonus to assist a man in establishing an evaporator at Buckhorn, but last year he did not run it; although he seemed to get very fair prices for the fruit, it did not pay.

The PRESIDENT.—Have you ever considered the question of feeding stock with refuse apples?

Dr. McCULLY.—No, only in a general way. I have found that to feed about a bushel to a milch cow a day, makes a considerably larger flow of milk, but I have never tested it by weighing the milk or testing the cream or butter. At the same time one needs to be careful, for it will founder cows too; I have seen cows eating when we were making cider, and seen them founder several times.

The SECRETARY.—Professor Mills has said that the elements of a perfect food require to be in the proportion of one to five, that is one part of albuminoids to five of carbo-hydrates; and I have read somewhere that the apple contains about that proportion, and is therefore a perfect food. If that is the case, it is a matter for consideration whether it would not pay us, or the farmers who scarcely know whether their orchards are profitable or not, to grow apples solely for feeding purposes. A gentleman at Rochester (Mr. Brooks) stated that even if farmers could not sell their apples at all it would be the rankest folly to cut down their orchards. He said that a good proportion was two quarts of meal to four quarts of apples, and that cattle would do as well on this food as they would, if fed wholly

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upon meal. He said further that a gentleman of his acquaintance had put up one thousand bushels of apples last fall, and fed them all to his stock with the best results.

Prof. PANTON.—I do not think that an analysis of the apple would show that it contained the proportions of the necessary elements requisite to make it a perfect food; the difficulty is that the apple contains a great excess of the carbo-hydrates over the albuminoids, and is far from being in the proper proportion. At the same time, when fed with something else rich in albuminoids, such as meal formed from ground peas, or oats, or bran, it makes an excellent food, but fed alone the apple contains too great an excess of carbo-hydrates to make it a successful food. As Dr. McCully has remarked, a great deal depends upon judicious feeding. If you started out to feed apples to cows that had not been accustomed to them, and fed them half a bushel or so a day, the results would probably be serious and not at all satisfactory; but if you commenced with small proportions and worked up to about half a bushel at a feed with some meal—pea meal, or made from a mixture of peas and oats—to raise the proportion of albuminoids, you would have a very good feed stuff, and in that way, I think, the excess of apples that cannot be disposed of in the market might be successfully and profitably got rid of.

Dr. McCULLY.—How would bran do?

Prof. PANTON.—Very well; that is where the whole thing rests. The analysis of the apple reveals too small a proportion of albuminoids to carbo-hydrates, smaller than one to five, and to make up for this you must add bran or something rich in albuminoids. You must not bring animals into it at once, but by degrees work them up to it, which may be done with safety, and the experience of those who have tried it in this way has been that it is instrumental in increasing the flow of milk and its value as well.

Prof. SAUNDERS.—There is one point in connection with the use of apples in this manner that has not been brought out—their healthfulness in moderate quantities. That is a point which I think needs to be emphasized. If you feed apples judiciously to stock and cattle it will produce in their constitution a degree of health and vigour which will enable them to make the best use of the other food that is given them, and to draw more good from it.

Dr. McCULLY.—The most successful effort I ever made in raising calves was by giving them plenty of milk and allowing them to run in the apple orchard. I never saw animals thrive so well as they did under those circumstances. A gentleman told me last fall that his sons had been endeavouring to make a certain calf they had gain three pounds a day in weight, and they fed it for thirty days in the manner advocated by the professor, with plenty of ground oats, bran and such like, at the same time allowing it to run among the apples. At the end of the time they only lacked ten pounds of being able to fill the bill, and this gentleman said he felt sure that the apples had a great deal to do with their success.

WILLIAM MACDONALD.—I have a great many opportunities of talking over these matters with farmers, and have come to what is to me a satisfactory conclusion. In the first place, I almost invariably find that cattle-feeders feed them to cows, and very seldom to fattening animals; for this, I think, a very good cause can be assigned. There is in milk, in some shape, a large percentage of phosphate of soda, in which apples are also rich, and this, taken in conjunction with the fact that the milch cow is an animal whose nervous system—which is chiefly composed of phosphoric acid and soda—is extraordinarily developed, may have the effect of supplying the necessary constituents. Another thing, if fed in winter they are very valuable as a succulent food alone, much more so than roots. The acid in the apple is very cooling, and has also a medicinal effect. This agrees with the experience of those who keep apples till early in the spring, and feed them in the warm weather; they find extraordinary results from their medicinal effects when changing from dry grain fodder.

Mr. WILSON.—I would like the Professor to tell us what is the best feed to use with apples—peas, oats, shorts, bran, or what? There are many who have orchards, and, as he says, the proper way is to bring stock up to apples gradually, it would be interesting to know the best feed to use with them.

Prof. PANTON.—Peas first, and corn and bran by weight, taking a pound of each.

Mr. MACDONALD.—Put new process bran and peas. I would not recognize corn at all, and shorts is somewhat inferior to bran.

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FRUIT GROWING IN KENT.

Mr. MACKENZIE ROSS.—The question has been asked, "What kind of fruits can we grow in Kent?" For my own part, I make more money out of early apples than out of late ones, and I think every fruit grower will agree with me when I say, I think our fall apples are the finest we possess. I never fail in making from 80 to 100 cents out of a bushel of Duchess of Oldenburg. It is a handsome, hardy apple, and comes into bearing when it is young. The Red Astrachan is a little too acid, and the crop is very often inferior. I would feel very sorry to be without the Russian apples. I have a few, planted in 1873, the first of which is Peter the Great. I have also the Grand Duke Constantine, Count Orloff, Grand Sultan, Nicolaieff and Red Transparent. They are the handsomest apples I have, and I always get twenty or thirty cents a bushel more for Russian apples than any others. They are very beautiful and smooth, and always perfect, and I have very fine crops. Then, of course, the old Early Harvest is no longer considered worth planting. Then we have that charming apple called the Kentish Fillbasket and the Beauty of Kent. Then there is another charming apple, the Gravenstein; I am sorry that in this part of the country it is not a late apple. Then we have the Sweet Bough. I remember when travelling through this county in 1873, selecting fruit to be sent to Boston, coming to a gentleman's orchard, and he said to me, "There is an apple that won't hurt you if you eat a bushel of them." I never saw a more beautiful apple than the large Sweet Bough. Then comes the Hawley and then the Alexander; and what is more beautiful than the St. Lawrence? The Rev. Dr. Matheson once said to me that it could never be properly grown out of the Island of Montreal, but I have seen samples in the garden of the warden of the County of Kent that were astonishing. The Ben Davis, though an extremely handsome apple, I consider very inferior. Then we have the Swayzie Pomme Grise, the Russett, the Hastings, and I believe if I went on I could name over a hundred varieties in my own collection. I don't think I have too many. Some people, if they were going to put out a hundred apple trees, would plant ninety-nine Baldwins; and I have seen one gentleman cut down a charming orchard of Ribston Pippins to make room for the Baldwin.

The PRESIDENT.—Does the Ribston Pippin do well here?

Mr. ROSS.—It does, and the Blenheim Pippin. As I have said before we consider the County of Kent, with genial climate, has no superior for growing either apples or pears. I would say to those gentlemen who have no Russian apples, by all means get some. Unfortunately they all come in early, but they are most charming fruit.

Mr. LANGFORD.—I have an apple orchard, but I don't make much money out of it, and I have been thinking whether it would not be better to cut it down, and make more money out of the space in some other way—in raising crops of some kind. I have probably a thousand trees, and for the fruit of at least one hundred of them I cannot get a buyer at all, either the trees are not the right kind or the buyers don't come here. In regard to my orchard, I have been very much pleased at what I have heard to-day, and now have a notion not to cut it down; after hearing of the good success met with at the Colonial Exhibition I think probably there will be a market for our apples, and we shall find them more profitable.

The PRESIDENT.—What varieties do you find best and grow most of?

Mr. LANGFORD.—Unfortunately I have a good many Talman Sweets, and they seem to be a dead letter.

The PRESIDENT.—The only market for them is the Boston market.

Prof. SAUNDERS.—They are splendid growers; you should top-graft them.

Mr. BOGLER.—I am more interested in plums than in apples. I have a small orchard of plums, and my experience is that the Lombard is the best. I brought several varieties on the market last year that I considered were finer, but somehow the Lombards always sold first. The only trouble I have with my plum trees is that they are generally overloaded. I lost a good tree last year from that cause. One year, when the hogs and cows had been kept out of the orchard the year before, I found a number of curculio, still in the chrysalis state. I let my fowls in the orchard and they scratch up the ground and

destroy them—as soon as I let the hogs and fowl in I would see the fowls afterwards under these trees every morning. The hogs, I find, are remarkably fond of the unripe fruit, and will travel all over picking it out.

Mr. TYLER.—I am in the southern portion of the County of Essex, about sixty miles from here and three-quarters of a mile from Lake Erie. I am principally growing peaches and apples. I have sixty-five trees now, from one to five years old, all of which are looking well; and I had a very good crop last summer. Most of my apple trees are in bearing; it is eleven years since they were set. I have a number of Greening and Baldwin trees, some Golden Russet, Sweet King, Northern Spy and Ben Davis; the early and late Crawford Peach, the Smock, Alexander and Waterloo. I had somewhere about 5,500 baskets of peaches. I marketed some in Chatham, some in Windsor, some at home; about 800 baskets went to London, some to Hamilton, and fifty or seventy-five baskets, I think, to Brampton. I feel inclined to go on with peach culture.

A MEMBER.—Do you cultivate your peach orchard?

Mr. TYLER.—Yes, but as a tree gets larger I do not go so close to it. The soil is very poor—sand and gravel—and I use barn yard manure, what little I do use. Peach trees, I think, are better without manure.

Mr. PETTIT.—Are there a considerable quantity of grapes along the shore?

Mr. TYLER.—Yes, quite a number. I have one vine of Moore's Early, the Concord and the Delaware.

Mr. PETTIT.—What number of acres do you think are occupied in vineyards on the islands?

Mr. TYLER.—I could not tell.

President LYON.—What is your practice in pruning peach trees?

Mr. TYLER.—I would run them up one foot from the ground, and I would cut away very few of the lower limbs.

The PRESIDENT.—Are you troubled with winter killing.

Mr. TYLER.—No. In 1883 winter killing hurt me, but it was a hard winter, and there was a very heavy storm came and swept the snow off, and the trees were exposed all winter.

Dr. McCULLY.—What is your principal early peach?

Mr. TYLER.—The Alexander.

Dr. McCULLY.—How does the Crawford grow?

Mr. TYLER.—It grows very fine and fast, but I think it is not worth cultivation.

The PRESIDENT.—Is it not a good grower?

Mr. TYLER.—It is a good grower, but it grows no peaches. It is five years old, and I don't think I have averaged half a dozen peaches a year. The Early Rare Ripe fruited very well; I am growing some seedlings I have been cultivating.

Mr. EVERETTS.—Have you the Mountain Rose Peach?

Mr. TYLER.—Yes, I have some. It is a middling good peach, not a very good flavour I think. It is below the standard in quality, although it sells very well. I have the Old Mixon, which is one of the best, of course; you cannot get many of them.

A MEMBER.—I come from a county where they have been trying to grow peaches without much success. Ten or fifteen years ago a number of parties went into peach culture on the Lake Huron shore. The locality was thought to be favourable, but winter killing interfered so much that we had almost abandoned it.

The PRESIDENT.—What about other fruit?

The MEMBER.—We have light soil up there, and have to study what is best adapted for it. I went up there expecting that the favourable influence of the lake would help me a great deal, but as regards preventing spring frosts it has very little influence. It keeps off fall frosts, however, to some extent, and I think perhaps if we paid more attention to grapes the influence of the lake might help us. We are going into strawberries and raspberries, and I was interested in hearing the opinions expressed as to the varieties of small fruit, although the matter under discussion relates of course to small fruits for families more than for markets. We are encouraged, however, to believe they can be grown on our light land.

The PRESIDENT.—Do you make a specialty of any kind of fruit?

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The MEMBER.—I have tried pears. I am afraid, however, that they will not do; the soil is too light. The trees did well when young, and have not been troubled with blight, but they seem to be lacking in vigour, and I am afraid pear growing is not going to be a success on that light land. Neither is apple growing to the extent small fruits and grapes will be. Mr. Hill, an acquaintance of mine, is growing small fruits in another part of the county, on a different soil.

Mr. HILL.—During the last two years I have taken an interest in fruit, and this is my first visit to a meeting of this association. I have for several years past had pleasure in reading the *Horticulturist*, which I believe has been the means of interesting me in fruit, to make money out of it. When I first went into the centre of the County of Lambton I interested myself in pears extensively for an ordinary person, having some three or four hundred trees. A good many of these have had the blight, some kinds more than others. The Dr. Reeder is a very excellent flavoured pear, and has stood the blight excellently, and another kind called the *Beurre D'Anjou* is almost free from blight; but I have not found growing pears a success. I have lately gone into the culture of small fruit, and hope in the course of two or three years to give you some experience in that line.

The PRESIDENT.—What kind of small fruit?

Mr. HILL.—Strawberries and raspberries. The last two years I have been reaping the harvest of two acres each year. Last year I sold off the two acres \$640, and the previous year \$630. Two years ago I planted the Turner, which is hardy and ripens quite as fast as I want a raspberry to. I find it too soft for the foreign market, however, but as we have a good local demand, I get them there in good shape. Last summer was my first real crop of the Turner. I had about two acres, about a quarter of which is injured in a way I will speak of again, and out of the two acres I last year took \$200. I have a large number of Cuthberts which seem to be bearing. I am going into blackberries extensively, as I find they will be a good market berry, though not so good for home use. In growing my strawberries I just take one crop. I plant them in rows about four feet apart, and about a foot and a-half in the row; cultivate them thoroughly with a horse cultivator, and encourage all the plant I can, doing as little hand work as possible. I cover with straw and rake off in the spring late, so as to keep the plants back as much as possible. By doing this I find I have larger fruit, and get one or two cents per box for it more in our market than is given for that from any other place. My fruit is both larger and better in quality. I have grown several varieties, and find none so good for the market as Wilson's Albany.

A MEMBER.—Have you tried the Crescent?

Mr. HILL.—Yes, but there is one fault with it. It ripens earlier than the Wilson, but the fault I have with the Crescent is that it will not stand shipping. The Wilson will stand much better. I like the Manchester and the Wilson best of all.

The PRESIDENT.—Do you pick the Wilson when perfectly ripe, or wait till it becomes darker?

Mr. HILL.—I caution the pickers to have them well ripe, and those who bring in a basket of fruit poorly ripened don't get paid for picking it; it is just set aside. I get my pickers from the town and pay them by the box, from a cent and a half to two cents over the rest. I have little cards printed "one quart," "two quarts," "six quarts," and so on, and we have a little card so many quarts, and we just hand out this ticket to the picker and take the basket.

The PRESIDENT.—Did you ever try crates instead of baskets?

Mr. HILL.—No; I have seen them tried, but don't like them. In my raspberry patch, about a quarter of an acre of it on the lowland, which is my best soil, my raspberries turned yellow and produced hardly any fruit, while on the soil just a couple of feet higher, the canes are very strong. I hope some of the professors will be able to tell me the cause and advise me what to do. I think the strawberries were more profitable than raspberries. I would suggest that in preparing a plantation the plants should never be taken from the crop in the field, as in that way you take the outside plants, which are very poor. The plan I would adopt in future is to have a piece of soil well adapted for growing roots, and keep it especially for growing plants, and never touch my field at all; have a place specially for plants, dig them all up, and plant again.

A MEMBER.—Did you grow raspberries in hills or rows?

Mr. HILL.—In rows six feet apart, and from thirty to thirty-six inches in the row, keeping them all perfectly clean and thoroughly cultivated. We take out a lot immediately after the fruit is off. The tendency of raspberries, of course, is to bend down, and this year took the precaution to have my man when thinning out, which I think is necessary, especially for the Turner, take out the leaning ones as well as those that were weakly, so my plantation has perfectly straight canes; all standing up quite straight.

Mr. WILSON.—Don't you think old plants bear earlier in the season?

Mr. HILL.—They might, but I could realize fully two cents a box more for mine. The red ones grow up probably about two feet. The Turner shoots do not grow up so high in the first place, but sprout out lower down, forming a very heavy branch—very heavy at the base.

A MEMBER.—How many plants do you set to the acre of blackcaps?

Mr. HILL.—If you plant them about six feet and a half apart, and about three and a half feet the other way, about 1,800 plants, perhaps, to the acre.

THE QUESTION DRAWER.

On reassembling in the evening the question drawer was opened, and the following questions read and discussed:

THE PEACH LOUSE.

QUESTION.—Is there anyone present who knows the habits of the peach louse, and what is the best way of destroying it?

The SECRETARY.—I have not met with a peach louse; we have an apple bark louse.

A MEMBER.—It comes in the month of July, and is very small, like what you find on the cherry.

The PRESIDENT.—We have something about the same among the peach growers on the western shore. I suppose it is the aphid; I expect that is what is intended. There is just one process that applies to all these as well as aphides on the apple or cherry tree. In our vicinity its spread has been prevented by destroying it on its first appearance.

A MEMBER.—I have done so, and it has not spread a great deal; I find it on some trees much worse than others.

MULCHING PEACH TREES.

QUESTION.—When is the best time to mulch peach trees, and when should the mulch be removed?

The SECRETARY.—I have never been in the habit of mulching peach trees at all. I don't understand what purpose there can be, unless to protect the roots in winter time. They don't require mulching in summer, because we keep them cultivated. I suppose the writer refers to the winter season, to protect the roots.

A MEMBER.—The object is to keep the tree back in the spring—so as to make it late in the spring. It is not liable to a change of weather during the winter.

The PRESIDENT.—A friend of mine told me not long ago that he tried growing two or three varieties of peaches in the County of Perth, where they do not grow naturally at all, and, as the frost set in late, he had water under the trees, and he allowed it to freeze well and covered it with a strong, heavy mulch. But at the same time he just killed his trees in the spring by holding that on too long, all except one tree on the north side of the building, where it was naturally frozen till late in the spring. That tree did well and bore fruit. The action of the sun on the heads of the trees while the root power was dormant, evidently had the effect of killing them.

Dr. McCULLY.—I thought the gentleman referred to planting trees. We mulch as soon as possible after planting, in order to retain the moisture.

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EARLIEST FREESTONE PEACH.

QUESTION.—What is the earliest freestone peach worthy of cultivation?

Dr. McCULLY.—The Early York comes in earlier than the Crawford, and I think it is one of the best peaches in the country. It is good for the market, not being easily injured by transportation, and it is of very fine flavour. We have two kinds here, a small variety which is very productive, and a large kind called the Honest John, a most magnificent peach in every way, its only fault being that the market requires a yellow peach. For my own part I think the white peaches are superior to the yellow. I am told, too, that the Yellow Rare Ripe is an earlier peach than any other.

A. M. SMITH.—The Early Purple is the earliest perfect freestone peach I know of, but it is small. We used to cultivate a peach at Grimsby called the Honest John, which was a yellow peach, and ripened fully a week ahead of the Early Crawford. There seems to be some confusion about the Honest John, there being several called by that name. We had some flesh and some yellow coloured. I believe there is a peach known as the Schumacher, that is claimed to be a freestone. Do you know anything about it, Mr. Lyon?

President LYON.—It is quite an early peach, but not of very good quality; it is a freestone peach.

THE DOMINION STRAWBERRY.

QUESTION.—What do you think of the Dominion strawberry as a market fruit?

A. M. SMITH.—In our section where we are near the market we have nothing that pays better, but it is not a very good shipper. It comes in after the Wilson, and with us is very profitable, but it will not stand shipping too far.

NITRATE OF SODA FOR STRAWBERRIES.

QUESTION.—Could nitrate of soda be profitably employed in growing strawberries, on light soils; and if so can a constant supply of the unadulterated article be obtained in this country?

Prof. PANTON.—I don't know that it has ever been tried. It might be applied with a certain degree of success but I cannot speak from experience. In regard to its being obtained pure I could not say. I think it is worthy of trial, but it would be risky for too light sandy soil. I would like to mix something with it, some farmyard manure, to give it more retentive power. I know it has been found excellent on grass land and some of the cereals. The quantity for ordinary crops is about two hundred pounds to the acre. Dried blood has a wonderful effect on Strawberries, not on the berry immediately, but between the rows.

MACKENZIE ROSS.—About a year ago I had about a thousand loads of night soil drawn on to my place and ploughed it in, and I venture to say there were no better strawberries than I had that year. The first year it was a little too hot. The Sharpless under this manure did tremendous.

Prof. PANTON.—In reference to night soil I have heard lately a good deal of its use by market gardeners down at Carleton, but they have to watch for fear of it burning, and they try mixing it with farmyard manure with very good results. By itself they are very much afraid of it.

FRUIT PRESERVERS.

QUESTION.—Are fruit preserving powders or liquids being successfully and profitably used?

Prof. SAUNDERS.—I shall have to ask whether the idea is to bring out the use of solutions or powders for preserving food to be eaten afterwards, or merely for exhibition.

The SECRETARY.—I think it is for use.

Prof. SAUNDERS.—As far as my experience goes I should say that I do not yet know of any fluids for preserving fruits so that they will retain a sufficient proportion of their natural qualities to make them so palatable as to be attractive on the table for eating purposes. Salicylic acid is perhaps the least objectionable of any, and I do not think the acid has anything to do with producing the insipid character of the preserved specimen, I think water has more to do with it. I think that water without the addition of any chemical at all would entirely destroy the freshness of the fruit, that is its freshness and flavour for the table. I do not look for the introduction of anything of that sort that will prove of much value. I think, however, that these solutions are exceedingly valuable to fruit growers and institutions where it is necessary to preserve specimens for future reference, so as to indicate the size, form and general appearance of the fruit, but I don't think we are going to get anything better than a strong solution of sugar to preserve our fruit so as to preserve the natural flavour and fitness for the table.

Mr. BEALL.—I think there is one exception. I have seen in my own house gooseberries preserved or kept for three years with nothing but water; of course kept in air-tight jars, and just as nice when taken out as the first day.

Prof. SAUNDERS.—That would not apply to ripe gooseberries.

Mr. BEALL.—I don't know. These were just ordinary fruit such as you would obtain for preserving, not ripe. Of course the water had been boiled first, and allowed to cool, and they were kept in air-tight jars.

Prof. SAUNDERS.—The character of the green gooseberry is hardly such as to tempt anyone to eat it raw, and it has not such a flavour as I was thinking of. I am glad, however, to learn that they can be preserved in that way, because it will be useful in preserving samples.

Dr. McCULLY.—I referred in the question to preserved specimens such as we have here to-day; not for domestic purposes. I have seen fruit preserving powders advertised that would keep green fruits fresh any length of time.

Prof. SAUNDERS.—The use of these powders is comparatively old; they have been going the rounds this last five or six years, and as far as I have seen they are all salicylic acid, sometimes coloured so as to disguise it, and sometimes mixed with sugar. I know some years ago, when they were first introduced, people who were desirous of preserving their grapes and other fruits paid twenty-five or fifty cents for the receipt, and took it to a druggist, and found they were buying salicylic acid, and they did preserve them, so far as appearance was concerned anyway. The law of diffusion of fluids, where the fruit is ripe, always results in a lot of water finding its way into the fruit, and a lot of saccharine matter finding its way out. The result was that at the end of a year nobody wanted to eat the grapes, and the business died out after the first year—nobody tried it a second time. Now, in regard to Dr. McCully's point, that of preparing solutions to preserve fruit for exhibition purposes, it will take some time to explain. I have worked at it some months with different kinds of fruits, and the results attained varied with different kinds of fruit. I find that any fruit of light colour—yellow or white fruit—will preserve best in a solution of sulphurous acid, the acid you realize the presence of by the nose when you light a match. Now that frequently averts any tendency to decomposition, and the form, and colour and character of yellow peaches, yellow apples, and yellow raspberries and ripe gooseberries is preserved, and all fruits of that character preserve admirably in that fluid; and pears, also, will preserve in it in such a manner as to excite admiration. They are a little more delicate looking than is natural, but of course for exhibition purposes that is no detriment, for they certainly retain their form and attractive brilliancy. That was the fluid used at the Colonial Exhibition for all that class of fruits. I learned subsequently that it has been used in some German collections in a similar way, and the fruit kept for several years without any change. At the time I left the Colonial Exhibition the fruits had been in the fluid some four or six months, and did not seem to have suffered at all in appearance. The green colours were not so difficult to preserve; some were preserved by salicylic acid and some hydrate of chloral, varying from three to five per cent. in strength; others in boro-glycerite, which is a mixture of boracic acid and glycerine, also about five per cent. in strength. These two solutions were found to be the best for green and also red fruits, but the success attending the preservation of red

colours was only a matter of the stability of our liquid. Under such conditions exposed to the air, I recognized on account of its continue carrying on my endeavours at the Colonial Exhibition, beautiful, and colour have withstood exhibition was very perhaps better than of salt than that not well adapted was so great as to keep them un- were destroyed in surmounted in a strength of the substances one-third saturated solution salicylic solution alcohol—about a partially precipitated portion that did

Mr. BEALL.—spirits of turpentine

Prof. SAUNDERS.—admit of the use likelihood of fire opportunity of doing

Prof. PANTON.—purpose. I think would preserve a have for quite a acid and it has precipitate the sediment the gallon, and I

Prof. SAUNDERS.—Prof. PANTON.—salicylic acid. W strawberries lose gone, it seems the acid.

Prof. SAUNDERS.—antiseptic.

QUESTION.—or maturing process
Prof. SAUNDERS.—know anyone who President Linnæus which colour and vegetation is the best yet.

colours was only partial, in some instances very partial. I do not think there is any probability of our being able to find a chemical to preserve the red colour of fruits under such conditions as had to be submitted to at that exhibition, where the fruit were exposed to the sun light all summer long. Some of our red apples could hardly be recognized on account of the lack of colour. That is a class of experiments I hope to continue carrying on, and in the course of time I may be able to give the results of my endeavours in that direction. I do not wish to depreciate the results we obtained at the Colonial, for, apart from a purely horticultural standpoint, the fruits were very beautiful, and considered admirable by the great bulk of the public, but they would not have withstood the criticisms of a horticultural expert. Still, on the whole, the exhibition was very fine, and a grand success. Solutions of salt, I have since learned, are perhaps better for the preservation of plums and such fruits as will sink in a solution of salt than the others I have named, but I found that solutions of salt were not well adapted to apples and pears, because the specific gravity of the fluid was so great as to force the specimens to the top, and no matter what devices were resorted to keep them under, the pressure required kept them out of shape, and they burst and were destroyed in that way. There were many difficulties in the way, which were all surmounted in a way which I think did credit to the country. With regard to the strength of the sulphurous acid, the strength I used was about one-half, or in some instances one-third the strength it is ordinarily found in commerce. That is, it is a water saturated solution of the acid, and that diluted with one or two parts of water. The salicylic solution was made by dissolving a drachm of the acid in a small quantity of alcohol—about an ounce or two, and adding to that solution a gallon of water. It would partially precipitate, but if stored some time would almost all dissolve, and the small portion that did not dissolve was separated by straining through muslin.

Mr. BEALL.—I wrote to you, I think, telling you that a friend of mine had used spirits of turpentine; did you try it?

Prof. SAUNDERS.—I did not, because the regulations of the exhibition would not admit of the use of any inflammable spirits such as spirits of turpentine, on account of the likelihood of fire in case the bottle was broken. I propose to try it when I have an opportunity of doing so without risk.

Prof. PANTON.—I have been experimenting in the same direction for a most important purpose. I think it would be exceedingly interesting if some fluid could be found which would preserve apples and similar fruits in their natural appearance for this purpose. I have for quite a time been watching Prof. Saunders' researches. I have tried salicylic acid and it has given me the best results, but I found out that there was a tendency to precipitate the salicylic acid from the solution. The strength was about sixty grains to the gallon, and I used about a quart of alcohol.

Prof. SAUNDERS.—Mine was about one or two ounces, added to a gallon of water.

Prof. PANTON.—I noticed that raspberries maintain their colour pretty well in the salicylic acid. While you could scarcely say it is the natural colour, it is not so bad; but strawberries lose colour almost in a week or two. So far as my experience with it has gone, it seems that you might be very much discouraged in trying to dissolve salicylic acid.

Prof. SAUNDERS.—A good plan would be to use a little borax, which is itself an antiseptic.

COLOURING OF FRUIT.

QUESTION.—Is it practicable to obtain colour in fruits independently of the ripening or maturing process?

Prof. SAUNDERS.—I cannot see the object of propounding such a question; I don't know anyone who would have experience in that matter.

President LYON.—The object, I presume, is to bring out the relative conditions under which colour and ripening are produced. There is an idea, for instance, that colour in vegetation is the effect of frost. I don't quite believe it; I don't know whether others do yet.

Prof. SAUNDERS.—You mean the red colouring matter in the leaves of trees?

President LYON.—No, in fruits.

Prof. SAUNDERS.—It seems to be a general law of nature that the red colours do not, as a rule, obtain until the fruit reaches a stage known as ripeness, or, at least, the stage of maturity which will be the result of keeping.

President LYON.—In our state of Michigan we have great variations in different localities, otherwise apparently under about the same conditions, in the colouring of the same kinds of fruit. The Rhode Island Greening in some places will be without the slightest colouring, while in others it will assume a most brilliant hue, and the same is true of almost all other fruits—they colour much more in some localities than others. I have never heard the cause of the difference explained.

Prof. SAUNDERS.—It was remarked at the Colonial Exhibition this last year that the fruit from Quebec had a much higher colour than the same from Ontario, and we know hardy Russian fruits are almost all characterized by brilliant colours, which corroborates what has been said by Mr. Lyon.

THE INDIAN CETONIA (*Euryomia Inda*.)

QUESTION.—There is a kind of bug that has been found on peach trees by a gentleman near me. What is it?

Prof. SAUNDERS.—I should think it must be the *Euryomia Inda*, a family of insects with whose larval history I am not much acquainted. There are several species, all of which are found feeding on sweet fruits. This species before us comes quite early in the season, and a later brood make their appearance in the autumn. Of course they don't get fruits in the spring, and what they feed on then I don't know; probably sweet sap, or wounded trees and shrubs. I know I have found them in such situations. Most people, I know, think they are bees, for they fly around in the day time. They merely feed on the ripe fruits; I cannot say whether they puncture sound specimens, or only resort to those already cracked or punctured by other insects. They have never been sufficiently abundant to constitute a serious source of trouble to fruit growers.

APPLE PACKING.

QUESTION.—What is the most expedient and profitable way to pack apples for the market?

The PRESIDENT.—I don't know that I can add anything to the advice I have already so frequently given. The best way we know of is to pack in barrels, and the most profitable way is to include none but first-class specimens. There are certain kinds of apples, such as the Swayzie Pomme Grise, and possibly the Wagener and Fameuse, which it will pay to pack in half barrels; the same shape as any other barrel, but only half the size. From a test of it which I made in the British market, I believe it will pay well. But so far as packing is concerned, there is no better way than in barrels. Many have talked a great deal about boxes, but after my experience of the past season I still prefer barrels to boxes. It seems, so far, that in boxes we have not been able to pack the apples so tight that they will not move, whereas a barrel properly packed is perfectly solid, and they carry admirably. At the same time, while advocating barrels, I would have them with as little bilge as possible. There is a barrel that I tried myself some years ago that is a great idea; it has large quarter hoops, and when you roll the barrel upon these hoops the bilge never touches the ground at all in the rolling. So far as we examined them there was very little in the way of bruising; they carried admirably. Perhaps something of that sort might be made.

The SECRETARY.—What do you think of the barrel without any bilge?

The PRESIDENT.—I don't know; that barrel rolls on the top and bottom hoop. I did try a few Tomlinson barrels; I think they were made out of whole timber.

Prof. SAUNDERS.—What is the objection to boxes?

The PRESIDENT about and were them in.

A MEMBER apples altogether.

The PRESIDENT

The MEMBER

The PRESIDENT

may leave them they must be picked for shipping great many people some apples from hope he never all wet and rotted the apples on the Rain or any other an apple which the shade has the ground for

Mr. BEALL

The PRESIDENT

time of ripening is thoroughly matured.

Mr. ROSS.

20th of September while those of ever experience Ribston Pippin fruit did not keep one of the best, and will not

Dr. McCURRY

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The PRESIDENT

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Mr. ROSS.

ing with us is the boat, and then heads open for sometimes find under the trees at that spot, and a ferment of so is not probable seasons when the doors bad, and

The PRESIDENT.—The fruit was not packed tightly, and consequently they shook about and were bruised more than in the barrel; there seemed so be a difficulty in getting them in.

A MEMBER.—In regard to the time apples should be picked—I think we pick our apples altogether too late.

The PRESIDENT.—Do you refer to winter or summer apples?

The MEMBER.—Any apples.

The PRESIDENT.—There is a season of the year we must pick winter apples. You may leave them as late as you can without danger of frost, but in such a section as this they must be picked in the late fall. All I have to say is that they are sufficiently matured for shipping purposes when the apple has reached its normal size and colour. A great many people, I have found, pick their apples and pack them at once. I handled some apples from a man last year who said he made a specialty of that, and if he did I hope he never will again, for certainly his apples arrived in the worst possible condition—all wet and rotten. I believe strongly in what I have always practised myself—leaving the apples on the ground several days, and always packing in perfectly dry weather. Rain or any thing of that sort will not hurt them, and there is also this advantage, that an apple which has naturally colour, but which from being on the inside of the tree or in the shade has not attained it, will gain the natural colour by being allowed to remain on the ground for a few days.

Mr. BEALL.—Are summer apples the same as winter apples in that respect?

The PRESIDENT.—If you ship to a distance you will have to pick them before the time of ripening. The Duchess of Oldenberg will ship, but you have to pick it before it is thoroughly matured. Of course, for the local market, I would leave them till thoroughly matured.

Mr. ROSS.—In this county last year we were a month earlier than usual. On the 20th of September, the date of the Provincial Exhibition, fruits were thoroughly ripe, while those of other sections were green. Probably last summer was the hottest we have ever experienced, and the apples taken down from the trees blistered from the heat. The Ribston Pippins fell before they were entirely ripe, and the heat was so intense that the fruit did not keep on account of being too ripe in the barrel. Although in England it is one of the best and longest keepers; in this county it is not. It is matured in September, and will not keep very long. I think we should be governed by the season.

Dr. McCULLY.—I had some experience in picking apples too early, and they all puckered down under the skin and shrunk. I am of opinion that there is no invariable date for apples to ripen. A man will have to exercise his common sense and be a sort of expert in the business. With us on the Lake Shore it is left a good deal to the buyers; when they are ready we are willing to pick them, and therefore they are sometimes picked too soon, and sometimes a little late. We generally do better to take them a little on the green side, because we escape the equinoctial winds. Occasionally these winds come along and knock down thousands of barrels. I know some of the best orchards where Baldwins were left to get colour, and a big wind came along and they were all shaken onto the ground, and hundreds of barrels of them were lost. I think we cannot tell exactly, but it is a good plan to pick winter apples quite early.

The PRESIDENT.—But, as you say, if you pick them a little too much on the early side they will shrivel.

Mr. ROSS.—Yes, a man must be an expert. I think the most approved plan of picking with us is to pick them into the barrels, with the barrel on a sort of sleigh or stone boat, and then to draw them into the stable, or shed, and allow them to stand with the heads open for a week or so. Keep them dry and cool, and away from the sun. We sometimes find when we pick our apples, especially Greenings,—and I leave them in piles under the trees—that if there is the least spot and the skin is broken they will commence at that spot, and in not more than three or four days it will have spread all over them; a ferment of some kind seems to have taken place. If the apple is kept in a dry place, it is not probable that this would happen in that way. And then there are some particular seasons when atmospheric conditions affect apples in that way, which makes lying out of doors bad, and sometimes occasions a great deal of loss. In the hot falls, when the apples

are left a good while on the trees, we always find more destruction from rot than when the weather is cold and the apples are not so ripe.

Mr. LYON.—You send a good deal of fruit across the water, I understand, and I have heard the opinion expressed, that it would be good policy to send good fruit packed one by one, each wrapped in paper; that that course would be profitable. Has that been done?

The PRESIDENT.—Well, packing in paper has been tried, but I don't know that I would recommend it. We only tried it on a small scale. I don't know that it is necessary; but as to packing one by one, I believe, no matter what it costs the shipper to pack, it is better to pay it than to pack imperfectly. It is better to pick them up one by one, and be sure there is nothing wrong about an apple—no spot, wrinkle or worm hole, and to see that the barrel from top to bottom contains nothing but perfect apples. People on the other side don't begrudge the price; they make no question about that. What they want is to be sure they have a good article, and they don't want a medium or poor article at any price. I don't think it would pay to pack even fine specimens in tissue paper on an extended scale. It might pay for a few barrels for Covent Garden market, but for other markets I don't think it would. Packing in paper might have some effect in preventing the spread of disease in a barrel if any of the apples happened to be affected, but I don't think there is anything to be gained in general shipping.

Mr. DEMPSEY.—In regard to packing in boxes, I think I would rather risk tender varieties in boxes, not square boxes as we make them, two half-bushel boxes in one, but a bushel box made in one, square or as near as you can get it. I recommend picking them carefully, as you suggest. Every apple that has a spot or worm hole should be left out, and if there is a vacancy in the box which might be filled by a smaller apple, don't put it in; it is better to stuff in a piece of paper than fill the vacancy with a medium or inferior apple. Never send a poor apple, whatever may be the temptation; try to have every specimen perfect. I have seen some varieties of apples sold in England, and so has the President, from 19s. and from that to 21s. In the ordinary market here, I don't think people would make a shilling difference in these apples for their own use, but the English are so particular that they will pay any price for a perfect thing. They have plenty of money, and don't want our poor fruit; they have plenty of that sort of their own. They can buy their own green fruit for about two shillings a bushel in the market this year, so you can easily see what nonsense it would be for us to send our poor fruit there to compete with theirs at such prices as that. Some will say at once, "what shall we do with our culls?" One of the largest fruit growers that we have in our county—one who takes the greatest trouble to select his fruit—has all these culled winter apples, Ben Davis, Russets and Spys put carefully away to keep till the winter. He is now engaged in grinding them up into cider, which he is selling at twenty-five cents per gallon. A barrel of apples will make six gallons. How much more, I ask you, do you get for good apples than he is getting for his culls? He is actually receiving more for his culled apples to-day than we generally get for our best apples in the fall, so it is utter nonsense for us to think of packing for exportation poor apples when we can make as much by manufacturing them into cider; that is winter apples.

Mr. WILSON.—What do you do with the cider?

Mr. DEMPSEY.—Sell it at twenty-five cents per gallon by the barrel.

Mr. WILSON.—I had thousands of gallons for ten cents last year, and it was often as low as three cents.

SALT AS A FERTILIZER FOR ONIONS AND STRAWBERRIES.

QUESTION.—Should salt be sown before or after planting onions; is it useful for strawberries, and when should it be applied?

Prof. PANTON.—I should be inclined to sow it just immediately after the onion. I believe it would have some effect on onions, as it has a good effect on asparagus, celery and mangolds. Regarding its application, I say just immediately after sowing, not a long time before, because it is a soluble compound, and would leach the soil. I don't know that there have been any great results. Regarding strawberries, I could not say from experi-

ence. I hear a United States, One of the chief a salutary effect seem to be acted noticed a year ago but latterly very have been produced doubt there is a vigorous growth a luxuriant growth larly apparent bring about a high favour this winter may also be applied

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ence. I hear a great deal about salt as a fertilizer, and from what I can gather from the United States, it seems to be popular on loamy soil; on clay it is of little or no service. One of the chief functions claimed for it is attracting moisture, but it seems also to have a salutary effect in breaking up compounds in the soil; alkalies and the phosphate of lime seem to be acted upon to a certain extent. I have heard that good results have been noticed a year afterwards. It is generally believed that you get the results the first year, but latterly very practical men who have discussed this matter, claim that as good results have been produced the second year as the year previous. It is claimed for it, and no doubt there is a good deal of evidence in its favour, that it brings what might be termed a vigorous growth in vegetation, and it has a tendency, in a soil where you are afraid of a luxuriant growth, to make the plant take a firmer and better hold. This is particularly apparent in the case of low-lying soils, where the sowing of salt seems invariably to bring about a healthy condition in the plant. A great many have also spoken in its favour this winter as assisting in resisting rust and fungoid growths, and these things may also be applicable to the strawberry.

Mr. WILSON.—How much salt should be put on mangolds and asparagus, it is not generally known?

Prof. PANTON.—I heard a person remark that he had actually put as much as twenty hundred weight to the acre; that is a ton.

Mr. WILSON.—Not for asparagus?

Prof. PANTON.—No. I think the application should be from two to four hundred weight. I would never say a ton; this person I speak of had done it accidentally. Some one said he thought six hundred weight was beyond the mark, and this person said he had seen a ton put on, and it did not entirely kill the vegetation. For a garden I would recommend about the same quantity, two to four hundred weight per acre.

Mr. BEALL.—I have used for the past twelve or fifteen years half a barrel on 400 square feet. I think it is better now than fifteen years ago.

Prof. SAUNDERS.—Did you try one part and let the other go without?

Mr. BEALL.—No.

Prof. SAUNDERS.—I have been taught that wild asparagus grows in brackish water or water impregnated with salt on the sea shores of Europe. I was surprised to find wild asparagus growing in the Alps, thousands of feet above the level of salt water, and thriving remarkably well, and I thought we had not reached the bottom facts yet, and that possibly salt was not so essential as we have been in the habit of thinking.

Mr. ROSS.—I have a large bit of asparagus, planted fifteen years ago, and I used to give it a liberal supply of salt, but lately I have not given it any at all, and I think I have better asparagus now. I use very little salt, and I think it is just as good asparagus as any I see in the country; I doubt if we require salt for it at all. What you want for asparagus is plenty of manure. They used to dig a trench three feet deep, and put in lots of old shoes and rubbish, and then put a lot of manure on top of that. I am under the impression that there is nothing like having your land thoroughly pulverized and rich, then put in your plant and give it plenty of manuring, once a year if possible, before the winter sets in. It is a very hardy plant, and as Prof. Saunders has said it is a plant that grows in Europe as well as in the wild west. I doubt very much the necessity of salt for it at all. It is just an old woman's notion.

Prof. SAUNDERS.—Mr. Ross is carrying the idea further than I intended to go. I did not intend to repudiate salt. Some years ago, when running a farm, I planted pease on land, and ran some furrows down and planted asparagus in the furrows the same way as corn, and with only a top dressing of manure I had asparagus on that as fine as any I ever saw growing in any beds prepared with all the paraphernalia that has been referred to. I think as far as that is concerned it is unnecessary.

Mr. MACDONALD.—Salt has another action that has not been mentioned. A liberal dressing of manure on the surface will, if it is applied too thickly, do more injury than good. Salt has the same action as plaster, it dissolves some of the soluble constituents and carries them down to the roots of the plant, it acts on deep rooted and shallow rooted plants in different ways, it is beneficial to both clover and grass, but on different principles.

In clover it carries the soluble constituents down to the roots, and with grass the chloride of lime formed from the salt does not injure the grass as much as many other plants. There are many conditions of climate, cultivation and so on to be taken into consideration before salt can be intelligently applied, and I think it should never be applied in a greater quantity than 450 pounds to the acre.

Dr. McCULLY.—I have had great success in salting beds of Canada thistles. If you get right at them you will never be disappointed. I don't limit the quantity, I am very liberal in the matter, and I tell you it is good for Canada thistles.

EXPERIMENTAL STATIONS WANTED.

QUESTION.—Ought not fruit growers to ask the Dominion and Ontario Governments to establish one or more stations for testing fruits and experimental purposes?

Prof. SAUNDERS.—The whole system of experimental agriculture is at present in its infancy. I am doing my best to work order out of chaos, and have not reached any definite conclusions on the point mentioned, and would therefore rather be excused from answering.

Mr. ROSS.—I think the County of Kent might show something to them if a station were established in it, because the climate is congenial to fruit.

Prof. SAUNDERS.—It is the intention to make the central experimental station fall in with the work carried on at the different farm stations by distributing plants and seeds which it seems desirable under the circumstances to test in the different sections of the various Provinces, and thus far it will meet the want indicated in the query; it is impossible at the present time to go any further into the particulars than that.

The meeting was then adjourned till the next morning at nine o'clock.

CANADA AT THE COLONIAL EXHIBITION.

In the evening a banquet tendered to the association by the County Council of Kent was held in the Garner House, and after the usual loyal and patriotic toasts had been disposed of that of "Canada at the Colonial" was proposed, coupled with the names of President A. McD. Allan and P. C. Dempsey.

Mr. ALLAN.—The subject with which you have so kindly coupled the names of Mr. Dempsey and myself is indeed a very comprehensive one, for during the three months we were over in the old country we saw a great deal. Speaking for myself, it was the first time I had crossed the Atlantic, and the first opportunity, therefore, I had had of seeing or personally knowing much about our parent nation. To do full justice to "Canada at the Colonial" would be a task of many hours, but as the audience present is a mixed one, consisting mainly of gentlemen interested in agriculture and horticulture, it may, perhaps, be well to touch only upon a few of the features of that great exhibition, in which they will be specially interested. To begin with cattle, as we have many farmers here, I had an opportunity at the great Smithfield Cattle Show, considered the great fat stock show of England, of judging, as far as my judgment goes in such matters, of the quality of the stock, taking it for granted that at that show I saw the best specimens of the particular grades of stock in that country. It was acknowledged there that they never had a finer exhibition of fat stock, especially hogs. I must say that according to my judgment our own stock breeders could hold their own with those of Great Britain in all points but one. Our roots and vegetables attracted much attention on the part of the farming community in England, and they were fain to acknowledge that even with their high state of cultivation they could not grow better or even as good roots as those produced in Canada. At the Smithfield show the roots were beautifully trimmed up, but compared with ours they were not the average size, and there was not as much feed to the acre of grain there as with us, although they manure and cultivate their soil to a far higher degree than our farmers do

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here. Mr. Dempsey and I felt proud of our roots and vegetables. Then, as to our fruits. There has been heretofore a very wrong impression prevalent in Britain regarding our country. The general impression, even among the better educated class of people there, is that "this Canada of ours" is a land of snow and ice, where polar bears and Indians may be encountered almost everywhere. I have often been asked if I wasn't afraid of the Indians, and on such occasions would sometimes refer them to my head as a specimen of the Indian's prowess with the scalping knife. I do not think our Dominion Government could have devised anything more effectual in dispelling that idea of Canada than was the display of fruits grown in the Dominion made at the Colonial Exhibition. At the beginning of the season there was nothing but the fruit in jars, preserved in acid, which were admired very greatly; but the British public were suspicious of them, and entertained in many instances serious doubts of their being genuine fruits. The remark was often made, "Oh, yes, it is all very well; it looks very pretty, but for all we know it may be wax." I have often heard them when exchanging opinions with each other, express a doubt as to whether they were really specimens or waxen imitations of fruit. When the unpreserved fruit came to hand we had often to allow them to taste and see for themselves in order to dispel the allusion, and certainly our display astonished them very much indeed. The display was arranged in such a way as to attract the greatest amount of popular attention. The building in which it was exhibited was a large conservatory, running from east to west, and we laid out the fruits, commencing at the eastern end with Nova Scotia, New Brunswick and the eastern part of the Dominion, province by province, finishing up with British Columbia at the western extremity, showing the fruit of Canada from ocean to ocean. They were arranged in groups of provinces, not societies, showing the province the fruit was grown in and the particular society by which it was sent, or, if an individual, the name of the person. As far as we could we had the name of the grower on each plate, giving the name of the fruit and its particular variety, and of such a display as we had I assure you we felt very proud. I did expect at the time the fruit was being collected here that our exhibit would be something grand, but in my most sanguine anticipations I fell far short of the reality; I never expected it would be so perfectly grand as it turned out to be. As I said to Mr. Dempsey, after working all night to get it in order, I felt like going to Oxford street and investing in the highest plug hat to be found in all England. I don't know how any Canadian could feel otherwise than proud of such a magnificent display. We did our best to give all the information we could to the people, and to keep our exhibit before them. Wherever you would look your eye would be attracted by a label with "Canada" conspicuously marked in gold leaf letters; we wanted to keep their attention upon our country as much as possible. Other labels showed the particular part of the Dominion from which they came, and we had also an attractive yellow label with black letters, on which was printed, "All Grown in the Open Air by Ordinary Field Culture," which attracted much attention, and the thousands of people looking at that and seeing the brilliancy of the colouring of our fruit as compared with their own, could hardly believe that ours had been grown in the open air, the impression, even of the fruit growers being, that we must have employed some species of hot-house culture to produce such brilliant colouring and colossal dimensions. Now, from my experience there I have come to the conclusion—and being a shipper myself I feel privileged to make the statement—that our system of purchasing fruit from the grower and paying the grower has been a wrong one. I suppose the practice this year has been the same as in former years, the buyer paying as a rule an average of one dollar per barrel for winter fruit; that has been the general rule. Now, I believe the way we ought to buy the fruit is according to its variety. I have made a calculation upon some few varieties according to the prices obtained in the British market. The King of Tompkins County is worth per barrel in the orchard \$1.50; Fallwater, \$1.30; Baldwin, \$1; American Golden Russet, \$1.15; Mann, \$1.15. The Northern Spy, spotted as we have had it this year, is worth about 90 cents, but if you can get a first-class quality without spot, it is worth \$1.40. If I take the Swayzie Pomme Grise according to the best prices obtained, it is worth a great deal more—\$2; but I don't think I would be justified in putting it at that. I am quite satisfied, at all events, that it would be to the interest of shippers in buying hereafter to purchase fruit in that way, if not upon that

scale, upon one something like it, paying for each variety as it grows. If you find a particular variety grown to perfection, pay the growers for it, and in that way there will be encouragement for them to grow to perfection the kinds which will obtain the highest price. We did not have much opportunity of testing Grimes' Golden on the British market, because we got so little. Rhode Island Greenings would give \$1 this year, and, by-the-by, I think it is going to excel the Baldwin in the British market for price. This year Greenings came up wonderfully, and I found that the prejudice in the British market against green fruit is dying out. They are looking more now to quality, and for that reason I believe that before very long the Rhode Island Greening will bring a higher price than the Baldwin. I don't know that it is necessary for me to say much in regard to packing, except that it will pay a shipper, no matter what it costs him, to cull them out thoroughly, and secure nothing but the most choice specimens, perfectly clean, and without spot or wrinkle. Then they should be sized and coloured—that is, all the apples of one size and colour put together in one barrel, and marked according to what they are. Be honest with the man at the other side and the consumer, and let your apples always be fully up to the standard of the brand marked on the barrel, and you will find the British buyers will pay the highest price for them, and in that way you will realize better prices than you can by mixing different fruits in one barrel. I would advocate having three classes or brands, and you will realize better prices for the large and highly coloured apples, whereas if you mixed smaller ones with the larger ones, and green fruit with that which is highly coloured, you will only get prices below the medium, not the average at all. If you cull them out you will get three different prices, and for the poorest brand of the three you will get nearly as much as you would have done for the mixed ones, while for the highest quality you will receive the highest price going. The buyers in England are on the lookout, and when you have adopted a brand and they find that the apples are good, they will be on the alert for it, and if a barrel of a certain brand is found to contain apples inferior to what is represented, they will avoid that brand; so it is a point on which shippers cannot be too careful. If in shipping one year your apples did not turn out to be as good as represented, your next year's shipments, even though they might consist of the finest apples that could be obtained, would be injured by it. Many shippers this year took advantage of the Colonial Exhibition to ship to the London market in preference to others, and doing so, shipped direct by water. From my own experience, I would warn them against doing this, for I found that the experience of every man there who had received fruit from this side direct to London by water was disastrous. The fruit was injured on the passage up the Thames, and arrived in the market fully a week later than if landed at Liverpool and forwarded on to London by rail, thus entailing a double loss—the loss of a week's time, and the damage and pilfering consequent of their having to pass through so many hands. For this pilfering, the steamship companies blame the dock hands, and they in turn blame the custom house officials, and you can get no satisfaction at all; and we found that much better prices were always realized by shipping *via* Liverpool by rail to London. Besides that, coming up the River Thames is expensive. The dock companies' fees were something enormous,—eightpence per barrel landed on the dock, and then fees to the Duke of Bedford and goodness knows who not. The railways do charge too high a rate, however, from Liverpool to London at present, but they are going to pull the rates down. I have talked that matter over pretty thoroughly with the officials there, and I also suggested that the railway companies should provide accommodation at their stations centrally located in the city, where buyers could in a reasonable time buy, and the fruit be disposed of without expense, no rent being charged if the fruit is disposed of, instead of dealing at Covent Garden market, where the ubiquitous Duke of Bedford has to be paid a fee of three half-pence on every barrel. The railways took that up pretty well, the Midland so heartily that they had bought out half a block and started a new depot expressly for this purpose before I left, so that next year they will compete strongly for all the Canadian fruit going to London, and there will be no rent or charge to the shipper, and the fruit can be sold right in their own depot or kept for a reasonable length of time without charge, a point which will be of great value to our shippers. Then there is another point. All the last part of the season, through December, I cabled shippers sending me fruit to ship to London *via* Liverpool,

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and I made an arrangement at London that if the Liverpool prices were better than the London prices, to stop it at Liverpool and sell there. If it would pay the difference in freight we allowed it to come on to London straight and sold there. Some of the gentlemen I dealt with in London also did business in Liverpool, and in that way I had the advantage of two markets; then, again, in other markets. Liverpool, of course, is the distributing point; they handle more than London or Glasgow. I found the markets varied a good deal with the supply and demand. I had one cargo, I remember, of 14,000 barrels, of which I had advice. The moment the steamer was in the Mersey, I thought to sell in Liverpool, but prices went up in Glasgow and I sent it on there; but before the vessel had arrived at Glasgow I had sold the 14,000 barrels in Copenhagen, Denmark. I took the night train to Glasgow, had them transhipped, and got my money in Glasgow. That is the best sale I made—32s. That, however, was delivered free in Copenhagen, but after paying all the expenses there was a very handsome profit left for the shippers, several of whom were concerned. Speaking of that, I believe that Copenhagen is going to be a valuable market for this country. Apples from this country have been received in Sweden, Norway and Denmark before, but I think this year they know them pretty thoroughly and appreciate them, as we were able to send them a very fine sample of fruit. At the same time, I am sorry to say that we got some brands in England that were not up to the mark. The packing generally was good. I find that the packers generally have got into a systematic method of working and generally pack well, if they would only cull out properly, and stop the miserable practice of putting in small and wormy fruit in the centre of the barrel, thinking the buyers will never find them. The buyers are very particular, and open up one end of the barrel and go down a little way, then turn it over after closing the barrel and investigate the other end, and if there is any suspicious appearance they will shake it out to see what it contains. They go through it here and there until they learn thoroughly the kind of fruit they are receiving from that particular shipper. Even if they have received several consignments of number one fruit from a shipper, they will turn over a barrel of his shipments here and there, so a shipper can never expect to escape if he establishes a reputation and then tries to trade on that with inferior fruit. I tested the matter of shipping in half barrels. I took out a number of small barrels that are used for shipping Virginia Newton Pippins in; it would take about two and a quarter of them to make a barrel of the size of ours. I lined these with paper and filled them with choice Swayzie Pomme Grise apples, and then went round to some of the best buyers and handed them a few apples to taste, telling them I was going to offer a few for the Christmas trade. They were offered there and started at 20 shillings, running up to 27 shillings the half barrel, the highest price ever known there except for Virginia Newton Pippins, for which very high prices are paid. That was better than 54 shillings for our barrel, but I do not think a large trade could be done in that way. There is a certain fancy trade which can be done in Covent Garden market for Christmas, but the trade would be very limited, of course. There are many other markets opening out for us, an important one of which is India. I look for the time when the Canadian Pacific Railway will have a first-class steamship line running across the Pacific, and we can do a good trade with India in apples. I understand that at the present time the price there is equal to sixteen cents per apple for Canadian apples. It seems that some American and Canadian apples have found their way to India in vessels carrying ice, and the prices realized have been sixteen cents per apple. I have been told by officers of the Indian service I have met, that although the market there would not be a very large one—because the class of people who could afford to pay for a luxury of that kind are not numerous—still it would pay, and that some of our varieties that will carry long distances would find a market there. As far as the distance is concerned, I don't apprehend any trouble in that respect myself. With a first-class line of steamers, such as the Canadian Pacific intend running, I do not think there will be any more risk in shipping there than to Liverpool. Then we tried France and Germany, and although the prices were not very extra, they being fruit growing countries and their people knowing little or nothing in regard to our apples, we got prices that under the circumstances rather astonished us; that paid expenses at all events, and in some cases a little over. From all that we have done and seen, I feel confident that there is market room enough for all the apples we

can possibly grow, and I am more satisfied than ever that in this Province of Ontario, or, "this Canada of ours," we can grow apples equal, nay, superior to any country in the world, not even excepting our good friends across the line; for, taking the average of the market during the last year, our apples sold for an average of three shillings a barrel more than theirs did. I am under the mark when I say that. On regular market days, when lots of fruit are being offered, you will see the buyers there in hundreds waiting around for something to suit them. If any European fruits are offered they are very indifferent, and don't seem to care at all. Then when the American fruit is offered the bids begin to come in, but when the seller announces from his stand that he is about to dispose of a few thousand barrels of Canadian apples, you will see them crowding right up to the desk to see what he has to offer, and the bids come in lively then, I assure you. It is the liveliest business I have seen for some time, to see our fruits sold in Covent Garden and other markets of Britain. I think I am not far astray when I say that the effects of this Colonial Exhibition in all our departments will be something grand for our country. From the conversation we had with farmers and others having sons and friends desiring to emigrate, we found that they were all anxious to gain a little more information of our Dominion, about the state of agriculture and horticulture, and they were all much interested when they came to see our display of fruits and vegetables. Every day we were told of relatives who were going to emigrate, for they are over-populated there in every direction, and all had made up their minds to come to Canada. We did our very best to give them reliable information, to let them know what the country is without overshooting the mark, and explained to them carefully our climate and other matters of interest. We did not want them to come here with the idea they were going to land in a perfect paradise at once, but told them the kind of people we are, and, indeed, from their remarks, I believe they thought we were about the liveliest people they had ever met; our methods were quite different from theirs. That is one point I noticed in Great Britain. You see the spirit of progress in Canada in all departments of agriculture, horticulture and everything else which is lacking in Britain. People there seem to have the idea that everything in that country is done and finished, and certainly many things there are brought to a much more perfect state than they are here. The buildings look as if they were built to last forever, and the farms and lanes and gardens are very beautiful. But the people have settled down to that idea, and they are loth to adopt any new improvement. That is a point in which we have a great advantage in this country. I don't think I could give our Government too high a word of praise in speaking of that Colonial Exhibition, and of everything I observed there of the conduct of our Canadian affairs. I think everything was done there that could be done to advance the interests of the country in every department, and I believe that the result will be reaped at no distant day. I believe that when the spring opens we shall see a tide of immigration of a better class than we have ever had before. I am receiving by every mail letters from England and Scotland containing inquiries as to the prospect here, many of them being something like this:—A young man writes to say that he has eight hundred pounds to invest, and wants to go into farming or fruit growing, but would like first to engage with some farmer or fruit grower for the purpose of becoming acquainted with our methods, and in the meantime look around for an opening to invest his money to the best advantage. Many inquire in that way, young men who say they are not afraid of work. They say they were brought up on a farm, but cannot make anything at home. We have invited them in the warmest possible way, winding up by telling them that in coming to Canada they will still be under the old flag always dear to them, and are coming to live with one of the children of the mother country.

REPORT ON THE COLONIAL EXHIBITION.

At a subsequent stage the following report on the Indian and Colonial Exhibition was read by the President:

GENTLEMEN,—Presuming that a short report of our visit to the Colonial and Indian Exhibition, held in London, England, during the past season will be of some interest to

you, especially following:

When assisted forward with materials at the "Colonial" samples. But as a result, both as regards laid upon the table as well as many the Exhibition, was a servatory of the hundred plates of

The conservatory and our display and continuing exhibiting fruits and this surmounted grown in open air seen in every position laid out it was a not, as had been wild Indians and any too severe to finest samples. looked upon it so beauties and good firm grasp upon minds.

To give an impression of British Columbia province of 234 Provincial Exhibition 24; plums, 19; Bay of Quinte 80; making a total of West Riding 4; grapes, 51; and Besides exhibiting 22; plums, 7; and Or by the Province The Montreal 203 plates. Abbotsford Dominion Exhibition plates—101; making Nova Scotia plates. New Brunswick plates; making a

you, especially in so far as it relates to fruits and vegetables, we beg to submit the following :

When assisting at home in the work of collecting specimens for the display we looked forward with much interest to the time when such display would be arranged upon the tables at the "Colindries," as we anticipated that it would be both large and fine in samples. But although our anticipations were large we were actually astonished at the result, both as regards the number of specimens and their general fine appearance when laid upon the tables. It is only repeating the expression of a number of newspapers as well as many thousands of visitors, when we say that the fruit display of Canada at that Exhibition, was the largest and finest ever seen together in Europe. The immense conservatory of the Royal Horticultural Society was filled completely, and still we had five hundred plates of apples to exhibit at the Edinburgh Exhibition.

The conservatory in which these fruits were exhibited we took to represent Canada and our display was laid out in provinces beginning with British Columbia on the west and continuing eastwards until it closed with Nova Scotia and New Brunswick, thus shewing fruits representing the vast stretch of country from ocean to ocean. Each section was designated by a large printed card shewing to what province it belonged, and this surmounted by another on coloured cardboard stating that "these specimens were grown in open air by ordinary culture." Besides these large coloured cards were to be seen in every point to catch the eye bearing the important inscription, "Canada." Thus laid out it was a grand picture, shewing as it did most conclusively that our country is not, as had been thought by many thousands in Britain a land of eternal ice and snow, wild Indians and polar bears, but a land possessed of a variation of climates, and scarcely any too severe to grow some variety of fruit, and most of it capable of producing the finest samples. It was a living picture that did not appeal in vain to the thousands who looked upon it so admiringly, it was a picture that eloquently and truthfully told of the beauties and goodness of our country and its climates, and it was a picture that took a firm grasp upon the hearts of the people and made an indelible impression upon their minds.

To give an idea of the extent of this display we give each collection as follows:—

British Columbia, apples, 180 plates ; pears 54 plates ; making a total from that province of 234 plates.

Provincial Exhibition, Guelph, apples, 356 plates ; pears, 84 ; peaches, 23 ; quinces, 24 ; plums, 19 ; grapes, 138 ; making from that exhibition a total of 644.

Bay of Quinté Agricultural Society, apples, 288 plates ; pears, 68 ; quinces, 2, grapes, 80 ; making a total from that society of 438 plates.

West Riding of Huron Agricultural Society, apples, 234 plates ; pears, 66 ; quinces, 4 ; grapes, 51 ; and plums, 13 ; making a total from that society of 368 plates.

Besides exhibits from Ontario from individual growers of apples, 49 plates ; pears, 22 ; plums, 7 ; and grapes, 13. In all 84 plates.

Or by the Province of Ontario, a total of 1,534 plates.

The Montreal Horticultural Society had apples, 198 plates ; pears, 4 ; cranberries, 1 ; 203 plates.

Abbotsford Horticultural Society had apples, 47 plates, and pears 11 plates—58.

Dominion Exhibition at Sherbrooke had apples, 76 plates ; pears, 9 ; and grapes, 16 plates—101 ; making for Quebec province a total of 362.

Nova Scotia province had of apples, 334 plates ; and pears, 3 ; or a total of 337 plates.

New Brunswick province had of apples, 144 plates ; and pears 5 ; or a total of 149 plates ; making a total for the Dominion of 2,616 plates.

Colonial Exhibition

Colonial and Indian
of some interest to

Besides this display, earlier in the season there was laid upon the tables a small display consisting of 140 plates of apples, 10 of pears and 4 of plums from the Province of Quebec; 134 of apples, 37 of pears and 11 of plums from Ontario; and 82 of apples and 7 of pears from Nova Scotia. There was also exhibited at the Edinburgh Exhibition a surplus, being fruit sent from London, Ontario, and the Niagara district, that could not be got on the tables at the Colonial of 419 plates of apples and 9 of pears; 63 of apples from Quebec, 10 of apples from Nova Scotia and 8 from New Brunswick. Thus making in all exhibited during the season, from Ontario, 2,144 plates; from Quebec, 579 plates; Nova Scotia, 436 plates; British Columbia, 234 plates, and New Brunswick, 157 plates. Making for the Dominion during the season a grand total of 3,550 plates.

When the Exhibition closed we selected from the tables the best specimens for the Industrial Exhibition at Glasgow, making fully 500 selected plates of apples. Besides which a collection sent from Prince Edward Island which arrived too late to be displayed at the Colonial was forwarded also to Glasgow. All the remaining specimens were distributed amongst leading citizens, charitable institutions, and wherever we considered that the most credit as well as benefit would result to our country. In a number of instances, both in England and Scotland, we placed small collections of choice long-keeping kinds in the windows of leading fruiterers with a display card showing that they were of Canadian growth.

Of the fruit sent over by the Government to test commercial values, we found that plums sent in bushel boxes did not carry well, indeed there was not enough to make up one box out of all that was sent over. But while we feel satisfied that had these been sent in cold storage they would have carried well; we would recommend that plums should be sent in smaller packages, and in any case they should be shipped only when not perfectly ripe. The early pears also were too ripe when shipped to carry by ordinary freight. But apples carried fairly well and realized good prices for fine samples. Duchess of Oldenburg and St. Lawrence brought seven shillings per box. We believe that in these cases also if all had been in cold storage they would have arrived in perfect condition. But grapes whether in or out of cold storage did not as a rule carry well. Of the varieties specially observed the following carried perfectly, Prentiss, Clinton, Telegraph, Rogers 44, Arnold's hybrids. The following were fair:—Vergennes, Rogers 36, 22, 9, Burnet, Allen's hybrid. We could get some fairly good bunches in each box of the following, Delaware, Iona, Diana, and the rest of Rogers grapes not already mentioned. But Lady Washington, Concord, Hartford Prolific, Champion and Niagara were so shelled off that it was only possible to get enough to make a plate or two for the tables. Prof. Saunders' new grapes "Kensington" and "Emerald" which were packed in a box with other fruits carried perfectly. But we believe a large share of the loss (probably most of it) was due to the roughness in handling the packages in transit, and if the grapes had been packed in handle baskets we believe they would all have carried fairly well. The express companies deserve the utmost censure for the way such things are handled by them, indeed the fruits could not have been worse off in this respect had the Government sent all by ordinary freight. If we were to endeavour to find a market in Britain for our grapes it would be difficult to introduce them for dessert, as their quality is not as good as that of the home grown hot-house grapes and those imported from France. Besides cultivating a taste for them we would require to sell at a low enough price to enable those to eat grapes who cannot afford to pay high prices for hot-house varieties. But sufficient has been seen and tested by manufacturers to assure us that they will become decidedly popular for wine making, and if the provisions of our liquor Act will permit of it there will be no difficulty in establishing large manufactories in grape growing districts for the purpose of wine making. Already one firm has signified its intention of establishing such a factory provided the law does not interfere. Their intention is to manufacture wines from grapes and also clarified cider from apples. The tests that have been made have been eminently satisfactory. One gentleman who used some of our refuse apples in cider making said that the quality of the juice extracted was so strong that it would bear twenty per cent. of water added, and then be as good as the juice of English apples. It was instructive to observe the difference between the British fruits in the market and the samples shown on exhibition tables, the former being wretchedly small and spotted,

while the latter wanting. The conservatory wall grown fruit cultivation and from the spread was the case. Luscious compared tenderness in flesh is scarcely better many growers v

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while the latter were simply magnificent in size, but fineness of form and colour were wanting. The samples shown at the Crystal Palace show, as well as those exhibited in the conservatory at the annual exhibition of the Royal Horticultural Society were all wall grown fruits, and besides many of the growers admitted that they required high cultivation and manuring in order to produce such specimens. Indeed it was most evident from the spreading eyes and knotted and ribbed forms of the apples, especially that such was the case. In point of flavour from all the tests we could get, such fruit is very insipid compared with our naturally grown specimens, and there is a wonderful want of tenderness in flesh in all English apples and pears. An English Duchess of D'Angoulême is scarcely better than a sweet turnip, indeed they do not pretend to eat it at all, and many growers who tasted some of our specimens were astonished at their richness.

We hope our steamship lines will be induced to place in all their vessels a cold storage compartment for shipping our early and soft fruits. Our early apples especially can all be shipped to Britain successfully, and we believe prices will rule high for them, as local early varieties as well as those from the Channel Islands and Belgium are inferior to ours both in colour and flavour.

The Royal Horticultural Society very kindly met and examined a number of seedlings and hybrids in our fruit list and their report will be forthcoming. They also examined many of our regular varieties and will no doubt give their views in their report. Besides the silver medal awarded to our exhibit last spring that society also granted us a special medal for our general display of fresh fruits.

But our fruit tables did not claim all the attention of the public when we placed the roots and vegetables on one large table. Farmers and their sons were continually examining that table, and certainly it did look most attractive when arranged in three large pyramids, one on each end of the table and another in the centre with specimens covering the space between. People seemed quite dazed at the sight and but one opinion was expressed by all, namely, that England could not produce such fine specimens. We never before in our experience gave much thought on the question of raising large pumpkins and squashes, but gentlemen, you should hear us waxing eloquent over a 200 pound squash, or a rich coloured mammoth pumpkin. Daily when in conversation with people, farmers and their sons would express their determination to come to our country. Many of the vegetables were strange to most of the visitors of course, and it was amusing to hear the questions asked regarding them. But there was intense interest evident in every visitor. Our green corn attracted very general attention and the enquiry of thousands who had been either in Canada or the United States and had tasted corn in the ear, was "why don't you send corn over to this country?" We believe there is a very large market in England for our table sweet corn, and if cold storage on our steamships be adopted this is another article that can be successfully shipped. Tomatoes also are wanted in large quantities, especially the smooth varieties, and we believe high prices will be obtained, as those in the markets from the Channel Islands do not average so large as ours, nor are they so bright in colour.

It was remarkable, and to us most interesting, to see that the object of our display was so universally accomplished in the fact, that everyone spoke out and in their wonder at the sight before them, remarked that Canada must have a finer climate than had been thought when such fruits, roots and vegetables would grow to such perfection. People in Britain were brought up to think of our country as little better than a polar region, but now that they are convinced by staring at actual facts and handling the specimens before them that such is not the case, we look for an increased emigration to our country; and we will not be disappointed for the people we met and conversed with are evidently in earnest, desiring to improve their condition in life by changing from an over-populated country and high taxation to a rising country where there is room for every honest industrious man.

At the close of the exhibition we divided the roots and vegetables among those who will exhibit them in their shop windows as long as they remain in condition.

We believe it would pay our Government to send over fruits and vegetables to some of the exhibitions in inland cities in England, where the population is largely agricultural. I would have the effect of drawing thousands of young farmers to our country who are

now either going into other pursuits or emigrating to the United States or Australia; for they know more about these countries than they do about ours because they have seen more of their produce exhibited in such a way as we now recommend:

To advertise a country by showing its products is the most convincing, most truthful and by far the cheapest method.

ALEX. McD. ALLAN.
P. C. DEMPSEY.

Prof. SAUNDERS.—I think the thanks of this association are due to the President and his associate, Mr. Dempsey, for this very full report of the Colonial Exhibition. I am much pleased to find that the views of those gentlemen are so fully in accord with my own in this matter, with regard to the exhibit of grapes. That exhibit, even from a commercial standpoint, was got up more to illustrate the character of our climate than with a hope of introducing our grapes for actual sale as a source of profit to this country. When in England, in the spring, we had grapes in bottles only, and people would often congregate around the stand and wish for an opportunity of handling and tasting these grapes, and could scarcely believe they could have been grown in the open air in a country so cold as this, when they in England could not do it. It required a great deal of argument and persuasion to convince them these things were genuine, and I was so strongly impressed by this that I thought it would be one of the wisest things we could do to send over a quantity of these grapes, which could be handed round and tasted by the hundreds of thousands of people daily visiting the exhibition, and thus demonstrate to them that these things were solid, substantial realities, and that we could grow these grapes in the open air. I think the delegation have stated the results very correctly, and pointed to the fact that it is highly probable that this exhibit will have more direct influence on immigration for years to come than anything the government has ever done in this way. I found on inquiry that a large proportion of immigration from Great Britain went to Australia, and was told that they did not like to go to a climate where they would have to suffer so much cold as in Canada. The average Englishman does not take any special pains to make his house warm, and when the thermometer goes down to zero there is much suffering among those who live in such houses, and they reach the conclusion that if they suffer so much at home, what must it be in Canada where it is frequently twenty and thirty below zero. They know nothing of our system of keeping comfortable and warm, and, in fact, we do not suffer half as much from cold here as people in England do.

THE QUESTION DRAWER.

Business was resumed on Thursday morning at 10.30, when the following questions were read and discussed:

APPLE BARRELS.

QUESTION.—I would like to ask the President if he noticed when in England whether the Nova Scotia apple barrels were the same size or smaller than ours?

The PRESIDENT.—They were smaller than ours. The same barrel has been used for a great many years there, one containing two bushels and three pecks, I believe. They were observably smaller than ours in all the markets.

Mr. EVERETTS.—The same size as the American?

The PRESIDENT.—I found that the American barrels there varied in size. I think the Nova Scotia barrel was the size of most of the American barrels. The standard for apples is three bushels, the same size as a flour barrel.

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BLACK KNOT.

QUESTION.—Can black knot be sufficiently controlled to make plum growing profitable?

Prof. SAUNDERS.—There is so much in the character of the season to influence black knot, that that is a very difficult question to answer without some preliminary explanation. Some seasons it prevails to such an extent that it would be exceedingly difficult to keep it under anything like reasonable control. I think as a rule there is no difficulty in keeping it under control if plum growers are careful to watch for the first indications, and to remove them and burn the knot, so as to destroy the spores of the fungus which are forming in that knot. If taken in its inception in that way and watched carefully, there will be little difficulty as a rule in keeping this class of disease under. There are exceptional seasons, however, when it is exceedingly difficult. Forty-five years ago now, almost all of you will remember, not only plum trees, but cherries almost all over Ontario became so affected with it, especially the common red cherry, that in many districts whole orchards had to be cut down and destroyed. There are sections of the country where formerly many cherries were yielded in which none are now grown on account of that and the following seasons. Since that time it has become comparatively scarce and less troublesome. When it abounds like that it is most difficult to deal with, because it requires a great deal of labour in the way of cutting off the affected branches. Still, even under those circumstances, I think a little more industry and energy in the work would avail to keep it under control. There is no patent way, however, of getting over the trouble; the old-fashioned way of cutting off the branches and cutting out the knots seems to be the only feasible plan yet. I think a solution of carbolic acid, perhaps, is as good as anything to apply for the purpose of destroying the spores that may be left in the branches of trees where the knot has been troublesome, and arresting their power of germination.

A MEMBER.—Is there any perceptible indication of the disease before the bark opens?

Prof. SAUNDERS.—I don't know of any way of detecting the presence of the disease until the bark opens, so that the knot has got a firm root on the tissues of the wood. Unless it would be possible to indicate in advance where the black knot will break out, I do not know any feasible method of prevention.

THE MEMBER.—Is there any danger of it spreading? I have seen lately, on the cherry trees of a man five miles back of me, swarms of them; the trees were literally covered with them. Some have told me there is a danger of it spreading to the apple trees.

Prof. SAUNDERS.—It has never been known to affect any trees other than the plum and cherry, and there is no probability of its spreading to the apple. The plum has been most affected by it until within the last few years; in fact, formerly it was regarded as distinct on the cherry, but closer investigation showed that the same form of fungus affected both varieties, and was capable of being transferred from one to the other. Why it has taken a particular liking to the cherry more than the plum is difficult to account for, but we know in many districts the trees are completely covered with black knot, especially the sour cherries. The only wise course to pursue when trees are past redemption is to cut them down and burn them, and plant fresh the next season.

Mr. DENTON.—Does black knot attack the nectarine and peach and stone fruit generally?

Prof. SAUNDERS.—I think there is no case on record of either the peach, apricot or nectarine being attacked.

THE PRESIDENT.—Have you heard of black knot in the wild hickory tree? I have seen it.

Prof. SAUNDERS.—It is a distinct form, I think.

Mr. DENTON.—I had a nectarine growing in my garden, and after black knot had attacked the plums it took the nectarine, and I lost the nectarine; not that I claim it died with black knot, but still I found that the black knot had taken it.

Prof. PANTON.—In travelling through the country I have been astonished at finding so many trees completely covered with black knot. People don't try this plan of cutting

down, and some I have found who did cut away the affected limbs, threw them in the fence corners, which is simply a means of scattering it. There are no less than five different kinds of spores, three of which have been conclusively proved to produce black knot. It is a fungus which spreads with tremendous rapidity, and the best treatment is to cut it off. People don't do that; they ask for specific remedies for it, but will not apply what they are told to it. The best plan is to cut it off and burn it, because if you don't burn it you are scattering spores by the million into the orchard.

THE COLUMBIA PEAR.

QUESTION.—What do you think of the Columbia pear? I think it ought to be more extensively grown. It keeps with less care than any other variety, and longer after being ripe. I have thirty-six varieties on my place, and have a good chance to judge. I think the Columbia is as good as any variety I have, and more valuable on account of its coming in ripe at this season of the year.

MR. DEMPSEY.—I do not think it is much approved of in our section. It is very subject to blight, and I lost a quantity of them, though I am not prepared to say that it is more subject to it than other varieties. I have lost a large number of varieties. One of the pears I prefer is the Josephine de Malines; I am willing to stop right there for a winter pear. Perhaps just at this point I had better tell you something of the way in which we enjoy it. We have them yet, and have had since the 1st of December. We take a small quantity of them for about two weeks in our living room, where the thermometer is from sixty to seventy, and they ripen up beautifully; all that one could desire in a winter pear.

Prof. SAUNDERS.—My experience is very limited. There is one feature in regard to it generally understood—it is very slow in coming into bearing; it requires many years growth before you get any fruit.

MR. DEMPSEY.—That is correct.

Prof. SAUNDERS.—It is very good and useful when sufficiently far advanced.

THE PRESIDENT.—We are all anxious to get returns as soon as possible, but the fact that a tree is somewhat tardy in bearing is not against it in the ultimate result. In spite of that defect it is assuming quite a prominent position as a market variety, because when it does bear, it is good. One defect it has is that it is not large and somewhat inclined to drop off, especially in windy localities; but even then, specimens two-thirds grown will ripen up and make very nice market fruit. I think as we have so few desirable satisfactory winter pears it would be well to plant this, at least moderately for market, as well as for other purposes.

BEST MEANS OF DESTROYING THE CURCULIO.

The best means of destroying the curculio, and the question, "Are any varieties of plum curculio proof?" was next taken up for discussion.

Prof. SAUNDERS.—The old method of destroying them by jarring the tree and collecting the insects has been largely superseded in many districts by the use of Paris Green in the proportion of a teaspoonful of the poison to a pailful of water, kept in a constant state of agitation and sprayed on the foliage of the trees; in the first place, about the time when the blossoms are falling or the young fruit shooting, and then again in the course of two weeks, and sometimes making a third application. Most people, however, find two applications sufficient to overcome the difficulty. How the result is brought about I am not prepared to say, but it is said that curculio will not attack trees so treated to any material extent, and by this method as a rule, a crop of plums may be secured. Experiments have been tried—I think the President can tell you more about it than I can—by

taking alternate results pointed very of treatment for cu some varieties wh their pulp, some q they are deposited exempt; but they most desirable var that than I do.

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taking alternate rows of trees, and treating one and leaving the other without. The results pointed very conclusively to the importance and practical usefulness of this method of treatment for curculio. In reference to varieties being curculio proof, there are certainly some varieties which seem to have in the texture of their integuments or the character of their pulp, some qualities which make it difficult for the curculio to deposit eggs, or if they are deposited, for the larva to feed on the fruit, and these varieties are more or less exempt; but they do not as a rule constitute the better class of plums and the most desirable varieties to grow. I think there are gentlemen here who know more about that than I do.

The SECRETARY.—Do you think that the plan which has been tried by a certain writer would be at all likely to succeed? He says he has wound cotton batting around the trees for about a foot up from the ground, tied with pack thread, and as the curculio very seldom flies but climbs the tree, it finds great difficulty in climbing over this cotton. He says that trees so treated were exempt.

Prof. SAUNDERS.—I think the gentleman must be astray in his conclusions. The curculio flies quite readily; I have seen them fly at night as well as in the day time. I would like to know what means of locomotion from one orchard to another the curculio has if it does not fly? If you plant a tree five miles from any other they will find their way to it, and unless they had some appliance for flying they would be a long time in walking the distance. I do not think that would give any greater security for the plum against curculio than it would to a cherry against robins. I do not think that remedy has any practical value.

The PRESIDENT.—Quite early in the history of peach planting on the west shore of the State of Michigan, one of our early planters set out quite an extensive orchard, with a natural growth of timber between that and another orchard quite a distance away. He found he had no trouble in the spring, when they first commenced, until there was a wind from the direction of the other orchard, and then he had plenty of curculio. The idea must be that in some way a knowledge of the existence of this orchard had been conveyed through the atmosphere and they made a break in that direction, and I am quite sure they did it by flying. A neighbour of mine thought he had made a discovery—perhaps he had—of a process for driving them away by smoking the trees with coal tar and a little sulphur, doing it very thoroughly. The curculios left him, but when they found themselves getting short of pasture, that process did not answer the purpose; they could stand a little of it. I doubt if all these experiments are not liable to that objection.

Mr. EVERETTS.—Will Paris green injure the trees? A neighbour of mine, who is now dead, thought it hurt the trees.

Prof. SAUNDERS.—I think there is no danger in using Paris green of the strength indicated, if the liquid is kept well agitated while being sprayed on the trees. Being a heavy powder, it will settle in the vessel if not constantly stirred. I knew a gentleman who put a quarter of a pound to a barrel, and he complained to me that it had injured his trees very seriously, but on inquiry I found that he had used the water on the top, and when he came to the bottom had turned the whole quarter pound on a very few trees, which were very seriously damaged, of course. That, however, arose from his not having kept the mixture in a constant state of agitation. The trees upon which he had sprayed the water—the top of the barrel—were not affected in any way, not even the effect he expected of killing off the curculio, because the poison was not properly distributed, but all settled in the bottom.

The PRESIDENT.—Our district was for many years noted as a plum-growing district, but the plum growers became discouraged by the ravages of curculio and black knot, and for many years the plum crop was comparatively small. Now, however, they are going into plums again, and our crop the last two years has been enormous; plums last year were actually a drug on the market. So far as black knot is concerned, we do not fear it much; we merely cut it off. The curculio does not appear to have the same effect now; it is either weakening or leaving us altogether. We have made use of Paris green for the destruction of the curculio for many years and find it very effectual, using it in the proportions indicated by Professor Saunders. We never found any difficulty in using it in those quantities, but if used stronger there is a danger of killing the tree.

Take a patent pailful of water to a teaspoonful of Paris green, mixing it with a cup in the water till it is a perfect liquid; keep it constantly stirred, and apply to the trees with a fine rose syringe. On full-grown trees, a pail will spray from six to ten trees. The first application should be made immediately after the blossom drops, when the young plum is formed, and the second about ten days afterwards. Even if the Paris green did destroy some of the fruit, it would have been of benefit to our trees this last year, for they were laden down so heavily that in many instances they were broken down completely with their crop of fruit. I do not believe, like many, that the Paris green kills the insect, but I incline to think there is something in the odor of it that drives them away. I have examined very closely for the purpose of finding that out, but never could, though examining for that very purpose. So far as curculio proof plums are concerned, I do not think there is a plum at all that we can call actually curculio proof. There are varieties that seem to be so perfectly hard at the season of the year the curculio seeks them, that it does not seem to be able to insert its proboscis into the plum, or, if he can, the egg does not come to maturity. Such varieties as Yellow Egg, Coe's Golden Drop and Moore's Arctic, I have never found any trouble with at all, simply on account of the extreme hardness of the plum at the time of year the curculio carries on his operations.

Mr. ROSS.—I had the Arctic bearing last year, and it was full of curculio.

Mr. DENTON.—I have found that smoking has a good effect; that making a fire of rubbish, especially old rags and a little tobacco, forces the curculio to leave the tree. Whether it kills it or not I am not able to say, but they will leave that bough and fly to some other. I have found curculio in the city in sugar barrels; whether attracted by the sugar or not, I don't know. I have made up my mind that they fly from place to place.

Mr. ROSS.—I was unfortunate in not being present when black knot was being discussed, and there is something in that connection that I would like to know. Last year I was invited to Dr. Riddell's garden with a gentleman by the name of Everetts, I think. There were a great many nice trees affected, and we cut off one of the affected limbs and opened the part, and we found in it a grub. We then went through about a dozen, and found the same in all of them. Perhaps Prof. Saunders could tell us the insect that deposited that grub.

Prof. SAUNDERS.—The larva found in the black knot is that of the curculio, which frequently deposits its eggs on the knot, on which the larva appears to have the faculty of feeding and thriving as perfectly as on the plum itself. This has given rise to the impression that the black knot was caused by this insect, whereas it has merely taken up the knot as a place of residence. In regard to what Mr. Denton has said, anything that imparts a foreign odour to the plum tree seems to throw the curculio off his track. No doubt insects have some sense of smell, by which they detect particular trees which bear the fruits they are looking for—something analagous to our own sense of smell, but far more acute. I know in many instances the insertion of elder branches, which have a strong odour, among the branches of the plum has protected the crop from curculio, which can only be explained by the insect having been thrown off its scent; it has come to the conclusion that it cannot be a plum tree on account of the odour. The different plans of smoking the tree seem to be explainable in the same way, and all have their value; but you can understand that where one has an orchard of five hundred or a thousand trees, to kindle a fire and smoke each one thoroughly would be a rather tedious undertaking, and in that case Paris green would be a much more practicable remedy. Anyone who has only a few trees may adopt any of these methods with a certain amount of success.

A MEMBER.—Would the introduction of wild plums into the orchard be of any benefit, on account of their superior attractiveness, to curculio?

A. M. SMITH.—They would be very liable to introduce black knot, which is worse.

Prof. SAUNDERS.—I do not think it would be of any avail. The number of curculio in any district is something not easily determined, and if you offer special attractions for them they will no doubt come to the entertainment. I don't think it would be wise to plant wild plum trees with that object; I don't think the insects would confine themselves to the wild trees.

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THE SPOT ON THE APPLE.

The following paper was contributed by S. P. Morse, of Milton :

The following observations are local, mainly confined to one orchard. An apple so diseased as not to be fit for shipping is put down as a total loss, for no man can make a living at growing culls.

Early Harvest, Fameuse, Rambo and Dominic, 100 per cent. or total loss ; Yellow Bellflower, 50 per cent. ; Northern Spy, 30 per cent. ; Rhode Island Greening, Ladies' Sweet, Twenty-Ounce and Fall Pippin, 20 per cent. ; Tallman Sweet, Spitzenberg and Sweet Bough, 10 per cent. Some other slightly affected varieties exempt from spot, were : Duchess Oldenberg, Baldwin, Fall Orange, Maiden's Blush, Fallwater, Grimes' Golden, King of Tomkins County, Ribston Pippin, Red Canada and all the Russets, as also all the Crabs and some seedlings on trial.

I observed that wherever the fruit was attacked the leaf blight was present, though not always in equal degree ; that shade, cold and damp seemed to encourage the growth of fungus ; and, that thin-skinned fruits appeared more liable to its attacks than the thick-skinned. The influence of sun and shade respectively was very clearly proved in the case of the Fameuse, where closely planted or crowded. Taking my stand on the south or south-east side, the fruit appeared well coloured and fair, though small. Go to the opposite side, and a mass of withered, black and frowning faces looked complainingly down. A Fameuse that happened to stand by itself on a bold shoulder of a high hill looking square in the face of Boreas, was loaded with small, clean fruit. Yet the leaf was somewhat injured, the probable cause of the small size of the fruit. The Spy and Bellflower were most affected at the calyx, so likewise the Twenty-Ounce. These varieties hang pendent from twigs, which averts the calyx from the light and retains any wet that may gather on the apple about it. Some varieties, such as the Westfield Seek-no-further and Swaar dropped nearly all thin fruit, but did not spot. Such varieties as did this exhibited most damage to the foliage, as a rule. I have not the means of proving whether this is a new or old enemy, as A. J. Downing fifty years ago mentioned the "spot" on the Fall Pippin. It is certain that the clearing of the country of forests and some cosmical changes have caused considerable climatic changes, sufficient it may be to render our present climate unfriendly to many of our old, and till late, hardy kinds. Some time ago I called the attention of the *Horticulturist* to the fact that in this region all the black ash on high and low lands alike,—trees of second growth as well as those a hundred years old,—are dead ; they died almost in a day, in the last of May, 1885. A little to the north and west of this locality, hundreds of apple trees and nearly all the better class of plums and cherries of all kinds have yielded to the destroyer or the changes the diseases produce by the changes and the sudden vicissitudes so trying to all living things. Every variety may be said to have its habitat in which it attains its highest possible development. Whatever changes the conditions which go to create this habitat, if destroyed, destroys the adaptation, produces a retrograde movement and decay. Some other facts and suggestions present themselves, but I have already made this paper longer than I intended. At some future time, when I shall have further verified my observations, I may submit the results, if desired.

A paper on the same subject by John Croil, of Aultsville, was also read, as follows :

The above being one of the subjects for discussion at our winter meeting, which I will be unable to attend, I venture a few remarks, as the disease seems to be worse in our district than in most places.

I speak rather feelingly on the subject, as my orchard (which my neighbours were pleased to call one of the best, if not the best in these counties) is entirely ruined. The trees are the picture of health. The fruit, mostly Fameuse, I had no difficulty in selling a few years ago at a dollar a bushel ; this year and last, it failed to repay the expense of gathering.

No doubt the spot is, as you say, a species of fungus, but we have failed to find either the cause or the cure. Some seem to think the disease will run itself out. The

chances of that seem to be very few. A disease which has gone on increasing for a quarter of a century or more, and which is reported from all quarters to be worse now than ever it was, is a stubborn one.

In the annual report of our association for 1869, p. 71, is the following, being a report of the fruit crop in the County of Lincoln:—The "black spot," as it is called, is worse than ever known before, especially on the Early Joe, Early Harvest and Golden Sweet, which are nearly worthless. Almost all varieties are more or less affected by it. The Red Astracan, Rambo, Jersey Sweet, White Juneating, Dutch Mignonne, Duchess of Oldenberg, Gravenstein, Baldwin, Spitzenberg, Northern Spy, Swaar and Seek-no-further are slightly touched by it; whilst the Ribston Pippin, Newtown Pippin, King of Tompkins County, Roxbury and Golden Russet, especially the latter, are good.

Of the above apples the same thing might be said to-day. The workings of the disease have been very puzzling. If it is in the soil or the atmosphere, what change has come over these to produce and continue it? Orchards we have here, within a few miles of us, grafted fruit, with soil and situation seemingly very similar to ours, all of them like ours close to the St. Lawrence, bearing fruit very little spotted, of kinds the same and alike cultivated. Within the distance named and under similar circumstances, a neighbour of mine has a large orchard planted the same year as mine (1869.) This year his Fameuse, like mine, were badly spotted; his Tallmans were free from spot. Mine, which were not affected till now, were this year as badly spotted as the Fameuse. In rare cases we come across trees of Fameuse very lightly affected; these almost invariably are on sandy soil. Ours is a clay loam.

At one of our meetings I showed Mr. Dempsey a sample of my Wealthy apples, and to my inquiry what apple it was, he replied, if it was not spotted he would say it was the Wealthy. It was the Wealthy, and from reports I gave you in the December number of the *Horticulturist*, you will see that it does not sustain its character of being entirely free from spot. I hope I may be wrong when I say I fear it will not remain on the spot free-list. The American Golden Russet has never been known to spot in our district. I might almost club the Duchess with it, but would have trouble to name a third.

I never saw a tree subject to the spot recover, and as apples spotted to any extent will not pay the expense of growing, barely of gathering, I believe in the advice given us in the January *Horticulturist*. Cut them down and burn them if sound, and just such as I have given to others, but to me it's like drawing teeth, very unpalatable. I hope the discussion on the subject may bring good results.

The SECRETARY.—I was somewhat surprised to find the Newtown Pippin classed as almost free, and that the Golden Sweet was subject to spot in the County of Lincoln. I have known the latter for a number of years, and it is almost entirely free. I feel so much interest in this question that I must ask you to allow me to make a few remarks also. We begin to feel that this is one of the most serious questions in regard to the future of our apple culture that can be brought up. I am very hopeful that discussions on this matter may be helpful to us, because I am certain that unless we can either find varieties proof against this spot, or some remedy for the spot itself, we shall have to give up apple culture. Its course with us has been somewhat as follows. It began in the Snow apple, in which I think I noticed the first signs about 1870, and in our section of the country it is now utterly useless. The apples are becoming smaller every year and we are cutting down our trees or else top-grafting them. The Fall Pippin is another of the same kind, and its history is the same, but with it, instead of getting smaller, the apples are fewer in number; we do not get a crop on more than half our trees. Some years ago, in 1874, we shipped a car load of them at a time in one season, but now we never get more than twenty or thirty barrels of apples off the same trees. I am sorry to say it is also coming on the Greening, which has been referred to by our President as one of the apples now gaining favour in the markets of the old country. They have been worthless, especially in the older orchards, for the last three or four years, and not only worthless but the crop has been very much decreased.

The Rambo is one very sorry to see l table, just put the end you will see it disappoints me to bear a profitable as the Snow. Th and I am inclined to the same exten the last Montreal are free with us. stein might be cla Oldenburg is one Mann is clear. T Wealthy has the r —perfectly free fr

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The Rambo is one of the worst, it is as bad as the Snow, and another apple that I am very sorry to see beginning to be affected is the Northern Spy. There are a few on the table, just put there to show you how the spot is beginning to affect them; at the calyx end you will see how it affects them. I have planted a large orchard of these apples, and it disappoints me very much. The Spitzenberg does not show so plainly, but it has ceased to bear a profitable crop. The Early Harvest is another of the very worst; almost as bad as the Snow. The Baldwin has not been a good cropper for the last three or four years, and I am inclined to attribute it to the same cause, although it does not show this scab to the same extent. The new apple, the Wallbridge, I have not fruited, but I noticed in the last Montreal report that it is subject to the spot. Altogether only a few varieties are free with us. The American Golden Russett is clear and beautiful, and the Gravenstein might be classed on the free list. The Red Astrachan is clean and the Duchess of Oldenburg is one of the very finest. The King apple is scarcely affected at all, and the Mann is clear. The Alexander also I think might be put upon the free list. The Wealthy has the reputation of being free, and the Ribston Pippin is one of the very best—perfectly free from spot.

President LYON.—Has anyone had any experience or made any investigation with reference to the time when this disease originates. I think very little is generally known on the subject, and I think it is very important that this should be learned if we are to devise any means of arresting it. I suspect from the little observation I have made on the subject that it appears very early after the fruit begins to swell, if not early after the blossom.

Prof. PANTON.—It is said to be from a very early period of the apple's existence, from the time it is as small as a pea.

President LYON.—I might add that there seems to be seasons when the disease disappears entirely, even on the varieties most affected; that is, the Snows sometimes come out perfectly bright and clear, while most seasons they are entirely ruined.

Prof. SAUNDERS.—I have observed the spot on very small apples, before they are the size of a hickory nut, and there is no doubt it attacks the fruit very soon after it is formed. President Lyon has pointed to a very important matter, and that is the character of the season and its influence on the spot. This last year, in the Province of Quebec, spot has prevailed to an extent never before known, and that may perhaps account for the adverse account of the Wallbridge, to which the Secretary has just referred. Heretofore there has been no difficulty in obtaining large quantities of Fameuse apples near Montreal, almost if not entirely free from spot, but this last year I had the greatest difficulty in getting a few bushels to send to the Colonial Exhibition. Every grower told me that he had never had such an experience before, it resulted in the almost entire destruction of their crops, as far as the markets were concerned. It is to be hoped the thing will pass away there as readily as it has come to them, although it is to be feared they may be troubled in this matter for some years to come.

The SECRETARY.—It rather increases than diminishes with us, and never entirely disappears.

Prof. SAUNDERS.—It seems to be worse some years than others; this last season has been much worse than any ever known before.

Prof. PANTON.—What kind of a season has it been?

Prof. SAUNDERS.—I have been away most of it, and have had no opportunity of judging. At a late meeting of the vine growers in France the subject of mildew on grapes was investigated by scientific men, and some very useful information was conveyed to the public on the use of a mixture of sulphate of copper and lime as a deterrent for mildew, and it might possibly be worth testing in regard to the fungus on the apple. A paper was read at the meeting of the Western New York Fruit Growers' Association on this subject, in which was given the proportions used. I took them down, but I don't happen to have it with me, and cannot give the proportions from memory, but the sulphate of copper is dissolved in water, in the smallest possible quantity, and the lime is taken and slacked, and exposed to the air in a fine powder, and the solution of sulphate of copper added to the lime, and the whole mixture dried in the sun. It was tested on the grapes and they have had wonderful results. I think it is a thing well worth trying. It not

only kept the vine free from mildew, but had the effect of invigorating the plant so that it has held its foliage very late in the season, and retained its dark green colour.

The SECRETARY.—Some of you, will remember, perhaps, Professor Saunders recommending us to experiment on the apple spot by spraying with a solution of sulphur and water, and also, I believe, among other remedies, the use of a solution of hypo-sulphite of soda. I tried the sulphur very faithfully, but could not find the slightest difference in the trees that were sprayed. I am sorry I did not try the other, as I believe others have met with a measure of success in using it, and in the last report of the New York experimental station, Professor Arthur, of Geneva, gives his experiences in its use. The quantity he used was one pound to ten gallons of water, and he syringed half of each tree with it, making applications on the 6th of May, the 9th of May, and the 15th of May, with the following result. The proportion of uninjured fruit on the syringed part of the trees was greater than on the other, and the fruit was also superior in size, and he adds, which makes it very practicable for us, it may be applied at the same time the spraying with Paris green is done; it can be mixed with the Paris green and water when spraying the trees for codlin moth. I would suggest that fruit growers should make the experiment this summer. I am going to try it, for I think it is a very important thing. I hope science will come to our aid, and rid us of this very serious disease.

Prof. SAUNDERS.—Some chemicals are very expensive, but this happens to be a very cheap one.

Mr. DEMPSEY.—We had very few first-class apples this year on account of the spot, but if the same remedy will destroy apple spot that will destroy mildew, I am satisfied it can be quite easily accomplished. We find that a simple application of sulphur on grape vines when they are beginning to start their growth is quite sufficient to make a nice, clean crop. Throw the sulphur on the ground, or so it scatters on the ground, and we find that we have no mildew, even in the varieties most prone to it. We have also found it very efficacious to apply sulphate of iron sown broad-cast over the soil. When this was done we found no difficulty with our grapes. I don't know whether this will agree with the scientific developments of Professors Saunders and Panton, but it occurs to me that there is a possibility of destroying apple spot by an application of either sulphate of iron or sulphate of copper.

Prof. SAUNDERS.—In this paper to which I have referred the effect of the different substances was indicated by black lines, showing what proportion of success had attended these different methods by illustrating the relative good done. Sulphate of iron made a very short line indeed on this scale. In these experiments in France sulphur also failed to come up to the expectations formed, but this mixture of sulphate of copper and lime filled up the scale, indicating that they were almost entirely successful in stemming the virulence of this disease. I think at the same time that we should test everything likely to prove of service. The action of sulphate of iron may not be the same on the apple as on the grape, and therefore both should be experimented with.

Mr. DEMPSEY.—Could the sulphate of copper not be safely used mixed with Paris green in spring for the codlin moth and syringed on the tree at the same time, as soon as we discover fruit on the apple trees?

Prof. SAUNDERS.—I have had no personal experience; I am merely reporting what I have heard second-hand, and in these experiments the sulphate of copper when used alone did not give half as good results as it did when lime was associated with it, and the opinion of the French chemists was that there was some combination between the lime and sulphate of copper which made them more effective when used in combination than where sulphate of copper was used in solution by itself.

Prof. PANTON.—Of the three mixtures spoken of, sulphur, sulphate of iron and the sulphate of copper and lime, the latter, as has been said by Prof. Saunders, gave the most favourable results in the experiments made by the French chemists. Mr. Dempsey tells us that where he scattered sulphur on the plant and the soil he has found satisfactory results. If that is an established fact it is worth following up by others, so as to make it still more definite. I can imagine that the fumes arising from the formation of sulphurous acid as the sulphur is acted upon by the sun and atmosphere, would be death to these mildews. I would not have so much faith on the subject of iron, but of course all of these things

have to be judged the sulphate of copper certain amount of copper and lime lime might be tried

The PRESIDENT used it for several habit of sprinkling practised scattering substance—all over the trees; no the Burnet, which we have got fairly the same way with

Mr. ROSS.— them.

The PRESIDENT Mr. DEMPSEY quantity of lime in this liquid. I have I got from an English

A MEMBER.— same pot. We use parts, or a little more the liquid is put in

The PRESIDENT without force, and preparations spoken I have known cases applied without being thoroughly permeated

The SECRETARY this head: "Will pose I may answer when we did not began to feel that I am sure that some of codlin moth, and I don't think the and the labour is

The PRESIDENT

The SECRETARY horses, but I find begin to use the force pump, made well indeed, to wash also a little open being securely tied Paris green well pouring in the rest for stirring it up over a large area waggon you can answer for young the spray is distributed

Prof. PANTON The SECRETARY

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have to be judged by the results. I could understand better and be more in favour of the sulphate of copper and lime, because there the lime may take hold of the oxide and a certain amount of acid be evolved. I am inclined to favour this mixture of sulphate of copper and lime more than pure sulphate of iron. I don't doubt sulphate of iron and lime might be tried.

The PRESIDENT.—I can corroborate Mr. Dempsey in regard to sulphur on grapes. I used it for several varieties of my grapes that were affected by mildew. I was in the habit of sprinkling the sulphur upon the vine, but for the last three or four years I have practised scattering the sulphur—which, as I think Mr. Dempsey said, is a very cheap substance—all over the soil under the vinery, and I find no difficulty in any of the varieties we have; no mildew at all. I have a perfectly clean crop of Concords, and even of the Burnet, which used to mildew all over. So far as mildew in the grape is concerned we have got fairly rid of it, and I believe with Mr. Dempsey that by following this up in the same way with other substances, we may attain the end we have in view.

Mr. ROSS.—I have two hundred grape vines, and I never saw mildew on one of them.

The PRESIDENT.—This is the County of Kent, you must remember.

Mr. DEMPSEY.—I know a recipe for destroying mildew on the grape. Put a certain quantity of lime in a bottle, and when syringing the vines put in a certain quantity of this liquid. I have known that remedy to clear them perfectly in a vinery. It is a theory I got from an English person.

A MEMBER.—It is a good, practical remedy. Throw some lime and sulphur in the same pot. We used to have proportions to mix it, but that is not necessary; nearly equal parts, or a little more lime or sulphur, it does not matter. After boiling for a few hours the liquid is put away in a jug to be used in small quantities.

The PRESIDENT.—These remedies sometimes fail when applied by simple spraying without force, and succeed under other circumstances. We can hardly judge of the preparations spoken of unless we know the circumstances under which they are applied. I have known cases in which preparations intended to destroy insects have failed when applied without much force, but succeeded admirably when sufficient force was given to thoroughly permeate the whole surface.

The SECRETARY.—A question was handed in which I reserved, to be dealt with under this head: "Will it pay to spray apple trees with Paris green for codlin moth?" I suppose I may answer that from experience. It certainly does pay, and pay well. Formerly, when we did not use it, we were becoming discouraged, as we now are with the spot, and began to feel that if things went on like that we should find apple culture unprofitable. I am sure that some years I have had to throw out fully one-third of my apples on account of codlin moth, and that is a serious consideration. But since we have used Paris green I don't think there is one barrel in ten, perhaps in twenty; so it pays very well indeed, and the labour is not very great.

The PRESIDENT.—What is your proportion, and how is it used?

The SECRETARY.—My plan is to use one horse and a market waggon. Some use two horses, but I find one answers as well. At first horses are very much afraid when you begin to use the pump; it is rather terrifying to them. I use a pump similar to Field's force pump, made at Oakville. I use a coal-oil barrel, which answers the purpose very well indeed, to which I attach the pump and screw it down fast in the head, in which also a little opening is left through which to pour in the water, the whole arrangement being securely tied to the waggon by four ropes, one at each corner. I first mix up the Paris green well with a smaller quantity of water and put this in the barrel, and then pouring in the rest, pail after pail, will mix it most thoroughly. Of course I have a stick for stirring it up every little while and keeping it well in suspension. Two men will go over a large area of ground in a day with this arrangement. By having it mounted in a waggon you can reach pretty high trees. I have tried it in a truck or stone-boat, which answers for young trees, but in a waggon you can reach the top of quite large trees, and the spray is distributed beautifully fine all over them.

Prof. PANTON.—How many ordinary trees could be syringed with one barrel?

The SECRETARY.—Twenty-five or thirty.

Prof. SAUNDERS.—How much Paris green to the barrel?

The SECRETARY.—Three ounces to fifty gallons of water. I was rather careful, because I found that injurious results followed sometimes from using as much as four ounces to the barrel.

A MEMBER.—How often did you go over them?

The SECRETARY.—Sometimes not more than once, unless there happened to be a heavy rain shortly after using it.

The PRESIDENT.—At what time do you apply it?

The SECRETARY.—Almost as soon as the apples are formed, while they are still standing upright.

Prof. SAUNDERS.—Did you find it cleared away the canker worm as well?

The SECRETARY.—I did; we have been a good deal troubled with canker worm, and at one time it was a question how to get rid of it; but I find the Paris green quite effectual in that way. I may state also that I have tried London purple and found it quite as effective as Paris green as far as I have noticed of it. It certainly mixes with the water better, but I found that injury resulted also from the use of it too strong, and have not used as strong a solution as is recommended by some. I found one-third of a pound to forty or fifty gallons to be sufficient.

A MEMBER.—Is there any brand we can be sure of?

Prof. SAUNDERS.—Owing to the demand for a cheap article Paris green is often adulterated. Paris green will dissolve entirely in ammonia, and if you have any sample of doubtful purity take as much as will lie on a five cent piece and put it in a bottle of ammonia. If it leaves a white powder at the bottom you may be sure it is not Paris green. When Paris green is pure it is uniform in its action, and always contains about the same proportion of arsenic. London purple is quite a different thing, it is a waste powder that arose in the manufacture of aniline dyes, in which arsenic is one of the important constituents; and formerly the manufacturers were obliged to send it out into mid-ocean and dump it to prevent any danger of bad effects upon the community. There is no uniformity or stability about it; it is a mixture of arsenic and lime in variable proportions, some times twice as strong as at others, and for that reason I never recommend its use. You may get good results in two or three instances, and on using the same quantity next time you will find the foliage of your trees or plants injured. I think when you know of a remedy that is safe, and uniform in its action, it is not wise to change for one less uniform in its results.

Mr. DEMPSEY.—With respect to the use of a nozzle for spraying trees, I believe I use one a little cheaper than any other I have ever seen used. It requires a little practice to use it properly, but I find it much more satisfactory than anything else I have met with. We simply unscrew the patent nozzle and throw it away, and by clapping a finger over the ring of the nozzle I can arrange the spray just as I like; it only requires a little practice. You can arrange to increase the force of your pump by throwing a smaller spray, or throw it larger and spread it further if you wish, just to suit the circumstances. And just here is another point, perhaps I use a more powerful pump than most people do, a three inch cylinder pump, which will throw water thirty feet high quite easily. When the poison is thrown up so that it descends like rain it generally strikes about all the fruit that is standing erect, and I find it has the best effects upon the fruit.

Prof. SAUNDERS.—While on my feet I intended to have referred to one more of the exact experiments that had been tried in regard to the effect of Paris green upon the codlin moth and cut worm. Professor Forbes, of Champagne, Illinois, two years ago instituted a series of careful experiments, taking alternate trees of the same varieties of fruits and spraying one and leaving the other unsprayed; keeping a record of the number of times they were sprayed and all particulars, and submitting each apple from each tree to a careful examination. The results, as far as I can give them from memory, were that about three-quarters of the crop was preserved by the use of Paris green on alternate trees. It is the only very exact experiment I know of that has been carried on. They may be repeated in another county with better results.

The SECRETARY.—I noticed the result of an experiment at the New York station. They used Paris green on the 3rd, 5th and 17th of June, and the result was that of the

trees sprayed th cent. I would be thrown on th much success, pe gallon of kerose Riley recommen hot, got the soap up thoroughly in having used enc

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Prof. SAUN tunities of testin grown have not of getting ahead regard to keros the aphid. The beneficial, and w

The PRESID appeared, and th man in charge one application was; I told him injure the trees,

Mr. EVERE but another ins Richmond cherr

Prof. SAUN slug. Hellebore

trees sprayed thirteen per cent. were wormy, and of those not sprayed thirty-five per cent. I would like to bring up the question of kerosene emulsion, to see if any light can be thrown on that. I tried it last year on some apples and cherry trees, but without much success, perhaps because I did not use the correct proportions. I only used one gallon of kerosene to half a pound of soap and forty gallons of water, I find that Prof. Riley recommends two gallons of kerosene for the same amount. Of course I mixed it hot, got the soap and water boiling and put the kerosene in afterwards, and churned it up thoroughly in barrels. I suppose my lack of success must have been owing to my not having used enough kerosene.

Prof. SAUNDERS.—Did you churn the kerosene with the whole quantity of water?

The SECRETARY.—Afterwards; I mixed it first in the pot. I used one gallon of kerosene, half a pound of soap, and forty gallons of water.

Mr. EVERETTS.—In regard to nozzles, I have done a good deal of spraying, and the best nozzle I have ever had yet is one in which the water comes out with a twist, and you can gauge it in spraying by turning a thumbscrew. I have seen it advertised in the *American Agriculturist*, and they keep them in the hardware stores. You can arrange to spray the whole side of the tree almost. I do not remember the name of it.

The SECRETARY.—Is not there a half moon?

Mr. EVERETTS.—No, it is just like a shut-off tap. As you turn one way it shuts off the water entirely, and the other way a straight stream.

The SECRETARY.—The cyclone nozzle is arranged with both a round and a half moon aperture, and by these you can regulate the stream of spray to any size you please.

THE APHIS ON CHERRY LEAVES.

The next subject taken up for discussion was, "The Aphis on Cherry Leaves; Extent of the Plague, and best means of checking it."

The SECRETARY.—I have had some experience, but I am afraid it is not worth anything, because it was unsuccessful. It was the application I have just been describing, a kerosene emulsion, which I tried upon the cherry trees. It did not remove the aphis and we suffered very badly with it; indeed our trees were covered with them last season, and the cherries were largely unfit for shipping. The leaves were just black with them, and although in former years we have had the same plague we never had it so terribly bad as last season. I was very anxious to destroy the aphis, but I suppose owing to the fact that I did not put in enough kerosene to make it thoroughly effective I failed. I shall try it again, however.

The PRESIDENT.—Did you try carbolic acid?

The SECRETARY.—No, sir.

Prof. SAUNDERS.—I cannot throw very much light on this question. My opportunities of testing remedies have not been very great in that line, as the few trees I have grown have not been badly affected, and the birds which feed on them have made a point of getting ahead of the aphis. The evidence which has been accumulating, however, in regard to kerosene emulsions, points to their being useful, to put it very mildly, for the aphis. They have been tried for the apple aphis and in many instances found beneficial, and would probably be so also for the cherry.

The PRESIDENT.—I have tried carbolic acid. I was just going from home when it appeared, and the trees were perfectly covered with it when I heard of it. I told the man in charge to make a mild solution of carbolic acid and apply it with a syringe, and one application of it cleared the trees most completely. I don't know what the strength was; I told him to have it mild enough so it would not injure the trees. It did not injure the trees, but it cleaned off the aphides and we saw nothing more of them.

Mr. EVERETTS.—In 1885 they were very thick in my district; and not only they, but another insect which eat away the fleshy part of the under side of the leaf of my Richmond cherry trees.

Prof. SAUNDERS.—That is a slug, a slimy-looking thing—the pear tree or cherry tree slug. Hellebore or Paris green will get rid of that entirely.

The SECRETARY.—What would be the proper amount of carbolic acid to use in water?

Prof. SAUNDERS.—The proportion of about an ounce to a quart.

The PRESIDENT.—I don't think my man used so much as that.

Prof. SAUNDERS.—It varies so much in its strength in commerce; it depends upon whether you get the higher grades or the crude acid, which is a different chemical. You would have to know what grade of the acid was used before you could advise as to the proportions.

The SECRETARY.—I have used it for the aphids on the rose.

Mr. BEALL.—I was going to ask if you used crystals. Of course I am not a chemist, but, as I understand it, it is in a crystal state, and there is crude carbolic acid, which is a heavy fluid. I used that, and I could not use a quarter of an ounce in a gallon but what it would burn up the foliage.

Prof. SAUNDERS.—My remarks apply to the higher grades, in the crystal state.

Mr. BEALL.—You would not recommend the crude acid?

Prof. SAUNDERS.—No, not for purposes such as we are now discussing. The clear acid—or sometimes it is a little pink—is the most convenient form to use, and should be used. It is ordinarily sold for chemical purposes.

The PRESIDENT.—I fancy that would be the kind my man used.

President LYON.—I had a row of forty or fifty young cherry trees attacked by the slug, and after a day or two found two hundred upon them. Being in haste I applied road dust right then, and on returning next day found only half a dozen, or perhaps a dozen left on the whole row. I tried it a second time, and that was the last of them. They certainly did not get away in any other way than being destroyed by the sand in each case. There is no doubt of the success of the Professor's plan, but sometimes it is troublesome to go to the expense and labour of preparing chemical solutions, and the road dust or sand will actually effect the object. We have found no necessity for more than one or two applications.

Prof. SAUNDERS.—Your experience does not correspond with that I had. I used to have an abiding faith in this road dust remedy, but after several applications I found it did not give the result expected. I thought I would try an experiment, and I took the branch of a pear tree that was badly affected by slugs, counted the number of slugs, and kept a record of them. I then took some road dust and was very careful to pepper each one all over with the dust, and then tied up the branch so that the birds could not get at it to pick off the slugs. On going back the next day, or two days after, I forget which, I found that the slugs had crawled out of this covering of sand and dirt and were feeding away as before on the leaves of the trees. I am not quite sure whether the number was at all diminished or not, but certainly not to any extent that would warrant me in including this as a remedy. I tried a second application on the same insects, and on visiting them again found they had crawled out a second time, and I thought if they could do that it was not worth while to pursue the experiment any further, as far as the practical outcome was concerned. These insects went on and completed their growth as if nothing had happened. I came to the conclusion that road dust acts mechanically by covering the slimy coats of the insects with a heavy weight, which causes them to roll off the tree. When it is thrown on with considerable force a large proportion of them would be dislodged, but while I would not like to be understood as disapproving the remedy, I do not think it is one which can be relied upon to succeed every time. I think it depends very largely upon the way in which it is applied.

A MEMBER.—Have you seen air-slacked lime applied?

Prof. SAUNDERS.—No, but I understand it has been used very effectually; but it is an unpleasant thing to use.

Mr. SMITH.—I effectually rid my trees of a large quantity by sprinkling with unleached ashes and hellebore, in the proportion of a handful of hellebore to a peck of ashes.

Prof. SAUNDERS.—The hellebore alone would have done it.

Mr. BEALL.—I have used air-slacked lime on cherry trees. I did it for two years, and it only required one application each year to perfectly effect my object, but on applying

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Mr. BEALL— apples. My reas at our township s given there. I h clusion that it is the results will b

it the third year I found it almost worthless. I began to think over the matter the next day. I could not make it out how it was, and then I remembered I had made a mistake in the time of putting it on. On the third occasion I had put it on early in the morning, when there was a heavy dew, and it had little effect. After this third time I applied it in the middle of the day, when it was hot and dry, and the next day after that application there was not a slug to be seen. It requires to be put on during the heat of the day, when everything but the slug itself is dry.

Mr. HUGGARD.—About six years ago I found it affecting not only the cherry and pear trees, but also the mountain ash as well. Lime was the only available thing I could get at the time, and I tried it in the morning with no satisfactory results, but in the middle of the day, or any time when the foliage is quite dry, it kills them every time in a couple or three hours. We have applied it for the last three or four years. It is easily applied; anyone can sprinkle it on, and I will guarantee it a good cure.

Mr. BEALL.—I might say that people think the application is objectionable if there is much wind, but by getting on the windward side of the tree and throwing it high, no unpleasant results will follow.

Prof. SAUNDERS.—Supposing there is no wind?

Mr. BEALL.—I throw it up.

Prof. SAUNDERS.—Do you run away then?

Mr. BEALL.—Oh, no; there is always wind enough if you keep on the windward side.

Mr. HUGGARD.—If you make a little trowel out of a shingle and throw it up into the tree it will spread it quite effectually.

President LYON.—There is a little experience I had with pear trees which may be useful. Some years ago I had thirty or forty varieties of pear trees planted, two or three of each kind, planted in a row adjacent to each other. Some of these had very glossy foliage and the others quite the reverse. I had occasion to pass through them three times a day during the period at which the slug makes its appearance, and I made it my business to look out for them. During the whole season I failed to discover a single slug on any of the glossy foliated trees, while the others were invariably attacked. I applied the remedy of which I have already spoken every time I passed through, and I had no difficulty in keeping them almost entirely under subjection. They always appeared upon the varieties with the rough foliage.

Prof. SAUNDERS.—What varieties?

President LYON.—An old variety, called the Louise Bonne de Jersey.

Prof. SAUNDERS.—We suffered very much in the vicinity of London. I know my pear orchard was as if a fire had passed through it when I came back, I was astonished; nearly the entire foliage of the orchard was gone. Out of something like a 100 varieties I could not observe any difference in their liability to its attack.

President LYON.—I guess if they had been driven to it they might have attacked the smooth trees with me, but they had plenty of pasture in the others.

The PRESIDENT.—My experience in regard to road dust tallies with that of President Lyon. I have used road dust, and find it very effectual in dry weather when the slug is to be found in large numbers on the trees. I have once in a while thrown in a little dry wood ashes with the dust, but generally have taken just the road dust alone.

POINTS TO BE OBSERVED IN JUDGING FRUIT.

Mr. BEALL.—The question I propose is, by what standard shall we judge fruit or apples. My reason for taking this question up was because of the difficulty which exists at our township and county fairs in judging, or rather the evil results of the judgments given there. I have seen so much of this at different places that I have come to the conclusion that it is almost like a lottery; no man can have any idea before hand of what the results will be, no matter how good his fruit may be he is never certain of receiving

a prize, simply because the taste of one or more of the judges differs from his own, and for the same reason the prize often goes to inferior fruit. I am speaking more particularly, of course, of the small societies, the township societies, where only a few prizes are offered. For instance, a prize is offered for the best variety of winter apples, the best plate of winter apples. Well, I remember one instance in which there was an excellent plate of Russets on the table, and another of Talman Sweets, which got the prize as being the best winter apple on the table, and I have seen other cases just as erroneous in my judgment. I saw two of the judges in that case afterwards, and asked them their reasons for giving such a judgment. They said the Talman Sweet was just as large and better, and in their judgment they thought nothing was equal to the Talman Sweet. If there was a standard established by this association or some other body having authority morally, to which they could refer and see that one must be judged by a higher standard than another, I think it would have a better effect. We know that at large fairs the numerical system has been almost altogether adopted, but at small places people don't know anything about that. I think every apple should have a numerical value, for different purposes. For instance, an apple might be valued at say ten for a dessert apple, but for market purposes only five or six, and so on. I think it would prove of great advantage if a standard were established by this association, and the judges in small places would be greatly aided by it in the performance of their duties.

Mr. WELLINGTON.—I don't think any standard would be of much service to judges who would make such a judgment as that described by Mr. Beall. The only effectual standard in that case would be to turn them out and appoint better men. As to our establishing a standard as to numbering, I don't see how it is to operate. In the case say of winter apples, there might be a plate of what we would consider inferior winter apples that would be graded as two, and a very much superior plate very much less, and in that way you could not give justice to one which might be graded for a particular purpose. I think the judging of fruit depends a good deal upon the men who are selected as judges, who should be men having a practical knowledge of fruit; then they will not run to the largest apple, but will have some knowledge of an apple's value as a shipper or keeper or dessert apple, or whatever purpose it may be used for, and will look to colouring and average size, and not monstrosity. That is my idea of judging; I don't think we could benefit a judge by setting up any numerical standard.

The PRESIDENT.—I have had considerable experience in regard to this matter, both here and across the line, in judging fruits, and I have always adopted as one particular point in judging any fruits, to take into consideration the commercial value of each variety presented. I think that is a point which should never be forgotten in judging apples or any other fruit. In coming to a conclusion, take into consideration in the first place, the correct or incorrect naming of the varieties. The judge is supposed to be a practical man who knows the most possible about each variety, and what a perfect sample of each variety should be. He takes up an apple off a plate, and looks at it to see if, in his judgment, it is a perfect sample of its variety; or, if it is not, how far below that does it fall, judging all points ranging from one to five, or one to ten, if you please. Give the proper number of points to each variety, and, adding up the whole, give the prize to the collection receiving the largest number of points. In awarding these points, the general points that each apple should have, in order to be a perfect variety or sample, should be taken into consideration. Then take into consideration the commercial value. For instance, those varieties having the highest commercial value will have a chance of the prize, even if the samples themselves are not quite up to the mark as some other collection consisting of varieties not so valuable in the general markets. The collection having a large number of winter apples stands a better chance, as a rule, of the prize, than one made up largely of summer and fall apples, which are not commercially so valuable as the others for general cultivation.

Mr. EVERETTS.—I think it would give judges a better chance if one were for packing, another shipping, another cooking, and so on.

THE PA

At the opening of the season, Mr. Smith, of St. Charles,

The cultivation of the vineyards of this State has been in many respects one of the most healthy and profitable like Noah who planted the vine, and properly used, the vine will bring health and happiness. Though, by the way, we don't get drunk because of the little fun and drink in Canaan. Be the vine brings health and happiness rather than were ever

I have often seen the cultivation, culture and management of his vineyard from the beginning and whether the tree is healthy. There can be no doubt of the value of the famous varieties at present, but I doubt if as many of the varieties began at that time as

Although the first variety of the country by the name of the 1564, the varieties of the vine began at that time as

The first attempt made by a Londoner to grow the varieties did not succeed. Penn attempted to grow another vineyard a few years, and in the States, both of the general rule they were of Georgetown, D. C. he had conferred a prize on the national United States won the South Carolina, which is now known as the States. On an acre eight to ten thousand dollars, and about a hundred Catawbas are still

My experience about the same time the wine grape, as it is called—which with the wine is stronger—was and ripened well in five or six years. The varieties began to be short-lived ones,

THE PAST, PRESENT AND FUTURE OF GRAPE GROWING.

At the opening of the afternoon session the following paper was read by A. M. Smith, of St. Catharines :

The cultivation of grapes, if not practised by the antediluvians, was one of the first industries of which we have any record after the flood, and from that time to the present it has been in many parts of the world one of the most important, and it has furnished one of the most healthful articles of sustenance known to civilized man, and though many, like Noah who planted the first vineyard, have imbibed too freely of the fermented juice of the vine, and like him have shamefully exposed themselves, it still remains, when properly used, the most beautiful, luscious and healthful fruit that God has given us. Though, by the way, I have heard it argued by a distinguished divine, that Noah did not get drunk because his wine was fermented, but his grandson, Canaan, wanted to have a little fun and drugged the old gentleman, hence the curse that he pronounced upon Canaan. Be that as it may, we know that the proper use of the grape always brings health and enjoyment, while the improper use brings worse curses upon the human race than were ever pronounced upon Canaan.

I have often thought it would be interesting to know more of the methods of propagation, culture and varieties of the grapes grown by the ancients; whether Noah raised his vineyard from seeds or cuttings preserved from the flood, the distance apart he planted, and whether he trained to stakes or trellis, and whether they were all one variety or not. There can be no doubt of the superior size and productiveness of ancient grapes when we read of the famous grapes of Esheol, and from what we know of the climate there and the varieties at present produced, we have no doubt about their superior qualities; but I doubt if as many named and distinct varieties were shown at their provincial and horticultural shows, as were exhibited at Toronto, Guelph, London and Hamilton last fall.

Although the grape is indigenous to America and was found in nearly all parts of the country by the first settlers, and was utilized for wine making in Florida as early as 1564, the varieties were so inferior to those of Europe that the importation of foreign varieties began at an early date.

The first attempt to establish a vineyard in the British North American colonies was made by a London company in Virginia prior to 1620, and though in a measure successful, the varieties did not do as well as in their native soil and climate. In 1683 William Penn attempted to start a vineyard near Philadelphia, without success, and in 1793 another vineyard on a large scale was planted near there by a company which only lasted a few years, and it was abandoned. Other vineyards were planted in various parts of the States, both of native and foreign varieties, and considerable wine was made, though as a general rule they were not successful until the Catawba was introduced by Major Adlum, of Georgetown, D. C., when a new era began in grape culture. The Major claimed that he had conferred a greater benefit upon the American people than he would have done by paying off the national debt, and, I presume, no one in the grape producing regions of the United States would now dispute him. This variety and the Isabella, introduced from South Carolina, were the two varieties first planted on Cayuga Lake, in the year 1854, which is now known as one of the most famous grape-growing regions in the United States. On an area of five by twenty five miles on the shores of this lake, there is from eight to ten thousand acres of vineyard yielding an annual income of nearly half a million dollars, and although many other varieties have been introduced, a large proportion of Catawbas are still grown there.

My experience in Canada in grape growing began with these same two varieties about the same time, at Grimsby. I then knew of no other varieties excepting a native wine grape, as it was called, something like the Clinton which grew there, and from which—with the aid of pie-plant juice, sugar and water, with, perhaps, sometimes something stronger—was made what was called a "pure native wine." The Isabella flourished and ripened well at Grimsby; the Catawba was too late, not ripening oftener than once in five or six years, which is too long to wait for a crop even of grapes. But soon other varieties began to multiply—the Concord, Delaware, Hartford, Diana and numerous short-lived ones, such as Perkins, Hyde's Eliza, Northern Muscadine and the

famous Ontario, which were preceded by the Adirondac, Walter, Allen's Hybrid, Martha and others; and finally Rogers' Hybrids, Moore's Early and so on, down to the present list of Brighton, Pocklington, Niagara, Vergennes and hundreds of others (more or less) that are now clamouring for public favour.

With the introduction of new varieties the cultivation began to extend, till from a few scattered vines along the Niagara peninsula, there are now several hundred acres in the same territory, and small vineyards are scattered all over the country from Windsor to Montreal, the product of which is no small addition to the health and wealth of the country. Foremost in value to the producer, if not to the consumer, in varieties stands the Concord. Though not the earliest or best in quality, it is good enough for the masses and it will ripen in most parts of Ontario, and its healthy and vigorous growth and exemption from rot and mildew, its great producing and shipping qualities, make it unsurpassed among the black grapes for market. But the Worden, one of its offsprings, is fast gaining on it in reputation on account of its earliness, it being about a week earlier than the Concord. Moore's Early is earlier still, of about the same quality, though not quite as productive, and would be more valuable to localities subject to early frosts. Some of Rogers' black grapes are valuable in some localities and seasons, but there is too much foreign blood in them to stand our rigorous and variable climate. The same may be said of his red ones, as they are even more subject to mildew and rot, though in some seasons his Nos. 3, 9, 15 and 22 do well in some sections. The Delaware, among red grapes, holds its own as well as any, though I think the Vergennes for hardiness, productiveness and long keeping is going to advance to the front as a market grape, though of inferior quality to the Delaware. The Brighton, where it escapes the mildew, is a profitable grape and unsurpassed in quality. In white grapes for market, I think it will be conceded by all who have tried it, that the Niagara stands where the Concord does among black for vigour, productiveness, shipping and keeping qualities—head and shoulders above every other variety, though for earliness and quality, others such as the Jessica and Lady may surpass it; and what shall I say of hundreds of other new claimants of public favour? No doubt some of them have come to stay, but the majority will not be heard of in a few years outside of the catalogues of the enterprising originators who are pushing their sale, or from some of their customers who are lamenting over a waste of time and money in buying them. I would not be understood as condemning the testing and disseminating of new varieties, but I would make it a criminal offence for a man to sell or recommend tender or late varieties to plant in a section where he knows they will not grow, or ripen if they do grow. The great reason why grape culture has not advanced more in Canada, particularly in the colder parts, is because so many have tried tender, late and worthless varieties recommended by tree agents and nurserymen, and because these failed, have come to the conclusion that grapes will not succeed in their climate. I believe if a careful and judicious selection of varieties from the kinds we now have were made, that there are but few places in Ontario, where, with proper care and protection, they would not succeed. Further than this, I believe the time is coming when we shall have good grapes that will grow and ripen as far north as our wild grapes grow. Our late President, Prof. Saunders, tells us that he found wild grapes growing on the Assiniboine River, in the far north-west. What is there to hinder the selecting of seeds from the best of these, and crossing and re-crossing them with our best hardy and early varieties, until we produce something good that will stand the winters even in that climate? Cherries and apricots are grown in as cold a climate in Russia, and if apricots and cherries, why not grapes? I believe when the plans are matured which Prof. Saunders is inaugurating in connection with our experimental farms throughout the Dominion, we shall not only grow grapes but other fruits, in sections that we do not even dream of growing them in now, and that a majority at least of the inhabitants of the whole Dominion will actually sit under their own vines, if not fig trees.

But it is even now being asked, "will it pay to grow grapes?" "Is there no danger of overstocking the market?" In answer to the first question I would say, yes; at a cent a pound in the Niagara district, it will pay. Grapes can be grown as cheaply one year with another as potatoes. Four tons to the acre is about an average yield of Concords or Niagaras, which at one cent per pound would be eighty dollars per acre. What crops do

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you raise on your farms that pay better than that? But aside from their value in dollars and cents, it pays to have such luxuries around your homes for your children and friends. There is no fruit more healthful, and there is very little trouble or expense in growing a few vines, and the enjoyment of having delicious grapes from September till February—as you can easily have—will well repay you for a few dollars outlay. In regard to the second question,—“is there danger of overstocking the market?”—I answer, no. I recently attended the meeting of the Western New York Horticultural Society, and learned something of the amount of grapes grown there. One county alone shipped 3,800 tons last fall, at an average price of two and a half cents per pound; and this was not the largest yield, two other counties combined producing 16,000 tons, and I wondered where they all went to, till one dealer from Philadelphia stated that the house he represented had from the 3rd of September to the 23rd of December sold 332 tons, and then when I knew there were ten more such dealers in the same city and as many more in twenty or thirty other cities, I could see through it.

The people in this country are only beginning to appreciate grapes. A few years ago a ton of grapes would have supplied all the cities in the Dominion, and now there are dozens of dealers in our cities who sell more than a ton a day, and some five or six tons of table and cooking grapes, to say nothing of the large amount made into wine. It is only a short time since our wives began to cook grapes, and perhaps all of them have not begun yet. But my wife would not think her winter stock of fruits complete if she had not plenty of canned grapes, besides jellies and unfermented wine; and, by the way, I think there is a chance for some enterprising man to make a fortune in some of these Scott Act counties in the manufacture of this article, and the keeping of grapes for winter use is but little understood. You can just as well have good grapes on your table from September to February as apples, with about as little trouble. I have specimens here on the table that were kept by simply wrapping the clusters in paper and putting them in open boxes and baskets in my cellar. But I will not tire your patience any longer, but simply advise you to plant grapes if you have land enough. If you do not wish to grow for market, grow enough for your own families and a few to give to the poor, and take the juice in its natural state without running it through a barrel, and you and your families will be the healthier and happier for it.

President LYON.—In regard to this canning grapes, man is a cooking animal and woman preeminently so, and the tendency is to cook what they ought to keep and use fresh. I would give more for one pound of fresh grapes than for ten pounds canned or cooked, for my own use.

A MEMBER.—Is the Empire State one of the best varieties, or how does it compare with the Niagara?

A. M. SMITH.—It is a comparatively new grape, and has not been fruited in Canada to any extent. Mr. Woolverton and I saw the fruit this winter at the Rochester meeting, and I was very agreeably impressed with it. It is very good in quality, but I was a little disappointed in regard to its earliness. We here in Canada don't want anything later than the Concord. The Empire State has been represented by agents to be considerably earlier than that. I took the liberty of inquiring particularly of the introducer in regard to that—how much earlier they claimed them to be. He said they did not claim it was any earlier.

Mr. WELLINGTON.—We have fruited it two years, and as far as that test can be depended upon I am very favourably impressed with it. I think myself the quality is the best of the out-door white grapes; that is my opinion after eating the fruit of a number of varieties.

President LYON.—Do you grow Allen's Hybrid?

Mr. WELLINGTON.—Not extensively; only for amateurs in this country. I would not call the Empire State better than the Hybrid. I am speaking of out-door grapes,

and I think the Empire State will come within that scope. As far as earliness is concerned, it is not earlier than the Concord. It was claimed that it was, but then it was ripened under peculiarly favourable circumstances. It is going to ripen about the same time as the Concord, as far as I can judge. The bunch is large and elongated; the berries are not quite as large as the Niagara, I think, but it is going to be a good keeper. I did not see the specimens exhibited at Rochester by the Horticultural Society. I think it is a grape which will take its place amongst our best varieties. As to the hardiness of the vine, we have tested that pretty thoroughly. We consider that the Pocklington is as hardy as necessary, but three years ago it stood in the same row with both the Pocklington and Concord, and was the least injured of the three. I think that was a pretty fair test, and wherever I have seen it grown it has stood the winter remarkably well. It is a better grower than the Pocklington, which will be a consideration of some weight with a great many.

Mr. HUGGARD.—In regard to the over producing, I am prepared to believe that there are ten times as many grapes used in Canada to-day as ten years ago. I know in the vicinity I lived twelve years ago (east of Toronto) there were only three or four parties in the town had any grapes at all. It was then generally believed that you could not succeed in ripening grapes there. Now, however, you can hardly find a garden without plums or grapes, or both of them, especially the earlier varieties; and a finer exhibit of grapes than that made at the County Fair at Whitby a year ago last fall I have not seen for years—all grown in the immediate vicinity, white, red and black, and a great many varieties of them. People are inquiring after them much more now than at any previous time, and showing an inclination to use them if they can get them.

Mr. DEMPSEY.—I don't know that I could add anything to what has been said by Mr. Smith. I can see no danger of overstocking the markets, because lately the markets have been steadily increasing with us. The demand seems to increase faster than the supply, and I am therefore quite encouraged in grape culture, and shall certainly have no hesitation in increasing my plantation.

Mr. PETTIT.—With regard to this Empire State about which so much has been said, I have not fruited it yet, but I can see no object in going in for it very largely until we are more fully convinced that it is a grape that will be productive and healthy and will stand our climate. We have already a grape second to none, the Niagara, a grape that has been thoroughly tested and has proved itself all that can be desired. If it has a fault, it is that it is a little liable to winter kill at the roots when young; but aside from that, in our section, it is everything that can be desired. I do not just agree with those who have spoken in regard to overstocking the market. In other countries wine-making has for many years been a great outlet for a large number of grapes, and if we have that cut off from us here to a great extent, with the territory there is in Ontario suitable for grape culture, I am inclined to think our markets will be pretty well shut. At any rate, we will see the newer varieties selling at very low prices. I am free to admit that the demand has increased very rapidly since I began to ship grapes some ten or twelve years ago, but at the same time the supply is increasing very rapidly too. I have tested a good many new varieties, but as my experience has turned out, I cannot say very much for some of those mentioned in the paper. The Worden is growing in favour. Of course we cannot call it a very new variety, as is Moore's Early, and of course the old Concord is being largely planted yet. Among the whites, I would say that the Niagara is far ahead of any other for profit. I find it the most profitable by far of ten or twelve varieties I had some years ago. I am better pleased with the Pocklington now than I was when it was young; it took a long time to get any fruit, but now the vines are growing older, it produces much better. A grape that among the whites is what the Champion is among the blacks is the Noah, which, except the Niagara, is the most profitable I have. I always ship it to Montreal, and it generally gives me good returns. Coe's Giant is a new kind I have fruited a few years. It has lately shown signs of tenderness and winter killing, whether from being overloaded the season before or not, I could not say. It is of fine flavour, and a very large grape. I have the Early Victor, which is another fine-flavoured grape, but the clusters are very small indeed, and it is not an attractive grape, nor is it early enough to be profitable where you can grow the Worden or Moore's Early. The Jefferson I have

fruited for some years. The Duchess I have fruited for some years. The root seems to stand with a small black all for market; productive white

Mr. HUGGARD mentioned, which I call I mean the Jane; as good for sale as and those who buy more for the Jane agree with Mr. F and the Duchess general cultivation much value on it few years, and that of the finest fruit necessary to pro ground, and in so of great excellence is the hardiest, a

A MEMBER. kinds of grapes t

Mr. PETTIT. crop of corn or I have only an acre saves time in cu apart; I work n rounds on the r object I have in p required it I wo prepare the grov able, that varies I think fully one and the other h there are a good not as reliable as Brighton and L Coming to whit sections not as g profitable.

Mr. EVERETT. Mr. PETTIT. Mr. EVERETT. Mr. PETTIT. A MEMBER. Mr. PETTIT. A MEMBER. Mr. PETTIT could grow Del; Niagara succeed

Mr. LANGFORD grapes extensive been in a countr them on shrubs-

fruited for some years, but I could not recommend it on account of it being so late. The Duchess I have found rather tender in the wood of the roots, not like the Niagara. The root seems to stand any amount of frost, but the wood kills; and then it spots too much with a small black spot, which spoils its appearance. The Prentiss I should not plant at all for market; it is too much like the old Isabella. The Lady Washington is a very productive white grape, but rather late and not good enough in flavour.

Mr. HUGGARD.—Speaking of new grapes, there is one that I have not heard mentioned, which I consider second to none; it is the earliest of a lot of twenty that I have. I mean the Janesville. It is about as large as the Concord and very compact, and it is as good for sale as any grape I ever saw. To my taste the quality is ahead of the Concord, and those who have had the privilege of tasting both of them prefer to pay me two cents more for the Janesville than the Concord, although the Concord is rather larger. I quite agree with Mr. Pettit's statement about the Prentiss. I consider it useless in our section, and the Duchess also has proved nearly so, being too small, too late and too tender for general cultivation. We have the Champion growing in all its glory, but I do not set much value on it as to quality; it is inferior. The Pocklington has fruited with me for a few years, and this year I was rather disgusted with it, but last season I had a few clusters of the finest fruit I ever saw. The Rogers grapes do well if covered, but it is absolutely necessary to protect them during the winter; if you do not they will freeze like to the ground, and in some instances die out altogether. The Delaware is a standard variety of great excellence and highly esteemed, and brings the highest price, but the Janesville is the hardiest, and stands unprotected.

A MEMBER.—What is the best method of preparing the land, and which are the best kinds of grapes to plant for general purposes?

Mr. PETTIT.—Well, I would prepare the ground about the same as I would for a crop of corn or potatoes. Lay out the vinery so the rows will be a good length. If you have only an acre or two make the rows fully twice as long as the vinery is wide, which saves time in cultivation. I would plant the ordinary plants of grapes about eleven feet apart; I work my vineries with a gang-plough, and eleven feet is just right for two rounds on the row. I use nothing else in the way of a plough but that, and that is one object I have in planting them at that distance, which I think is a fair one. If the ground required it I would underdrain it, and if in low soil would subsoil it. It pays well to prepare the ground thoroughly in the first place. In regard to the kinds of grapes suitable, that varies a great deal with different localities. In my own section, in black grapes, I think fully one-half, or even more, are planting Concords. We will say half Concords, and the other half equally divided between Moore's Early and the Worden. Of course, there are a good many No. 4 planted, and some of the other black Rogers, but they are not as reliable as the three I have mentioned. In red grapes I would plant the Delaware, Brighton and Lindley, and there are some other of the red Rogers very promising. Coming to white grapes, for profit I would stop right at the Niagara, although in some sections not as genial as ours, perhaps some of the more hardy varieties would be more profitable.

Mr. EVERETTS.—How many wires on the trellis?

Mr. PETTIT.—I use three; some are only using two.

Mr. EVERETTS.—How far apart are the posts?

Mr. PETTIT.—A post for every two vines.

A MEMBER.—How high?

Mr. PETTIT.—About seven feet.

A MEMBER.—How do you like the Kniffen system?

Mr. PETTIT.—With some varieties it takes better than others. I do not think you could grow Delawares for any length of time successfully on the Kniffen system. The Niagara succeeds better with that system than any other.

Mr. LANGFORD.—I would like to ask Mr. Pettit and those who go in for raising grapes extensively, if it is possible to raise them successfully without a trellis. I have been in a country where they raise grapes extensively and do not use a trellis, but raise them on shrubs—what they call a bush.

Mr. PETTIT.—There are vineries in our section that have been conducted on that system for a long time, quite near us. I don't think, however, it has been a success, and I am sure it would not be for dessert grapes.

Prof. SAUNDERS.—How far apart are the rows?

Mr. PETTIT.—I think they would be about eight feet, if not more, perhaps. A great many of the grapes I have seen are sandy and poor, and don't come up like those raised on a trellis.

THE RELATIONSHIP OF EXPERIMENTAL STATIONS TO FRUIT GROWERS.

Prof. SAUNDERS then addressed the meeting on the relationship of the Experimental Stations to be established by the Dominion Government to fruit growers. He said: I shall not detain you for any length of time on this subject, but I think it well on this occasion to bring to your notice what is intended to be done at the Experimental Farms to be established by the Dominion Government, by way of feeding and encouraging fruit growing throughout the Dominion. It would be much pleasanter for me to speak of work that had been accomplished than of that which it is proposed to do, for, unfortunately, we all make plans that are not carried out, and one item of actual experience is worth two or three proposed experiments. In the present instance I cannot point to any work that has been actually accomplished, further than that in the fruit way we have been successful in securing a large number of varieties of hardy Russian trees, part of which have been obtained from Prof. Budd, of Iowa, and others from nurserymen who have introduced from Russia a large number of varieties. Others have been secured, and it is the intention—in fact, negotiations in that direction are now being carried on—to secure standard varieties of fruits to be planted out in an orchard; both large and small fruits. It is proposed to proceed on the assumption that we do not yet know what is hardy and what is not in the neighbourhood of Ottawa, where the central station is located, practically ignoring the experience we have already gained, and for this reason, that I have found that the experience of all those with whom I have talked has been more or less mixed up with elements of uncertainty. A man will tell me that he has tried such and such a variety, and found that it is not hardy. He thinks he got the variety, but will admit that it came to hand in bad order, and as it did not grow he has jumped to the conclusion that the variety of fruit is not adapted for his district. That experience may be valuable or it may not, but I do not think it would be safe for a public institution to rest upon it. I think that every variety that it is at all within the reasonable range of probability will succeed, should be tried and a record made of the conditions under which the test is made, before we can be absolutely sure that it will not succeed. Then, it is not intended to limit the test to one tree, but to have three in every case, and five in most instances; and some means will be adopted to protect the trunks of these trees. Most of you have had a large experience and know that young trees, pears especially, are very often killed by the action of the sun on their trunks in spring time, after severe weather in the winter. You find a discoloration and disease in the bark which is communicated to the tree, which often dies from exposure to these variable conditions of temperature. It will be interesting, I think, to work out the problem of how far some protection—if nothing more than a piece of board tacked up to shade the tree—will be successful in preserving it from the bad results of exposure of that sort. Some claim that wrapping with straw in such a way as not to exclude the air would perhaps tide a tree over the first two or three years, until the bark thickens and it becomes covered with integuments better calculated to resist the extreme temperature and trying conditions to which it is submitted on first coming from the nursery. I mention this as one of the lines in which we propose to make thorough tests, with a view to determining whether some of these supposed tender varieties cannot be tided over the period of their infancy, until sufficiently established to be grown successfully. Then this large collection of trees and vines and shrubs of a fruit-growing character will have added to them annually such varieties of newer kinds as can be obtained, which will be tested and a report of their comparative merits given to those interested in bulletins, which will be issued from time to time, giv-

ing details of the of hardy stocks should; it is just of winter, and the conditions of the wild plum grown there—they are t it and improve a Now, how far c territory, grafted and is one that v Manitoba wild g It is not suppose ing point, I do n and made the equ nothing but the succeed at all in some late; some practical experim help fruit grower viduals, which i pursuits, and to e Ontario, but to provinces, and to I think will be different province relative merits. elevation, they large as the Engl that gooseberry a which reminds or from that source this sort are bein make the most o provinces in whi posed to test the under varying co they are valuable having one piece It does seem to n miles to the Un and yet at which this altogether w should be worth away from us and at home. The s shipped away ac farmers with go should not be equ but in vegetables be taken up as o tests will be ma mental purposes. cultivation of or tendency, and in attainable by any greatest share of

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ing details of the work done. Another point upon which tests are desirable is the effect of hardy stocks upon scions. Some die, though we cannot see any reason why they should; it is just a question if it does not arise from the roots being killed by the action of winter, and the stocks being tender. Most of our stocks are grown in France, where conditions of temperature very different from ours prevail. In the North-west we find the wild plum growing in great profusion, and yet I am told that plums cannot be grown there—they are too tender. I claim that where there is a wild fruit it is possible to take it and improve and crop it, and in that way obtain fruit desirable for cultivation and use. Now, how far our hardier varieties of plums would prove hardy in the North-west territory, grafted on to the native stocks, would be an interesting question to work out, and is one that will claim our early attention. I have found in the eastern part of Manitoba wild grapes, and was surprised at the size some of them grow to—large trees. It is not supposed that grapes can be grown in the North-west, but, with that as a starting point, I do not see why they cannot be improved as in Ontario and the eastern states, and made the equal of what they are in the latter localities. Forty years ago we had nothing but the Isabella, and before that nothing but European kinds, which would not succeed at all in western New York. Now we have almost countless varieties, some early, some late; some adapted to one district, and some to another, but all the outcome of the practical experiments of fruit growers themselves. It is proposed in these institutions to help fruit growers, and to take up lines of experiments not so easily carried on by individuals, which involve the sacrifice of more time and pains than they can devote to such pursuits, and to endeavour to originate in this country new varieties adapted not only to Ontario, but to extend the area of fruit culture to more northern regions in the older provinces, and to Manitoba and the territory further to the west. Another point which I think will be exceedingly interesting, is the getting together of the wild fruits of the different provinces of the Dominion, so as to have them grown side by side and test their relative merits. I found on inquiry that on the Selkirk range of mountains, at a high elevation, they are growing gooseberries, and the fruit is represented to me as being as large as the English gooseberry. That is a single instance, and it is likely that by taking that gooseberry and cross-fertilizing it, its objectionable features—which is a peculiar skin which reminds one of turpentine—may be eliminated, and we may obtain gooseberries from that source which will prove of great service throughout the Dominion. Things of this sort are being continually suggested to me, and we hope to get them together and make the most of the wild fruits we have, and to originate new varieties adapted to the provinces in which these grow by improving on these native wild fruits. Then it is proposed to test the value of the different fertilizers on these different fruits, growing them under varying conditions; to test the value of wood ashes, for instance. We know that they are valuable, but no experiments have been made to test their relative value by having one piece of ground fertilized by them, and an adjoining piece left without them. It does seem to me a matter of regret that our wood ashes should be sent hundreds of miles to the United States and sold at double the price we are willing to pay for them, and yet at which they are considered cheap as fertilizers by those who buy them. I think this altogether wrong. If a bushel of ashes is worth twenty cents in Michigan, it surely should be worth ten cents in Chatham. There is no reason why they should be carried away from us and sold at double the price when they might so profitably be made use of at home. The same remarks apply to our phosphates, thousands of tons of which are shipped away across the water and manufactured into valuable fertilizers, and used by farmers with good results. If they are so valuable abroad, there is no reason why they should not be equally so at home. Then, this association is interested not only in fruit, but in vegetables and the important matter of forestry. It is proposed that this should be taken up as opportunity offers, and that associated with the experiments of forestry tests will be made, not only of trees having an economical value, but of trees for ornamental purposes. As has been remarked both here and at our gathering last night, the cultivation of ornamental varieties of trees and shrubs and flowers has an elevating tendency, and induces in people's minds a degree of refinement and culture not easily attainable by any other means. So, while practical experiments will claim the first and greatest share of attention, I hope the more æsthetic, and, as some people would call it,

high-toned portion of the work will not be neglected. If we can ascertain not only the relative economic value of our trees for commercial purposes, but the value also of certain varieties for their ornamental effects on the landscape, adding charms to the surroundings of our homes, it will be a great gain. Sufficient attention has never been given to this important matter by our farmers, who, if they made the surroundings of their homes more attractive, would find their sons less prone to desert home and farm for the allurements of a city life. It is one of the greatest mistakes to imagine that the occupation of farming is not as respectable as any professional pursuit. There is no higher or more ennobling occupation in the world than that of farming. The farmer who tills the soil, bringing forth from it those crops, which, by a beneficent arrangement of temperatures and seasons a wise Providence has ordained it shall afford, furnishes a foundation upon which all the civilizations of the world rest, and it is from the products of the soil that we derive the foundations of all our arts and manufactures; in short, the most essential pursuit in every community in every age has been that of agriculture. We know that all other departments of arts, industries and sciences have received aid from government, but the actual work done in the interest of the farming community has been comparatively small. I think this new departure is one in the right direction, and it is my hope that the results will be such in the course of time as to convince you of that fact. We are undertaking to do for the farmers and fruit growers of Canada that which they cannot do for themselves. That is, carrying on a series of exact experiments, the results of which will be reported faithfully and honestly, and which will afford opportunities for the judgment of the different varieties of fruit which do not at present exist. The nurseryman who places his products before us may be honest in his opinion, but when a man has money in a thing he is liable to be biased, and may fail to see imperfections which are visible to others who have not any interest at stake. It will be to your interest to have these things tested at an institution where there will be no monetary bias; no interest to be served but that of truth and the good of the community; and I think the results of the tests and trials thus conducted cannot fail to save the fruit growers of Canada the loss of a great deal of money which in the past has been spent on worthless things, and to materially aid and further their interests and impart a valuable stimulus on the progress of fruit culture. I think a great work has been done this year at the Colonial Exhibition in opening up the markets for our apples. The excellent report submitted by the President to-day shows that markets are opening up to an extent never before known. In connection with the important question of apples, we know very little about what our Dominion can do. I was surprised when visiting Nova Scotia to find what was being done there. It is estimated that from Annapolis alone there were shipped to Britain and the United States 300,000 barrels, and the Nova Scotia Gravensteins are considered the finest dessert apples to be had. The same state of affairs should prevail in British Columbia, where pears will grow in the greatest abundance and free from blight, spot or other disease; and the most extraordinary grapes grow there that I have ever seen. If, as suggested by our President, we are to have a line of steamers connecting with India, Australia and New Zealand, there is a large field for work in this Dominion in carrying on such experiments as I have been describing. The object will be to consider the interests not only of Ontario and Quebec, but those of the Maritime and Western Provinces and British Columbia, and to do all that is possible to be done towards advancing the interests of fruit growers in all parts of the Dominion. One thing I particularly request you all to do, and that is to be good enough to send your names to the Experimental Station at Ottawa for entry on the list of those to whom are to be sent the Bulletins of the association, the first of which will be issued in a short time. There is one point I have omitted which is, perhaps, the most important of any in regard to fruit growing; that is, the getting together of all the seedling fruits which can be found in the Dominion and testing them side by side. I know you have in this district seedling apples and pears, some of which may be of value. By all, I do not mean all varieties of seedling apples and those that are worthless, but everything giving promise of sufficient value to be worth testing elsewhere, either on account of hardiness or other good qualities. We would like to get scions, or if possible young trees of such varieties, so that they may be grafted on fruits and put out in nursery rows until large enough to plant in orchards

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to be tested side by side. I was pleased to find in Nova Scotia seedlings of plums and cherries which I think will be of great service to us in the west, and the only way in which we can arrive at accurate conclusions in regard to them is by the methods I have endeavoured to detail to you—of growing them side by side in an experimental orchard, where from year to year their value as croppers and that of the fruit itself can be tested by careful and accurate notes, made by persons qualified to judge.

THE LATE MARSHAL P. WILDER.

The following resolution referring to the decease of Marshal P. Wilder, was read and adopted :

Whereas, on the 16th December, 1886, occurred the death of M. P. Wilder, President of the American Pomological Society, at the advanced age of eighty-eight years; and whereas, we in Canada, as well as our friends in the United States, have shared in the beneficent results of his life, devoted as it has been with the most untiring zeal and in the most unselfish manner to the advancement of horticultural science.

Therefore *Resolved*, That we do receive the intelligence of his death with the deepest regret, recognizing his loss as not merely a local or even a national one, but as a continental one; and that we extend to his family our sincere sympathy, and order that a copy of this resolution be sent to them by the Secretary of this association.

MR. DEMPSEY.—I had the pleasure of being for several years acquainted with the late President Wilder, and a more sociable gentleman I never had the privilege of meeting. An enthusiast in fruit culture; he was always ready to try new varieties offered to the public, and his reliability in pointing out the results of his tests caused his opinions to be largely sought for and placed implicit confidence in. Although at such a ripe old age we could hardly be surprised at his removal from our midst, yet we cannot but mourn his decease. The gap caused by the loss of such a man from our ranks cannot but be hard to fill; yet, being a believer in the theory that where the workman is removed another will be raised to take his place, I believe that it will be filled, and look to President Barry, of New York, as the man who will fill it.

Prof. SAUNDERS.—I, too, had the pleasure of a personal acquaintance with President Wilder. The last occasion upon which I met him was a year ago last December, at which time I spent a very pleasant afternoon at his house near Boston. He then, in the course of his conversation, took occasion to impress on me the deep interest he felt in our Fruit Growers' Association of Ontario, and the subject of fruit culture all over our Dominion, as well as in the United States. He conversed freely about Ontario and Nova Scotia, and the general progress made in fruit culture during the past quarter of a century. He desired me at all times to convey to our people here the sentiments of warm friendship he entertained towards Canadian fruit growers, and his desire to render them every assistance consistent with his advanced age. He was expecting every year to be his last; yet, while able to do anything, he most unselfishly gave his strength and intellect to the advancement of the interests of fruit culture and horticulture generally. He spoke to me especially in regard to a subject then attracting much attention, which he brought prominently before the fruit-growing public—the necessity for simplifying the nomenclature of our fruits. He particularly requested me to urge this upon our Canadian fruit growers. We know it has been proposed to drop many of the unnecessary names of fruits, and to bring their nomenclature within reach of the memory of men with ordinary reasonable intelligence. He had also a great horror of obnoxious names, such as "Big Bob," "Captain Jack," "Jumbo," and so on, and thought the substitution of something more euphonious and conveying a more refined impression to the minds of the public was desirable. I concur most heartily in the sentiments expressed in the resolution, and desire to add to it my tribute of sincere regret at the loss of one whose life work was given in so unselfish a manner to the great interest of fruit culture, and whose place it will indeed be exceedingly hard to fill.

President LYON.—My recollection of the late President Wilder runs back as far as some time in 1860, when I met him at the first meeting of the American Pomological Society ever held in the State of New York. I have often met him since, and had a deal of correspondence with him. I do not know whether it is generally known, but I suppose

it is, that the late Colonel Wilder stood at the back of the Pomological Society, and that if he had not done so it would hardly have occupied the position it does to-day; and it becomes quite a problem, in my estimation, what its future is going to be now he is lost to it. I believe, however, that that is partially provided for by his will. Some time before his death he intimated in his correspondence to me that he had made some provision in that direction, and I have since learned that he left \$6,000, the income of which is to be devoted to the benefit of the society. This will do very much to supplement what he had done for it before, during his lifetime. The world seldom produces two such men in succession in any particular sphere, and there is a very serious doubt in the minds of many members of that society if his place can be filled. The name of a very excellent man (Mr. Barry) has been mentioned here in connection with the position, and it is very likely he will assume it, and if he does I am confident that he will do all that President Wilder did in his lifetime. At the same time the society has won a very favourable reputation under the administration of the late President Wilder, and become much stronger to bear any burdens that may be cast upon it. It is to be hoped its friends will stand by it, and that it may continue, at least as long as any of us shall remain, to stand as a monument of the worth of its first President.

COMMERCIAL FERTILIZERS.

The subject of commercial fertilizers for garden and orchard was next taken up, as follows:

Prof. PANTON.—After taking a walk around the suburbs of Chatham, and hearing so much at these meetings of the natural fertility of the soil in the County of Kent, there is a natural inclination to think that this question is not one calling for any consideration here. As there may be some unfortunates at present, however, who do not reside in the cheerful town of Chatham or farm the fertile fields of Kent, a few remarks on the subject of fertilizers may not be altogether out of place. A fertilizer, or manure, may be defined as a substance disposed to increase the fertility or productiveness of the soil, either by supplying food directly or indirectly. Now, it is found that as far as the application of fertilizers or manurial agencies is concerned, there are three elements requiring particular observation; the presence of these elements seems to be necessary for successful plant growth. They are nitrogen, potash and phosphoric acid—the N. P. P. I sometimes term them. The other ingredients essential to plant life are likely to be found in the soil itself, our soil being of such a character that its constituents possess more or less of the necessary ingredients, but the nitrogen, potash and phosphoric acid are sometimes in small quantities, and it is one or two of these elements we are after in the consideration of fertilizers. Now, at the very outset there seem to be two classes of fertilizers, one of which contains all these things (nitrogen, potash and phosphoric acid), and fertilizers of this class are generally known as complete or general manures. Manures of the other class contain only one or two of these elements, and the term special, or specific, is applied to them; that is, they are for special purposes. It is to these commercial fertilizers that we have now to direct our energies for a little time. Well, for the phosphoric acid we look in bones, in the formation of which there is a large quantity of it, and in a mineral substance called "apatite," which, when worked upon by the chemist with sulphuric acid, produces what is known as superphosphate of lime. Just let us look at that superphosphate for a minute. Bones, as I have already said, contain this acid, and I am sure everyone in the room will agree with me that bones are a most excellent fertilizer. This phosphoric acid is very powerful, and holds in combination what we in chemistry term three molecules of lime; that is, if we took three portions of lime, this acid is strong enough to hold them together in chemical combination. When a bone is put into the soil, nature, through the agency of rain or the decomposition of vegetable matter in the soil, supplies an acid, which is carbonic acid. Now, this acid, acting in the soil through the agency of rain or decomposition, lays hold of one of these molecules of lime, and a certain amount of phosphoric acid is freed. The strength necessary to hold three molecules has now only to hold two, and consequently you get a certain amount of phosphoric

acid. The chemist takes up two of the is wherein the superary bone. Nature quick, and the result after it is applied or three sources from and another potash ashes. If Prof. S. succeeds in impress that alone have a material of so much being shipped to the centage of potash, large proportion of thirty per cent. and, to a certain extent, most valuable material in comparison with other the cost price of the shall refer to further conceded that for the In the application which it is not necessary rotation of crops, not the case in orchard time. If a farmer benefit of it, but it be looked at in the results than the general for in nitrate of strontium sulphate and a most excellent fertilizer. It gives the equivalent phosphoric acid. fertilizers, a point of quantities of these estimation and actual have been buying per ton, the estimate or two dollars. I use a few words to make Hitherto, in the United we had no analysis Dominion Government fertilizers shall produce each ingredient it cost manufacturer, a fair be estimated at five cents, phosphoric acid leave the manufacturer the spring of the year the values of these will publish what the acid and potash. the analysis, which

acid. The chemist says we will put in a stronger acid, and puts in sulphuric acid, which takes up two of these molecules and leaves the phosphoric acid altogether free; and that is wherein the superphosphate of bones is more fertilizing in a short time than the ordinary bone. Nature is slow and steady in her action on the bone, but the chemist is quick, and the result is that he gets the use of the phosphoric acid in a very short time after it is applied to the soil. Now for the potash side of the question. There are two or three sources from which we seek that element. One is called potassium chloride, and another potassium sulphide; but by far the best and to be had right at home, is ashes. If Prof. Saunders, through the experiments of which he has given us a sketch, succeeds in impressing the farmers of this country with a sense of their value, he will in that alone have accomplished a valuable work. It is astonishing that a fertilizing material of so much strength as hard wood ashes should be thrown aside here, and yet on being shipped to the other side realize a good price. Ordinary ashes contain a high percentage of potash, and also a certain amount of phosphoric acid. Even when leached a large proportion of potash remains in them, the leaching only taking away twenty or thirty per cent. So that ashes become a most valuable fertilizer in supplying potash, and, to a certain extent, phosphoric acid, and whoever throws them away is wasting a most valuable manurial agent. From calculations made, basing the price of potash on a comparison with other fertilizers, a ton of good wood ashes is put at twenty dollars, taking the cost price of these various manuring constituents. The basis of this calculation I shall refer to further along. So above all things, save your ashes, for it is generally conceded that for orchards there is no fertilizer that produces such satisfactory results. In the application of fertilizers to orchards there is an element requiring consideration, which it is not necessary to consider in farm manuring. In the case of a farm, by the rotation of crops, while you may lose in one constituent you gain in another, which is not the case in orchard cultivation or horticulture, where you have the one crop all the time. If a farmer makes a wrong application the succeeding season's crop will get the benefit of it, but in the orchard, on account of the fixed nature of the crop, it can hardly be looked at in the same way, and the fruit grower has therefore to look more closely to results than the general farmer. The third ingredient I mentioned (nitrogen) we look for in nitrate of soda, something we have already mentioned in the compound of ammonium sulphate and in the dried blood to which I referred, which, if it can be obtained, is a most excellent fertilizer, especially for strawberries. The effect of from three to four hundred pounds per acre, between the rows, is productive of marvellous results, because it gives the equivalent of about fourteen per cent. of ammonia and seven per cent. of phosphoric acid. Now, then, the question presents itself about the purity of these fertilizers, a point which I am anxious to particularly emphasize. At places where large quantities of these artificial fertilizers have been used, it has been found on close examination and actual analysis that a great many of them have been mere farces; that men have been buying things as fertilizers for special purposes at thirty-five and forty dollars per ton, the estimated cost price of which per ton was not more than a dollar and a half or two dollars. How can you estimate the cost per ton of a fertilizer? I will try in a few words to make that clear, so that you will be able to calculate it for yourselves. Hitherto, in the use of fertilizers in Canada, we have been working in the dark, because we had no analysis to work upon; it has not been required. Now, however, the Dominion Government has stepped in and required that all persons selling artificial fertilizers shall produce an analysis of what they are selling, stating the percentage of each ingredient it contains. By making a reasonable estimate of the cost of these to the manufacturer, a fair idea of the value of the fertilizer may be obtained. Nitrogen may be estimated at from fifteen to twenty cents per pound, potash at from five to seven cents, phosphoric acid from four to twelve cents; these are the commercial values, and leave the manufacturer a fair price. There is no regular fixed price, but you will see in the spring of the year, particularly across the lines, printed schedules of what they think the values of these ingredients are, and I have no doubt but our Dominion Government will publish what they consider the estimated value per pound of nitrogen, phosphoric acid and potash. Now let us see how the price of the manure is made out. You have the analysis, which tells you that it contains so much per cent. of nitrogen, which means

so many pounds of nitrogen in each hundred pounds of the fertilizer. The analysis also shows you the percentage of potash and phosphoric acid. All you have to do then, is to take this schedule giving you the prices for that year, and if nitrogen is worth twenty-five cents per pound and the fertilizer contains five per cent. of it, it would make one dollar and a quarter for that. If it contains eight per cent. of potash, and potash is valued at eight cents per pound, that will be sixty-four cents. Then if the percentage of phosphoric acid is five per cent., and the value of the acid twelve cents per pound, that will be sixty cents. You will add these three amounts together, which will give you the price per hundred pounds of the fertilizer, and that again multiplied by twenty will be the value per ton. Now, if you find this estimated value per ton of a fertilizer is about ten dollars, and your agent is asking you thirty dollars for it, it shows that there is a tremendous margin, and very likely a great deal of adulteration in it. In places where this system has been carried on, in the earlier stages of this detective business of setting the chemist on the manufacturer, the frauds that were discovered being perpetrated on ignorant purchasers were surprising. As I said before, farmers and fruit growers were paying thirty-five and forty dollars per ton for manures, the estimated cost of which was not more than one dollar and a half, all sorts of tricks being resorted to in order to induce them to purchase. You will find that this system of analysis will bring about a much more satisfactory state of affairs, and inspire people with much greater confidence in this class of fertilizers. In the past men have bought alleged fertilizers from time to time, and on trying them found no appreciable results, and consequently they pooh-pooh all artificial fertilizers now. The other day, down at Carleton, a very energetic gentleman—something like our friend Mr. Mackenzie Ross here—got up to speak, and said to me. "You come from Guelph; I am going to go for you." I said, "Well, what is the trouble?" Well, it was all about a fertilizer manufactured in the vicinity of Guelph some years ago. A great many of the market gardeners around Carleton had bought it, and from their description of it, I believe if an analysis of it had been made it would not have been found worth more than three or four dollars a ton. This gentleman himself was so disgusted with it that he frightened the manufacturer into taking it back and paying the freight on it. Well, we have the means now of avoiding that sort of thing, and if you were not previously aware of it, I tell you know that you ought not to buy any fertilizer without being acquainted with its analysis, and when you know that you can easily calculate its cost by this schedule of prices. If you do not know where to lay hands on that, write to the Agricultural College at Guelph or to the Experimental Station, and any of us will furnish you with the rates. If the estimated cost is less than the selling price, then you are paying too dear for your whistle. We come now to the home manufacture of fertilizers, which I believe is well worth consideration by fruit growers and gardeners. Make your own. You have your wood ashes, and as regards your superphosphate, you can make that too. It is generally conceded by persons who have tried it that a saving of twenty per cent. is effected in doing so, and at the same time you are sure of having the pure thing. I will give you a mixture or two that you will find most excellent for orchards and gardens—first by bulk. Take one part—a barrel, pail or any similar vessel of that kind will do—of bone dust, two parts of ashes, one-third of water (enough to saturate it) and one-sixth of what you ordinarily call plaster; this will make a most excellent superphosphate. You will have a mixture that has phosphoric acid in the bones and potash in the ashes. Of course it will lack nitrogen, but you get that in farm-yard manure, and if you like you can apply that. The phosphoric acid, however, is more likely to be deficient in the soil than the nitrogen, and it is that for which we are looking. Another excellent mixture I can give you by weight—one part of bone, one of ash, about a quarter of slacked lime and about one-eighth of crude carbonate of soda. After that is mixed a little while, if you will add some soil, say one-fifth of the bulk, you will have an excellent mixture for the orchard. Another point I desire to impress on you is that you should know what to believe. I think that horticulturists and fruit growers should be observing men, and I am sure those present here are, otherwise the discussions of the last two days could not have been conducted in the vigorous manner they were. Now, in the application of fertilizers there is a great need of observation, and if I were a fruit grower I would try little experiments of my own in the orchard and field, and see

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for myself whether a certain application of ashes or superphosphates brought about good results ; nature gives the best answers to all these questions. In the early days of agricultural science there was a rage prevalent in the country for sending a box of the soil of the farm to a chemist for analysis. Now, there can be but little of it in a box, and the ingredients are in such small proportions that a chemist might make a mistake in detecting them, or he might find the quantities there and yet not in the condition. You might take some soil that you knew would produce a very poor crop to a chemist, and after analyzing it he might send you a very fine statement of it. There is more to be learned now from the mechanical condition of the soil than from the chemical. Of course there must be the constituents in the soil, but it is wonderful how we have been favoured by Providence in this part of the country in giving us a sufficiency of these constituents. The trouble is, however, that we do not throw enough skill into their cultivation to make the most of them. High culture, thorough culture, is something the necessity for which those who are trying to wring their sustenance out of the soil must become fully impressed with at the present time. That a market gardener can get as much out of one acre as a farmer does out of ten is only the effect of high culture ; they plough thoroughly, dig thoroughly and add plenty of manure. You cannot lay much stress upon an analysis of the soil. The only case in which it is of much benefit is where—as is sometimes the case—there is an ingredient in the soil which may bring about a poisonous effect upon vegetation, and there the detection of that element becomes a vital matter. But taking the soil in general you cannot make much out of a chemical analysis, whereas if you experiment with a fertilizer the result is transparent. You may take a good result as a true reply from nature that she wants some of the constituents contained in that fertilizer. Therefore, I say, be experimentalists ; get all the help you can from the College or the Experimental Station at Ottawa, but remember that there are conditions surrounding us that may not affect you, and the best plan of all is to keep your eyes open, and keep them fixed on the soil. I think if you apply some of these fertilizers from time to time you would soon have a pretty rational idea of the condition of your soil, and what fertilizers are likely to bring about favourable results in connection with it.

Mr. MACKENZIE ROSS.—There is another fertilizer which has not been mentioned—soot. If the soil is well worked and pulverized, then the soot sown, and after that cleaned out and hoed, and a row of wood ashes run between the rows it has a good effect. Then there is another fertilizer. When you go out on a frosty morning you see the heap of manure round in the barn yard smoking. Now, that vapour goes up into the clouds, and comes back to us in the rain, and there is no fertilizer on the earth equal to what we get from the clouds. Is it any thing else than the ammonia which ascends from the manure ?

Prof. PANTON.—The ammonia that you send up from your manure pile may be blown over to Guelph, where we may get the benefit of it.

Mr. DANIEL WILSON.—I am not a gardener, but a plain farmer, and have listened with attention to the remarks of the gentleman—who has been speaking, and who I am told is a professor from the Agricultural College,—out of which I endeavoured to get as much information as I could. He has told us all about the necessary ingredients—the superphosphate and so on, and he has also told us that we are blessed with different kinds of soils. Well, certainly we are blessed with different kinds of soil, from what I have seen of Guelph and the banks of the Thames. In conversation with Professor Brown, at the College, I asked him what it took to put the land in a fair state of cultivation, and he told me fifteen tons of barnyard manure and three hundredweight of phosphate to the acre. Well, I told the professor, and I tell you here, that if you applied that in this county you would not get anything but straw. But take that straw and put it in your barn yard manure, and don't let that grand fertilizer go to waste. I don't think, gentlemen, that you and I would differ about the necessity of superphosphate for the county of Kent, if you had travelled through it as much, or lived in it as long as I have. If you looked at the orchards in the various parts of this county you would find too much fruit ; too much vegetation ; too much force of sap. What we want here instead of any forced growth is proper pruning of our orchards : the chemical properties

necessary for plant growth are right here. We have from six to ten feet of vegetable soil on the bank of this river, extending through a large portion of the county. If the farmers would apply at the proper time what is going to waste in their barnyards there would be no necessity for telling us what superphosphate is composed of. As an Englishman said, "Muck the field, and it is sure to give you a crop." How much manure do you think there is going to waste in this town? In almost all parts of it horses are kept, and you will find an immense quantity of manure going to waste. If there is any fertilizer needed on the farm remove that and put it where it is needed, and never say a word about chemicals. You would never try to make me believe I wanted chemicals, if you came and walked over my farm. It is necessary that you should have a mixed system of farming—pasture some and till some; you cannot till all nor pasture all. Keep about as much stock as you can, and put the manure out at the proper time, and you will find that good returns will repay you for your labour.

Prof. SAUNDERS.—What time do you put your manure on your fields?

Mr. WILSON.—The best time is to take it out as soon as possible previous to applying it; take it on the land in its raw state, particularly on what is called sandy loam, and plough it in for the spring crop.

Mr. DEMPSEY.—There is manufactured in our neighbourhood a superphosphate made out of fish gathered from the lake, which are submitted to the action of sulphuric acid. What would be the probable value of that as a fertilizer?

Prof. PANTON.—I think it would be a good fertilizer, but the best way is to ask for the analysis. In reply to Mr. Wilson's remarks, I would remind him that I said at the outset that here we were in paradise, and that the question of artificial manures in the county of Kent was not one calling for consideration.

Mr. WELLINGTON.—I just wish to corroborate what has been said by Professor Pantan in regard to the value of ashes as a fertilizer for trees. That is as far as I can go. What we learn by experience we know, and for a number of years I have used wood ashes for trees. We have in the same block, barnyard manure and ashes, and the comparison has always been in favour of the wood ashes; you could tell the trees to which they had been applied without the least effort. The ashes are productive of a smooth, clean growth, and we value them so highly as a fertilizer that we keep teams constantly employed scouring the country as far as twenty miles around gathering hardwood ashes. It is a mistake, no doubt, for the people who have them to let them go, but they are certainly extremely valuable to the fruit grower. We usually pay ten cents per bushel for them, but at the present I believe we are paying as high as fifteen cents.

Mr. MACDONALD.—In regard to the application of fertilizers generally, there is a point worthy of observation, which is this: As Professor Pantan said the other day in reference to bacteria, the attention of fruit growers is being turned to dealing with the plant itself—to making it hardy and strong. Now, that does not apply to bacteria alone, but to almost everything else. If you make a hardy, thrifty tree, in any manner whatever, it is more able to resist diseases of all kinds—parasites, bacteria, fungoid growths and everything else. Now this is something which can be done by the judicious application of fertilizers, and in no other manner that I know of, and in this respect there are two ideas which ought to be corrected, which were expressed here yesterday. It was proved here yesterday by a man of experience that where barnyard manure had been applied it proved detrimental to his trees, producing blight. Now, that was the effect of creating too much woody growth, something which all nitrogenous fertilizers do; and nitrate of soda—which has been spoken of here—is one of these, and I do not think it would be wise to apply it in any large quantities, especially if you have much barnyard manure with it. I say that the proper way to create a vigorous growth in a tree is by the application of other than nitrogenous fertilizers, and of course these have to be applied according to the condition of the soil. I proved this beyond a doubt myself in several experiments I made with potatoes; where I used an excess of barnyard manure I had always a larger growth of tops, which were not so strong and healthy, and able to resist diseases as much as smaller tops with larger tubers. I have found by accurate weighings where I applied 20 tons to the acre I had forty per cent of rotten potatoes and where I applied other manure I had only fifteen per

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cent. I think someone said here that we could not depend on artificial fertilizers to supplant barnyard manure. Perhaps we can't, but by the use of them barnyard manure can be economized. If you have only enough barnyard manure for ten acres apply it to twenty acres, using with it some artificial fertilizer containing elements that the soil, to which it is to be applied, needs. Don't think so much about the plant. Of course, some plants are benefited by certain fertilizers more than others, but as a usual thing it is the soil that must be looked to more than the plant in choosing a fertilizer. Whether it is in fruit or anything else you must ascertain whether the soil is deficient in potash or phosphoric acid. You can easily tell if you have sufficient nitrogen; if the vegetation is profuse you have enough nitrogen. I think three-quarters of this country could be benefited by the application of phosphates in some form or another. It is complained by fruit growers and farmers that these fertilizers are too high in price, and there is a good deal of truth in it. It has long been supposed that phosphate should be dissolved before beneficial effects can be produced. The tendency now, however, is not to have phosphates so soluble as formerly—it is not considered necessary to have them so very soluble. They have machines now for grinding this apatite as fine as flour, and if held up to the wind it flies away like dust. The finer this phosphate can be made the more valuable it is as a fertilizer. I think if experiments were tried in a systematic manner by applying some of this phosphate flour to the trees around the roots when planting, and then watching the results carefully, both where it had been applied and also where it had not, the comparison would be productive of some valuable experience.

Prof. SAUNDERS.—I would like to hear whether barnyard manure is better green or decomposed—a little further light on that point would be valuable. From some inquiries made I find it is used in the green state during the winter, carting it directly on to the fields, and letting the leaching be done there. I think this is one of the most practical points that has come before us, because by the ordinary methods of keeping barnyard manure, where the barnyard is not so situated as to retain the drainage, there is a large loss to the farmer. If that can be avoided by taking the manure out during the winter months, teaming it out to such places as it may be useful in the spring, it is a thing we ought to know. Those who have tried the plan of carting their manure out to the fields every day say that they get better crops in that way than they did when they allowed it to accumulate in the yard and rot. Others, again, urge that it is better to rot it first; there are two sides to the question, and I would like to hear from some of those present their views on the subject.

A MEMBER.—If you want the manure to have its effect quickly it must be applied in the rotten state. Where it is applied green the benefit is not gained till the next year.

F. W. WILSON.—That is not my experience. I never got any good by piling manure. I think I got more immediate benefit with the spring manure than when it was piled. It beats me to know how any good can be derived by piling it, for the good properties are evaporating all the time. I believe in ploughing it in in the spring.

Prof. PANTON.—For the orchard I would say look after your ashes, and if you make that mixture you will find it an excellent fertilizer; and in the garden—for that, I think, is what we are talking about—I think well rotted manure would be the best.

Mr. MACDONALD.—I have had little experience in rotten manure. I last year tried cow dung without any urine on an onion plot of about a quarter of an acre, at the rate of sixty-two horse loads to the acre. I put part on in the fall and ploughed it down, another part I put on as a top dressing. The manure happened to be full of all sorts of weeds, and I got the benefit of them. Where I ploughed it under I had a tremendous pile of the onion maggot, where it was used as a top dressing there were less, and least of all where there was no manure put at all. I don't know whether that proves anything or not, but it is my experience. There are a great number of conditions to be observed in the application of manure, whether rotted or green. If absorbents are used with the green manure, so that the liquid goes with it, it is very strong, and acts as quickly as fermented manure, but if it is put on in connection with straw without being fermented it must be put on clay soil. Then in some cases it might be beneficial, but in others might have the reverse effect. Its effect is beneficial in this way, that it opens the soil for the absorption of ammonia and moisture from the atmosphere, but you cannot get

any moisture from the loam because moisture will not enter coarse manure on the surface of the soil. So that whether manure is fermented or not depends a good deal upon the circumstances. Never apply green manure on light soil, but fermented manure may be employed on light soil. If you apply manure green you must be careful of weeds, and often, even if fermented at the ordinary temperature, it will not kill them; it requires a high temperature.

VOTES OF THANKS.

On motion of Mr. F. W. Wilson, seconded by Mr. John Macklin, a vote of thanks was tendered the President and Directors of the Association for having chosen Chatham as the place for the winter meeting.

On motion of Mr. F. W. Wilson, seconded by Mr. Mackenzie Ross, the thanks of the Association and Meeting were tendered to Mr. President Lyon, of the Michigan State Association, for his presence and valuable aid in carrying on the various discussions.

REPORT OF COMMITTEE ON FRUITS.

The report of the committee on fruits was presented as follows, and taken as read:—

Your committee have carefully examined and find—

E. Tyhurst, of Leamington, shows six varieties, all fine specimens, N. Spy, Baldwin, King, Ben Davis, Golden Russet, and one variety although strongly resembling Fallwater, your committee did not recognize, all very fine.

T. T. Tyhurst, Harwich, shows five varieties, R. I. Greening, Flushing, Spitzenburg, King, Baldwin, N. Spy, all very good

Joseph Ripley, Kent Bridge, shows excellent specimens of Fallwater, Gloriamundi, R. I. Greening, and fair of Baldwin and Phenix, which is commonly and erroneously called Red Canada, and the Bradt Seedling, a russet shown by Stone and Wellington, about the size of American G. Russett, but evidently quite distinct. Quality superior. Also Canada Baldwin which was grown in Quebec, hardy and beautiful.

W. McKenzie Ross, shows Nick-a-Jack, a fair large apple, valuable for long-keeping qualities; a very superior large apple improperly labeled White Winter Pearmain, excellent specimens of Bellflower, Northern Spy; good Ben Davis, American Golden Russet, Wagener, Cayuga Red Streak, R. I. Greening and Lady, and fair specimens of Grimes Golden and Mann, and a seedling of no particular merits—13 varieties in all.

Richard Tyhurst, a sweet and large red seedling apple of good appearance.

Thomas Beall, of Lindsay, a large red seedling of no marked quality in appearance. Excellent specimens of Pewaukee and Ontario apples.

T. R. Merritt, St. Catharines, shows the Columbia, a very good winter pear, a little above medium size and of superior quality. The committee are of opinion that this pear should be better known. Also the following specimens in a fair state of preservation:—Oswego Beurre, Vicar of Wakefield, Winter Nelis, Easter Beurre, President Druard, Mount Vernon, and Josephine de Malines, a very well flavoured winter pear.

A. M. Smith, specimens of the Champion Quinces, which show wonderful keeping qualities; also, Vergennes grapes which were kept wrapped in paper and in an open box in the cellar. The Vergennes cannot receive too high a recommendation for high and excellent keeping qualities. Many bunches were as perfect as when plucked from the vine. Also, Niagara in fair condition, showing it can be called a good keeper.

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A. A. Wright, Renfrew, shows very good specimens of celery of the White Plume variety. While the specimens are well grown, to our mind this variety lacks quality. The appearance is good, but the stocks lack that crispness so necessary to good celery. They are pretty, but tough.

L. Wolverton, of Grimsby, shows some perfect specimens of Spanish chestnuts and pecan nuts.

(Signed,) A. M. SMITH,
F. W. WILSON,
W. E. WELLINGTON, } Committee.

BEST VARIETIES OF PEARS.

The six best varieties of pears, (a) for home use, and (b) for market, was then discussed.

The SECRETARY.—Not including the newer kinds which have not been tested, I would name the following six, given in the order of ripening, for home use:—Rostiezer, a small but delicious pear, the Bartlett, Clapp's Favourite, Sheldon, Angouleme and Anjou. For the market, the Rostiezer, Bartlett, Clapp's Favourite, Anjou, and the Howell, not a pear of very excellent quality, but large in size and an abundant bearer, which has produced very large crops with me, and which I think is a very desirable market pear. The Anjou is a most beautiful pear. At Rochester, at the meeting of the New York State Horticultural Society, President Barry exhibited some of the best specimens I ever saw. That was on the 26th of January last, and they were preserved in the most excellent condition. They were equal in size to our Duchess, and they were surpassingly beautiful in appearance. The sight of them made me ambitious to plant largely of the Anjou pear. President Barry said there was nothing extraordinary in the method of culture, just ordinary good care had produced the results.

Mr. MACKENZIE ROSS.—There is a pear called the Elliot, not usually called early, which is one of the loveliest we possess. It comes in at the same season with the Doyenne D'Ete. Clapp's Favourite is perhaps one of the finest pears we possess, both for market and home use. We have about twenty-five trees of them, and our practice is to place the fruit on a floor between woollen cloths, leaving them for thirteen days. At the end of that time one would not think they were the same pears, they are just as yellow as you please. The Bartlett, as the Secretary has said, is a delicious pear, and will give satisfaction in almost any place, but it is a little tender. We prefer in our section, or even further north, Doyenne Boussock, which will produce twice as many pears as the Bartlett. With the Anjou we find some fault, it is rather a shy bearer; I might say very shy indeed. I have a tree that has been twenty or more years planted, and which never produced me a bushel of pears but one year—a large tree too. The pear itself is all I could ask in a pear. I would substitute for it as a winter pear the Josephine De Malines, and allow me to say here that in winter pears I recommend the same for market as for home use. We get more satisfaction from our winter pears since we have learned how to handle them. After gathering them we keep them as cool as we can safely until near the time they are wanted for use, and then bring them up into a warm room and force the maturity as fast as possible. A winter pear ripened in a temperature of 70 is very much superior in flavour to one ripened in a lower temperature. The Doyenne Boussock did not give satisfaction for several years; it seemed as if we could not mature the fruit at all. Now, however, since we have learned how to handle them, we find they are a very nice pear indeed, but they want to be ripened so you would almost think they were rotten, and when in this state their flavor is delicious. This is also the case with the Clairgeau.

President LYON.—There is a pear which I am surprised has not attracted more attention as a market variety. I refer to the Sterling. It has never had anyone to push it. Mr. Downing spoke of it as suiting him very well, and it is of better quality

than the average market pear. It is a very clear, brilliant yellow, with red crimson cheeks. It would ripen here about the 1st of September. The flesh is clear and white, and very sweet, and the taste to those who like a sweet pear is very pleasant. It is one of the most attractive pears that can be put on a market stand, and brings a very high price. The tree is a strong, handsome, upright grower, and in sixty years acquaintance with it I have never known a case of blight; when all others were blighted it was all right. I know trees that were planted in 1825 which were perfect the last time I saw them. The only case of blight or anything approaching it which has ever come under my notice was caused by a stock which was grafted on it, but even then there was no blight as far as I could see in the variety itself. Anyone trying it will find it a profitable tree, and desirable as well for their own use.

The meeting then adjourned *sine die*.

SUMMER MEETING.

The summer meeting of the Association was held in the town hall, Collingwood, commencing on Wednesday, June 29th; the President, A. McD. Allan, in the chair.

The Secretary read a letter from Mr. William Saunders, Director of the Central Experimental Farm, Ottawa, expressing regret at his inability to be present at the meeting, he being engaged in locating the Experimental Farm in Nova Scotia; and conveying kindest regards to the president, directors and members of the Association.

A GENERAL DISCUSSION ON ORCHARDS.

The first subject on the programme for discussion was "The Apple; varieties adapted to the counties of Simcoe and Grey." The President called on Mr. W. W. Cox, of Collingwood Township, to lead the discussion.

Mr. Cox.—I live on the mountain in Collingwood township, where the soil is a red clay loam. In regard to the varieties of apples which may be grown in these counties, I might say that almost any of the known varieties can be successfully grown, and they will produce splendid specimens of fruit; the main trouble is that we cannot get people to pick and ship them right. I will mention a few of the summer apples I have seen here, though of course there may be a great many more. They are the Early Harvest, Keswick Codlin, Red Astrachan, Sweet Bough and several others, of all of which I have seen very fine specimens.

The SECRETARY.—What about the Early Harvest? Doesn't it spot here?

Mr. Cox.—Now I remember, I believe I did see some spotted at Clarksburg. In autumn varieties, there are the Alexander, Colvert, Gravenstein, Duchess of Oldenburg and Fall Pippin, which all do well; I never saw the like of what we had at the show here.

The PRESIDENT.—Do you consider the Duchess of Oldenburg a fall apple here?

Mr. Cox.—Yes, we call it a fall apple here. Then there is the Maiden's Blush—I have seen some of the most beautiful specimens of this apple here I ever saw in my life,—and the St. Lawrence and the Twenty-ounce Pippin.

The PRESIDENT.—Does the St. Lawrence spot?

Mr. Cox.—I never knew it to spot at all. In winter varieties, we have the Baldwin, King of Tompkins County, Roxbury Russet, Talman Sweet, Kentish Fill Basket, Mackintosh Red, Ribston Pippin, Northern Spy, Rhode Island Greening, Wagoner

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and the Mann apple, all of which do well and produce very fine specimens. Of course the soils vary a good deal about here: go a mile and you will perhaps find it very different, and some of the soils just around the town here will not grow what we can out on the clay.

The PRESIDENT.—Do you find a variation in the fruit on these different soils?

Mr. COX.—Yes. We find that they succeed far better on the clay soil, where we have a strong natural drainage.

The SECRETARY.—Did you say you had the King of Tompkins?

Mr. COX.—Yes. It does splendidly, it is hardy and bears well—that is over the mountain, I could not say for those down here.

Mr. BEADLE.—Any trouble with them dropping off immaturity?

Mr. COX.—They have not found any fault with them in this respect.

The PRESIDENT.—Do you find any trouble in regard to hardiness further inland?

Mr. COX.—There used to be, but I think it is being overcome now that the country is getting more cleared up. A friend of mine who has seven hundred acres of land there says his trees are doing better now than they did a few years ago. Take a range across the rear, over the mountain, a few miles from Owen Sound back from the bay, and I never saw anything finer in my life than the apples are. One of the judges of the Provincial Show told me he had never seen finer fruit; he could hardly believe that the Baldwin could be grown as we grow it here, and when he came to look at the other varieties he said, "Well, I never saw such fruit in my life before." The great trouble has been to get people to take care of their trees; they don't take any care of them, and then if they don't do well they blame the agent or the nurseryman.

The PRESIDENT.—You think any of the known varieties can be grown in these counties?

Mr. COX.—Yes.

The SECRETARY.—In our Report for 1884 a list was given of varieties suitable for Simcoe and Grey, in which two or three were mentioned as not being hardy—the King and the Baldwin were spoken of as being tender. Now, it seems from what we have heard to-day, that they are not at all tender; the Report is scarcely correct in that?

Mr. COX.—Well, there might be some places back in Melancthon and Osprey where the soil is very mucky—sort of swampy, and in such places certain apples will not do. But all around here, for a radius of twenty miles, I think there is no difficulty with the apples mentioned; except, as I have already said, that people don't take care enough of them.

Dr. AYLESWORTH, Jr., of Collingwood.—The counties of Grey and Simcoe are very large, and the soil in Grey is very different from that of Simcoe. If you go east or west of this town for a few miles you will find this clay which has been spoken of, but go east and you will find sand for miles, and the northern part of Simcoe is like Muskoka and that region, where you cannot grow anything at all to speak of. But along this lake shore, on this clay ground, anything may be grown—any kind of fruit of medium hardiness. In this sand around the town, however, you can grow neither apples or pears. When you get above the mountain, away from the lake four or five miles, most of the apples mentioned will not be found hardy, but anywhere along the lake they can be grown.

Mr. T. B. WHITE. (Collingwood township).—I live in the Beaver River valley, where the soil is a clay loam, though at the back of that there is more sand. My land, however, is mostly clay loam with a hard pan bottom, not in every respect first class, but good land. As regards apples, I find that I can grow the Northern Spy, Russets, Snow Apples, Astrachans, and some others, the names of which I don't just remember, all of which do well with me. I had one—I think it was a Rhode Island Greening—which I tried twice, but did not succeed with it.

The PRESIDENT.—For an early variety what do you prefer?

Mr. WHITE.—The Red Astrachan.

The PRESIDENT.—Does it spot?

Mr. WHITE.—No.

The PRESIDENT.—Do you have any small apples? Is the crop generally of good size?

Mr. WHITE.—Yes. Last year they had the appearance as if they were going to be

very small, but there came on a tremendous rain, and they all turned to be a good size; the whole orchard. Speaking of localities, Dr. Aylesworth, I think, said two or three miles from the lake, certain kinds would not be hardy; I think we might say six or seven, or eight miles.

The PRESIDENT.—You think they are subject to winter killing further inland?

Mr. WHITE.—Oh, yes; I think so. South of us, in Osprey, they have poor success. Men there have planted year after year, and still have no orchards; though they think they have done better of late years with selected kinds.

Mr. BRILLINGER, of Collingwood.—I have seen a good deal of fruit tested, though I don't grow any myself. Mr. Cox is a mountaineer; he can only speak of the mountain. When you come down here on to this light land it is very different. At Stayner, about nine miles south of this, the King is not hardy enough; two years ago a great many of them were killed. A man who had a very large orchard there told me he lost a great number of them by winter killing.

Mr. WRIGHT, of Renfrew.—How low does the thermometer generally register here?

Mr. BRILLINGER.—I think as low as 32 below zero.

Mr. A. M. SMITH, of St. Catharines.—A little too cold for the Baldwin.

Mr. BRILLINGER.—It is very seldom so low as that, but I have seen it that low.

Mr. CARPENTER.—I think 32 below is exceptional weather; we do not often get it below 20.

Mr. CONN, of Collingwood township.—The only thing I have ever noticed wrong with my apple trees is that the last few years they have spotted; some trees that I had in an old garden were nearly all spotted.

The SECRETARY.—Were the Greenings spotted with you?

Mr. CONN.—Yes, very badly.

The SECRETARY.—The Snow Apple?

Mr. CONN.—Yes. The closer they are placed together the worse they are; if you get out in the open they are not so bad. Spitzenbergs have done pretty well, and Wageners don't spot very much.

Mr. BEALL, of Lindsay.—Is the Spitzenberg healthy with you?

Mr. CONN.—Yes, it produces a good crop. The Baldwin does not winter kill with me.

Mr. BEALL.—How old are your Spitzenberg trees?

Mr. CONN.—About twelve years; we planted the first about fifteen years ago.

Mr. HICKLING, of Barrie.—I have been growing apples now for between thirty and forty years, and I find that while some do well for a time, others totally fail. I have just made a note of those which I consider the most choice, and which can be the most easily produced, for market purposes. For summer apples I would notice the Early Harvest, which has done very well for a time, but for the last few years has been badly subject to spot, and in some instances the trees have failed. The next on the list is the Red Astrachan, a very popular apple, and good for marketing; I think it is spotted a little, but not so bad as some others. Then there is another apple which is not very generally known around here—the Williams' Favorite, a red summer apple. Then there is another called the Porter, a very good serviceable apple, which answers either for dessert or cooking. The Early Joe is too small for market, though the trees are very prolific, and strong, and healthy. It comes in for cooking on account of its growing faster than the others; it answers as a green apple.

The PRESIDENT.—Don't you find the Duchess of Oldenburg desirable?

Mr. HICKLING.—I have not come to that yet. There is the Summer Pearmain, a very nice apple. Of course some of these apples might almost be called fall apples in this part of the country. The Duchess of Oldenburg, taken on every point, I think is the apple for market and for domestic use, though it does not ripen so early as some others, but it comes into bearing very early. For fall apples there is the Alexander, a very showy apple, but I think a little tender. The St. Clair is very good, although the last few years it has taken the spot. Then there is the Fall Pippin and the Colvert, though I don't think I need occupy your time with a description of them. I have an apple in my orchard—the name of which I do not know,—but from the picture in the

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Horticulturist, I think it resembles the Yellow Transparent—a clear yellow, tinged on one side with crimson. It is a very showy, pretty apple, and comes in, I think, in the latter end of September.

The SECRETARY.—Then it would not be the Yellow Transparent, that is too late for it.

Mr. HICKLING.—It resembles it very much, but I do not know the name of it. For winter apples I should include the Golden Russet, Northern Spy, Fameuse, the Ontario, —which is a new apple that is doing very well.

The SECRETARY.—Does it pay you to grow the Snow apple?

Mr. HICKLING.—Yes, it is not so bad the last year or so as formerly; it seems to me that this year I have not seen any spot whatever on them; other years I noticed it almost as soon as the apple was formed. Whether it is going to be free or not I cannot say, but I hope it is. The Swayzie Pomme Grise is a very good winter apple, and the Seek-no-further does remarkably well; it bears heavy crops, and is very good for the market. The Rox-bury Russet is a good apple, and the Yellow Bellflower, and the Rhode Island Greening.

The PRESIDENT.—Do you find these varieties all sufficiently hardy in your section?

Mr. HICKLING.—I think so, take them on the whole.

The PRESIDENT.—You are close into Barrie?

Mr. HICKLING.—Yes.

The PRESIDENT.—Is there any difficulty further inland?

Mr. HICKLING.—It was a general complaint two years ago all over that the Baldwin was badly affected by winter killing, but this last winter it does not seem to have suffered; the trees seemed to stand it very well. Of course there are many varieties which I have not mentioned, but I think those I have included are the principal ones.

The SECRETARY.—Is not the King apple tender with you?

Mr. HICKLING.—I don't know that it is, though perhaps it is not as hardy as some others.

Mr. BROKOVSKI.—I live in the township of Medonte. I think the hardness of apples is influenced to a great extent by the kind of land they are grown on. We have planted a number of trees, and have a very inferior orchard at the present time, but I think we will try again.

The PRESIDENT.—Have you underdrained your orchard?

Mr. BROKOVSKI.—There is no necessity for doing so; it is perfectly dry without. The Northern Spy does not succeed at all there; it grows up six or seven years and then winter-kills—dies out in a year or two. I don't think there is one in that part of the country. The St. Lawrence used to do well at one time, but it is failing now. The Duchess of Oldenburg succeeds admirably. There is another variety, the Brockville Beauty, not a very large apple, high colored, and having a fine flavour, which does very well. In fall apples I think the Haas (or the Fall Queen) succeeds best. Fallawater also succeeds moderately well. We have tried the Mann apple, but it is not a success; but our only experience with it was in an unfavourable locality, and it would hardly be fair under the circumstances to condemn it.

The PRESIDENT.—You say your section does not require drainage?

Mr. BROKOVSKI.—It does not; it is rolling land.

The PRESIDENT.—Have you ever tried draining?

Mr. BROKOVSKI.—No.

The PRESIDENT.—Then I should recommend you to do so.

A Mr. SMITH.—You say you have a hard clay bottom?

Mr. BROKOVSKI.—Yes, in some places. The strata varies, some places there is a clay bottom, and in some sandy—when you get up high—and then clay beneath, and then when you get down lower again a kind of fine sand. We are introducing the Wealthy as a winter apple, and it seems to do very well. The Baldwin does not seem to succeed. There is another winter apple called the Red Pound, which is grown there considerably. It is a good deal like the Pearmain in shape, very large and red, with brown spots showing through it.

The PRESIDENT.—I think it is one of the Pearmains. I know they call it the Red Pound.

The PRESIDENT.—I think the Baldwin should succeed there. They grow it away east in Mr. Croil's district and Mr. Beall's.

Mr. BEALL.—I found it, but not just in our neighbourhood.

Mr. CROIL.—How low did you have the thermometer last winter?

Mr. BROKOVSKI.—I think about thirty was the lowest. I think that is what tried the trees very much when it went down so low. The afternoon before it had been up in the thirties above, and at nine o'clock the next morning it was down to thirty below.

The PRESIDENT.—You say that in your district there is a rock formation. Is it limestone?

Mr. BROKOVSKI.—No. Granite, I think.

The PRESIDENT.—In that district, you say, they can grow fruit?

Mr. BROKOVSKI.—Yes. That is about twelve or thirteen miles from me, but in the same township. There is no apparent difference in the soil in just looking at it. The trees stand the winter very well there, too.

Mr. WRIGHT, of Renfrew.—Is it near the shore?

Mr. BROKOVSKI.—No. There is no apparent difference in the situation, slope, or anything else. That is the most remarkable part of it. I think the Snow apple is beginning to spot very badly, and in the winter the bark seems to break down near the ground, worse than any other variety. The Mackintosh Red seems to run out a little, and the bark cracks. There is a tree called the Gideon, which I got a couple of years ago, and it seems to give great promise.

Dr. AYLESWORTH, Sr., of Collingwood.—My experience is varied, and not over successful. Mr. Cox's statement that all kinds of apples in a general way succeed here is correct—that is under suitable circumstances, but in my experience I have found both the Baldwin and the Greening a failure through the black heart.

The PRESIDENT.—Have you any special varieties you like?

Dr. AYLESWORTH.—I have a variety of seedlings that I value very highly, and one of which Dr. Hoskins, who I had hopes of seeing here, has a very high opinion. Some six years ago he stated in the *Rural New Yorker* that he had a seedling which he esteemed very highly, grafts of which he would send to any one sending him the postage. I sent a shinplaster, as we call it, to him, and he sent me about a dozen. I succeeded with two, one of which is still alive, and which I value very highly. It is an early apple, ripening in the latter end of the month of August. It is semi-transparent, and the first apple, or the largest of the first apples I got from it, was eleven inches in circumference, and weighed, I think, eight and a half ounces, and people who tasted it considered it almost equal to a peach. I have also this seedling of my own which I think just as much of; Dr. Stevens and some others have tasted the fruit and think very highly of it. I am grafting from both of these, and intend to propagate them if possible.

Mr. GILFOYLE, of Collingwood.—Although I am not a fruit grower, I handle a good many apples, and my choice for good keeping varieties is the Northern Spy, which I find a very satisfactory apple to handle.

The PRESIDENT.—Do you find they are grown in large quantities around here?

Mr. GILFOYLE.—Not a great many in this immediate neighbourhood, but between here and Meaford, say within ten or twelve miles, they seem to be a greater success.

The PRESIDENT.—Do you find there is a belt of country in which it succeeds better than in other places?

Mr. GILFOYLE.—I cannot speak as to that; I have not been in the localities, and only know that it is from that vicinity they come to this market. I do not know anything at all about the culture of apples.

Mr. STEWART, of Dunedin.—Where I live we can grow any kind of tree almost, and two miles from us they cannot grow any tree at all. Our soil is a mixture—heavy and light, and for drainage it is splendid. I think the King of Tompkins is the best apple there; we find it hardy. The Alexander and the Wagener also do very well, the latter will bear the second year and continue on. The Red Astrachan is a very good apple,

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and the Baldwin does very well with us; mine is only just commencing, but with my neighbours it does splendidly. I think the difference between our section and the other I have spoken of is occasioned altogether by the soil; the other is high and level, ours high and rolling. Colverts stand there all right.

The PRESIDENT.—Do you grow the Snow Apple?

Mr. STEWART.—Yes, but last year it spotted badly. I find other varieties also spot, but the Talman Sweet did not spot last year. The Baldwin, I believe, is a hard apple to grow in some places, but it is a good regular bearer and a good keeper. It is not hardy enough for our section unless top-grafted on some hardy stock. I have a neighbour who says the King of Tompkins County is a little tender, but I say it is not, and we only live 120 rods apart, so you see it takes a man to judge for himself, and not to listen to all he hears.

Dr. AYLESWORTH, Sr.—“Prove all things.” (Laughter.)

Mr. STEWART.—If a man listens to everything he hears, he will never have an orchard.

Mr. MOERLY, of Collingwood.—I cannot call myself either an apple grower or an apple exporter, though I take a great interest in fruit generally, but I have listened with much interest to what has been said by the different gentlemen regarding the class of apples that can be grown in these counties. One of the early varieties spoken of, the Red Astrachan, is no doubt a fine apple and a prolific grower, but I would not advise anyone to grow more than one or two trees of it, just for home use and local consumption; beyond that it is valueless. When it ripens it is a beautiful apple to eat, but the moment it gets in the slightest degree over ripe it is almost like a sponge, and valueless for any purpose whatever. Another apple mentioned, the Duchess of Oldenburg, is, so far as my experience goes, a most prolific grower. I have a tree that is full of apples every year—beautiful apples. It is slightly later than the Red Astrachan, and it is an apple that keeps a little longer, but it also, you may say, is an apple valuable only for home use and local consumption. It has struck me that in choosing trees for an orchard people are apt instead of taking the experience of others as a guide to what are the best varieties for keeping and exporting, to take the book that is presented to them by the fruit man, and choose what in the illustrations seems to be the handsomest and biggest apple, thinking that when they have got that they will have something no one else has, and be able to make a good deal out of it, instead of looking for an apple of good keeping qualities, suitable for export. I was talking to a gentleman the other day whom I had met at the Queen's Hotel, Toronto, who came from Oregon, and among other things he told me that they had at times immense quantities of apples there, that were rotting on the ground. I inquired the reason, and found it was just about what I have stated. These farmers had raised a quantity of apples not fit to export, and although they had an enormous quantity of them they were valueless, because no one would buy them, and all the time and money spent in raising them was lost. It seems to me to be of the greatest importance to find out the apples that are going to be exporting apples, and those which will keep for the winter, and for fruit growers to turn their attention to such varieties. Then there will be a market for the fruit grown in this and other parts of the country where perhaps the market at present is small. If that were done I am satisfied that the apples grown in this section—the townships of Collingwood, Nottawasaga, St. Vincent and probably others—would produce enormous quantities of apples, which would prove a source of wealth to them. The soil is peculiarly adapted for it, the formation being almost entirely limestone, which, I take it, is a good formation for fruits of all kinds. In the town here we of course cannot grow apples to any great extent, the soil being almost altogether sand. In my own garden apples are growing very well, though not to the same extent they would, perhaps, if the soil were a little stronger. We have very little soil over our rock here, six or seven inches in some places, and in others seven or eight feet, but the whole of this country is underlaid with solid rock, which in some places crops out through the surface. We find, however, that trees grow very well. Much of this land which gentlemen have spoken of as not being adapted to apple growing, although apparently dry and sandy on top, may be springy down below—a hard, cold, springy subsoil. Not being a fruit grower myself it would be difficult

for me to give as good an opinion with regard to the influences on fruit that would have to be grown for export as some of the gentlemen of more experience, but I am satisfied that what we have to turn our attention to is growing fruit suitable for export, and I am confident we could produce any quantity of them in this part of the country, and I am also sure that this will have to become to a very great extent an apple or fruit country—that we shall have to turn our attention more and more to that branch of industry. Now, there is an apple grown in New Brunswick, the name of which I forget, which is a very good apple, and which I do not think is grown up here at all. It is exceedingly good for exportation. The Annapolis Valley, of Nova Scotia, sends out an enormous quantity of apples every year, and I do not see why we should not here. We do not export apples to the extent we should, and I think one of the reasons is that we grow a great quantity of apples that are of no use, and, in many cases, a mere loss of time and money to the farmer who raises them. If these were replaced by varieties suitable for export, buyers would come in amongst us and make a business of securing them, instead of, as at present, the farmer marketing a few bushels of his own. If we had a large quantity of fruit of that kind people would come up here and make a business of buying it—perhaps on the trees. I think it is very important for farmers to be apprised of what goes on in these meetings, in order that they may ascertain of their own knowledge, or by the experience of their neighbours in different sections of the country, the different kinds that succeed under varying circumstances, because it takes a tree a long time to grow—in the case of the Northern Spy you have to wait ten years before you get a crop. Therefore they do not want to plant varieties that are useful only for domestic and local purposes, but such varieties as will have a value for exportation.

The PRESIDENT.—In the course of this discussion one point has been settled in my mind; that is the necessity for thorough underdraining. In all the localities in which the speakers were uncertain on this point it seems to me that it is a necessity. I think it would be pretty hard to find a tract of land where underdrainage would not do some good, and even on the rolling land where you are successful you would be still more successful—your trees would be healthier and the fruit finer if a thorough system of underdrainage were adopted. After a time, when the land has been thoroughly underdrained and cultivated, it may be found that some of the varieties at present considered not hardy enough in this section will prove sufficiently hardy to be successfully grown. However, we have coming into the market a great many varieties of excellent apples which will be quite hardy enough for any of these sections. I think Mr. Moberly has struck the keynote. There is no doubt at all that in other sections of the country as well as this farmers have been planting varieties they ought never to have planted. As a rule one or two early trees for the early summer are quite sufficient for home use, and three or four at the outside would be quite sufficient of fall fruit. What is wanted is winter fruit, not late fall, because we can now ship all winter to the foreign markets. We do not find a sufficient quantity of the long keeping varieties, and I would advise those who have too many trees of the early kinds to top graft them with some well known standard winter variety, such as succeeds best in their particular locality, and commands the best price in the foreign markets. I think by this course they would be encouraged to go much more extensively into fruit growing. Our markets are increasing rapidly year after year, and by planting such varieties as are well known to be successful in your own particular variety,—for which you must rely on your eyes and the evidence of your neighbours—and which are in demand in foreign parts, I think you will find it profitable; bearing in mind always to begin by thoroughly underdraining.

Dr. AYLESWORTH, Jr.—Some eleven years ago I planted 900 apple trees in a very favourable position on the side of the mountain, thoroughly drained naturally, and facing the east. I planted the Northern Spy, the Golden Russet, the Baldwin, and the Greening. The first two have done exceptionally well. The Baldwin and Greening, I think, from the character of the trees supplied, are largely a failure; but there are some splendid specimens of each kind. I have also planted two or three each of several other varieties: the Snow, Red Astrachan, Talman Sweet, and two or three others, the names of which I do not remember just now, all of which have done well.

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The SECRETARY.—There is a variety spoken very highly of in Maine, which I don't think anyone in Canada has tested; it is the McClellan. A gentleman says that of seventy varieties he tried, it was the most successful. I would like to know if anyone has tried it here?

The PRESIDENT.—There is another apple which is not grown here, which, in Maine, is one of their very best—the Nodhead. I have seen apples from some sections here called the Nodhead, but they are not at all like it. Their's is a long-keeping, very fine winter apple, and has a good flavour. The McClellan, too, is a good keeper, and a high coloured apple. It is grown all over the State of Maine, and the eastern part of New Hampshire, in almost every orchard.

Mr. A. M. SMITH.—I would like to know if the Ben Davis is grown here?

Mr. COX.—It is grown here upon the face of the mountain, and it does splendidly.

At one o'clock the meeting adjourned until 2.30 p.m., and on reassembling, the question drawer was opened, and the following queries discussed:—

VALUE OF APPLES FOR FEEDING MILCH COWS.

Q.—Of what value are apples for feeding milch cows?

Mr. CROIL.—I have used apples for that purpose, but my experience is that they are very poor feed. I thought afterwards that a little corn would have done much more good than the apples. I fed them raw, but if cooked and mixed with grain, they might have done better. Some of my neighbours say their cows do not give such a large flow of milk on apples.

The SECRETARY.—Have you tried meal with them?

Mr. CROIL.—No. I think that way it might have been better.

The SECRETARY.—At our last meeting Prof. Panton stated that when mixed with bran, pea meal, or chopped stuff, they made a very good food, and a gentleman who had used them moderately in that way, said their use had been productive of very good results, and believed it would pay any man to grow apples if only for that purpose.

Col. MCGILL.—You would have to cook your apples then to get the full effect of them on the flow of milk. They have a decided influence if you cook the apples and mix them with meal; they are productive of improvement in the flow of milk—that has been my experience.

A MEMBER.—Does it pay for the cost and extra labour of cooking?

Col. MCGILL.—Yes, if you were going to feed apples, and expected to get any benefit from them.

Mr. BEADLE.—If you could market them at a merely nominal price it would pay better to sell them and feed meal.

HOW TO DESTROY CATERPILLARS.

Q.—What is the best way to exterminate caterpillars; I have tried soft soap, but it does not affect those remaining in the web?

Mr. BEALL.—You will remember someone saying some time ago that eternal vigilance was the price of apples; it is certainly so in regard to these caterpillars. I like the plan of looking for them in the early morning, when they are in the web in the fork of the tree. It is only as the day advances and the weather warms, that they begin to travel out and feed. At evening, too, you will find them in the web, and you can take a forked stick and pull web, caterpillar, and all down. Another thing is to look for the cluster of eggs on the twigs early in March, before the leaves are out. If your orchard has been at all infested the year before, it is probable some of the moths have escaped and laid

their eggs on the twigs—I suppose you are all familiar with that fact. They are easily seen as you look through the top of the tree by projecting the limbs of the tree against the sky, and with the scissors on the end of a pole, you can clip them off and bring them down. If they are left on the ground it does not matter much, though I usually make sure of them by gathering them all up—except a few that may escape me in the grass or weeds; they cannot eat grass, however, and soon perish. There is another way of getting at these fellows, of another class,—I am speaking now of the tree tent caterpillar. There is another variety which I may call a tent caterpillar, though it does not make a tent. They were very abundant about London and St. Thomas a few years ago—the country was infested with them. They come from the forest, and go by the name of the forest tent caterpillar. They make a very slight web indeed, but they have the habit of gathering on the trunk of the tree some time during the twenty-four hours, in a great heap—seem to be built on top of one another, and you can easily manage to crush them. I have mentioned these to cover the two varieties of what are known as tent caterpillars. These last do not make a tent, so you cannot get at them always in the manner spoken of, with the forked stick, but the moth lays its eggs in a ring, and the ring of eggs can be cut off early in the spring the same as the tree tent caterpillar.

BEST APPLES FOR FOREIGN MARKETS.

The discussion of the apple was then resumed, having in view “Varieties of foreign markets,” as follows:—

The PRESIDENT.—This is a question in regard to which, in different localities, there is room for considerable variation. The subject is one in which I have had some amount of experience for a good many years, and in speaking of the best varieties for foreign markets, I should in the first place include those possessed of good keeping qualities—winter varieties. Take, for instance, the Baldwin, out of which a good deal of money has been made in all the sections in which it has been grown. The Rhode Island Greening, an apple which some years ago was low down in price on the British market, is now rising, owing to its good keeping qualities. A good specimen of the Rhode Island Greening will now stand alongside the Baldwin, in price, in almost any of the British markets. It was formerly objected to on account of being green, the British taste being for a highly coloured apple, but they are now getting over that as an objection, and looking more to the quality, than the appearance. We all know that for keeping purposes, for our own use, most of us would prefer the Greening to the Baldwin. Then there is an apple that is grown pretty largely throughout this Province, and which has been considered, and bought by shippers, as a fall apple—the Twenty-Ounce; it is a valuable apple for the British market where it is well known, and commands a very high price. There was a time when in Britain they wanted a medium sized apple for dessert purposes, but now they want to get as much apple as they possibly can for the price, and large apples are in demand and bring a high price. The Fallawater, for instance, brings a high price, though it has very little colour. The King of Tompkins County, which has not only a very fine appearance, but also excellent qualities, is much sought for at good prices. The Northern Spy, too, is a great favourite there in any of the markets you go to; it is an apple of very high quality, and therefore has held its own. Last year it was spotted pretty badly, but notwithstanding that, it stood pretty well to the front of Canadian apples in the market. The Ben Davis, although not a very large apple, is one that holds the market very well, simply because it is an apple of good average size and colour, and fine appearance. Still I would hardly advise growers to plant very freely of Ben Davis, because the quality is rather low, and I do not think it will continue to hold the market very long. I think in Britain they will, by and by, begin to know and appreciate high quality in an apple, instead of looking merely to colour, as was formerly the case. The Ribston Pippin is an apple I would like to see grown largely wherever it will succeed, and with it I might mention the Blenheim Pippin, or Blenheim Orange, as it is sometimes called. Both these apples command the highest price in the markets of Great Britain; probably they are at

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the top of the list for price ; and we can grow them much finer here than any they can produce there. I think it is probable that the Ribston Pippin and Blenheim Orange are more extensively grown in the Annapolis Valley, of Nova Scotia, than any other variety, and they make more out of them than any other variety, too. They are apples of such good quality that they are sure to hold the market.

A MEMBER.—Do they compare favourably with ours ?

The PRESIDENT.—They do. Then there is the Wagener ; it is a little on the small side, and is not sufficiently well known on the markets to be appreciated as it ought, but there is no doubt it will be appreciated as it becomes better known abroad. The American Golden Russet will always hold its own, but it should be stored here and shipped towards the spring of the year in order to realize its proper value. The Roxbury Russet, too, should be held late here, and if shipped then, will command a very high price on the British or other foreign markets. It is an apple which is sold by the Nova Scotians by a different name—the Nonpariel, which, I believe, is one and the same with the Roxbury Russet. The Spitzenberg is an apple that would bring a good price, but there is something about the local Spitzenberg as a shipper, that I do not understand ; I found it last year a very poor shipper, arriving in England in very poor condition ; barrel after barrel that were opened were in a state of decay. It is an apple of the very highest quality as a dessert apple, but it is one that growers of experience do not care very much for growing, being a slow grower and a poor bearer. The Swayzie Pomme Grise I tested last year in the London market for the Christmas trade.—I put some of them on the market on the 15th of December for the Christmas holidays ; I packed them in small barrels known as half-barrels. After explaining them pretty well to buyers on the market, they sold for twenty-seven shillings per half-barrel, that is fifty-four shillings per barrel—the ordinary fruit barrel. I gave the people there to understand that to grow that particular kind of apple we would have to get at least thirty shillings per half-barrel. It is a very small apple, and it takes a great many to fill a barrel, and in growing a large orchard I think the grower would run a great risk in order to make any money. It is an apple which I suppose most of you know, and is possessed of the highest quality known in an apple. A good many confound it with the Pomme Grise, or Montreal Pomme Grise, which is quite a different apple, though of very high quality, too, and which should bring a high price on the foreign markets. There is no demand for sweet apples, and I would not advise anyone to ship the Talman Sweet to the British market ; they don't want it there. We have other varieties of apples,—our early apples—the Duchess of Oldenburg, for instance, out of which, if some of the steamship companies would start a line of cold storage, as much money could be made as out of any other variety grown in Canada. You would have to pick them a little ahead of time, but the Duchess will keep very well when picked a little on the early side, and colour nicely on the way ; I believe there would be money in shipping in that way at that season of the year. At that season in England they handle principally German and Belgian apples, which would not at all compare with the Duchess. I tested them in small quantities and realized good prices : twenty-four shillings per barrel in small packages. Then the Fameuse, if grown clean and clear from spot, would be appreciated in the British market ; they would be willing to pay a figure that would pay the grower here. If grown clean, the Fameuse can be shipped in the ordinary way, without cold storage, and will arrive there very well—that is the Snow apple. The Colvert also arrived in very good condition, and brought fair prices. The Wealthy would ship there very well, indeed, and would also realize a paying figure. The Cranberry Pippin would ship there very well, and sell well. I also saw some Mackintosh Reds there which were brought from the vicinity of Oshawa, and which, I think, were sold very well. The Mann apple sold very well, indeed ; it is a long keeper, and should not be shipped until spring, when it would bring a high price. I sold the Ontario at a general average of twenty-two shillings per barrel for what I did sell. The King of Tompkins always sells high, with the Ribston Pippin and the Blenheim.

The SECRETARY.—What about these hardy varieties, Cellini and Fall Queen ?

The PRESIDENT.—They have not been tried there—at all events I have never met them in the market. Nor the Wallbridge, I think, at present.

The SECRETARY.—I don't think there has been very much money in growing the Baldwin for shipping, of late at all events, if we may judge by its conduct with us in the Niagara District. We cannot get any apples off our trees any more; they do not produce any fruit of any consequence at all, and what there has been is not at all up to its former size or appearance. I have a neighbour who has a large orchard almost entirely Baldwins, who feels almost ruined by them. It is a fine, big orchard, trees twenty-five or thirty years old, and beautiful trees too; but he gets no fruit in it, and what he does get is not fit to ship; he has been selling it at fifteen cents a bushel to the canning factory, which is very discouraging in an apple of which we have been planting very largely. This year we hoped to have had a large crop, but instead of that the promise is of a small crop again. The Greening is giving us better satisfaction, and it shows up splendidly for this year—the fruit looks beautifully clear, and the trees are well loaded. The Greening yields more fruit than any other variety, and if, as you say, it is going to be in demand in the old country, it will be very profitable for us. We have one old tree of Greenings that has given us fifteen or sixteen barrels several times, and on one occasion we picked twenty barrels off it. It is about eighty years old. In regard to the King, I have quite a large number of trees of good size, and if it would only bear well I would think it was one of the best, it is such a beautiful apple, and when you open up a barrel has a most agreeable aroma. In shipping it always returns the highest prices of any, but we fail to get enough fruit to make us think very highly of it. The Ribston does well in our section; always clear and beautiful, and bears well. The Spitzenberg, however, which has been spoken of, is a perfect failure, worse, far worse than the Baldwin. I do not remember that you mentioned the American Golden Russet, of which we think very highly; it is beautifully clear and has borne most abundantly, especially after the tree reaches its age it does remarkably well.

The PRESIDENT.—There is a gentleman here from Glasgow, Mr. Cecil, who can tell us that the feeling of the British markets is strongly in favour of Canadian over all other apples.

Mr. CECIL.—I am not a practical apple grower. My business is selling apples, in which there is a large business done during three months of the year, and I may say that the prospect of profit this year is exceedingly good. A good many of the varieties which have been mentioned here to-day are not known on the Glasgow market, and I think the people there want to be educated up to a higher taste. About the only varieties that are known there are the Colvert, Baldwin, Russet, King of Tompkins and Northern Spy. I believe that in the course of time people will begin to appreciate Canadian apples even more than they do now, especially if they are picked very carefully, which in Belgium, or even the United States of America, is not usually done. I think the Canadians have a better name for packing than any people from whom we get apples.

Mr. BEALL.—The President has named sixteen varieties. Does he recommend anyone who is setting out an orchard of two or three hundred trees to set out all these varieties?

The PRESIDENT.—By no means. If they could adopt and plant two varieties it would be better than sixteen. What they require to do is to plant only those which in their own particular locality succeed best, and confine themselves principally to winter fruit.

Mr. A. M. SMITH.—Suppose all the varieties you mentioned would succeed well?

The PRESIDENT.—Then I would select from the sixteen those out of which I thought the most money could be realized.

Dr. AYLESWORTH, Sr., of Collingwood.—I should be inclined, if going largely into apple growing, to confine myself to one variety—the Russet. It is an early bearer, and what is more important, its keeping qualities are great. A great fruit exporter who was here a few years ago advised me to confine myself to Russets. I don't think it would pay me at 75 years of age to go into it, but if I were young I should go largely into apple growing in this part of the country. I planted some Russets six years ago in my garden here, and last year, five years after planting, I had some fruit, and here (producing specimens) is some of last year's crop off those little trees. And now, while

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I am on my feet, here is my seedling that I was speaking of this morning. (Showing seedling).

Col. MCGILL.—There is a very large orchard of American Golden Russets about a mile and a half or two miles from my place—some six or seven acres set out entirely with them, and although it has been there twelve or fourteen years I don't think they have gathered one bushel of apples per tree in that orchard since it was set out. The trees are healthy and grow well, but it is very seldom in our section (Oshawa) that you can get such specimens as this—not one year out of ten. I have grown them for the last forty years.

The PRESIDENT.—The moral in that case is not to grow American Golden Russets in that section.

Col. MCGILL.—Yes, there is no money in it. They are good keepers and high flavoured, but we cannot fill the barrels.

A MEMBER (referring to Dr. Aylesworth's specimens).—Were these grown in Collingwood?

Dr. AYLESWORTH, Sr.—Right in my garden.

The SECRETARY.—I think the orchard of which Col. McGill speaks has not had time yet. I have had a good many trees of the same variety planted twenty-five years, and it is only for the last five years they have been actually paying. They are now bearing excellently.

Col. MCGILL.—My trees have been out forty years, and they have not paid me yet.

BEST MODES OF GATHERING APPLES.

Mr. BEADLE.—The easiest way is to shake them down.

The PRESIDENT.—I am sorry to hear you say that in the presence of a Glasgow merchant.

The SECRETARY.—The Americans suspend canvas under the tree, and shake the apples into that—they have a patent on it.

Col. MCGILL.—We sell our orchard by the barrel, and gather our own apples. We gather them with a ladder, into a basket holding about half a bushel, and put them into the barrel carefully as we gather them, always taking care to gather them when dry. I generally pack them myself, and my sons and the hired man gather them. Then we turn them over on their side, and store them, if they are to be shipped before the heavy frost, in a shed, where they are kept from the rain. We used at one time to gather in bags, and sometimes we would get them jammed or shaken—they come out best in baskets.

The SECRETARY.—I suppose we all follow very much the same plan Col. McGill has described, using a ladder and a basket. I have found it a very good idea to have spikes in the bottom of the ladder, which is a great help in raising it, and will give it a good hold in the ground. A long ladder is apt at times to slide, and I have found these spikes a great convenience. I have tried several modes of gathering my crop: sometimes we have gathered them into a number of baskets and carried them indoors where we had lots of room, and packed them there on the floor, but of late I have practised gathering them immediately into the barrels in the orchard. I have also tried leaving them in piles, but that I found productive of a good deal of trouble. Lately, as I have said, I have tried this picking them immediately into the barrel, and heading them up, taking them into a cool place and leaving them there on their sides. Then when the packing time comes, late in the season, I empty them out two barrels at a time upon a packing table or upon straw on the floor. I have been using a packing table about twelve feet long with sides all round it, and an inclination so that the apples will be disposed to roll towards me. Two persons can very easily empty out a couple of barrels on this table and throw out the poor specimens, and so, quickly cull them over, separating them into the different classes, and putting them into the barrels and marking them according to their grade. I think that, generally speaking, is one of the most

satisfactory methods I have tried. The only difficulty is that if the weather is very close in the place where they are stored—if it is not cool enough—they are apt to ripen a little faster than if left in heaps on the grass or some other such place. With summer apples, the course is a little different. I ship them away in baskets. The Red Astrachan trees I go over a good many times because they ripen so unevenly, and by picking them off early they sell remarkably well. It pays to gather the early apples as they ripen. I think that a picker, such as was shown in the *Horticulturist* is a good and useful tool for gathering Red Astrachans, at least before the trees get too large. I have them brought down from the trees in that way and placed in baskets on the ground, then a boy comes along with an express waggon and takes them inside the packing house, where they are picked over and classified. The extra select are packed in twelve quart baskets, and the second grade in barrels.

BEST MODES OF PACKING APPLES.

Col. MCGILL.—I always have the packing of my own orchard and some of one or two neighbours. We invariably pack in flour barrels, and with a press, pressing them down. There is as much injury in pressing them too hard as in not pressing them hard enough. If you press too hard you destroy the outside course, especially on the head. We always place the bottom rows down, beginning at the head end, making that the bottom and taking out the bottom of the barrel, which leaves the stem end always up to view. We then put them in carefully, and if there are any imperfect specimens we throw them to one side, and a good many are thrown out in that way. We shake the barrel carefully about every half bushel, so as to get them close together, and round it up nicely so that the head will be perhaps two or three inches from the chime, and then we press them down with the press. If they are small apples we do not round them up so much as large ones, because the small ones pack closer.

The PRESIDENT.—As a matter of fact, where a barrel of apples has been properly packed by a scientific packer it should be impossible on opening either end to tell from which end it has been packed. Choose a solid place on the ground and place your barrel upon a solid piece of plank. Lay the first course of apples with the stem end down. The packer should not take special samples for this course, but just take them as they come, and place them so as to make a solid row on the bottom. The next row also should be put in carefully, with the blossom end down. The barrel should be carefully shaken down on that solid plank after each basketful. When the packer comes to the top of the barrel he evens them off according to the variety. One variety will press down closer than another, and that is where a little judgment and experience is required. A man must know every variety he is packing in order to know how many to put in the barrel; whether he will fill it to the chime, an inch above the chime, or even further. Then the last row has to be so placed as to be in an oval position before you put the press on, with the stems up, so that when you put the press on they will press down evenly and level, and afterwards on opening the barrel you cannot tell which end you commenced at. That is a barrel packed properly, and it will carry, and carry thoroughly. If the apples before packing have been what we call sweated—and the best place to sweat apples is on the ground, they should, if possible, remain on the ground for a week after being picked from the tree—they will carry much better. Of course in wet weather they are better taken in to the barn floor or some other convenient place, but as a rule they should remain for a week or ten days after being picked; the skin toughens in that time. I find quite a difference in the Northern Spy, which has such a tender skin, in places where they are left on the ground to toughen and get through this sweating process—they will carry much better. Before packing, the first thing to do is to make up your mind how many grades you are going to have in the pile from which you are packing. There will be two grades at least, and the chances are, not more than three. For instance, take a Baldwin grown on the inside of a tree, that is apt to be rather green. That will be one grade. All the medium sized apples—have them all the one size as much as possible,—and pretty high colored, that is

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another grade. Grown at the top of the tree or on the outside limbs apples will be much smaller, but high in color. That will be your third grade. A barrel of apples when opened should be all as near of the one size and color as it is possible to have them. If you pack your barrels in that way, and brand them accordingly, the buyers in Britain and elsewhere will soon get to know that that brand represents well selected, honestly packed apples, and the result will be that they will pay a fancy price for it. The price is not so much a consideration with them as it is to get the very best article.

Mr. CECIL.—The marking is a very important point. You want to have it so that people can ask for a certain brand and know that they will get just what they want. The branding should be made a point of, and done very clearly and distinctly so as to get well known among the buyers.

BEST MODES OF STORING APPLES.

The SECRETARY.—I usually ship in the fall, and have never stored any great quantity, but some of my neighbours have, and although only using ordinary cellars, they have met with considerable success.

The PRESIDENT.—I believe the only secret about the whole matter is to select a cellar sufficiently cool. If you are under freezing point it is sufficient. Apples will stand a good deal more than potatoes or any other vegetable. The cellar must be dry, however,—dry and cool; and see that your apples are without spot or blemish. It might be well in handling them in the following spring if you find a barrel that looks suspicious in any way, to open it in case of any decay from natural causes. They will show it by becoming a little slack, or by wet through the barrel. I believe myself that this system of storing is bound to gain ground largely in this country, because by our present system of shipping the fruit the moment it is packed you are shipping fruit for two seasons, whereas if you ship only the varieties required for immediate sale on the market, and hold back the long keeping varieties for a later season, you will find the prices much better. For instance, such apples as the Mann or Russets should not be shipped until on towards the spring of the year, and with our present arrangements we can ship all winter without danger of frost. Take them to the station on a moderately mild day, and the moment they are in the car they are safe.

Mr. MITCHELL.—Is there no method of storing without barrels?

The PRESIDENT.—No, the barrel is the best method of storing altogether. Bins have been tried, but they do not do, they are apt to be filled up too high, and apples do not keep as well in that way.

Dr. AYLESWORTH.—I have a friend in Colborne named Simmons who has a cellar above or partially above ground, in which he keeps his apples in barrels. He keeps it, as you say, at a proper temperature, below or at the freezing point, in the room. I saw and tested apples in his house in the month of October which had been kept in that way till October of the second year, and they were as well preserved as if it were the first winter.

The SECRETARY.—I saw an account of an experiment that had been tried which it might be worth while to test. A man who had some Russet apples had stored them in barrels packed between layers of maple leaves, dry maple leaves. He stated that he opened them up in July and found them then as fresh and spicy as the first day they were packed. I don't know if anyone here has tried that or not.

Mr. BEADLE.—What is the advantage of the maple leaves?

The SECRETARY.—Well, I don't know whether the saccharine matter of the maple leaves would help the flavour any, but they would help at all events to keep them air tight.

Mr. BEADLE.—I have found no difficulty in doing that without the leaves.

The PRESIDENT.—Perhaps the maple leaf would have the same effect in Canada as the stars and stripes on the other side.

The SECRETARY.—I think it is worth our while to experiment, for if we can keep our apples till the right time there will be a great gain in it—it would be of great advantage.

Mr. CROIL.—I kept some over at my house in dry sand, and we had them a month ago quite good. Others I kept in barrels were destroyed.

A. W. WRIGHT, of Renfrew.—I may say that we find the proper way to keep our apples is in a cellar as cold as we can keep them, and if they are touched with the frost it does not hurt them. There is only one apple that we don't keep barreled up, and have great trouble in keeping, and that is the Greening. I think I sent our former Secretary some apples up to show him how they went. We always tried to get them sold by the 1st of February, because they got all bruised the same as if you had hammered them with a club or something of that kind. If they are kept in open boxes they don't seem to act in the same way, but of course that takes a good deal of storage room. All the other apples but Greenings we keep in barrels in as cold a place as we can, and we have no trouble at all with them.

Mr. BEADLE.—I presume that you are aware that the Russet apple if left in open barrels is very apt to shrivel. A gentleman at Niagara had forty or fifty barrels of that variety one time, which he made up his mind to store over the winter and ship in the spring. He put them in his cellar, and during the winter there came on a heavy fall of snow, shortly after. As is very apt to be the case in our latitude, there then came a very sudden thaw, and this snow melted away very rapidly, and a great deal of water ran into this cellar containing the apples. It was a cemented bottom, and held water like a dish kettle, and when he looked into his cellar and saw all the water, and his barrels about one-third submerged in it, he thought they were gone. In the spring, however, when he took them out and opened a barrel or two to examine them, he found that they had never before been so sound and safe as that year. That led him to the conclusion that next time he wanted to store apples, he would submerge them in water. So much for your dry cellar.

The PRESIDENT.—Following out that line of argument the people of Collingwood have excellent facilities for storing apples—they can put them in the bay.

CULTIVATION OF THE ORCHARD.

Mr. BEALL.—The cultivation of the orchard, in my opinion, commences a year before the trees are planted. As has already been remarked to-day by the President, it is a most important matter that the land should be thoroughly drained. As I see that "The drainage of the Orchard" is to be the subject of a future discussion here I will say no more on that point, but proceed with the preparation of the soil, which is a most important point, for many reasons. The soil for an orchard should be as thoroughly prepared as if a man were going to put in a crop of wheat. This should be done near the fall of the year, and I would also advise that after the land has been thoroughly prepared as for a wheat or any other crop, that during the middle of October, when the land is dry, it should receive still another ploughing, and that that ploughing should be done in such a way that the open furrow will be left exactly where the row of trees is to be. I am supposing, of course, that a man is putting out a pretty large orchard—say of two hundred trees. The furrows, then, should fall exactly where the rows of trees will be, and these furrows should be left open during the winter. The main object in that is to facilitate the planting of the trees in the spring. After the land is prepared the next thing is to select your varieties, and in respect to that point I think there is an erroneous idea current. What has been said here before to-day, that the fewer the varieties a man plants the better for profit—provided, of course, that these are well chosen—is, in my opinion, correct; certainly the number of varieties should be small, one or two, or at most three. I consider this a very important point, because when a man has too many varieties he will find difficulty in finding a purchaser for them, and a large portion of them will probably be wasted. That decided, the next step is the purchase of the trees, which is another very important point. I would advise that the trees

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should be purchased as near home as possible; it is by no means absolutely necessary to go a long distance to some large nurseryman to get trees, and if a man does not raise them himself I would have him procure them as near home as he can. If, however, he cannot do this, and has to send away for them, I would strongly recommend that he should never buy from an agent. When purchasing from a nursery I would advocate sending directly to it for the trees, and with the order should be sent the amount of money to pay for it. If a man sends direct to the nursery, and his order is accompanied by the full catalogue price and a request to the nurseryman to send him the best possible stock, in ninety-nine cases out of a hundred he will get better satisfaction than in any other way, because the nurseryman would not put in first-class stock under such conditions is unworthy of the name of a nurseryman, and should be drummed out of the business. The planting of the trees should be done in the spring; I do not believe in planting trees in the fall. Let the nurseryman keep them through the winter if he wants to. Then in the spring, if the land has been prepared in the way I have described, there will be no necessity for digging pits in which to place the roots; the furrow will be sufficiently deep, except, perhaps, a shovel or two of loose earth to be taken out. The earth which was thrown up from this furrow in the fall will have become so beautifully pulverized that it will fit around the roots very nicely indeed in the spring. I am satisfied that two men can plant more trees in one day by this method than they could in a week following the ordinary plan. After the trees are planted the cultivation of the orchard should consist altogether in the raising of root crops of some description. A crop of corn is a very good thing, I think, because it shelters the trunks of the trees the first year, a time when they specially need shelter from the sun. For the first eight or ten years I would recommend that nothing but hoed crops of some kind should be grown, and during that time no grass should be allowed to grow around the roots of the trees. Where no grass is allowed to grow there will be no loss from mice girdling the trees. The next important consideration is to keep the trees clean, that is, free from insects. Of pruning I shall say nothing, because I believe that is the subject of a special discussion. I may say, however, that when a man has his trees planted he should be able to do his pruning with his finger and thumb, or nearly so. The trees are liable to the ravages of insects of various kinds, and the bark should therefore be kept thoroughly clean. Alkaline washes, perhaps, are the best preventive of diseases of that kind that can be found. Let this be done early in the year whether the trees seem to need it or not, and I think it will be found a great preventive of damage by insects. A very good preparation for washing trees would be soft soap, or a mixture of tobacco juice—taking care not to make it too strong—which is very effectual in preventing the growth or spread of the aphid.

Mr. WHITE.—You would prefer keeping the land under cultivation?

Mr. BEALL.—Yes, for six or eight years, keeping it thoroughly clean.

The PRESIDENT.—After that would you seed it down?

Mr. BEALL.—Well, I would rather some other person should answer that question who has had more experience than myself.

Mr. MITCHELL.—Do you think it is possible to make a decoction of tobacco juice so strong as to injure a tree?

Mr. BEALL.—I don't know, I would not like to say that. I know there is no trouble of getting rid of lice with it.

Mr. MITCHELL.—I do not think there is any danger of making it too strong.

Mr. BEALL.—A neighbour of mine told me he had injured his trees by using tobacco juice too strong.

Col. STEVENS, of Collingwood.—What do you think of whitewashing trees with lime. I always use a great deal with alkaline wash. I do not know that it benefits the trees any, but it lets me know when my man is covering the trees.

Mr. BEALL.—The advantage of putting in lime is this—take, for instance, washing soda, if you add lime to it, it makes it caustic, and the same way with other washes. Mixing with lime makes them more caustic, and they have more effect on insect life.

The PRESIDENT.—In regard to the cultivation of an orchard I think there will be a good deal of difference of opinion among different growers. For my part, after the first three or four years I do not believe in cropping an orchard. I believe in feeding it for

the sake of the trees themselves, and certainly when you have come to about the bearing period I would not think of putting a root or any other crop into it. Once in a while, if I found the trees were running a little too heavy to wood, I would seed it down with a heavy crop of clover, and turn that down like summer fallow. I have found that very beneficial, the clover opens the soil. I approve of occasional sowings of clover or buck-wheat, which is very good to feed the land. I would not seed down the orchard unless the land was particularly rich and running too heavily to wood. By seeding down you will run into fruit more readily, but as a rule I would feed and cultivate the orchard for the sake of the trees themselves. I think one crop is enough to have on one piece of land.

A MEMBER.—How long do you keep it cultivated?

The PRESIDENT.—Always. Of course as the trees grow old you will have to fork around the trees.

Mr. CROIL.—How wide apart are your trees?

The PRESIDENT.—About thirty feet.

Mr. CROIL.—You do not have any trouble in ploughing that, but in ten years' time you will hardly be able to plough it at all, if your trees are thirteen years old now, as I think I heard you say they were.

The PRESIDENT.—Oh, yes, I have trimmed the orchard so I can plough it any time. I have it trimmed up.

Mr. CROIL.—In my own case the trees are not so high. I could not pretend to plough through my orchard, which has not been planted more than 22 or 23 years, I think. Of course you could not begin to fork an orchard all over, and I think I would do harm now to go in among those trees with a plough, though I would much rather have it cultivated if possible.

FERTILIZERS FOR ORCHARDS.

The following paper on Fertilizers for Orchards prepared for this meeting by T. H. Hoskins, M.D., Newport, Vt., was read by the Secretary.

It is a fact not often properly understood by those who plant orchards, that they require rich land, fully kept up in fertility, to make the necessary growth and become profitably productive through the long course of years during which a good orchard may be expected to continue. There can be no reasonable expectation of realizing profit from apple trees planted upon poor, dry soil. "Manuring in the hill" is a shiftless provision for annual crops; it is useless for an orchard, the roots of which, when it has arrived at full bearing, occupy all the soil, not only as to its tillable surface, but to a great depth.

Undoubtedly, the best land for an orchard is a naturally strong, deep, moist, (but not wet) soil, such as in its original state supported a vigorous forest, chiefly of deciduous trees. It may be stony, or even rocky—if not ledgy—but it should be fertile, with no obstruction to the descent of the roots to permanent moisture. Though strong land is essential, heavy clays are not the most desirable. In all the drift region of North America, the good grain and potato lands are good orchard lands. The least favourable exposures are south and south-west.

If the land chosen for an orchard is but lately cleared, or if long tilled, has been so farmed as not to impair its fertility, no special preparation is needed before setting the trees. But if, though, naturally suitable, it has been cropped to an extent impairing its productiveness of tillage crops and grass, its best condition should be restored as completely as possible. The promptest, cheapest, most effective means of doing this is to dress it heavily with coarse ground bone and unleached hardwood ashes, sown upon the surface and ploughed in. One thousand pounds of the bone, and one hundred bushels of the ashes to the acre is none too much. It would be profitable, in the long run, to double this quantity at the beginning. Such a dressing is far preferable to one of any sort of stable manure, or vegetable compost. Any land upon which water stands more than twenty-four hours after a rainfall, however heavy, is not fit for an orchard without

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thorough tile-draining, and is not safe, even with it, because there is always the risk of the tiles being obstructed with roots, and the trees becoming unthrifty in consequence.

The number of trees to the acre is a question, upon which there can be no hard and fast rule. If a man has plenty of suitable land, not too costly, he may as well begin by setting his trees 40 feet each way. In all that great orcharding region south and east of the great lakes, where the tall or wide-spreading varieties flourish, 40 feet is the minimum distance, especially when the sorts to be planted do not begin to bear freely in less than ten or twelve years after being planted out. The rows should never be nearer; yet in the rows other short-lived species of fruit trees may alternate with the apples. But the case is changed, when we come to the dwarf-growing and early-bearing varieties of apples, of which there are many among what are called the ironclad sorts. An orchard of such sorts as Wealthy, Yellow Transparent, Oldenburgh, etc., may be very profitably set out in rows 30 feet apart, with the trees in the rows 15 feet apart. So set, many thousands of barrels may be grown in a large orchard before any check from overcrowding will occur. But when this time comes, alternate trees in the rows must be removed at once. The orchard then will stand 30 by 30, and the trees will live out their natural lives without harm by contiguity.

Until prevented by the shade, an orchard on moderately level land is benefited by cultivation in low annual crops (not grain), or of small fruits, between the rows. Not only are these crops profitable, but the tillage and fertilization they require contribute to the prosperity of the orchard. I have for many years grown strawberries, currants, gooseberries and raspberries in this way, utilizing the land in fruit production almost from the start, with profit, and with great benefit to the young orchard. If the currants and gooseberries are planted in the rows between the trees running north and south, or nearly so, they have the very desirable effect of holding the snow nearly level all through the orchard, preventing drifts and bare spots, both of which are injurious. This may be continued for some time after the early bearing sorts of apples, especially summer and autumn fruit, have begun to bear quite freely, and these garden grown apples are always so large and fine as to bring very high prices, compared with the same sorts grown in grassed orchards.

But the time will come when cultivation must be abandoned, and the orchard permanently laid down to grass. Before doing this, the original dressing of ground bone and ashes should be most liberally repeated. Of all grasses for the orchard, *Poa Pratensis* (June Grass, Kentucky blue grass), seems to me most suitable, and nature generally sees to it that it shall naturally take possession, anyway, if the land be right, and has been handled as above described. This grass should be treated like a lawn, and mowed by a horse lawn mower often enough so that no stems shall form, all through the season until the apples are nearly ripe, leaving it as it falls, without removal or raking. This makes a perfect bed for the fruit to drop on with the least injury. After the apples are all gathered and removed the mower should go through again. This will break up a great many nests of mice, but the main protection to be relied upon against mice and rabbits is the surrounding of every tree with a boxing of lath, half-barrel staves, or any similar strips of rather narrow, thin wood. These are rapidly applied, a single turn of strong white cotton wrapping twine being all that is needed to secure them. There is no objection to leaving them on the year round, but if this is done they should be turned the inner side out, after the final mowing and re-tied. A great many codlin worms will be found to have spun themselves up on the inner sides of these strips, and when turned, these will be cleared off very quickly by the birds.

The future fertilization of a well managed orchard, after this, is a very simple matter. As the grass is not carried off, nothing is taken out of the soil except what is consumed in the growth of the trees and the crops of fruit. This is best restored by a moderate top-dressing of fine, well rotted manure, applied every second year, broadcast under the trees. Half the orchard can be dressed in this way each year, and an orchard carried on in all respects as above described, cannot fail to be productive, and will certainly be profitable if the right varieties have been planted and the fruit is properly handled and wisely sold.

The SECRETARY.—As barnyard manures are scanty, we find wood ashes very convenient; as they are not only very valuable, but are easily procured, which is a great inducement for us to use them freely. I have been buying wood ashes this spring, and having them put up around the trees in the orchards, and the man I get them from gathers them and applies them for ten cents a bushel, so I consider I could not possibly do better than that. That is unleached ashes. He not only gathers them, but scatters them under the trees throughout the orchard. I am, therefore, using them very freely, and already begin to see a great deal of benefit from their use. I don't know that I want anything else as long as I can get them at that price and any quantity of them, particularly for the peach orchard, where I find them exceedingly valuable. I have been putting them around peach trees for years, and, while a great many of the neighboring orchards are gone with the yellows and are worthless, mine is in good condition, and is well loaded with fruit this year. I attribute this very largely to the free use of ashes. Potash is considered by some to be a specific cure or antidote for yellows, and it looks very much as if there were something in that theory, when my orchard is succeeding so well under that treatment. I do not know that I could say I have noticed it personally, but I have frequently heard it stated that the quality of fruit where potash fertilizers are used is really very much better than under any other conditions. I have certainly found it very satisfactory as far as I have tried it.

Col. STEVENS.—I entirely agree with Mr. Woolverton in regard to the efficacy of wood ashes, but sometimes we want a little of something else. I find that phosphates are produced in very large quantities on the Canadian Pacific Railroad, but are taken home to England to be manufactured, and then are brought out to this country, probably in an adulterated state. I would like a little more information as to the benefits of phosphates in horticulture, not only for orchards, but for other fruits. We have a large supply of them in Canada, and I do not see why we should not use them.

Mr. BEADLE.—I have been using all the unleached ashes I could get, and I am going to hire that man the Secretary speaks of as soon as he gets through with him.

Mr. FLEMMING (of Collingwood).—I can corroborate all that has been said in favour of wood ashes. I experimented with them on a very poor tree in my garden—it was dying in fact—and after using the ashes two years it survived, and is now doing very well. I am convinced that all that has been said about ashes is quite correct. I used them on grape vines, too, with apparently good results, and I am very much in favour of them as a manure.

W. W. Cox.—Six years ago I got a quantity of wood ashes and spread them to the depth of about six inches in the bottom of a packing box. I then put a layer of bones, and then more ashes. I then set it in a convenient place, and told the people in the house to empty their soap suds, dish water and stuff on it, and told them I wanted it saved. When I went to look at it six months after there was not a sign of bone left. I had at that time, in one row, two Flemish Beauties, two Clapp's Favorites and two Bartletts, and I put some of this mixture around one of each of those trees. Well, I saw the greatest difference in the world between the trees to which it had been applied and the others, and I am convinced that there must be great nourishment either in bone or ashes. I could see the difference in the leaves and in the wood of the trees.

The SECRETARY.—At the meeting of the Western New York Horticultural Society, Mr. S. C. Woodward was speaking of the exhaustion of the soil of the apple orchard, and maintained that the failure of apple orchards for the past few years was caused by their being literally starved out. It was no wonder, many of the speakers thought, that poor results were met with in orchards which were not treated with the same care as any other part of a farm would be, but just let alone until they completely exhausted the soil. Mr. Woodward said that one hundred barrels of apples removed from the soil as much phosphoric acid as one hundred bushels of wheat, and as much potash as fifty bushels of wheat—that they drew on the soil as heavily as grain. Well, one hundred parts of ashes contains ten parts of potash, six of phosphoric acid and seventy of lime, just in the right condition for being taken up by the roots of the growing tree, and this explains to us very readily why ashes are so valuable as a manure for the orchard.

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A. A. WRIGHT.—I quite agree with all that has been said in favor of ashes, but it might be added that it is very necessary to take the precaution of not allowing them to get near the trunk of the tree, because, if unleached, they are sure to kill them. If you avoid this, and don't apply them too heavily, they are an excellent fertilizer.

The SECRETARY.—That is quite right, and is something which should be particularly observed. A great many people when using ashes, or any other fertilizer, will put it in close to the trunk of the tree, where it is really likely to do least good. They forget that the roots of the tree—and the fine fibers that take in the nourishment, extend out quite a long distance—further than one has any idea of who has not tested the matter. We have some trees right on the bank of the lake, trees ten or twelve years of age, and I was perfectly astonished at the length of some of the roots that were hanging over the bank. They were twelve or fourteen feet long, and quite small in circumference, and not very far from the surface, either, which shows that when we apply a fertilizer without covering the ground further than the top of the tree spreads, we make a mistake.

The PRESIDENT.—It is astonishing to see how the practice prevails of piling manure right around the trunk of a tree; yet you might just as well try to live by cramming your dinner down in your boots as try to nourish a tree by heaping this manure around the trunk.

Mr. HICKLING (of Barrie).—I have found very beneficial results from the use of bones, ashes and the like, and I find also that salt is good, especially sowing it broadcast over the ground. I find, too, that salt is very good for vines when put on in the fall of the year; it has very good effect, especially if dug into the soil.

The PRESIDENT.—I come from a salt country, and Mr. Hickling's remarks bring me to my feet at once. We have used salt pretty largely in my district, and I advocate its use, not only for growers of fruit, but grain and everything else. When I am buying apples for the foreign market, if I find an orchard that is kept clean, pruned and attended to properly, and well salted, I invariably, without further question, make an offer of twenty-five cents a barrel more for the apples, for they are better in every way; the salt brings out the colour and flavour much better. Salt in the orchard is a grand thing; I use it continually, and it is astonishing the quantity of salt they will take. You can sow it the same as sowing anything else—by the handful, broadcast over the orchard, and it will do good and not hurt anything in the least, and you will be sure to find it beneficial. I remember some years ago of offering to send one of my men to clear out the shop of a blacksmith in our town. He thought me exceedingly kind—and I was, to myself—and accepted my offer. I continued to clear out his shop every year as long as he allowed me, but soon everyone else wanted to clear out blacksmith's shops. A little of that refuse, the parings from horses' hoofs, round a tree, especially pear trees, will produce wonderful results, and the iron filings are a magnificent thing for a garden or orchard. And I cannot imagine anyone in this section, where there is a light, sandy soil, selling one pound of ashes, for every pound of them is worth gold right here. I find that salt is very good for grape vines, but in that case it must be used in smaller quantities. There is one tree that salt is not good for—the Norway Spruce. Don't put any salt about it, for it will kill it. If you have a geranium bed or pot, and want to bring out the radiance of the blossom and improve its color, just take as much salt as you can put between your finger and thumb and it will do it.

The PRESIDENT.—It is not so much as a fertilizer as a sort of tonic to the soil. It brings into life in the soil dead ingredients more than anything else will.

A MEMBER.—What quantity to the acre?

The PRESIDENT.—Just broadcast as thick as you can sow it by the hand—400 pounds to the acre.

SUMMER PRUNING OF ORCHARDS.

Summer pruning of orchards was the next branch of apple culture taken up for discussion.

Mr. BEADLE.—If you want to hear my opinion about summer pruning, I can only tell you, don't do any such foolish thing. The time to prune an orchard for me is the

spring of the year, just as the buds are starting; the growth commencing. I have tried beginning my pruning when the orchard was young, and when it is properly carried on—I don't say that I always follow my own rule, I get crowded out sometimes—the proper way to prune the orchard is to take off the limbs when they are quite small. When trees are interfering with each other so as to exclude the light and air, thin out sufficient to admit them, and do it while the branches are small. The spring is the best time to do it, because then the wound has plenty of time to heal over before the winter. As for summer pruning, I don't know anything about it—it is something I never did, and cannot advocate. A jack-knife is quite large enough to prune with, and the time is just when the buds begin to swell. I want the sap to get into circulation; but I don't want the tree in full foliage, for it checks the growth after the leaves have got out large and full. If you cut a tree severely whilst in full leaf you destroy the roots below that are nourishing it; for this reason, that it is as essential to root development to have foliage as it is to foliage to have roots—one helps the other to grow. The roots take up nourishment from soil to the leaves, and the leaves digest it. It is a sort of compound action, somewhat analogous to our respiration and digestion. If you cut off two-thirds of the foliage of a tree and dug up the tree three or four weeks afterwards, you would find a certain proportion of the roots below dead, just for want of that nourishment; and, therefore, I say again, don't do any such foolish thing as to summer prune your orchard—that is, in the general acceptance of the term.

Mr. MORTON, of Wingham.—If you cut off two-thirds of the leaves in the spring, would it not injure the tree?

Mr. BEADLE.—It would. I am simply calling attention to the effect of the reciprocal relation between the leaves and the roots, and that to destroy that balance is to injure the tree. In transplanting a tree you take off part of the roots, and you cut the top so there will not be too many leaves for it to nourish, until both roots and limbs have regained their balance.

Col. STEVENS.—You advocate June pinching with the finger and thumb?

Mr. BEADLE.—Yes; if you have occasion to check the growth of a tree, the finger and thumb is the best thing to do it with.

Col. STEVENS.—And that in June?

Mr. BEADLE.—Yes; July, or any time you find the leaves growing too long and want to check it.

W. W. COX.—I don't think I would like summer pruning the way it is done by farmers here—cutting off the limb with an axe or a saw—but, when I plant an orchard, I always like to go round the trees at least once a month. I used to practice that when a boy. The head gardener used to go round first and take off the shoots, next the men with a knife, and the boys behind to rake up. I have always adopted that plan ever since. If I see any shoot going the wrong way in a plant, I rub the shoots off, and try to get them formed without a knife or anything of that sort. I don't want to cut off a lot of wood when a tree gets old, and if that plan were adopted it would not be necessary.

The SECRETARY.—I have tried summer pruning more or less, and at one time pruned young trees rather severely, hoping to throw them into bearing. I found, however, that it was checking the growth of the tree altogether too much, and I don't think I got enough fruit to pay for it. I think the matter has been made pretty clear here to-day that if we go constantly over our orchards, and rub off shoots where they need it any time during the growing season, we are doing the right thing. We are saving the strength which the tree would be expending in growing shoots where they are not wanted.

Mr. MORTON, of Wingham.—It appears to my mind very conclusively that summer pruning is the best. You must remember that pruning is one thing and butchering another. To cure a man of a felon on his finger it is not necessary to let it spread all over his arm, and then cut it off. My definition of pruning a tree is, training it in such a way that it will expend its energies in the most profitable direction. When superfluous shoots are growing the tree is expending its energies uselessly for the time being, and when you come to cut them off the tree gets a nervous shock—for it has a nervous life—and the reason the shock is not felt in the spring is, because the tree is not in active life at the time; there is a certain shock, but on account of the circulation not being in

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activity, it is not felt so greatly as if it were in full growth in the summer time. Now, the removal of a bud is just as effective, and just as much pruning, as the removal of the branch which would have grown from it. If it is in a place where it would be useless when grown the bud should be removed, and the tree not allowed to waste its energy in growing a limb which will have to be cut off in the spring.

The PRESIDENT.—I think the spring is the proper time for pruning. I do not approve of cutting off a large limb; but if, for some special reason, one has to go off that is the end of it, and it must go. In that case I would cover the wound with wax, or some such substance, to protect it from the weather. Another reason why spring is the best time is, because then the grower has more time at his disposal than later on in the season. It is just as the sap is moving and spring coming in nicely that the grower has usually a good deal of leisure time on his hands, and can attend to the pruning better than any other time. By summer pruning I understand removing such buds as appear to be growing in the wrong direction, or are evidently of no use for the future fruit bearing of the tree. In that case, I would remove such buds, and by removing them at that age you will do less harm than at any other time.

Mr. BRILLINGER.—If you were growing a tree and there were more branches on one side than the other, what would you do?

The PRESIDENT.—I always manage to control that from youth upwards, year after year. I like to prune my trees so as to give an upward tendency as much as possible, and let the branches drag as little as I can. I like to see the trees neat and looking upwards.

The SECRETARY.—Some people make a practice of cutting out the leading branch of a tree, which I consider very unwise.

The PRESIDENT.—It is a very foolish thing to do, because a main limb is leading directly to the heart of the tree, as it were, and there is very apt to be injury from that, especially if the limb has attained any size before removal.

The SECRETARY.—For instance, the Northern Spy—you could not make it spread?

The PRESIDENT.—It would be a very unfair thing to make it try.

DRAINAGE OF THE ORCHARD.

The last feature for discussion in regard to the apple was announced as Drainage of the Orchard, and the President called upon Mr. Croil to read a paper on that subject.

Mr. CROIL.—I suppose most of you are aware of the dislike the Scotch entertain to readers, in the kirk. They cannot bear ministers who read their sermons, and I have heard a story told of a couple of old Scotch ladies who were on their way to kirk, when one inquired of the other, "There's anither mon coming to preach the day, d'ye ken wull he be a reader?" "Hoot, toot, woman," replied the other "he canna be a reader, for he's aye blind." "Thank God," said the other, "I wish they were all blind." Now, I am not blind, but I am not a reader, so I shall call on Mr. Beadle, who will introduce this subject much better than I could. (Laughter).

Mr. BEADLE.—I should thoroughly underdrain the ground before I planted the orchard if the subsoil was not naturally gravelly or porous so that the water would soak through. The depth of the drain would depend somewhat on the tile, but I would sink down five feet if I could. My experience has taught me a principle which may seem rather paradoxical—that it is not the water which comes from above that causes the trouble, but that which comes from below. As the earth fills with water the water keeps coming up. You dig a hole in a piece of land early in the spring, where the soil is not porous, and by and by you will see water at the bottom of that hole, and in a week after it will be full of water. Perhaps it has been running down into the hole? That is not the trouble. If you could take the level of the water in your whole field you would find it was just the same as in that hole. So, as I said before, it is the water coming up from below that is the cause of the trouble, and apple trees planted in that soil will do poorly. For apple trees you must have a porous soil, aerated and warm, in order to be successful.

The SECRETARY.—Do you think the roots of the apple tree ever go down five feet?

Mr. BEADLE.—No; but if you sink your drain down five feet deep you escape all chance of being injured by frost; and another thing, your tile will not need to be placed so close together. You can drain at less expense a larger area than you can near the surface, because you would then have to put them closer together. You can see, if you think for a moment, the philosophy of that, if you accept my proposition that it is the water coming from below that does the damage, and not the water from above. That comes down and sinks into the ground and has to stop there, because it meets water there and cannot run off fast enough. If before getting down five feet you reach a clay soil that is impervious to water, or hard sand which is almost impervious to water, it is not much use going any deeper. I am supposing you have a porous soil. The soil where I live is about five or six feet deep before you get to any hard pan or clay, and I have been putting the tile clear down to the hard pan—the impenetrable soil below—and I get the best results. In some parts of my draining I was obliged to stop before getting that depth. Now, I think I have explained the whole thing. The proper plan is to drain the orchard first and plant the trees afterwards. If you first plant the orchard and then drain it, you will have trouble in draining, and there will be danger of injury to the trees. A year after you planted it you might perhaps be able to drain in the centre of the trees; but by doing your draining before planting you can lay out your drains to the best advantage, availing yourself of any peculiarities in the natural conformation of the earth; thus making a system of piping underground to the very best advantage, and in the most economical and thorough way. Then, if possible, I would like to plant my trees between the rows of tiles, though I would not insist on that. I do not think if they are down four feet they will be choked.

A MEMBER.—Supposing you can only get your tile down as low as three feet?

Mr. BEADLE.—What is the trouble, hard pan? You just lay your tiles on the surface of the hard pan—so the surface of the tiles lies level with the surface of the hard pan.

Mr. BEALL.—I would like to corroborate some things Mr. Beadle has said, although it hardly seems necessary. But I am inclined to think the statement he made with regard to the depth of the drain was hardly understood rightly. I think it was understood that the deep drain would not cost any more to construct than the shallow one; but that is not the impression he intended to convey. What he meant to say, and did say, was that a given area could be drained at less expense at a depth of five feet than three feet. The principle of that is this:—English engineers, who have done so much draining, find that in ordinary soil the benefit of the draining only extends to the square of the depth each way, that is to say, if you go down three feet with a drain you only drain nine feet of land on each side of that drain. So, with a drain down three feet, you only drain a strip eighteen feet wide. If you go down five feet, by the same rule you drain fifty feet in width; and the consequence is that it will cost less to put in a drain four or five feet deep than one three feet deep, that is by the acre. They found that out a good many years ago, and it is not a theory merely, but it has been proved by actual experiment on the low lying lands of the east coast of England. There was another principle laid down which was at first regarded as a theory which could never be substantiated—that a piece of well-drained land had an increased capacity for maintaining heat in such a degree as to make it much better than undrained land in the same spot, the improvement in this respect being equal to a change of location to three degrees further south. There is a very improper idea abroad respecting the actual use of underdraining. The idea prevails among most people that the object of underdraining is to get rid of the surface water; that if the surface water is got off it is all right, and nothing more is required. Now, as a matter of fact, not one drop of water should run off the surface, it must all run *through* the soil, for the rain contains a large quantity of valuable manure, which should run into the soil, and if land is properly drained it takes in the summer rain, and the land is warmed; because the temperature of the rainfall is much higher than that of the soil itself. The rain percolating through the soil warms it. Then, again, frost will not accumulate or go down nearly so deep in well drained soil as in soil that is not drained. In our country, where we have considerable snow, at any time

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during the winter you can run a stick down into ground that has been well drained. There is never any frost after we get a foot and a half or two feet of snow. The frost only gets down where the soil is wet.

Mr. WHITE, of Collingwood.—I think this question of deep drainage depends so much on the differences in the soil that no hard and fast rule as to depth can be laid down. I have an orchard myself which I am sure would not be benefited by going down five feet. It is hard pan and is never wet: I have been twenty feet through it, and never a drop of water; it does not seem to penetrate. I therefore think it is a matter in which every one should use his own judgment to a great extent, and he will find it more to his advantage than sticking to cast-iron rules in all cases.

Mr. MORTON.—The soil we have in this country is a good deal different from that of the old country; we do little subsoiling here. There, lots of the land is ploughed two feet deep with a subsoil plough. In Scotland, where aid is given to draining, some years ago no aid would have been given to any drain under four and a half feet deep; but I have been informed that within the last few years aid has been extended to drains of three and a half feet deep. That is because it has been found that this very deep drainage is not adapted to the generality of soils that require improvement by drainage. If there is a substratum of impervious soil near the surface a deep drain would not have as beneficial an effect as one somewhat shallower. I think the generality of our soil would be better drained at a depth of three and a half or four feet than at six feet.

THE FOREIGN MARKETS

The Foreign Markets was the next subject of discussion, and was divided into three heads, (a) What Fruits and Vegetables can be profitably shipped, (b) How to pack for Foreign Markets, and (c) How to ship.

The PRESIDENT.—This matter has been pretty well gone into already, with the exception of vegetables, upon which we have not touched. So far as I can see at present there are no vegetables that we could profitably ship to the British markets, unless there happened to be a dearth in the potato crop there and in Europe generally. In that event it might pay us to ship potatoes, but while their present source of supply holds out it would not be profitable to ship them from here. I do not know of any other vegetable which I think would pay, unless you choose to call green corn a vegetable. That I believe would pay, if it could be shipped over to Britain in the ear. It would be quite a novelty there; for people hardly know at present what it is. We had a large quantity of green corn at the Colonial Exhibition, and we had it cooked and served up at the tables of the Exhibition restaurants. The people were greatly amazed at it, and had to call in the assistance of some of the Canadians present to show them how to eat it. When they saw us munching those cobs of green corn they thought it something very peculiar, and I have no doubt many of them concluded that we really came from the North Pole. But they very soon took to eating it, and when they found out how delicious it was they were very anxious to get it, and we found that it could be sold at a very high figure. They were ready to pay almost anything for it, and we were repeatedly asked by dealers and the owners of restaurants if some method could not be devised for shipping our green corn in the ear to Britain. We took this corn over in cold storage, and it kept beautifully, and was as fresh as if just picked. Another point I advised the people of Montreal, where they make a specialty of fine crops and nutmeg melons, to take notice of; and that is that they would sell for a higher price there than any other melon. They are much finer than any they have there. The Spanish melons are larger; but they are so rich that no one wants to eat them. People said after tasting our melons that they were not too rich, but were still luscious enough to be palatable and attractive. We succeeded in selling these melons in London at enormous prices, and the demand seemed to be good for any amount of them. People there were astonished at our mangels; at the Smithfield show we ourselves were surprised to see how much

finer they were than those grown in England, and the same with our turnips. It would be an experiment, at present, to ship any of these articles, but green corn and melons I am inclined to think would pay. I did not think of tomatoes, which I believe would pay if we could get them there in good order. They, too, would require cold storage. They seemed to think in the London markets that they got the best tomatoes from the Channel Islands, but ours are much superior to them in colour and smoothness, and I believe it would pay to ship them if they could be got there in good order. In regard to fruit, it might pay to ship plums, but they, again, would require cold storage. Our early plums might pay if the crop there was short; everything depends upon that. Plums have never been shipped to any extent; we tried some last year, but only succeeded in getting a few over there. Last year, however, they had an abundant crop of their own, and the market was pretty well glutted, so it would not have paid. Neither would it be profitable to ship pears there; because they have a continual inflow from France and Belgium.

The SECRETARY.—What about grapes?

The PRESIDENT.—They would not pay at all. People in England don't know what to make of our outdoor grapes; they cannot grow a grape in the open air there at all; and the result is that the only grape they have a taste for is the hothouse grape. They have no taste for anything else, and consider ours very insipid, and quite unfit for use. The only way in which the produce of our vines could be made profitable by English consumption would be if they were converted into wine; if manufactories were established in this country. I learned from some firms there that tests had been made of several of our varieties for wine producing purposes, and had found them very fine, but on account of the Scott Act being in force in so many parts of Canada they did not see any inducements to come out here. One firm made offers to come to Belleville at once and establish at once a business of manufacturing wine, and cider from our apples, but was deterred on hearing of the Scott Act. They made a test from refuse apples for which we had no use, and which we offered to anyone choosing to make the test. The result of that test was that after 25 per cent. of water had been added to the juice of our apples they made a better article than the English grown varieties, showing that the quality of our apple juice is much better than that of British apples.

A MEMBER.—I suppose they could not be educated up to using our pumpkins?

The PRESIDENT.—No, I think they are like squashes—too bulky to ship. I did see some sold at Covent Garden market at something like five shillings, but I do not think it would pay to ship them.

Col. STEVENS.—Do I understand that our outdoor grapes are more insipid than English hothouse grapes?

The PRESIDENT.—Yes.

Col. STEVENS.—Then English hothouse grapes must be much better than our hothouse grapes; for some of our outdoor varieties are beautiful.

The PRESIDENT.—I should have said that the English consider our outdoor grapes insipid. There is quite a difference, however, between our hothouse grapes and those grown in England; the latter, I think, are more fleshy and richer.

The SECRETARY.—What about bushel boxes for shipping purposes?

The PRESIDENT.—I believe that if we adopt a smaller package than the regular sized barrel for shipping apples, it should be a half barrel. I have been advising their adoption this year, and shall use them myself to a considerable extent. You cannot pack as firmly or well in square boxes, and when the boxes are tumbled over, the fruit is apt to be bruised. I think the softer varieties of apples would ship better in half barrels, and they will sell better. The half barrel is easier to pack, and it is also easier for the consumer or purchaser on the other side to see if you have packed properly, and that the sample is maintained all through the package. I would not recommend wrapping extra good varieties in tissue paper, as has been spoken of and tried; I do not think it would pay, because they ship well enough without it.

Mr. MOBERLY.—Would not the whole barrel with a division answer the same purpose as the half barrel?

The PRESIDENT is easier to handle.

Mr. CECIL does not take the

Mr. CROFT to Barbadoes while some of the fruit. It was thought

The proceedings and gentlemen enlivened by A. McQuade's speeches on

Mr. JOHN'S pleasure in learning that that place. Having been in discussions, he felt a peculiar interest in the open country of etc. helped to strengthen, standing in London, Canada. The mention of the Dominion, and a visit to Collingwood memories the

President's Association, and to the beautiful he had heard. He was led to more extensive upon their fruit they were certainly beautiful tree feasible for the

At the recent Cultivation of being, as the result of surrender. I have some six

The PRESIDENT.—I do not think the same object would be gained ; the half barrel is easier to handle.

Mr. CECIL, of Glasgow.—I think many people would buy the half barrel who would not take the whole one.

Mr. CROIL.—At the Centennial some five or six barrels of apples were sold to go to Barbadoes. They were in half barrels, and arrived there in excellent condition ; while some American apples which were packed in whole barrels did not carry so well. It was thought it was because there was too much weight in the centre.

AN EVENING OF SPEECH AND SONG.

The proceedings of the evening session, which was attended by an audience of ladies and gentlemen that taxed to its utmost the seating capacity of the town hall, was enlivened by a number of songs rendered in a very pleasing manner by Miss Duffy, Miss A. McQuade and Mr. Charles Kelly, the intervals between them being occupied by short speeches on subjects of interest to horticulturists generally.

Mr. John Nettleton, Mayor of Collingwood, who opened the proceedings, expressed the pleasure that had been felt by himself and the citizens of Collingwood generally on learning that it was the intention of the Association to hold their summer meeting at that place. His knowledge of fruit growing, he said, was not very extensive, but after having been present at the forenoon session and hearing the highly practical and profitable discussions, he felt as if he knew enough to go to work the next morning and become a successful fruit grower. When present at the Colonial Exhibition in England, he had felt a peculiar pride in the magnificent exhibit of Canadian fruit, which filled the English with astonishment, especially when they learned that the specimens had all been grown in the open air. This tended to dissipate their preconceived idea that Canada was a country of eternal frosts and snows, an idea, he was sorry to say, which many Canadians helped to strengthen by sending to England portraits of themselves enveloped in huge furs, standing in the midst of wastes of snow and ice. Even at the Lord Mayor's show in London, Canada was represented, or rather, he might say, misrepresented, by a reproduction of the Montreal Ice Palace, which was carried round on a float. This kind of thing, he thought, tended to create false impressions of the climate and resources of the Dominion, and should be discontinued. He hoped that the Association would find their visit to Collingwood both profitable and pleasant, and would carry away such pleasant memories that a future visit from them at no distant date might be looked for.

President Allan thanked the Mayor for the very kind welcome extended to the Association, and assured him that the Association had derived great pleasure from their visit to the beautiful town of Collingwood, with which they were quite charmed. From what he had heard and seen of the beautiful climate and fertile soil of its immediate vicinity, he was led to believe that in the future the culture of fruit would be entered into much more extensively, and that in the future agriculturists would in all likelihood rely more upon their fruit crops than those of grain. In one branch of fruit culture, plum growing, they were certainly second to no part of Canada ; he had never in his life seen more beautiful trees than in Collingwood, and believed that with a little care it was quite feasible for them to enter into peach culture as well.

CULTIVATION OF THE GRAPE.

At the request of a gentleman in the audience Col. McGill, of Oshawa, spoke on the Cultivation of the Grape. I am rather taken by surprise by this request, he said, but being, as the Secretary reminds me, a military man, as well as a fruit grower, I know no surrender. The cultivation of the grape has been with me a study and a delight, and I have some sixty or seventy varieties, which I have planted more for pleasure than profit.

The soil upon which they are growing is a sandy loam, and they comprise some twenty of what are known as Rogers' Hybrids, commencing with No. 3 and, omitting here and there a doubtful variety, running up to No. 44. Then I have the Concord and the Niagara, both well known varieties. As I understand there are some amateurs in the audience, for whose especial benefit I am supposed to be speaking, I will describe the manner in which I prepare my ground. I first prepare it by thorough summer fallowing, and, where the soil is not naturally porous, thorough underdraining is also necessary; it needs to be a strong, well manured piece of ground. Then I set the vines out, ten feet apart each way. I cut them back the first winter to two buds—after one season's growing; the second season I cut them back to about eighteen inches, and the third year I form the system of the future trellises or training. I cultivate them straight up and down the trellises, and in the fall trim them—I prune them immediately after the foliage drops in the fall, pruning to what is called the spur. I cut my vines no longer at twelve or fourteen years, than they were when I began, but I increase in the arms and the root. I have my trellises with four wires; some people think three sufficient. I have no difficulty in ripening the Concord, Delaware, Salem, Rogers' 22 or 53, Brighton, Burnet, Niagara, Pocklington, Clinton, Rogers' 9, Agawam, Rogers' 19, 15 and 43, and No 5. Then I have the Worden, which ripens six to ten days before the Concord. From what I can learn of your vicinity I think you want nothing here later than the Concord to be a success. I have that wonderful little white grape, the Jessica; I call it the Jessie, for it is so nice, and we have a number of very nice young ladies down our way called Jessie, so I call my grape after them instead of the Jessica. I think it is a very fine and early grape. The only artificial manure I use—if it may be called so—is hard wood ashes, and an occasional small application of salt on the top of the ground. I have to be very careful of the latter. I use the ashes and barnyard manure alternately—every alternate year—not together, because the force of the barnyard manure would be neutralized if used with the ashes. I do no summer pruning with the exception of cutting out the useless laterals that grow alongside of the fruit bud, and the stem on which the fruit grows. After taking out and reducing the number of clusters to what I think they ought to be on the second leaf past the last bunch of fruit, I just nip off the young bud, which prevents the exhaustion of the force of the vine in this direction, for, like everything else, it wants to get as far from the root as it possibly can, and that, it is my impression, sends the force that would have been expended in those limbs back into the fruit. When I began growing grapes I was exceedingly anxious to get all the grapes I could so as to be able to show my friends what a number of bunches I could grow on my small vines, but I soon discovered that in that way I was destroying the vitality of my vines, and my experience is that a vine which has been over-fruited one year requires two or three, or even more years to recuperate its exhausted energies. Rogers' 15 is sometimes a very rampant grower, and so is Coe's Giant; they will throw out limbs sixteen or seventeen feet long, and I sometimes stop their wild career a little, but further than that I do no summer pruning. I may perhaps say that I was the first man in Ontario county who thought of raising grapes in the open air, and I think those acquainted with the horticultural exhibitions in that part of the country will admit that I have been very successful. It must be borne in mind by those contemplating going into grape culture that it is not all sunshine; but in this part of the country, from what I have learned, there should be no difficulty in any lady or gentleman growing all the grapes they require for their own immediate consumption.

An address by the President dealing with the Canadian Exhibit at the Indian and Colonial Exhibition, was followed with musical selections, and a very entertaining and instructive session was brought to a close by the singing of the National Anthem.

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SECOND DAY.

On re-assembling on Thursday morning, the following question was read and discussed:—

Q.--What is the best time for transplanting evergreens?

Mr. A. M. SMITH.—Any time from the middle of April to the first of June. Probably if you were sure of planting them after wet weather it might be left pretty late. About the time of the starting out of the summer's growth is about as good a time as any. I think it is a safe rule to plant them at any period between the time when the frost is out of the ground until the first of July, provided it is done on a damp day, and the root is not allowed to be killed by the wind or sun. As fine a hedge as I have ever seen, consisting of fifty spruce trees, was planted on Dominion Day. The transplanting was done on a damp, cool day, and not one tree is wanting in the whole lot.

PLUM CULTURE.

The Plum: kinds which succeed in the counties of Grey and Simcoe, was then taken up for discussion as follows:—

Mr. W. W. Cox, (of Collingwood).—The list of plums that may be grown in those counties is a long one. The following is a list of those which have been grown here, and which I have had experience in growing, and have judged at several exhibitions:—They are the Bradshaw, Coe's Golden Drop, Duane's Purple, the General Hand, German Prune, Imperial Gage, Lombard, Pond's Seedling, Prince's Yellow Gage, Reine Claude de Bavay, Red Egg, Smith's Orleans, Washington, Yellow Egg, Glass' Seedling, Moore's Arctic, and Purple Gage. Those I have mentioned all do well. I have been told by a gentleman who lives in the town of Collingwood that the General Hand did well with him for several years, but has since failed.

Mr. A. M. SMITH.—If you were making a selection for market purposes, for profit, what varieties would you choose?

Mr. Cox.—The German Prune, Glass' Seedling, and the Lombard. Dr. Aylesworth has a Glass' Seedling, one sent out by the Fruit Growers' Association. I went over to the Doctor's place this morning and took off a branch which you will see lying upon the table, and I never saw a better leaf on a plum tree in my life—that tree has done wonders. The Doctor has 6,500 trees, and there is not one in the orchard that has done better, and it markets well, too.

Mr. SMITH.—Is the Imperial Gage a profitable plum?

Mr. Cox.—I don't know about that; it has always done well, and is a nice plum, but nothing like the Lombard.

The PRESIDENT.—Is Coe's Golden Drop regarded as a valuable plum?

Mr. Cox.—Well, some people think very highly of it, but for shipping I think there is nothing like the German Prune. A man in this town was telling me the other day of a shipment of his which, by the train or boat being behind, were delayed in transit for a considerable time, yet they turned up in splendid order at their destination. He said he believed they would ship to the Rocky Mountains and back again and still be in good order. The Duane does very well around here, I am told, but I have not had any experience with it, and don't understand anything about it in this country. Glass' Seedling bears every year around here.

Mr. W. B. HAMILTON, (Collingwood).—From the little experience I have had I think the Lombard is the best plum for this part of the country. It is a vigorous grower and lasts long. I have a tree now, the stem of which is larger round than my head, and it grows as high as this room, and produces very largely every year; we have had a crop from it ever since it first began to bear. That is something I cannot say of any other plum, though, as a rule, plums do very well in this part of the country. For shipping

purposes and profit I should say the Lombard is far the best plum grown in this part of Canada.

Dr. AYLESWORTH, Jr., of Collingwood.—I shipped quite a quantity of Lombards to Winnipeg last year. One shipment, containing 183 baskets, was some three weeks on the way before reaching Winnipeg, and yet all but four baskets were in perfect order. They were shipped in the ordinary 16 quart baskets, and cases made to hold 12 baskets in each case. Glass' Seedling was not as well received as the Lombard. I think any plum I know anything about will grow here, and do well. As between dark plums and yellow ones, I think the dark are preferable for market purposes.

Mr. MANNING BROWN, (of Collingwood).—My experience of the Lombard is that one would need to keep an extra row all along, or one between two, to keep the trees alive. After four years I do not think the Lombard will grow at all—they bear themselves to death. You may go now to any Lombard tree and you will find the limbs loaded down, and any man of sagacity must know it will kill the limb. It does with me pretty nearly every time. The Washington plum tree stands about the longest of any I have tried in our sandy ground. It does not bear so profusely, but it bears every year, and just about as much as it can ripen; it does not hurt itself in bearing. For a market plum I do not think any thing equals the German Prune in Collingwood.

The PRESIDENT.—It is only of late years they have been growing the German Prune.

Dr. AYLESWORTH.—The apparent discrepancy between Mr. Brown's experience and my own is probably explained by the difference in the soil. His experience has been in sandy soil in the town and vicinity, and my orchard is on the side of the mountain in a heavy clay loam. I planted about 600 Lombards eleven years ago, of which 500 are alive and bearing, never having been replaced.

Mr. HAMILTON.—The large tree I spoke of grows in a place which, in the spring and fall of the year, is covered with water, and it has stood as I said. Mr. White tells me it must be 25 years, or at least 20 years, old. I bought it as a Lombard; that is all I know about it. It bears large purple fruit.

Dr. STEVENS.—I have been very successful with the Washington, which bears very well with me; and another plum, not yet mentioned, the Dawson, does remarkably well, and, I think, is the best we have for preserving. I have several trees of the Dawson which bear every year, and give no trouble at all. The Washington has borne very well with me. These are the two best plums I have in my garden for bearing. I think the plum called the Jefferson bears very well, and is a very fine plum for eating, but no good for shipping. After being 24 or 36 hours in the house it is not fit to look at.

Mr. BRILLINGER, of Collingwood.—I am sorry we have not men here who cultivate the German Prune. Some trees are 30 years old, and the trunk of one of them measures over three feet in circumference. They are regular bearers, and among the very best shippers that we have. I think the German Prune is actually the most profitable we can grow in this part of the country. They are a great deal cultivated in the Dutch settlement.

Mr. WHITE, of Grey.—I have no experience of this German plum; but I grow Lombards, and they are not very long livers—with us at all events. My place is back away from the sandy soil Mr. Hamilton has spoken of, and the soil is a heavy clay, with some loam in it. The Glass' Seedling I got from this Association a number of years ago has done very well. Last year it was loaded; but, owing to the extremely dry weather, was not able to bring the fruit out to full perfection.

Mr. HICKLING (of Barrie).—I have half a dozen different kinds of plums. I think the German Prune is a very good hardy fruit, and, as I have heard said here this morning, bears very regularly. The fruit is a very nice, sweet plum, especially for preserving, and is a very good shipper. Still my preference is for Glass' Seedling, which, I consider, the best shipping plum we have. The Lombard, I think, is a little on the soft side, although it ships very well for short distances. The soil in my section, I think, is different from what it is here, where it is very light and sandy. Ours is more of a clay loam, a rich soil; and I must say, from my experience in shipping plums to Muskoka and other parts that Glass' Seedling is the best. I have quite a number of them, which I got by propagation from the one I received from the Association some years ago, and they are

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all now bearing well. I find the Lombard sufficiently hardy ; it does very well ; and the Prune does very well indeed. Mine are not so heavily loaded as those around here seem to be, but there are very fair crops on them.

Mr. BRILLINGER.—Does not the German Prune ship as well as Glass' Seedling ?

Mr. HICKLING.—I think the Seedling preferable on account of its size.

Mr. A. M. SMITH.—Do growers ever practice thinning out ? If two-thirds of these were taken off you would have just about as much fruit in bulk, and of much better quality, capable of realizing a much better price. We find that to be the case in our peach growing ; if a tree is overloaded we thin it out, and get just as much fruit in bulk and quality, and worth twice as much on the market. This thinning out process would prevent the bearing themselves to death of which one gentleman has spoken here this morning.

Mr. Cox.—Some person here has said the Lombards will not ship well. There were 75 bushels I had picked at one time when I got word that they could not be shipped. I left them in the packing house for two days, and then got word we could ship them. I had swept the floor of the packing house and spread them on some cloths, and on getting this word I repacked them, thinking to myself "These plums will never go to Winnipeg, they are too ripe." Well they went, and went all right, and that's all about it. Those plums, by right, should have gone ten days before they did ; and I say that the Lombard will ship, and no difficulty about it at all. It has been said that in Winnipeg they prefer the Lombard to Glass' Seedling. Now, down about Newmarket, where we have shipped Glass' Seedling, they have enquired for it ever since. I had two letters from there last week asking for them. So tastes differ in different places. I have two or three hundred of Glass' Seedling myself, and wish I had two or three hundred more. I put in a number of German Prunes last fall, and shall go into them more extensively.

Mr. LEWIS (of Collingwood).—One thing I want to correct here is as to German Prunes. The German Prune we speak of in this locality was originated here by a man named Baker, down on the 6th line of Nottawasaga. We have another plum called the Fellenburg ; it is a clingstone, and some call it the German Prune. It is an excellent shipper, good in quality, and I don't know but what it is equal to the Baker German Prune in flesh, but in other respects it is not equal. I believe the German Prune is the coming plum in this country, and the one most desirable for planting on a large scale, with a view to shipping. Most of our varieties you have to pick and market the whole business in a few days, or you will have them rotting on your hands ; but the German Prune, when fit to market, can be allowed to hang on the tree and await the market for three or four weeks without injury to the plum itself. Another thing ; when you are overloaded, and have a large quantity of plums that you cannot market anywhere else, it is a freestone, and can be easily pitted, and when evaporated, or dried in any other way, is a good salable article, and desirable for that reason. Another point in their favour, in my experience, is, that they bear every year. With me, they have borne every year for six years, and the present is the first year in which there has been a partial failure, and that I attribute to the heavy crop of last year. There is a lady at Nottawasaga, named Mrs. Rose, who has marketed from a few trees a large quantity of German Prunes yearly in this place, and who, I venture to say, has netted more money from her orchard of German Prunes than any other person in this country. My experience of the Lombard is, that it is a short lived variety, and unless the greatest care is exercised it will bear itself to death. The orchard on the side of the mountain belonging to Dr. Aylesworth is, I believe, an exception, and I account for that by its being a very strong soil. The Imperial Gage is an excellent long lived plum ; but not desirable as a shipper, as it becomes ripe at once and too soft for shipment. There is one other variety to which I would call attention, the Dawson. There is no plum to-day that stands equal to the Dawson, or what we know as the Dawson—a small plum with a very small pit—as a bearer or producer ; and as a plum for cooking purposes it has no rival in the whole list. There are two new varieties of plums in this place. This (showing specimen) is a Seedling of a new variety, also originated by Mr. Baker, I think, the man who originated the German Prune. From what I have seen of it, it is a very large and desirable plum, handsome, and a very vigorous grower ; and destined, I believe, to be one of the most

desirable among new varieties. The tree from which I took this specimen is only four or five years old from the grafting, and it bore large quantities of plums last year, and this year it is equally well loaded, and gives great promise. There is also a little Seedling Plum, as yet without a name, which I originated or grew from a pit myself. For orchard purposes it is worthless, being altogether too soft and tender; but, for individuals requiring only a few trees for their own use, it has very few superiors; it partakes a good deal of the nature of the Gage. I have heard very little said about Duane's Purple. They grow larger than a hen's egg; the tree is hardy, they are uniform bearers, very handsome, and fair shippers.

The PRESIDENT.—This (referring to Seedling) has been ripened here, has it?

Mr. LEWIS.—Yes; last year, perfectly.

The PRESIDENT.—How will it compare with the Washington?

Mr. LEWIS.—It will be equal in size, with a pit no larger, if as large. For an orchard I should put the German Prune down as the very first variety, A1, taking everything into consideration; that is the local German Prune, originated by Mr. Baker. It deserves more notoriety and cultivation, for I believe it is very valuable.

Mr. A. M. SMITH.—How is it pitted?

Mr. LEWIS.—Smallish in size, and perfectly free; drops right out.

Mr. A. M. SMITH.—The German Prune, commonly cultivated, has a large pit?

Mr. LEWIS.—A large pit and a clingstone; this I speak of is a perfect freestone. The plum you refer to is generally called the Fellenburg, I think. The Dawson will stand as well as any plum as a shipper. Large quantities of them are shipped from this town to Chicago by a man who ships all varieties, and he reports that he realized more for the Dawson than any other plum shipped. For family use the Washington has never been surpassed, and I think it will be some time before it will. For a dark plum, Duane's Purple stands side by side with the Washington for the home market.

Mr. BRILLINGER.—I can trace back the German Prune further than Mr. Lewis has done. I was born about a mile from the township where a man named Doner, a Pennsylvania Dutchman, brought the first from Pennsylvania. He brought them in the shape of slips, or suckers from the roots, and planted them in Markham, and from there a man named Levi brought up some suckers from the trees and planted on his farm. Baker bought the farm from Levi, and that is the history of these German Prunes.

Mr. A. M. SMITH.—Then it is not a seedling?

Mr. BRILLINGER.—No; this old man Doner brought the suckers from Pennsylvania. There is another matter in this connection that may be of interest, and which Mr. Lewis did not mention. Some of you may remember a very early frost that came some few years ago, and caused a great deal of injury among plums. Well, that frost did not hurt the German Prunes the slightest.

Col. MCGILL.—Do I understand you to say that it was propagated from the roots?

Mr. BRILLINGER.—Yes; I understand it never was grafted.

Dr. AYLESWORTH.—Have they any experience in propagating the plum from the seed—whether it will reproduce?

Mr. BRILLINGER.—Mr. Baker told me this summer that he could never get a seed to grow. I intend trying it myself this summer, when I get a ripe German Prune. Some people say that the pit should be cracked and placed in the ground, and I am going to try both ways; but all those now grown have been propagated from the roots.

Mr. BEADLE.—The reason, possibly, is that this farmer keeps the pit over till spring. If it were planted in the autumn, not let get dry, but planted immediately in the ground, I think it will grow, if there is any meat in it. If planted before they get dry, I think you will find they will grow all right. That is a mistake made by many people, putting away seeds in a box till they get dry. When in that condition they may perhaps grow if cracked, but the better way is to put them in the ground at once in the autumn, just as soon as the fruit is ripe.

Mr. BRILLINGER.—We have not been very anxious in this neighborhood to get pits to grow, for fear we might not get the same variety, whereas by growing them from the sucker we are sure of getting the same plum.

Mr. BEADLE.—Yes, you will probably get more or less variation from the seed.

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CARE OF A PLUM ORCHARD.

Mr. Doyle, of Owen Sound, who was expected to lead in the discussion on this phase of plum culture, not being present, Mr. Lewis, of Collingwood, was invited to take up the subject.

Mr. LEWIS.—I am happy to give you the benefit of whatever information I possess on this subject, but on one condition,—that none of you shall visit my orchard before you go away; because if there is anything I hate worse than a man who preaches without practising, it is to have any one catch me in that kind of thing myself, a contingency to which, in the present instance, I am afraid I am to some extent liable. I am somewhat of a fault-finder, too; I don't like the way people prune their plum trees; and one of the first great mistakes they make is that when they get a little tree from the nursery, and it begins to grow, they feel so proud that they want to grow a top when it is only about two feet and a half high. They grow that way and make a handsome little tree, but about the time the tree begins to bear they have to commence pruning, very much to the injury of the tree, instead of allowing it to run the height they require, and then commencing at the top. A tree should always be pruned. Of course there is always a condition to be taken into consideration,—the locality in which the tree is growing; whether it is intended to grow anything else besides the plums on the same ground. If it is intended to cultivate in the garden anything else besides the plums, it becomes necessary to start the pruning of the top much higher, in order to facilitate working under and around the trees. Another great mistake is allowing two buds start out close together, and almost opposite each other. This renders the tree very liable to split when loaded or when blown by the wind. Limbs should never be allowed to come out directly opposite to each other, but a little above or below, which makes a strong tree, not likely to be injured by splitting down. There is nothing that requires greater care or nursing and cultivation than fruit trees in order to bring about favorable results, such as we have a right to look for; and in the pruning of these trees it should be done when they are young, and the tops perfectly formed. Then in balancing—what I call balancing is to always make sure of having your tree top heavy on the north and north-west side in this country, because that is the direction of the prevailing winds—you can aid the tree materially. The operation of pruning is a very simple one, but it must be done in time. I heard summer pruning spoken of yesterday, but my experience is that there is only one proper time for pruning, and that is early in the spring of the year, just when the trees are coming out in leaf and bud and blossom; for at that time the wound which is made heals more quickly, and without running the risk of having a knot left behind, ready to start decay in the tree. Not only that, but it is necessary to prune very short, and not leave long limbs sticking out, because it takes some years for the growth of the tree to overcome this; but if pruned short, smooth and close to the tree, the wound will heal easily and quickly.

The PRESIDENT.—Do you cultivate as a rule?

Mr. LEWIS.—Yes. I presume Mr. Cox or Dr. Aylesworth could give us particulars about that; because I think there is a most marked difference in that particular in their orchard; more so than in any other I ever saw. I think there is 100 per cent. difference between an acre of orchard that is cultivated and an acre that is allowed to run in grass. Indeed, a good strong sod of itself, I believe, will destroy a plum orchard, when left without mulching, or something of that sort, to destroy the sod that forms under the tree.

Mr. Cox.—I don't know that any explanation is necessary in regard to cultivating a plum orchard. There is no comparison whatever. The very worst trees that we had are now the best owing to cultivation. It is an operation that requires a great deal of care, to see that the horses employed do not bite the trees and that they are not scratched in the process. The more you cultivate in the right way the better the result will be. I ploughed Dr. Aylesworth's orchard three different ways so as not to get too near to the trees. The first year I put in grain, the next potatoes, and the next year again with some kind of roots, and where that has been done we get the largest and finest fruit; the trees will each bear as much again, and the fruit is much superior in quality. In cultivating I merely skim around the tree as nearly as I can. I would not let one of

my boys plough around a tree. I just skim it, and when I get very near the tree I use a hoe. I have thought a good deal about these spring tooth harrows for the orchard, about putting them through now and then, and sowing clover or something of that kind; because when the soil gets hard, and the sod heavy, it is very hard on a tree.

The PRESIDENT.—Have you ever tried allowing animals to run in the orchard?

Mr. COX.—No. The doctor has pigs there; I prefer sheep to pigs; I don't like the looks of many trees that pigs have been around, they get in the water and make mud and then go and rub the trees. We have to stake and wire our trees to keep them from coming out by the roots. I think if tar paper were put around the trees sheep might be let in the orchard, but I don't like pigs. A brother of mine in the United States tells me they have abandoned the practice of letting pigs run in orchards there, as they do more harm than good.

PACKING PLUMS FOR MARKET.

Mr. WHITE.—We ship a large quantity of plums from Thornbury every year, and so far I have shipped in crates. Last year I see they went in baskets very much. These are the only two methods of which I know anything at present.

Mr. COX.—We adopted the crate plan at first, but last year we got 800 baskets, and I think I prefer the baskets, which are more convenient to handle, though I don't know that they ship any better on the boat. We had our crates planed,—we were the only ones who did that—and we shipped a great many to Toronto, I am very particular in picking; there are some pickers I would not employ if they would work for nothing or pay me to be allowed to pick for me, and there are others I would pay double price. Some will pick anything as long as they can make up a bushel. If I was going into plum culture I would adopt some method by which I would know by whom every basket was picked.

The PRESIDENT.—I suppose the trees are planted some distance apart in most orchards?

Mr. COX.—No, they have adopted the plan of planting them closer together than formerly before the Lombard came into use, and then, if desired, they can cut out every other tree. I think we can sell our plums better in baskets than in crates, on the market; for there are many who will buy a basket where they would not a crate. For yellow plums we put on yellow leno, and for red plums red leno.

THE BLACK KNOT.

The following paper, contributed by Professor Panton, of Guelph Agricultural College, was then read by the Secretary:—

One of the most troublesome diseases of vegetable origin affecting the fruit trees of Ontario at the present time is the well known so-called black knot. Though it has been the subject of much study, and much has been learned regarding its life history, still fruit-growers, to a great extent, are helpless to withstand its attacks.

The duty devolving upon me in reading this paper before you, is to open up a discussion on this troublesome pest. Its attacks seem to be confined largely to the plum and cherry trees, few of which seem to escape its destructive influence.

An examination of the "knot" at an early stage of its development shows innumerable small transparent threads only seen by the aid of the microscope. These branch among the cells which compose the tissue of the inner bark of the tree and form the so-called *Mycelium*, or vegetable part of the fungus. (6) The threads become very intricately twisted together in bundles as development proceeds, beginning in the cambium layer of the bark and radiating outwards. As spring advances, the threads increase in size, reach a

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more matured condition, and the knot presents a somewhat velvety appearance later in the season. This is the result of the threadlike structures sending up innumerable short-jointed filaments (*Conidia*) on the ends of which are borne egg-shaped spores known as *Conidiospores* (see fig. 1). These are very small, requiring the aid of a microscope to see them. When ripe they are readily disturbed and may be blown long distances by the wind and thus reach new places become the origin of knots similar to those from which they came. This mode of reproduction in the knot continuing till the summer is well advanced, when another class of spores begins to develop and reach maturity about February. The surface of the knot during winter shows pores which can be seen by the naked eye; these open into cavities, on the walls of which are two kinds of structures, one consisting of slender filaments (*paraphyses*) the use of which are not known, the other club-shaped (*asci*); in the latter are developed, toward the close of winter, the *ascospores*, (see fig. 3), usually eight in each *ascus*, at the end of which is an opening through which the spores pass and become new starting points for the fungus when they reach proper conditions for development.

Other cavities also are found among those with the *asci*; these contain very minute oval spores divided by cross partitions into three parts, and borne on slender stalks (see fig. 2). These are the so-called *Stylospores*, the use of which is not known, but generally believed to be concerned in the perpetuation of the species. Still, other cavities exist containing exceedingly slender filaments (*spermatia*), (see fig. 4.) also concerned in reproduction. They are seen in the knot during winter and spring, and are much less common than the *conidiospores* or *stylospores*.

Interspersed amongst the cavities already referred to, one finds from time to time spaces more flattened than these, and often instead of appearing oval, seem almost triangular. They are lined with short, delicate filaments, which end in a minute oval body. These bodies are produced in great numbers and are discharged in masses, being held together by a sort of jelly. This form is known as the *pycnidiospores*, and also seem to be connected with the process of reproduction (see fig. 5).

Thus, you perceive, we have no less than five different kinds of reproductive organs connected with the fungus which causes black knot, viz.: *conidiospores*, *ascospores*, *stylospores*, *spermatia*, and *pycnidiospores*, all more or less concerned in the perpetuation of this destructive disease.

For some time before the true nature of this disease was known it was generally believed that the cause of the "knot" was the presence of insects, but since the life history of this fungus has become a subject of study, and its various stages of growth made out as already described, the insect theory has been abandoned. The following reasons for believing that the knot is not caused by insects might be remembered:

1. The knots do not resemble the galls made by an insect.
2. Although insects or remains of insects are generally found in old knots, in most cases no insects at all are found in them when young.
3. The insects found are of several species, which are also found on trees which are never affected by the knot.
4. We never find black knot without the fungus *sphaeria morbosa*, and the mycelial threads of that fungus is found in slightly swollen stem long before anything like a knot has made its appearance, nor is this fungus known to occur anywhere except with the knots.

The morello cherry seems most susceptible, and it is supposed that the disease has originated from some of the wild cherries rather than the wild plum.

Notwithstanding the subject of black knot has received so much attention, little advance has been made in its extirpation, other than the cutting the knot off as soon as observed.

When the knot makes its appearance the branch should be cut off a short distance below the slight swelling of the stem, which is seen just below the knot. When cut away, burn the branches to prevent the spores from spreading the disease. These spores, it will be remembered, are microscopic and in great numbers; besides, if the branches are

not destroyed the ascospores will ripen during the winter and perpetuate the trouble. The most favorable time to cut off the knots is late in autumn, before the ascospores are ripe, but as the conidiospores ripen in early summer, if knots are seen in spring they should be cut away at once.

Not only should diseased branches of cultivated cherries and plums be removed, but also the choke cherry, bird cherry, and wild plum in the vicinity of orchards be destroyed.

Some recommend the application of turpentine to the knot; this requires to be done carefully, or the neighbouring parts of the branch will be injured, and it is questionable if the results would be favourable. If the knot is large enough to be treated in this way it is likely nothing short of removal would check the spread of the fungus.

Unfortunately little regard is paid to the law which requires affected trees to be destroyed; they are thus scattering millions of spores yearly which are spreading the disease to all parts of the Province until the black knot has become almost universal, and in every locality these blighted trees stand as silent monuments of the indifference and ignorance of those who should co-operate in fighting against a common foe.

The SECRETARY.—It is highly desirable that we should enlighten ourselves in regard to this matter, otherwise there is a danger of our applying as remedies something that can be of no possible use. For instance, there are a couple of remedies now going the rounds of the press of this country, which, if we did not know anything of the true nature of the disease, we might suppose would be the very thing for it. The following article has recently been going the round of a good many Canadian papers: "Dig down to the root of the affected tree four or five inches, bore an auger hole in the trunk, and fill the hole with flour of sulphur. The sulphur will find its way through the tree and effectually kill the bug which is responsible for the black knot."

The PRESIDENT.—The sulphur would remain there forever, it could not be taken up in any shape.

Mr. BEADLE.—And there is no insect to be killed; you might just as well put on sugar.

The SECRETARY.—Here is another one, from Stratford this time. "A gentleman of that town says that now is the time to protect trees from the inroads of black knot insects. He advises to take a band of tar paper, an inch or so in width, and wrap it around the trunk of the tree under the lowest branch, spreading on tar once or twice a week. The last week in May or early in June is the best time to apply it. He has proved this to be an effectual remedy."

Mr. JOHNSON.—That puts me in mind of a story I have heard of a gentleman visiting Nova Scotia, and being in a very flourishing orchard there. He asked the owner how it came to be so much better than the surrounding ones. "Well," said the owner, "it is a secret, and you must not tell it until you get back to Ontario. I bore a hole in the apple tree and put in a lump of brimstone and cork it up again." Well, the gentleman tried the plan, thinking if it was so effective in Nova Scotia it should be equally good here, but found no improvement. On seeing his Nova Scotia friend again he told him of the failure of the experiment, when the wife of the Nova Scotian, who was listening, said, "Oh! you forgot to tell him he ought to mix calomel with the brimstone." The gentleman has not made a second trial of the alleged remedy.

Mr. COX.—You can see any amount of black knot within seven miles of here, or perhaps even within one mile.

Mr. KENDALL, of Nottawasaga.—My father has black knot on a cherry tree in his orchard, and in travelling through the country I find it is destroying all the trees.

Mr. BEADLE.—Is it worse on the cherry than the plum trees?

Mr. KENDALL.—Yes.

Mr. BEADLE.—Have you noticed black knot on the cherry known as the choke cherry?

Mr. KENDALL.—I have never seen it on the wild cherry. I saw twenty-five cherry trees that were killed with black knot being cut down yesterday, not five miles from here.

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Mr. BEADLE.—Were they sour cherries?

Mr. KENDALL.—May Duke, I think.

Mr. BEADLE.—I wonder if it has ever been seen on the sweet cherry?

The PRESIDENT.—I never heard of it attacking the sweet cherry.

Mr. HICKLING.—What we want to arrive at is the cause of it; whether it comes through the sap of the tree or what way it is.

Mr. BEADLE.—It is a plant, like any other plant.

Mr. HICKLING.—I want to know its origin—from whence it comes.

The SECRETARY.—These little diagrams here (drawings accompanying paper) that were not referred to, show you the winter spores that are developed inside this sac. In these are developed little spores which ripen in the winter time, and are easily carried from one tree to another; and where they light, they very soon germinate under favorable circumstances.

Mr. JOHNSON.—A man half a mile from this had his orchard entirely destroyed about ten years ago by black knot; a man named Shannon; and I had a few limbs affected in my place, but I cut it off, and have not been troubled with it since.

Mr. HICKLING.—Wherever I have seen black knot I have always cut it out at once, which I think is the best plan.

The PRESIDENT.—I think everyone here may rest assured that cutting out is the only remedy. It is the experience of all fruit growers that there is nothing for black knot but the knife. I would advise fruit growers in this district to see to it that the law which we have on the statute book, is enforced to the very letter, for if it is enforced you will find it of great benefit. It may put you to a little trouble once in a while; but it can be enforced through the medium of the Horticultural Society very easily, if you co-operate with that Society. The law itself is a good one, and if not neglected would be of great value to the fruit-growing community.

Mr. BEADLE.—I would add one word. Sulphate of iron is a fungicide which destroys these spores, and it is a good plan, after cutting out black knot to wash the wound with a solution of sulphate of iron, or copperas, as it is called in commerce, which will kill the spores left behind within its reach.

Mr. HICKLING.—I can say that I have tried that, and since applying that solution to my trees I have not found one-quarter as much black knot.

A MEMBER.—I have had a little experience with black knot, and I found that lime sprinkled among the branches was a good thing. The lime I used was a little too strong, and the leaves died off, but fresh ones came in their place again.

REPORT OF THE COMMITTEE ON FRUIT.

The Committee on fruit presented their report as follows:

To the President and Gentlemen of the Fruit Grower's Association of Ontario:

Your Committee appointed to examine the exhibits presented at this meeting, beg to report that they found as follows:—

From Smith and Kerman, St. Catharines, Fay's currant, branch well loaded with fruit, nearly as large as Cherry currant; early Richmond cherry, fair size, quite ripe; six varieties of strawberries, including among others, Mrs. Garfield and Parry—all well grown samples; one of Salem grape, kept in sawdust, in excellent state of preservation.

From Linus Woolverton, of Grimsby: Six varieties of cherries, well known standard sorts, as Governor Wood, Biggareau, Yellow Spanish, Elton, Black Tartarian and Knight's Early Black.

Alexander Johnson, of Collingwood: Three boxes of strawberries, the Sharpless being very large, one specimen measuring $7\frac{1}{2}$ inches in circumference.

From Frederick Mitchell, of Innerkip: A fine display of some two dozen varieties of roses; also a fine display of double dahlias, comprising ten varieties.

We found berry crates containing sixteen boxes, manufactured by George H. Williams, Thorold.

A. C. Rice & Co., Sarnia, show a collection of stave baskets and berry crates and boxes.

R. M. Wanzer & Co., of Hamilton, show a collection of berry crates and boxes, and grape baskets and crates.

W. B. Chisholm, Oakville, shows a variety of strawberry, plum and grape baskets.

All of which is respectfully submitted.

D. W. BEADLE.
A. A. WRIGHT.
F. MITCHELL.

THE QUESTION DRAWER.

The Question Drawer opened up the following discussion on small fruits :

RASPBERRY CULTIVATION.

Q.—What is the best method of cultivating raspberry bushes ?

Mr. A. M. SMITH.—It depends upon whether you are cultivating large quantities for market or for your own use in the garden. For the first purpose you want to just plant them in rows about six feet apart, and three feet apart in the rows, so as to have plenty of room to cultivate them. Do your cultivating with a horse cultivator, the same as you would corn, and keep all the suckers down with the exception of four or five new canes. Pinch back these new canes when they get up about two and a half feet; pinch off the tops, and it will make them stalky and branch out. Give them good cultivation the same as you would corn or anything else.

Mr. MORTON (of Wingham).—While Mr. Smith is a better authority than I am on growing Raspberries for market purposes, I may, perhaps, tell you how I cultivate them in the garden. For our climate I have planted them in rows, and in hills in the rows; because I find that it pays me to tie them up to stakes in winter time, on account of the snow, which is very apt to break them down. The ordinary reds I plant about six feet apart; Shaffer's Colossal—which, by the way, is my preference for home use—I plant about seven feet apart, as it is a great deal taller growing sort, and for that reason requires more space. I keep them in hills, regarding as weeds all shoots which do not grow within a radius of say six inches from the centre of the hill; leaving about five or six shoots in the centre of every hill. I keep the ground perfectly clean and friable to within a distance of about two inches, using a wheel hoe for that purpose. For manure I have been using ashes and salt. I do not know whether it is the result of the ashes I put on this spring, but I have got a very poor show of raspberries this year, and I would like to find out from somebody the cause of it. My own impression is that it is owing to a very heavy dressing of ashes. On some of the rows I have tried superphosphate, but I do not know that it is of any great utility. I do not think that it is necessary on good soil to give much manure after you have planted your raspberries—that is, if the soil is as good as it should be to begin with. I suppose the manner of pruning may be regarded as incidental to the cultivation, as it increases the growth and product of the vines. When about two feet high I pinch the tops, which makes them branch out. I don't pinch back the branch; I tried that for a couple of years, and am convinced that I injured the plants; because late in the fall they threw out fruit blossoms on the secondary laterals; so late in the season that they did not come to perfection. The next year those laterals did not extend out any; so I think the better plan is to pinch at two feet high and let the laterals grow as long as they please, and in the spring trim back these laterals to about eighteen inches. With good soil and a good selection there should be no difficulty—with faithful work—to produce a good crop.

THE STRAWBERRY IN GREY AND SIMCOE.

The following remarks on the "Condition and Prospects of Strawberry Culture in the Counties of Grey and Simcoe" were delivered by Mr. B. F. Lewis, of Collingwood, to whom this subject had been assigned.

I did not happen to be present at the preliminary meeting held in this town at which the programme for the present meeting was formulated. I suppose they did what they thought was best under the circumstances in appointing individuals to introduce the various subjects, and among others I was appointed to introduce the subject of Strawberry Culture. I am afraid the choice was not altogether a wise one, for, although I have been cultivating strawberries here for some years, my general knowledge on the subject of the strawberry is not very large. I daresay, however, that my observation has been sufficiently accurate, and my knowledge extended enough to enable me to answer any questions that may be put to me concerning strawberry culture in the counties of Grey and Simcoe. My acquaintance with varieties is not very wide, as I

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have made no attempt at cultivating anything but the Wilson—Wilson's Albany and the Sharpless. I may dispose of the latter by saying that it is a berry that can never be cultivated with profit as a general crop; it can only be cultivated by people who have small gardens, as a fancy crop—that is my impression. Of several other varieties which have been grown to some extent in this part of the country, I may say that I am not satisfied that they possess any advantage over the Wilson in any respect, with the exception, perhaps, of being more pleasing to the eye. In regard to the prospects of strawberry culture in these counties, I think the only possible thing which from the present time one can limit it, is the want of a market. I believe there is no part of the continent of America where, with proper care and attention, strawberries can be produced in greater abundance or of better quality than in the counties of Simcoe and Grey. There is a gentleman in Barrie, in the county of Simcoe, named McVittie, who is cultivating from five to ten acres of strawberries, their main crop being the Wilson. They do grow some fancy varieties, but not largely for market, I believe. They are successful growers, and have taken up strawberry culture with ample means and good practical knowledge, and the results they have attained are to say the least very satisfactory. There is also a gentleman down in Mulmur, Mr. Honsberger, who is here, I believe, who grows strawberries. I have never had the pleasure of visiting his grounds, but have inspected his berries for a number of years, and I may say that for quality, appearance, and everything else there is no place in the county where Mr. Honsberger need fear to place his berries in competition, and I have often felt somewhat ashamed in putting my own on the market in competition with them; but of course I must be content with the position which properly belongs to me. My great difficulty has been that I have not been able to give either my plum or strawberry patch the benefit of my personal attention, and for days and weeks at times I have not even seen it, entrusting the entire charge of it to hired help. The consequence is that I am very frequently disappointed, and I have often thought that any man who wants anything done well must invariably give it his personal attention. There is another gentleman here, Mr. Leonard, who has lately gone into strawberry culture, and who has enjoyed marvellously good success, placing upon the market here berries which would do credit to any grower. I have seen some of the largest markets both in the United States and Canada, and I may say that our growers here can compete in specimens of fine strawberries with any growers in the world. Therefore, I say that there is nothing in the soil or climate calculated to limit the culture of strawberries in these counties, but we find a great deal of difficulty here, and will continue to do so, I am afraid, in extending strawberry culture to its full scope by reason of the limited facilities we enjoy of shipping to the great central markets of Toronto and Hamilton, for we are tied down and hampered by a set of cast-iron rules. At present we find it is necessary to ship two kinds of baskets, that is a basket of strawberries for the market and another basket of money for the poor railway company. That is the case with our plums and everything else we have to ship, and even then we have to wait their pleasure and ship here at our own risk with the freight prepaid. Our fruit arrives in Toronto just when they please—if it ever arrives at all—and if they are lost or damaged on the way the loss is ours, not theirs.

A MEMBER.—Haven't you an express company?

Mr. LEWIS.—Yes; but that does not help us any, for if we ship by express we have to send two baskets of money to one basket of fruit, one basket for the poor railway company, and another for the equally poor express company. We hope, however, that these things will be remedied by and by. As I have said before, there is nothing lacking in the soil or climate of the conditions necessary for growing strawberries; I do not think any gentleman present will contradict me in that. There is, however, one precaution which needs to be taken; that of choosing our ground well, in a position where the snow cannot drift off the vines in winter and subject the vines to heavy winter killing; the snow is probably as good a protection as they can have. Another requisite for successful strawberry culture is good underdraining, so that the plants cannot be operated upon by frost. These, however, are matters applicable to any other county equally with these, and berries can be raised in this part of the

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country with no other exertion or trouble than is incidental to their production in any other part of the world. We have one grower here in the town, Mr. Johnson, who exhibits the fine specimens on the table, who has only a small patch of ground, and the result of his labour has been that last year he sold \$350 off that small piece of ground. That has been the result of his cultivation, and I think no one need hesitate in going into the business here, for I have yet to hear of the first failure. Mr. Johnson's place, including buildings and everything else, only covers three quarters of an acre. I cannot name his favourite berry, but I am sure he would have been equally successful, if not more successful, had it been Wilson's Albany.

THE STRAWBERRY.

The following paper on "The Strawberry," contributed by Mr. T. C. Robinson, of Owen Sound, was next read:—

We have now so many varieties of this fruit, and these varieties are so diverse in their qualities, that we must place different values upon each variety, according to the purpose for which strawberries are wanted. Thus, a variety admirable for market purposes may not taste good enough to please the man who only wishes to supply his family, while another kind that pleases every one in the house will prove too soft to carry to market.

In other words, before we can answer the question, "Which is the best strawberry?"—we must ask another,—“For what purpose do you wish to grow strawberries?”—and another,—“Do you want an early, a medium, or a late variety?” Indeed, we might reasonably follow further this Hibernian method of answering by inquiring whether if to be grown for market, the market be so distant as to require the highest degree of firmness, at the expense of other desirable qualities; or, if for home use, whether quantity were the main point, or whether the careful cultivation could be applied which alone will develop varieties of finest appearance and richest quality.

But what's the use of hair-splitting in a strawberry patch! Briefly let me give my convictions as to the best varieties, both early and late, both for home use and market.

In the Crescent we have the sort which will, perhaps, produce the utmost unanimity of opinion for a variety of appearances. The poor man's berry—the lazy man's berry—call it what you will: it is the *early* berry of all small fruits. Not so firm for market as some others nor so firm as is desirable for long shipment, it is yet firmer than any other variety of equal earliness that I know of except, perhaps, Early Canada. Not so sweet as we want a family berry to be it tastes very good when it first comes in, and is very satisfactory to the housewife over the cook-stove. Gipsy is about as early but does not bear well enough with me. Crystal City is a wretched, wild-berry-looking nonentity! The only respectable rival of Crescent as an early berry for either home use or market, so far as I know, is Early Canada. But Early Canada is no firmer with me, but very slightly earlier, tastes no better, is rougher, darker, and uglier generally, decidedly less productive when healthy, and finally been chased over the fence for any ugly greyish mildew on the fruit.

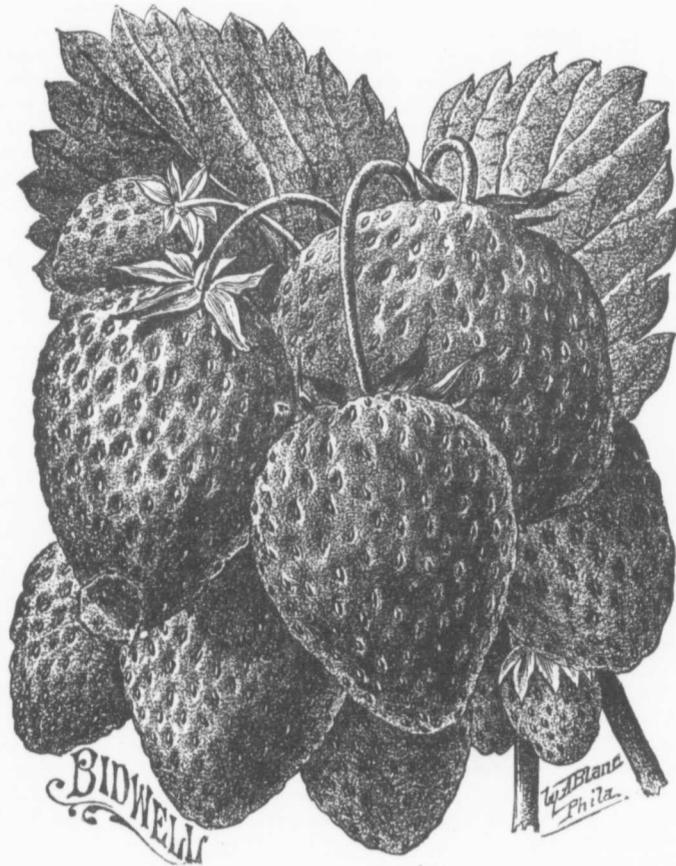
In setting out a field for early pickings for any purpose I would have five out of every six Crescents, the sixth should be a Crescent too, if it would bear alone; but as the Crescent blossom is imperfectly furnished with pollen I like to set every sixth row with Wilson's Albany. Wilson is next of valuable market varieties to follow the Crescent on my grounds, and where the distance to market is over one hundred miles, the Crescent may prove too soft, in which case the Wilson is the only early variety to fall back upon. I do not find it so productive as Crescent.

For main crop there must be great difference of opinion. But before dividing the house let us observe that the aforesaid Crescent not only begins business nearly a week ahead of most other varieties, but it keeps at it till most of the others are done also. Indeed many of the so-called *late* varieties are just late to arrive, not at all to remain. So that, for a not too distant market, we have our *main crop* variety in our *early* one.

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In productiveness the Crescent is startling. Kept free from runners I have had it average nearly a quart to the plant by the half acre. But for home use we want something better as soon as something better will ripen, for the Crescent with all its beauty and productiveness is not much of a strawberry to eat when others can be had. Probably if it were an ugly fruit we would often spit it out when the first edge of our craving for strawberries is a little flattened. But it looks so good that even the experienced strawberry man will get it fairly down his throat before he gets over admiring it, and then a few more must be swallowed to keep the first one down! It is truly a great strawberry. O! for a hybridist, or somebody, that will give us a Crescent with a little more sugar in it.



Bidwell and Seneca Queen are the two main-crop varieties for home use which I find pre-eminently valuable. Both are rather soft—too soft to ship well over fifty miles by rail,—both are of good, not high quality, sweet and good, both are quite large and handsome, Seneca Queen being the larger; both are exceedingly productive, Bidwell bearing the most; and both are remarkably vigorous healthy growers, especially Bidwell. On my ground, both loamy soil and sandy loam, I find Bidwell the best, because it bears the most; but I have heard from my friends of Seneca Queen excelling Bidwell in some districts. Both have their faults: they are often irregular in outline, and some people would like them sweeter. But for main crop for home use I have tested nothing which is superior. Bidwell, with runners cut, yields with me about equal to Wilson.

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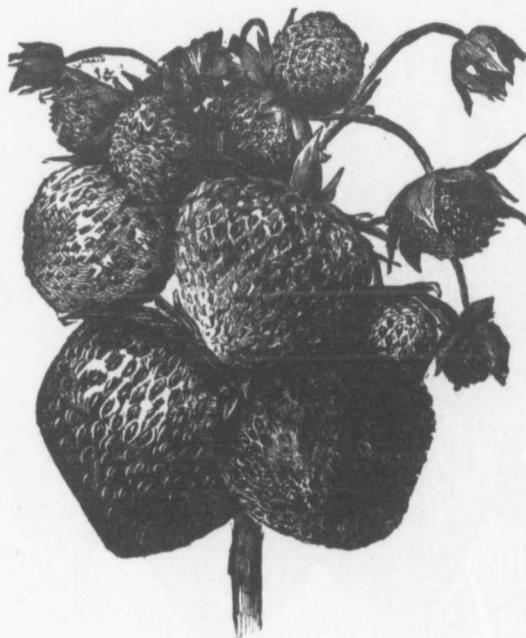
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It is now giving me the third crop on the same old plants with only one dressing of manure, and the berries are large and abundant. Seneca Queen closely approaches Sharpless in size, and Bidwell hardly half a size behind.

For a not too distant market—say within a hundred miles, the Lacon is proving decidedly valuable. This year I have about a quarter acre of this variety which my pickers and foreman consider about equal to our best Crescents in productiveness and firmness, while the size is decidedly larger. To-day's picking was one of the finest sights that I have seen of strawberries in the crate. The quality might be better, it tastes rich, like Wilson,—which I consider one of the richest of strawberries,—but it is not much sweeter. But I consider the quality better than Crescent; and with its equal firmness and handsome colour, it must be rather better for main crop on account of its superior size if it only matures the remainder of its immense crop of fruit as well as Crescent. That is about as far as I have gone with Lacon, and conclude I had better go no further in my account of it, except to say that it can never be very popular with nurserymen, because it makes but a moderate number of plants, while the plant at all stages is the largest I know of, so that two or three dozen would cost as much for postage, or take as much room in a packing box as a hundred plants of ordinary sorts. Sharpless is a little larger than Seneca Queen with me but does not bear much more than half the crop.



MANCHESTER.

Manchester, is a very fine, rather late berry, of beautiful appearance and excellent quality.

For a market too distant to ship Crescent I specified Wilson as the only early variety I could recommend. As the Wilson covers the season of main crop, all that we need for this purpose along with Wilson is a late variety, and to meet this need I know of nothing so good as the James Vick. This is a variety that many people turn up their noses at, it is true, but I think it can stand it. Certainly if put on light land and allowed to choke itself with its own runners it will be unable to mature the immense loads of fruit which it insists on setting everywhere under any treatment. But

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give it a fair chance according to its nature; grow it on loamy land or clayey loam, well mulched, with runners cut off, and the James Vick will prove a thing of beauty and a joy till raspberry time. Thus treated, I believe, from tests in a small way—that it will equal or excel in productiveness the best Crescents, that the fruit will average as large as Wilson, and keep ripening a week or more after Wilsons are done. The berry seems firmer than Wilson, it is decidedly handsomer, and tastes better.

For table use I know of no variety of red strawberry equal in combined sweetness and richness, to Prince of Berries. But it is a poor bearer. With such ordinary cultivation in hills, as I give all my varieties, one Bidwell plant will yield more than ten of the Prince of Berries. As the Bidwell is larger and fully as handsome, and really tastes very good there is no room for the Prince on my table. He is a dude to be admired on my neighbour's premises, but I cannot pay his bills. His mother, Jersey Queen, tastes nearly as good, and is larger and more productive. She shall have a little room on my grounds, but I am rather shy of the breed. A pinkish berry—the Fairy, tastes nearly or quite as good as the Prince of Berries, and is very much more productive. It is called a *white* berry, and indeed the fruit is often white when quite ripe, if a friendly leaf has kept the sun from staring, so as to bring a blush to her cheek. A very good name is Fairy, I want to get my word fairly in for its excellencies, as though not a novelty it seems but little known. The berries are of good size, smooth and attractive.

CULTIVATION AND FERTILIZING.

Mr. A. M. Smith, of St. Catharines, was called upon for a paper on Strawberry Culture, and responded in the following manner:

I was not aware that my name had been set down for a paper of this kind, and I have not one prepared. I will, however, say a few words upon the subject announced. It seems to me that it is rather a case of putting the cart before the horse to speak of cultivation before fertilizing. I remember once hearing a story of an old darkey who gave his son some good advice. "Sambo," said he, "ef yo's got a job of work to do fore yo gets yo breakfast, mind yo gets yo breakfast fust." Following out that line of thought, if I had some fertilizing to do after cultivation I would be sure to do the fertilizing first. For strawberries, in the first place, I should thoroughly prepare the ground, and see that it was thoroughly underdrained; and for fertilizers I don't know that you could have anything better than barnyard manure and plenty of unleached ashes, which in this country, I think, you should have no difficulty in obtaining. Make your ground thoroughly rich before you plant your berries; that fertilization is very necessary, because strawberries are unlike any other fruit; you don't continue them on the same ground more than two or three years at the outside; indeed a great many cultivators in our district renew them every year—just get one crop, and then plough the ground up. Some varieties though, will pay for two years. In regard to the cultivation, I suppose most of you know that when you have thoroughly fertilized the ground and planted the berries, there is nothing out of the ordinary run in their cultivation, except, perhaps, clipping off the runners. In some varieties, if you are going to grow on the hill system, you leave most of your runners on. As to varieties, you will need a long pocket if you desire new varieties, for nurserymen have every year some new variety or other, warranted to be fifteen minutes earlier or a shade better than any of the known kinds. Many of these new kinds we find on testing are not up to the standard of the older varieties, though of course we do occasionally get something that comes to stay, as we did when we got the Crescent Seedling and the Sharpless. The latter has been mentioned here as not fit to cultivate for market, but in our section we think it can be cultivated with more profit than the Wilson. In localities where you have not to ship long distances, and can ship by water, as, for instance, across from Niagara to Toronto, it can be cultivated for market very profitably. During the present season when the Crescent, Wilson, and other commoner varieties were down as low as three or four cents, we could always get six or seven cents for the Sharpless and these larger varieties, and there is a saving of

9 (F.G.)

one cent a quart on the picking and boxes, even if you do not get any more for them. There are a few new promising varieties, but I do not think it is always well to take the recommendation of a nurseryman or dealer in regard to these things, for, you know, he may have a lot of plants he is anxious to dispose of. There is one, however, that I will mention, which we cultivate for the home market, the Dominion, which for the home market is profitable. It comes in late, when the Wilson is nearly done. Among the newer ones which are promising, I think probably for the home market there is nothing that promises better than the Parry. It is very firm, and a good bearer, and the quality by some persons is thought superior to the Wilson, though of course people's tastes vary a good deal in regard to strawberries. The Jewel is a variety which was puffed a good deal. I secured plants last year, and planted about a hundred, thinking to have a good stock of them this year, but that hundred plants did not average me a runner apiece; they are evidently going to run to berries. They are not a perfect blossom, and the fruit this year is all imperfect. I had one planted in my garden near some other varieties, which bore a few very fine ones indeed.

Mr. HONSBERGER, (of Mulmur).—I have been a grower in this section for nine years, and I quite agree with what Mr. Smith has said about new varieties; I stick to the old ones as long as they stick to me. My experience is that the Wilson fills the bill better than anything else we can get.

A MEMBER.—I have grown the James Vick for several years, using hen manure mixed with four parts of sand on a heavy soil. My hennery is floored with dry sand, and the manure is mixed with this dry sand and shovelled out and used as a fertilizer. I think last year it must have averaged me a quart from a single plant. This year the crop is enormous, and of uniform size; the berries are very fine. I had the Crescent Seedling also, but it has not done nearly so well with me. The Manchester has produced a very fine crop, but the berries are rather soft for market purposes. I live ten miles south of Barrie, and in that part of the country such fruit as plums, cherries and that sort of thing are fruits of the past, and at the present time scarcely any fruit of any kind is to be obtained there. I find it impossible to supply the demand of the neighbors and farmers around me, who formerly never thought of such a thing as buying fruit. I ought to say, perhaps, that the James Vick is the only berry that I can grow with the hen manure.

Dr. STEVENS.—The Ground Cherry, which I grow very largely, is a very nice fruit for preserving. It yields a very abundant crop, and requires very little cultivation. It is little known generally throughout Canada, but in this part of the country, and particularly at Penetanguishene, it grows wild. I am sure if people knew more about it, it would be more extensively cultivated. Some years ago a gentleman in this place sent home some of the preserve to the great English confectioners, Portland and Mason, of London, who reported that they gave it to a few people to try, and it was much approved of by them; and, though the English are very slow in taking up anything new, they did not know but what good prices might be realized for it. I think a person who has once tasted it would take it in preference to anything else. If any of the gentlemen of the Association would like some of the seed, and will let me know in the fall, I would not mind letting them have some of it to grow.

Mr. A. M. SMITH.—It is sometimes called the Strawberry Tomato?

Dr. STEVENS.—Yes. We have two kinds here, one of which is no good, though very large; it has no flavour; it is the small yellow one which has the good flavour.

Mr. BROKOVSKI.—I do not think they would grow well under cultivation.

LAWNS AND LAWN DECORATIONS.

The following remarks were brought out by the subject announced as "Lawns and Lawn decorations—Groups of Shrubbery suitable for this latitude."

Mr. F. MITCHELL.—The subject before us is one of considerable scope. It would hardly be expected that any person should get up and in a few minutes give a complete course of instruction in a system of farming, and I think almost as much might be said on

the subject. I feel difficult. But suitable for here I have a great deal the village shrub for to trim the Cut Lawn not in favour believe more than there without trim in blossom think it well Syringa, the shape it gets one which straggling many other cause, are of our climate for instance Aurea reticulata shaped with pretty indented stem, and a hard stem beautiful variety Radicans, or lawn. Another plants grow cases measure through the ground during protection from blossom it is which I find Indivisa, which Canada This striking object a very large size lawns or the being really red, and very through the rain forget its ratl endless subject cate the plan bush, particularly devour the leaf position. I think on every lawn where they are position can be plants seem to

the subject of lawns and lawn decorations as on farming generally. Another reason why I feel diffident in addressing you on this subject is that I am very imperfectly posted on it. But although this is the case, I consider myself pretty well posted on certain shrubs suitable for lawns, particularly roses, which are my especial hobby. Since I have been here I have been looking around your town a good deal, and I must say that I have seen a great deal of good taste displayed; more, I am sorry to say, than can be observed in the village of Innerkip, from whence I come. Our own Arbor Vitæ I find a very useful shrub for lawn decoration, either for hedges or isolated trees where it is found desirable to trim them to any particular form. Spruce, also, can be utilized in the same way, and the Cut Leaved Birch, while small, makes a very pretty single specimen on the lawn. I am not in favour of a great many of the trees which I often see planted on lawns; and I believe many lawns would present a better appearance if less trees were planted on them than there are. There should be at least one large place on every lawn almost entirely without trees. Many of the shrubs planted on lawns are devoid of beauty except when in blossom; and if it is only the blossom which is considered in an ornamental shrub, I think it would be better in many cases to plant something of a herbaceous nature. The Syringa, though at some seasons very pretty, is hardly a thing of beauty at others, in the shape it gets into. The Flowering Almond is a tree considerably grown on lawns, but one which I would not advise to be planted, at all events in a prominent place. It is a straggling bush, with no beauty once the bloom is gone. Azaleas, Rhododendrons, and many others, in nine cases out of ten, either on account of their situation or some other cause, are a failure, and instead of being objects of beauty are quite the reverse. Some of our climbing shrubs, however, when properly trained, are very pretty; the Honeysuckle, for instance. There is a variegated, golden-leaved Honeysuckle, called the *Lonicera Aurea reticula*, which makes a very pretty ornament if it is trained on a proper shaped wire trellis; for a small object on a lawn I have seen them looking very pretty indeed. The Trumpet vine I have seen in some places trained up with a straight stem, and the stem, if it finds support during the earlier period of its existence, becomes a hard stem, the same as any other tree, and you get a beautiful weeping shrub; it is a beautiful vine without the blossom, and still more so when in bloom. Where the *Begonia Radicans*, or Trumpet vine, is hardly it makes a very pretty weeping shrub or tree for the lawn. Another class of plants which I sometimes find useful for lawn decoration is plants grown in pots. Chinese *Hibiscus*, which has a large double blossom, in some cases measuring six inches in diameter, forms a very striking object, flowering through the whole summer. It should be planted in large pots and sunk in the ground during the summer, and, of course, removed inside in the winter for protection from the weather. I have seen our own ordinary *Oleander* used, and when in blossom it is very pretty as a lawn shrub. Another class of these tender lawn plants which I find very useful is the *Cordyline Indivisa*, sometimes called the *Dracaena Indivisa*, which will bear, perhaps, more neglect and abuse than anything else but the Canada Thistle. It bears no blossom, or if it does it is not conspicuous, but it is a very striking object on a lawn, lending it a kind of tropical appearance, and can be grown of a very large size in a flower pot. A plant which I notice is very commonly grown on lawns or the sides of lawns is the *Pyrus Japonica*, which has been misnamed, however; being really a *Cydonia*, or Quince. The variety generally known is a bright, flaming red, and very conspicuous in the spring, though I must say it is not very handsome through the rest of the year. It is so beautiful in the spring, however, that we have to forget its rather barren appearance for the rest of the season. As to roses, it is such an endless subject that I hardly like to enter upon it at all. I would not, however, advocate the planting of summer roses on the lawn in any conspicuous place, for the rose bush, particularly the summer rose bush, is not a pretty object, especially if you let slugs devour the leaves. I believe in planting summer roses in some not very conspicuous position. I think, however, that some of our hybrid perpetual roses should find a place on every lawn, or at the side of it. As a rule, roses do best when planted in some place where they receive a certain amount of shelter from sweeping winds; where such a position can be chosen it is the best. If planted on the west side, near the fence, the plants seem to bear our winters better than if they are exposed in an open position.

Lawns and

It would be a complete waste of space to say on

Some of our hybrid perpetual roses, particularly the bright coloured ones—and of course I would choose for the lawn those which are really perpetual bloomers—are very pretty.

The SECRETARY.—Would you plant singly, or in a bed?

Mr. MITCHELL.—I would plant them if I could, in a bed; they do not do so well when planted isolated; the grass generally dries up the soil too much.

The SECRETARY.—If you make a circle around them of about two feet each way, would not that answer?

Mr. MITCHELL.—Of course that would help a great deal, but I would much prefer having them in rows somewhere around the edge of the lawn, where they could get a little protection in winter. I would not put roses in the centre of a lawn if I could help it.

Dr. STEVENS.—What soil would you recommend?

Mr. MITCHELL.—It is worth while in this case, as we have been told again and again, to do it well—to make preparation before planting. Where I have had the best success I have had the sub-soil, if it was anywhere near the surface, dug up and carted away, and filled up with green sod, as long as it is not too near the top. I don't know any better soil for roses than sod. It is well to work in a little manure, but the mistake is often made of planting in too rich a soil. It is harmful to an old plant to have it too rich, but some times young plants need it.

Dr. STEVENS.—Will clay do as well?

Mr. MITCHELL.—Well, if you do not go to extremes; you have to use discretion.

Dr. STEVENS.—Our soil here is sandy; is it necessary to bring in a little clay?

Mr. MITCHELL.—Where I am it is a little heavy, and I try if I can to have it a little sandy, but I have not found that it made much difference. A great many people imagine that roses are difficult to grow, or rather difficult to protect from insects. Now, I grow I great many roses, and I don't think they have cost me an hour's labour this summer to keep them free from insects, and the leaves in an equally good state as those from the plum trees from the mountain here. As soon as the leaves are out I give them a good syringing with a solution of tobacco stems soaked in water. For this purpose a heavy syringe with a round rose is needed; a fine rose that will throw the mixture you use in every direction. This solution is the best you can use perhaps for thrip. Soap suds will also destroy them, but if they are made very strong they are liable to destroy some of the young shoots also, and the tobacco solution is the safest thing to use. In applying it you should put the syringe as much as possible into the centre of the bush, and try to get the liquid applied to the under side of the leaves; because that is where it does most good. It is also best to apply it in the morning, before the bush gets dry, for where the rose leaf is dry the water runs off it like it would off a duck's back. This year I only went over my bushes once. A little later the rose slug will make its appearance, and then it is well to go over the bushes again in the same way. It is not particular, in this case, whether it is applied under the leaves or above. Generally the slug is on the under side in the day time, and comes above at night. Take hellebore about the same proportion, I suppose, as is generally used for currant bushes. I use hellebore and water, and I find it destroys them very effectually. Of course, in either of these cases if rain should come immediately after the application, it is washed off, and it becomes necessary to repeat the operation. We have never been troubled with the rose beetle, which in some parts of the country has proved such a serious pest, and I really don't know anything about it.

Dr. STEVENS.—We have another little insect here.

Mr. MITCHELL.—That is the rose leaf cutter. Of course it disfigures the bush somewhat, but it does not weaken the stem; I don't know of anything for that; the stem of the leaf is not injured, and the other harm we have to put up with.

Dr. STEVENS.—In using hellebore I add a little soft soap.

Mr. MITCHELL.—Yes, that is good if you don't make it too strong.

Dr. STEVENS.—I have been using pyrethrum powder, and I think it has been doing good, although my experience of it has not been extended enough for me to give a decided opinion.

A MEMBER.—Would it be proper to make the application after the rose has come out?

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Mr. MITCHELL.—It is better to do it before. Do everything in advance; don't wait till you see some damage done. In regard to varieties of roses, I think—although of course, my taste in that respect may not be correct—I think those of pretty colors are best adapted for the lawn. If I were only planting half a dozen roses, I would not be without the very popular and rather common General Jacqueminot; it is a thoroughly good rose. I have noticed it here in town among other roses, and though some of the others were not very beautiful, I never see a General Jacqueminot which is not beautiful to a degree. Of course it is not a perfect rose, not fully double, but at a little distance it is a very striking object. Another valuable rose for the lawn, though devoid of perfume, is the General Washington, because it is a perpetual bloomer. The flowers are often malformed, which somewhat detracts from its value, but I get General Washington's the whole season through, and if I do have quite a number of malformed flowers, I still get a large number of first-class ones, and for a small collection I would not leave it out. It is hardy, and will stand a certain amount of abuse, though it is not my wish to encourage you in abusing your roses. Another first-class rose in every particular is the Alfred Colomb; it is fine in form and colour, and highly perfumed, and a good, free, perpetual bloomer, as these hybrid perpetuals go. It is what we call red; it is hardly so pretty as the General Jacqueminot. The Marshal P. Wilder is almost identical with it; however you have the advantage over the Marshal P. Wilder of having a new rose instead of an old one, but in foliage and every other respect it is similar. You will probably also have to pay a little more for it, but unless you keep them labelled you will hardly be able to tell which is Colomb and which Wilder. Another good perpetual bloomer is the Annie Wood, somewhat of the same colour. Fisher Holmes is another first-class red rose, a little darker than either of these. Of the darker roses I have tried a good number, and I don't find any much more valuable than the Prince Camille De Rohan, which is a first-class dark rose. It and the Piere Notting are the only two strictly dark roses I have yet found that can be relied upon for autumn bloom. There are others, very brilliant, which make a fine display. Among these latter is the Baron de Bonstetten, a very fine rose. Jean Rivard is another very fine one. I would not, on lawns, advise planting late roses so much, they are very useful for cutting, but for that purpose I would prefer planting them in some rather more backward, out-of-the-way place, where I could cut without disfiguring the beds. I have not had success with perpetual mosses; some we have bloom in the fall, but none have handsome, mossy buds. Most of them are merely a sort of rough, hairy stem, and don't look like moss at all. I can't say I have much faith in perpetual mosses.

Rev. L. H. KIRKBY.—I have been asked to say something on the subject of lawns. I can only say that of those present here, only those who have been in Collingwood many years can form any idea of what was formerly the condition of the piece of ground where All Saints' Church and Rectory now stands. It was a bare sandbank, particularly the south end of it. It would scarcely grow thistles, and those that did grow there were very miserable and dilapidated looking specimens. That is the kind of place upon which the task fell to my lot of getting a good lawn; and one gentleman said to me to-day that it was a matter of wonder to him how I managed to get such a good lawn, especially where there was no water. The course I had to take was this. In the front of the rectory there was a hollow piece of ground, and I filled that up with soil; not heavy soil, but good soil—most of it was sod. I then got grass seed—timothy and white clover, and sowed it, and I found in that case it was most successful. I should also say that that ground was dug over, and I put on a very heavy coat of manure; so heavy that the gardener, an Englishman, too, said he had never put on such a heavy coat before; it quite rejoiced his heart and made him think of the Old Country. That piece of ground has been a most decided success; and in the hottest summer weather the grass there is just as green as can be. Another part of the lawn, where the ground was higher, I cultivated two or three years, putting in potatoes mostly, to clean the ground of weeds. I then manured it, endeavouring as far as possible, to get clean manure, and I put bone mould also upon it, but I put no heavy soil whatever, as the expense of putting it all over would have been very great; but I sowed timothy and clover upon this sand. I find now that whenever dry weather comes it is

a failure, and from that I draw the inference that timothy and white clover will succeed in ground that is rich, but not in sandy land, particularly the timothy. I have been trying ever since to get this lawn into good condition by top dressing it, but it is a failure, and for my part—perhaps I am a heretic—I don't believe in top dressing for lawns. I think it keeps the roots from going deep down into the ground to seek moisture; the top of the soil is richer than that below; and when dry weather comes it seems as if the surface scorched right out. Unless there is some means of top dressing in such a way that the ground to a considerable depth is permeated by it, I do not believe in it. I say this with much diffidence, because so much is said and written on the subject of top dressing; but as far as my personal experience goes top dressing is of no value whatever, and I shall certainly never again resort to it. So far as I have practised it I used good, well rotted manure, but it was not a success. I may also say that it is my opinion that sowing a lawn is infinitely to be preferred to sodding, unless you can procure very choice turf. I have one piece of garden which I was compelled to sod because the ground was so much trampled upon that grass would never have grown; but it is the poorest piece of grass that I have. Of course, we know that in many instances turfing is successful, but the bulk of the turf to be had in this part of the country seems to be so full of weeds, and the grass so poor, that it seems never to thicken. It is full of twitch grass and rubbish, and I have had serious thoughts of digging it up and sowing grass seed. It seems to me that there is only one way of sowing grass seed, and that is to put it on thick; the plan I adopted was like this. I took a line and stretched along where I was going to sow, and I took a little duster that they have for dusting Paris green and flour, and I dusted along this line with the seed until I got the ground thickly covered with it. Many people said that I was wasting the seed, but I was quite willing to do that if I could only get a good lawn, and in that way I got the grass to grow very evenly, and it seemed as if almost every grass seed came up. Some of my neighbours here have spoken about the quantity of seed they have sown, and they expected good lawns, but they won't get such a lawn; because the seed is not right. It is the poorest kind of policy if you want to have a lawn to be stingy with the seed. I am not in favour of timothy and clover alone, although a great many are. It was from the Bishop of Algoma I got that idea, and I believe the reputation of that lawn at Bishopshurst, Sault Ste. Marie, has reached far east in Canada; but I think for the average lawn there are collections of grass now sown which would be much better. I think this matter of making our homes attractive is one of great importance, and if it were generally attended to there would be less likelihood of young people wandering abroad in search of attractions. If they make their own little garden or lawn, however small it may be, an attractive and beautiful one, I am satisfied the young people will never forget that spot as long as they live; but as it is now, too many of our young people look back to nothing but weeds and rubbish growing all around their homes; and those are the memories connected with them. This may not seem a very serious matter, but young people now-a-days know more than their parents, and unless we can make home an attractive and inviting spot to them they seem inclined to get just as far away from it as they can.

J. A. MORTON, (Wingham).—I want to speak, first, on the preparation of the lawn. This is of paramount importance, since, from its permanency, no errors made at the beginning can be well remedied after the trees and shrubs have attained any considerable growth. The first thing is proper and thorough drainage, either natural or artificial. There are few soils but would be benefited by draining. Too commonly, the error is, in supposing that one's soil does not require it. I shall not now discuss the proper mode of draining as that has already been touched on. We have been told of its importance in the orchard, garden and tilled field, it is not less essential that the lawn should have good depth of friable soil, and this can be obtained either by subsoiling with the plough (where the extent of the lawn admits of the use of this implement) or by trenching with the spade. In trenching, the top soil is removed from a strip say two feet wide across one end of the plot and one spade deep, and placed at the other end of the plot. The ground in the bottom of the trench thus made, is turned over as in ordinary digging, then the top soil from a strip two feet long alongside of this, is thrown on top of the

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soil that has just been dug over, and the bottom soil again dug over, continuing this operation until the other end of the plot is reached, when the soil that was placed there at first will be found needed to fill the vacancy in the last trench. This may be expensive, but it pays. I know of no operation in the lawn where the expenditure of a little extra pains and money will yield such returns as in the preparation of soil. By sub-soiling or trenching, a greater depth of friable soil is attainable for the development and growth of the roots. A good deep soil will hold more moisture than a shallower one, and by these means the evil effects of drouth will be nearly, if not entirely, prevented. The casual observer can easily detect during the hot, dry days of July and August those lawns, or spots in a lawn, where the impenetrable subsoil lies close to the surface, by the parched appearance of the sward. This deepening of the soil will be of lasting benefit, not only to the grass but also to those trees or shrubs that may be grown upon it. All stones or stumps found within a foot of the surface should be removed. The top five or six inches should get a good dressing of well rotted manure, turned under and well worked through it, thus affording immediately available nutriment for the young grass. If you want to make a really good job of your lawn, and who does not? I am a firm believer in the maxim "what is worth doing is worth doing well." Your ground should be prepared in the manner I have just mentioned, in the fall, and left in that state until the following spring, when the effects of the frosts will have much improved the friability of the soil, and the weight of the snows of winter with the early rains of spring, will have settled the ground, so that any unevenness will become apparent; by this previous preparation, the liability of having unsightly hollows or depressions in your grounds will be reduced to a minimum.

In the spring the ground should be well levelled and rolled, or trodden, so that the surface is quite smooth. The lawn, whether sloping or level, should be smooth, without any bumps, hollows or depressions to give opportunity for water to lie in pools upon its surface in summer or during the winter. The work in spring should be done as early as possible in order that the grass may become well established before it is put to the crucial test of the hot, dry summer. Your lawn is now ready for sodding or seeding. For small lawns, or where expense is not so much to be considered, sodding is preferable on account of its more ready availability. The best turf for sodding is obtained from old cattle or sheep pastures—what are known as bottom lands; and should be cut two inches thick, and of a convenient size for handling. The soil, before placing the sod thereon, should be well raked with a rake or light harrow; and after being laid, the sod should be thoroughly watered and well rolled or pounded, to effect as perfect a junction between it and the earth as may be. In seeding, a very common mistake is sowing too sparingly. Rather give what you consider a little too much than a little too little. Economy is best conserved in this, by the unstinting hand; and the foliage of a dense growth is more delicate and velvety. The "Central Park" mixture is a good one, and the proportions here recommended for an acre are: Kentucky Blue Grass, 15 lbs.; Red Top, 15 lbs.; Rhode Island Bent, 6 lbs.; Sweet Vernal Grass, 5½ lbs.; White clover, 5½ lbs. If the lawn is much shaded by trees, reduce the quantity of Kentucky blue grass and Red Top, each five pounds, and add instead ten pounds of Wood Meadow grass. There are other good mixtures made up and offered for sale by the seedsmen; four bushels to the acre is the right quantity. Sweet Vernal grass emits a most delightful fragrance after being cut. Some recommend timothy in the mixture, but it is not to be commended, being too rank in growth and not so delicate in its foliage as a good lawn grass should be. It is apt, also, in spots where there has not been a good catch, to grow in tufts.

Seeding should be done as early in spring as possible, and if sown in April or beginning of May, you should have a good lawn by August. So soon as the growth will admit of it, the lawn mower should be put in operation; cut it just as soon as there is anything to cut; a great many rank growing weeds will start with the grass, but come to a timely death with the first mowing. Cutting frequently will help to develop the root growth, besides assisting the growth of the foliage, and frequent mowing is of essential value in making and preserving a good, green, velvety sward. If the grass is allowed to grow too long before cutting, you will find on cutting that a great proportion

of the weaker plants have perished in the struggle for existence, and those that have survived are ranker and coarser in texture than is desired; also, the cut grass being long, remains on the top instead of settling to the bottom next the roots, as it would do had it been short, and thus a few more plants are crowded out of existence. If you allow your grass to become long before cutting, do not be surprised if the turf has more the appearance of stubble in a hayfield after the crop has been removed, than that of a well regulated and respectable lawn. Cutting twice a week is better than twice a month, and in good growing weather it is not too often. Some recommend raking off the grass after each mowing;—I do not, but think such advice a great mistake—the short grass falling down between the foliage makes an excellent mulch for the roots, gives a velvety, carpety feel to the sod, and in time becomes a fertilizer. Of course, if you let your grass grow long and make a meadow of your lawn, by all means remove your hay.

Top dressing with barnyard manure is not to be recommended on account of the difficulty in distributing it evenly, and the many noxious seeds it often contains. Wood ashes, applied in early spring before the snow is off, are of benefit in nearly every instance; nitrate of soda has an astonishing effect, and mixed with superphosphate, makes an excellent application; saltpetre, sparingly used, is also good; sulphate of ammonia is likewise a valuable fertilizer.

The plants you place in your lawn should correspond with your lawn. Do not plant elms, maples or other large growing trees on a two by four lawn, nor fill a twenty acre one with only small shrubs; but as this idea opens up a very broad subject which could not be done justice in what is left for a ten minutes' speech, I shall simply say that large growing trees should not be planted close to or near the house, unless required for shade, and pass on to the enumeration of some desirable trees and shrubs.

Flowering Trees.—(1) Purple Fringe, (*Rhus Cotinus*) grows ten or twelve feet high, when in bloom has the appearance of a cloud of smoke in the distance. (2) Judas, or Red Bud, (*Cercis*) the Japan variety is to be preferred to the American, has larger pink flowers and makes a more shapely dwarf tree; it grows from eight to ten feet high, while the American grows twelve to twenty feet high. (3) Catalpa Speciosa is very pretty, although all the specimens I have seen have not been perfectly hardy. It does not kill back very badly, however. (4) Catalpa Bungei, makes a very beautiful ornament for the lawn, with large panicles of white bloom; branches near the ground and is more of a shrub than a tree. (5) Kolreuteria Paniculata, grows twenty feet high, with large panicles, a foot long, of bright yellow flowers. (6) European Bird Cherry, (*Prunus padus*) a compact, symmetrical tree, blooms in early summer; white pendant spikes. (7) Cut Leaf Birch makes a beautiful isolated specimen for the lawn. (8) American Linden, (9) Oaks, in variety; (10) Red maple; (11) Black walnut; (12) Cut-leaved alder, and (13) Honey Locust. These give you variety without exhausting all the desirable trees, and not making mention of the evergreens, which, for want of time, I am forced to omit, leaving the merits of this splendid section to be heralded by some more competent arborist.

It is not a matter of such importance what shrubs you select or plant, or where you place them, as they are more easily removed, no matter how long they may have grown; and I will but add to the list that our friend Mitchell has given. (1) Viburnum plicatum, or Japan Snowball, which is rather prettier than *V. opulus*, although the latter is by no means to be despised. (2) Hydrangea Paniculata Grandiflora blooms profusely in August. (3) With Cydonia Japonica an objection is sometimes found that the bloom is borne too much in the interior of the bush. (4) Spireas in variety are also very suitable.

A very happy conceit is placing pot plants in the lawn. A six to twelve inch tile let into the lawn and filled with rich earth makes an excellent spot to plant a Geranium, *Salvia splendens*, *Gladiolus*, an Ever-blooming rose, or under the shelter of a clump of evergreens, *Caladium Esculentum*. The tile keeps the thievish, inquisitive roots of trees, shrubs and grasses, from invading the domain assigned for the plants, as they would do, were the plants placed in an open bed.

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COMPLIMENTARY RESOLUTIONS.

The President then vacated the chair, which was taken by Mr. George Moberly, when Mr. B. F. Lewis said:—

I believe no object could be more praiseworthy than that in which the gentlemen of this Association are engaged. I wish to move a most cordial vote of thanks to the Fruit Growers' Association of Ontario for their visit to Collingwood.

Mr. John Hogg, who seconded the motion, said it gave him great pleasure to do so, and he trusted the day was not far distant when the Association would again favour Collingwood with a visit.

A special vote of thanks was also tendered to the President of the Fruit Growers' Association of Ontario for his able conduct of the meetings, and for his address of last evening; to which Mr. A. McD. Allan responded in suitable terms.

The thanks of the Association were then, on motion of Mr. D. W. Beadle, tendered to the ladies and gentlemen who contributed the musical portion of the programme at the evening session, and the Secretary was requested to forward a copy of this resolution to the person under whose direction that part of the entertainment was planned and carried out.

Mr. A. A. Wright, seconded by Mr. L. Woolverton, then moved that the thanks of the Association be tendered to His Worship the Mayor and the public of Collingwood for the kind interest manifested in the visit of the Association to Collingwood. The motion was carried unanimously.

The meeting then adjourned *sine die*.

THE ANNUAL MEETING.

The annual meeting of the Fruit Growers' Association of Ontario was held in the Town Hall, Grimsby, Ont., on Wednesday and Thursday, the 28th and 29th of September, 1887, in compliance with the invitation of the Fruit Growers' Association of Grimsby.

The President, Mr. A. McD. Allan, of Goderich, occupied the chair.

The Secretary read the minutes of the last annual meeting, which were approved.

Letters, expressing kind wishes for the prosperity of the Association, and regret at not being able to attend the annual meeting, were read by the Secretary, from Rev. Dr. Burnet, Burlington, Ont.; Mr. J. S. Woodward, Lockport, N. Y., Secretary New York State Agricultural Society; C. W. Garfield, Grand Rapids, Michigan, Secretary of the American Pomological Society; Prof. Wm. Saunders, Ottawa, Director of the Experimental Farm; and others.

A Nominating Committee was appointed, as follows: three members by the chair, viz., P. C. Dempsey, Thos. Beall, and F. Mitchell; and five by the Association, viz., D. Vanduzer, A. H. Pettit, John Little, E. Morden, and W. W. Hilborn.

A Fruit Committee was appointed by the chair, consisting of Messrs. A. H. Pettit, D. Kerman, and P. C. Dempsey.

The Nominating Committee submitted their report, and the names were voted upon *seriatim*. The report was adopted as submitted, except that in the case of the Director for the Agricultural Division No. 3, the Rev. George Bell, LL. D., of Queen's College, Kingston, was elected in place of Mr. R. J. Dunlop.

The report, as amended and adopted, was as follows :

President.—A. McD. Allan.

Vice-President.—A. M. Smith.

Directors.—Messrs. John Croil, A. A. Wright, Rev. George Bell, LL. D., P. C. Dempsey, Thos. Beall, W. E. Wellington, M. Pettit, A. H. Pettit, Fred Mitchell, J. A. Morton, J. M. Denton, Albert Hill, and G. Caston.

Auditors.—Charles Drury, M. P. P., and James Goldie.

The Treasurer's report, duly audited by Mr. Charles Drury, in the absence of Mr. James Goldie, the other auditor, who was in England, was read by the Secretary-Treasurer.

This report was received and adopted.

The fruit table was arranged by a committee of the F. G. A. of Grimsby with commendable taste, and the magnificent samples of apples, pears and grapes shown, attracted an unusual amount of attention.

At a meeting of the Board of Directors, held subsequent to the election, L. Woolverton, Grimsby, was appointed Secretary-Treasurer of the Association.

EXCURSION AMONG THE FRUIT FARMS.

The fruit growers of Grimsby having arranged an excursion into the country in the afternoon of the first day, a procession of about seventeen double-seated carriages was formed at the Mansion House, Grimsby, at about 2 o'clock. The party first drove west, under the mountain as far as Winona, visiting the fruit farms of Messrs. L. Woolverton, E. J. Woolverton, and Murray Pettit. Thence, its course was up the mountain and back along the mountain brow, from whence the most picturesque views of this favored section, and of the beautiful lake Ontario, are obtainable. Unfortunately, a dull smoky atmosphere obscured the view, to the great disappointment of all concerned.

Mr. A. G. Muir's vineyard of Niagara grapes was visited upon the way back to Grimsby village; and thence the trip to the Grimsby Park was made, passing the well known fruit farms of Messrs. Dennis Vanduzer, W. D. Kitchen, J. G. W. Nelles, W. H. Nelles, R. Griffith, John Bowslaugh, and others.

The party returned in time for supper, unanimous in their expressions of pleasure derived from the excursion.

THE PUBLIC MEETING.

At eight o'clock p. m. Wednesday, the hall was crowded with ladies and gentlemen interested in fruits and flowers.

The President of the F. G. A. of Grimsby in a few appropriate words expressed the pleasure with which the people of Grimsby welcomed their guests, the officers and members of the Association of Ontario.

The President's Annual Address, which by request had been reserved until evening, was listened to with close attention. A copy of it will be found on page 3 of this volume. So important, and so opportune was it for the interests of fruit shippers, that the Secretary was requested by the meeting to furnish it for immediate publication in the leading newspapers of Toronto.

The address of Prof. Brown, of Guelph Agricultural College was upon "Trees and our every day life."

In the absence of the stenographer it is impossible to give a *verbatim* report. He said that the question of reclothing our country with forest trees is a large subject. We do not fully understand it. It was a question if any one present had fully considered

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it. We do not know the harm we are doing in the matter of forest destruction. We cannot blame those who were compelled to do it in order to establish homes for themselves; but we are treating a national subject, which must engage public attention very soon. The question must soon be considered as to what proportion of the country should remain in forest, whether it should be one-half, or one-quarter, or what. Your fruit would be better, if we had more extensive forests. In the old country, where a few men hold the land, it is an easy matter to arrange the care of the forests, but how shall we arrange the conflicting interests of the many in this country, in order that we may produce uniform results? A tree may be compared to a sponge, or rather to an electric machine, for it does more than absorb and give off moisture. There would have been no flood in Montreal had we not destroyed our forests so largely. As for Manitoba, you will never succeed in growing fruit there without a forest. Indeed no country was ever thickly populated without trees. Neither is there any country now eminent in agriculture, that does not complain of the need of more forest trees. There is no nation that is strong in every sense of the word, that has not had a fair proportion of forest trees. No nation was ever renowned in either science or art, that has been a treeless country. Even the inhabitants of a country degenerate where trees are largely wanting; and so does the nation itself. There is, however, a possibility of having too large a proportion of trees, compared with the amount in cultivation; and this extreme is to be avoided equally with that of the other.

The evening's programme was enlivened by the introduction of several selections of music, both vocal and instrumental, which were very kindly contributed by local talent.

The Convention resumed at ten o'clock, on Thursday, in the Town Hall.

SPECIMENS OF WALNUT AND LARCH; NON-INDIGENOUS 850 FEET ABOVE, AND NORTH OF LAKE ONTARIO.

Prof. Wm. Brown, of the Ontario Agricultural College, Guelph, read the following paper on this subject:

By instructions from this Association I planted one acre each of black walnut and European larch, in 1882, as field clumps, for three objects—live stock shelter, ornament, and remunerative crops. I should also say, for a lesson. The walnut were seedlings from Mr. Beadle; the larch per post from Douglass, of Waukeegan. Planting was done in spring, seven feet apart all over, and every year the ground has been well cultivated. The walnut clump is upon a high lying exposed field of clay loam. the larch lower down, one-half almost pure gravel, the other half upon a light clay loam, and without any neighbouring shelter. It is almost unnecessary to say that the black walnut is not native to Guelph district. The walnuts average 15 feet in height, and 12 inches circumference at the base; the larch 12 feet in height and 10 inches circumference. To-day, therefore, six years only after putting in the ground what were merely little bits of sticks the thickness of a pencil and nine inches long, we have actually a body of trees able to shelter a hundred head of cattle from cold winds, and to some extent also for immediate shade. If this is not extraordinary under the circumstances, I do not know what is meant by extraordinary. Instead of dwelling on the significance of these examples, I beg your attention to the financial aspect of an acre of black walnut, as indicated through the Experimental Farm testing, and building also upon several well known facts in the United States, and a few in Ontario. Necessarily a good deal of what I have to submit is an estimate, because we have not any lengthy Canadian experience to back up figures; but careful estimates are good enough, and in any event you can have a fling at me if necessary.

ESTIMATES OF AN ACRE OF WALNUT ESTABLISHED AT THE ONTARIO EXPERIMENTAL FARM.

		TREES.	VALUE.
1882	Planted	900	\$
1885	Failures to date	45	
1887	Average 15 feet long and 12 inches circumference at base	855	
1892	To remove 100; 20 feet, and 20 inches at base	100	50
		755	
1902	To remove 100; 30 feet, and 40 inches at base, 4 cubic feet, \$3 per tree	100	300
		655	
1912	To remove 200; 40 feet, and 60 inches at base, 15 cubic feet, at \$10 each	200	2,000
		455	
1922	To remove 200; 50 feet and 70 inches at base, 30 cubic feet, at \$30 each	200	6,000
		255	
1932	To remove 200; 55 feet, and 85 inches at base, 55 cubic feet, at \$50 each	200	10,000
		55	
	Failures during period	25	
	Left as standards, 30 feet apart	30	
	Gross value realized		\$18,350
	NOTE.—It may be better to thin out every five years.		
	DEBIT.		
	Cost of land	\$100	
	Annual rent for 50 years	200	
	Cost of planting and maintenance	50	
	Cost of fencing and maintenance	100	
	Cost of thinning and marketing	800	
			1,250
	Net revenue		\$17,100

So that by a reasonable calculation of growth and value of timber, one acre of good land under black walnut will, at the end of 50 years, be in possession of an uniform lot of standard trees, designed to subserve the many good ends that trees are credited with, and after having returned a mean annual net revenue of \$322. In these rough notes I make no allowance for debiting or crediting either side of the question with what would still further add to net revenue. Am I fifty per cent., or say if you choose, one hundred per cent. wrong? The average agricultural crop would likely give a net revenue of \$750 for the same period.

Prof. Brown added: We are looking to this matter as an actual product. It is not alone a matter of getting trees to do for us what we think they should in regard to climate and other things; it is a matter of crop per acre; and unless we are able to convince our farmers that this can be done I do not think we will have that extension of arboriculture that the nation desires, and that we have so many good examples of in Europe, for instance. I am talking to men who live among trees. You are extraordinary livers as I have seen in the Province. I find many oaks used for fence posts. A man would have no difficulty in clearing off a very large mortgage with a few acres by the hillside at Grimsby at the present moment. Farmers are running into mortgages, but they have at their own doors more than would clear up three or four mortgages. In consulting Mr. Hay, of Hay

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& Patton, furniture dealers, Toronto, Mr. Hay would have given me a good deal for these walnut sticks that are only the size of one's arm, four to six inches in diameter at the best; they would be worth a good deal for veneering—for furniture-making, at any rate, if not for veneering. I have checked these figures very carefully with examples from the States, and reduced them very considerably; and I just ask you, do you suppose that I am fifty per cent. wrong? Am I a hundred per cent. wrong? I do not care although you divide it by two; and even then you have an extraordinary position for an acre of walnut.

Mr. A. M. SMITH.—I would like to ask what cultivation these trees are to receive during the period. In our fruit trees we expect to cultivate the ground for the first five or six years.

Prof. BROWN.—You will have to cultivate the acre all the time, till the ground is covered with their own foliage each season. On a large scale I do not suppose it would pay to put manual labor in. We have cultivated all along.

Mr. BEALL.—Haven't you realized enough from that land to pay for the cultivation?—realized enough of crop of some kind to pay for the cultivation?

Prof. BROWN.—We could not do that by having the trees seven feet apart. We could have done so, perhaps, the first two years, but we did not; still you see the nearness of the trees together would almost preclude that. For a year or two I think it could have been done.

Mr. E. MORDEN.—In dealing with walnut that could not be done.

Prof. BROWN.—Owing to the roots and overshadowing.

Mr. MORDEN.—I am of the opinion that the time will come when people will cultivate not only walnuts but other trees,—not only grow them on waste places, where we could grow them cheaply and perhaps not cultivate, but I believe the time will come when we can put good ground into trees. I have noticed in the nursery rows the growth of ash; they grow remarkably easy; they could grow many to the acre; they require no pruning or trimming; and I think there would shortly be a demand for ash timber, and a demand for various kinds of timber trees; and you could get a great product from an acre, and you could afford to grow them on good land and give them good cultivation; and in the case of some trees you might get some crop, but not much.

Mr. ORR.—Do you use any fertilizer on those trees?

Prof. BROWN.—None whatever.

Mr. ORR.—What is the soil?

Prof. BROWN.—Pretty stiff clay loam,—not that you could make brick with.

Mr. MACDONALD.—Do you go according to the prices of walnut timber?

Prof. BROWN.—Partly, and allowing a little increase of 75c. per thousand board.

The CHAIRMAN.—We would like to hear from Mr. Beall; he has had a good deal of experience down at Lindsay in growing black walnut.

Mr. BEALL.—I would like to have had time to prepare something to say in this meeting respecting the matter, but I don't really feel just now that there is anything further needs to be said, except that I feel perfectly convinced that every word the Professor said is true, with this exception, that he has cut down the money value too much—a great deal too much. He is very much under what should be fairly estimated. There is no doubt the trees will grow remarkably in any place; they will grow in any part of the Province of Ontario; they will grow as rapidly as any tree that is grown; and they are the most profitable timber we have. I made an estimate at one time of what a man could grow, or might grow, on an ordinary 100-acre farm by planting walnut trees in each fence corner,—what he would realize after fifty years. There is no land wasted; it costs him nothing in land, provided the farm is cut up in the ordinary way into ten acre fields; he has a walnut tree in each fence corner, that is, under a rod apart. I found I was quite safe—and some of my friends said that I had under-estimated the thing very much—when I said a man could get \$100 an acre every year for ever after fifty years off his farm by simply planting enough to make up for as many trees as he cuts out every year; and there is no doubt that can be done. After fifty years he could get \$100 a year off his farm without any expense whatever; it will cost him nothing. I am surprised and very much pleased to find that the trees have grown so rapidly under good cultivation. I dare say they have

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been well cultivated. The trees have very much exceeded in size those I have grown. I have trees, perhaps seventeen years old, that are about fourteen or fifteen inches in diameter; the largest ones perhaps forty feet high. There is one thing that has been remarked by several persons here respecting growing anything but the walnut tree. I think these statements must be taken rather cautiously. I have no doubt if you have a very large tree spreading, say fifty feet every way, you will not grow very much underneath it; but I find up to the present time, with my trees sixteen or seventeen years old, I have had no difficulty in growing anything under my trees, say within six or eight feet of the trunk. For instance, I have had along by my trees, within six feet of the trees, black raspberries—the Mammoth Cluster—and they have done remarkably well ever since. Of course I kept them cultivated. I have my orchard trees twenty feet from them, and the trees—both pears and apple trees—do just as well within twenty feet, that is as near as you could have the rows together at any rate, twenty feet from the trunk; they do as well there as any other part of the orchard.

Prof. BROWN.—Those trees are still young?

Mr. BEALL.—The walnut trees are seventeen or eighteen years old, and the orchard planted about the same time, and they are all going on together, doing very nicely. I don't think they have been the least injury to me; on the other hand, they have been an enormous benefit in shelter. I find that the walnut tree is a first-class tree for shelter. It breaks the wind much more than people who have not studied the matter carefully would ever suppose. It screens the wind. It allows the wind to come through, but it is so broken that it has no force. We have a circulation of air through the trees, but the force of the hurricane is broken very materially.

A DELEGATE.—Are your trees bearing nuts?

Mr. BEALL.—They commenced to bear perhaps about six or seven years ago, and they are bearing ever since. They do not produce such a large number of nuts as people would very often suppose. Occasionally a tree will give me a good crop, but of forty trees I don't think I have more than three or four bushels per annum.

Prof. BROWN.—I think it is well you haven't.

Mr. BEALL.—Why?

Prof. BROWN.—I don't think it is one of the best signs of a tree to bear, even up to seventeen years of age.

Mr. BEALL.—Prof. Saunders has written to me to obtain nuts from my trees this year. I suppose his idea is to get the nuts as far north as possible. I have an impression that he is somewhat wrong in this. I wrote him on the subject a year ago. I believe that the best nuts, that is, the nuts that would produce the best tree, should be obtained from the south, where they are more matured. (Hear, hear.) If I were going to plant myself, I would go further south for my nuts. I have found for some years that the nuts that fell from the trees have not produced young trees—a great many failures; other times I have had every nut go; and I attribute it to what I suppose to be the fact, that the nuts have not matured. No doubt this year the nuts will mature, or have matured.

Mr. MACDONALD.—How much do you realize from your nuts?

Mr. BEALL.—Of late years I got \$3 a bushel. Formerly I got more. Mr. Saunders says that is too much, but he wants them all the same.

Mr. MORDEN.—The trees in our section have the faculty of reaching away out with their roots, and destroying most of the things; and I think if the fence-corner experiment were to be made the farm would be rendered unproductive. With us a walnut tree planted on one side of a wide road will sometimes get clear across the road and destroy the evergreen hedge upon the other side. The grade of morality around the Falls may be very low; perhaps they have not received the proper moral training. (Laughter.)

Prof. BROWN.—They are very large old trees?

Mr. MORDEN.—Some of them not very large. Some guilty trees that I have in mind now are not very large nor very old, but they are very bad morally, and I would doubt the propriety of planting walnuts any place where you have anything that is liable to be injured. In the Ontario Tree Planting Act the walnut is mentioned as one of the desira-

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ble trees; and that Act allows them to be planted along the line fences. Well, it is possible for a man to inflict a great deal of damage under that Act upon his neighbor by planting along the line fence. With us we strike the walnut out in our by-law, in adopting it in the township, so that we give no bonus for planting. I think if planted at all they should be put in a plantation where they would do no harm.

Mr. ORR.—It is poor soil, and they are going out in search of food.

Mr. MORDEN.—That would not occur in Winona.

Mr. HUNSBERGER (Jordan).—This walnut question is the one that brought me here. The walnut is a native of my native place, and a few years ago the last one disappeared; and being determined the place was not to be devoid of walnut trees I began putting nuts in the ground, and I grew some trees. I planted a small grove of nearly four hundred trees with the intention of making a shelter and a shade for cattle; but there is one question that arose in my mind about that: will they endure the tramping of the cattle during summer? I would like Prof. Brown to say if he knows anything in that direction.

Prof. BROWN.—No, sir; I have no experience in trees of that age.

Mr. HUNSBERGER.—I have nearly an acre of ground that I have surrounded with fruit trees, that I can't plant in fruit trees with success, and I have about determined to plant walnuts, because on that very ground walnuts are natives.

The PRESIDENT.—How old do you say your trees are?

Mr. HUNSBERGER.—I set them out in the Spring of 1886. They were then two years' growth. I set them six feet apart each way; have been cultivating them since. Of course last season was the first, and they made very little growth, but this season some of them have made as much as four feet growth.

Mr. PATTISON.—How close does Prof. Brown plant his nuts?

Prof. BROWN.—We have not been planting nuts. We got the young trees from St. Catharines. They cost \$4 a hundred.

Mr. PATTISON.—Do you mulch them?

Prof. BROWN.—No, no mulching necessary.

Mr. BEALL.—Respecting the root growth it strikes me very forcibly that the nature of the land on which the tree is grown may have very considerable influence in that direction. (Hear, hear.) I think the land that Mr. Morden refers to may be very different from ours. Of course ours is a heavy, deep, rich, loamy clay soil. I spoke just now of a row of black raspberries. Last fall I ploughed these up. We ploughed within four feet of these trees and never touched a root—never saw a root. If I had gone within eight feet of my apple trees I would have cut hundreds of roots. In our soil we find the roots go down, and they go deep into the soil. I had occasion three or four years ago to take up one, and I told the old man to dig out the roots, leave no timber behind. Well, he got down about three feet and then cut the tap-root, and the tap-root was half as large as the trunk on the tree. I am satisfied that if walnuts are grown in the soil best suited to their peculiarities that the roots will run deep into the ground.

Mr. MORDEN.—And run about a hundred feet wide.

Dr. BURGESS.—This Spring at London I saw a walnut tree about ten years old dug up, and there was no spread of root at all, no trouble in getting the tree out. It was planted in very rich loam.

Prof. BROWN.—That is our experience also.

The PRESIDENT.—I have no doubt the same experience would be found with the black walnut the same as any other tree. We find many of the trees, whether fruit or forest trees, vary very much according to the soil, and when you plant a tree upon the soil that suits that particular variety or kind of timber, you find that the roots grow after the natural manner of such trees in their native heath. There is no doubt there is a very great variation according to soil and the natural position of such trees.

Mr. CYRUS NELLES (Grimsby).—I would like to know if they could be transplanted.

The PRESIDENT.—They should be transplanted very young—the smaller the better. People make great mistakes in that respect—in trying to get large trees from nurseries.

Mr. BEALL.—I would never recommend any one to transplant the root; plant the nuts.

The PRESIDENT.—If trees were planted at such an age that they could be sent through the mail instead of by express or freight—if they were that size that they could be sent if necessary by mail, they are large enough and old enough then to transplant. Every tree should be transplanted when very young. A couple of years is old enough for any tree. We have often experimented on fruit trees, and we find that we will get fruit much earlier by transplanting a two-year-old tree than we will a four-year-old. A two-year-old will come into fruit bearing, it will make better growth, it has better root-power according to the head that it has at that time, and we get fruit much earlier than we do on an older tree; and so with all other trees.

Rev. Mr. MURRAY.—I would like to have the experience of others with the walnut as a wind-break. I had a few planted on the west side of my orchard, and not a great distance from them a row of apple trees. I found the apple trees did not thrive. I spoke to Mr. A. M. Smith, and he thought the walnut was a very injurious tree when near the orchard trees; so while walnut may be excellent as a shade, is it safe to plant the walnut near the orchard trees? I think not. I have had to cut them down.

Mr. SMITH.—I have had no experience in this matter, though my observation has been that nothing would grow very near the black walnut trees. We have the testimony of Mr. Beall here that he has used them successfully as a shelter belt, and grown fruit near to them. I have no doubt the soil has a great deal to do with them. In loamy or sandy soil the roots are liable to spread longer distances than they are in other kinds of soil.

Prof. BROWN.—It may be worth while to mention that some grapes which I will show you this afternoon were grown within seven feet of the walnut clump I have spoken of, and are doing remarkably well.

Mr. PATTISON.—Have you had any experience with walnuts on fairly heavy clay?

Prof. BROWN.—That is all heavy clay—not clay that will make brick.

Mr. PATTISON.—Will they grow in a stiff clay?

Prof. BROWN.—I think so.

Mr. WILDER (Cookeville).—We have walnut trees at Cookeville, employed as shade trees, and some for ornament. The walnut tree is a noble tree. If it grows alone it has a most beautiful symmetry, equally balanced on either side, and makes a very fine tree to look at. So far as breaking the wind is concerned, we have some that are planted across a small ravine on purpose to break the wind, and they are most effectual. I suppose it is on account of their boughs being composed of such strong fibres that they are able to resist the current of wind, but we find that side of the house quite sheltered and calm, owing to these walnut trees spreading themselves across. They are very high, perhaps sixty feet high.

The PRESIDENT.—How old are the trees?

Mr. WILDER.—I should say about fifty or sixty years, and about nineteen inches in diameter. With regard to other plants growing beneath them, that depends, I think, a good deal on whether you keep the lower boughs trimmed up. We have some of these that break the wind we have let the boughs sweep right on to the ground. Of course nothing would grow beneath them. We have others trimmed up; everything grows beneath them; I believe we could plough right up to the roots of them. Our soil may not conduce to the spread of roots much, being a deep gravelly soil. The soil in which our handsomest tree grows is perhaps sixteen or seventeen feet deep, and the tap root may go directly down; it does not meet with any obstacle scarcely. The tree is a very robust, fine one indeed.

Mr. CROIL.—In the matter of thinning these trees in the first stage, it would not be a matter of much difficulty; but in your third or fourth thinnings the trees would be very large, and it would be a matter of considerable expense to remove them, and damage the other trees, it seems to me, a great deal. (Hear, hear.) I mention that because in making these calculations I have been very much deceived myself with figures. In the matter of my orchard, of late years it has not done well. Off these trees I once took in the neighborhood of ten barrels of apples a tree. I figured up, that ten barrels a tree off my 500 trees, at \$2 a barrel would be \$10,000 a year; that was clear, straight figuring. (Laughter.)

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Prof. BROWN.—You are speaking about fruit.

Mr. CROIL.—I am speaking about fruit, but I am merely showing how in the matter of calculations in figures we may be out. However, when I came to the summing up of the thing, I never made near to that amount off the apple trees at all; so that I think in some way there may be drawbacks—there may be diseases, perhaps, in these trees as well as in our apple trees, that would make the figures come short. But in the matter of thinning, don't you think there would be considerable difficulty?

Prof. BROWN.—No; I can take, as a forester of some experience, \$35 a year; I think I am safe in putting cost of management at \$30 an acre, thinning out.

APPLES AND THEIR BEST MARKETS.

The next subject as set forth on the programme was—

- 1.—Discussion upon best markets for the various kinds,—King, Baldwin, Spy, Fameuse, Russet, Greening.
- 2.—The present prospect of the export trade in apples, and the various markets compared,—Canadian, American, European.
- 3.—The prospect of a market opening up for Canadian apples in India.

The SECRETARY.—I don't know any one who could give us so much light on these questions as the President, and I would suggest that persons put questions to the President.

The PRESIDENT.—I will only be too glad to answer any questions I can. At the same time I would like to hear from those in this section who have had experience in respect to the shipping of apples or the growing of the best varieties, or anything in connection with the apple. If there is anything new arising in any section, we would like to hear of it.

Mr. A. H. PETTIT.—I would like to ask the President, as he visited the old country last year, and was no doubt there during the apple season, what he thinks of the system there adopted of auction sales by commission houses. Is that the most desirable way of disposing of our Canadian fruits; or has he any suggestions to offer?

The PRESIDENT.—I looked into that question pretty thoroughly over there; and, as I stated in my annual address, they have many different kinds of brokers over there. The actual auctioneer brokers, that dispose of the fruit in no other way but by auction, I don't approve of at all, because their system is this:—Without the slightest consideration of what the market is, or how the market is,—the market may be glutted with fruit, but no matter how the market is, the moment they receive fruit that fruit goes on the market, and that fruit is sold, without regard to prices or anything else. The highest bidder gets it, I don't care what the price may be. I have very often seen fruit there sacrificed most cruelly, just in such cases as that; but they have no room for storage, as a rule, and the fruit must be sold. It is brought right from the docks or from the railway station, as the case may be, to the auction mart, and there it is sold at once. The class of broker that I thought the most of—and they are certainly not all reliable in any class, but you will find in all the markets an abundance of good reliable firms there to deal with, men who will do the right thing with anyone and everyone,—the class that I thought most of are the class of old business men; they do a broking business, but they are not so particular about the auction department. They use that department in this way. When a cargo comes in, that cargo is removed, not to the auction mart, but to their large storehouses; they have immense storehouses there. They have men there employed for the purpose of opening every barrel. They go through the entire cargo. They cull out those parcels that are a little decayed, or for some reason that have slackened and gone wrong, and are not in a position to keep. Those they remove to the auction mart and sell for whatever they can realize for them.

The balance they keep, and they sell by private sale mostly. The retailers come here and look over lots; they come from distances at those distributing points; they come from outside towns and cities to London, for instance, to buy their fruit. Those are the men they go to; and an old reliable house of that description every day gets orders of this kind. A retailer that is in the habit of dealing with that firm will send in an order for so many thousand barrels, to be delivered a hundred at a time, or two hundred at a time, as the case may be, within so many days. They will rely on that firm to give them the brand that they want, and hence that firm has this large storehouse to go to for the purpose of culling out and making up the brand from the different shippers required by these individual retailers. I think firms of that description do the most important business, and they do a fair business. They realize much better prices, and they deal fairly with the shipper. I think we are safe in their hands.

Mr. FLETCHER, (Ottawa Experimental Farm.)—What is the method adopted by the Nova Scotia fruit growers to dispose of their apples in London?—their method seems so satisfactory to all the producers.

The PRESIDENT.—The Nova Scotia men last year tried different ways. There were several firms handled the fruits of Nova Scotia last year, and I have known their fruits to be sold at one auction mart and another auctioneer to buy them and re-sell them again. I have known them to be sold at Pudding Lane by the brokers there, and purchased by the brokers in Covent Garden, and even then re-sold, at a very small price too. I know of one firm there that sold a large quantity of the Nova Scotia apples, and I considered them sacrificed, because they sold a great many that were very fine indeed, that were afterwards sold to retailers at very high prices. Their Gravensteins generally were sold by two or three firms who handled the most of them there in that way—firms of the description I speak of; they realized very good prices; they had storehouses, and sold them to retailers mostly; there were very, very few that sold by auction. But a great many of those found their way into auction rooms—auctioneers securing them for special orders, even; but as a rule, while you may get a fair price through the auction mart, I don't patronize them; they are very unreliable. You don't know, unless you happen to be on the spot and provide other arrangements where you can store the fruit yourself and see there is a large demand; then you can put the fruit on the mart and realize a very handsome price; but the chances are, to my mind, against the shipper by doing a general business of that sort.

Mr. DEMPSEY.—This is a very important question to us as Canadians; and of so much importance that we should look upon ourselves as a joint stock company—the fruit growers of Ontario. If there is a dishonest shipper from Ontario sending his fruits there, it is disgraceful to every fruit grower in our Province; and if we find a man engaged in fruit culture that is dishonest in packing bad fruit, or packing his fruit badly, it is our duty, I think, to discountenance him as quickly as possible, and try to discourage that man. The way the fruits are sold there, it is by opening one barrel of fruit, and they turn it out. They don't just look at the top of it and see if it is nicely faced on top; but it is tumbled right out, and every purchaser has a memorandum book, and if they turn out bad they want to know the brand at once, and they make a note of it, and that man's brand will ever remain at a discount in England; he may depend upon it that he has destroyed his brand, with just that one barrel; all the rest of his apples may be very fine, but they will be sacrificed on account of that one barrel having a few bad specimens in it. Now, what few apples I have shipped generally I have been very successful with. I never shipped any that I suffered a loss from yet, but always a very nice profit; and we have been in the habit of selecting very carefully. It is better to ship one barrel of first quality apples than three barrels of inferior quality. The expense is the same upon the good barrel of apples as it is upon the poor. I have found considerable satisfaction in sending assorted varieties in a barrel. There are very few people that have ever done this; I don't know but I am the only man that ever did. I put in from four to six varieties in a barrel, starting at the bottom of the barrel with the longest-keeping apples, and finishing up the top with those that will be probably ready for use when they arrive. Those apples are retailed on the markets and sold to parties to consume them direct; and invariably we realize fine prices. We sometimes pack

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those in tissue paper. That pays very well. They don't carry any better; the apples are no better when they arrive in England rolled in tissue, than when they are not; but I usually get five, six and even seven shillings more per barrel for that trouble, and it pays very well; in fact, I have an order in my pocket that I got since I left home, for apples to be delivered in Ireland done up in tissue paper, that will pay me in the orchard \$6 a barrel, and it pays very nicely, indeed. I hope that we will all just remember this that if I pack bad apples and ship to Europe, I am a disgrace to the fruit growers of Ontario, not worthy to be countenanced by any man,—either by making bad selections or bad packing. Now, concerning the way the apples are handled on the road,—our President in his address hinted at this subject; a barrel of apples very frequently is rolled a long distance—the length of this room; they are hoisted carelessly, and allowed to run off on a slope, and very often they strike on the side of the hoist, and the result is that the apple is crushed in the centre of that barrel, the staves being thin, and that loosens them at once; and there are a great many barrels that will arrive in a loose shape and all bruised; there will be no colour to the skin that you would recognize the apple from the color. This very often occurs, and I don't know how to account for it any other way only that it arises from the rough-handling. This will occur with the best packer. I never happened to get any of these short barrels, but we have a very careful packer in our neighbourhood that has several times had his apples to arrive that way—a few barrels in bad order.

The SECRETARY.—Did you find any difference, Mr. President, in regard to the different markets for different varieties of apples? I have found very great demand in Glasgow for the King apple; it seems to be in very great demand there; I don't know whether the demand for it is as great or greater in other places. I notice in this letter just received from Thomas Leeming & Co., who are forwarders for Mr. Julius Siesel, of Glasgow, who was at our meeting at Collingwood, that he quotes Kings far above any other variety in Glasgow. The Greenings he quotes, September 16th, from ten to twelve shillings; Ribston Pippins, ten to twelve shillings; while the Kings he puts fifteen to eighteen shillings, and adds: "Kings, if really good, are in great demand, and Gravensteins, which are being sold for about fifteen shillings per barrel." Is Glasgow an exceptionally good market for such varieties, or would they do as well in others?

The PRESIDENT.—The King is an apple that will sell well in any of the marts. Beginning with Gravenstein, Ribston Pippin and Blenheim, I think probably the London market is the best for those; the highest average prices are got in London. For King also, you will get as high a price in London as in any market; and I don't know that there is much, if any, difference between Liverpool and Glasgow on the King; it is an apple that is highly thought of all over Britain; it is in demand in all the markets. The London market has certain peculiarities at certain seasons. About the first of December is a splendid time to ship any large or fine-looking apple, no matter whether it has quality or not, for that particular season. If you could grow an apple as large as a pumpkin and ship it to Covent Garden on the first of December, you would get an enormous price for it. They will pay fancy prices about the 15th December at the market at which they sell for the Christmas use. They will pay fancy prices for having samples of large varieties. They don't care what price they pay. They get particularly wild. I had an opportunity for testing them on their wildness last year, and I purposely went to work and culled out a large quantity I had—about six thousand barrels—right on the market in the morning of the 15th December, just to try their wildness; and they did get wild. I concluded they were paying ridiculous prices for a great many varieties I had there. I got enormous prices for Gloria Mundi—a variety that I think very little of; it is only a cooking variety at best; it is a large, coarse apple; but they paid enormous prices for Gloria Mundi, just simply because it was a large apple; and I observed they pay prices there for pears—Belle Angevines, from the Channel Islands,—that were enormous in size, but about as worthless a pear, I suppose, as we grow anywhere; and yet they would pay from five to ten shillings apiece for each pear, according to size and colouring. Get one that was extra large, with a fine coloured cheek on it, they have gone as high as ten shillings for each pear. They don't care what they pay at that time. That was the reason I mentioned as one point,—if you have anything

large or fine looking, that is the time to sell it. And whether it is quality or not, they want it at that time. They want those fruits for the purpose of decorating dinner tables. They are not used in eating. They don't eat them at all. You will find there in Covent Garden fruit dealers who keep those large specimens for the purpose of lending them out to dinner parties—they charge so much rental for them. (Laughter.) That is quite a common thing for them.

Mr. FLETCHER.—They charge a guinea a night for a dozen pears.

The PRESIDENT.—Yes, they will charge as high as they can get. It is really wonderful. There is a very large business done in London about Christmas eve in that way.

Mr. DEMPSEY.—I brought two of those large pears home with me, that the President has been speaking of for curiosity, and to satisfy our friends at home that the flavour of English-grown fruit was very much superior to our own. We divided one up and passed it around. Well, the result was it went to the pigs; none of them took a second bite of it. The other we laid carelessly in the room where it froze; it would freeze and thaw frequently; every few days it would be thawed out; and every time it would thaw out it would be less in size; though it started about two pounds' weight, the last time I saw it it was about the size of an ordinary Bartlett pear. So that you see they are even frost-proof. (Laughter.)

The SECRETARY.—I will ask a question further, in regard to this other item, about the prospects of the different markets,—whether you think that at any time an American market would be a desirable one, or as desirable as the English? I received from a Philadelphia firm the following account of the prospect in the United States, which might be interesting:—"Apples.—In many fruit-growing sections the apple crop will be almost a failure, and nowhere is there a fair prospect of an average crop. In new England, where earlier reports were most promising, we now hear of market declines in the prospects; and though present indications are more favourable there than anywhere else, the crop can only average a medium. A few localities in New York and in the New England States promise good quality fruit, but the general tenor is to the contrary. The present approximate averages of the principal States are:—New York, Rhode Island, Connecticut, Massachusetts, 86; Maine, Vermont, Michigan, 64; Pennsylvania, New Jersey, Virginia, Kansas, Wisconsin, Missouri, 53; Ohio, Illinois, 30. Taken as a whole, the prospect is for a crop below medium quality, and one of the shortest on record." This was a cable from England received from London, from Pitt Brothers there:—"No Canadian apples arrived sound. Americans from 17 to 22 shillings. We recommend shipments from best sound apples, free from spots. Market high. Sound fruit enquired for." That is dated the 17th.

The PRESIDENT.—I had a cablegram on Monday:—"Twenty-ounce Pippins brought 18s. 3d. to 18s. 6d.; Kings likely to go over 20 shillings all around; Gravenstein 23 to 25 shillings in London. I think those were the latest quotations we had. St. Lawrence varied a good deal this season; it ran all the way from 12 shillings up to 16. There were some fine lots went as high as 16, but generally they went about 14 shillings, and the Colvert ran about 14 and 15 shillings.

The SECRETARY.—Do you think Philadelphia or Chicago are ever likely to do well for us?

The PRESIDENT.—Chicago enquires a good deal for fruit this year, more than for many years, simply because the crop in the west has been only a fair crop, and their quality for storing is not as good as ours. Their apples cannot be stored and kept as long as our varieties. Speaking of American markets, in years past I have made a good deal of money one way or other in Boston in Talman Sweets,—which was the only market I could find that would take the Talman Sweet, and I could always sell Talman Sweets in Boston market. I could sell all my Swayze Pomme Grises in Boston and New York, and those markets paid for them at very high prices. I can say the same thing for the Seckel pear; New York wants all the Seckel pears she can get; that has been my experience. Then for Esopus Spitzenberg, I never found any market equal to Philadelphia,—I am now speaking of the American markets,—and Chicago, for the Cayuga Red Streak and Twenty-ounce, and all those large varieties. I always found Chicago the best market for a large apple. They said the retailers would buy nothing but large

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apples; that any one that wanted to buy an apple it was not so much the quality as the amount of apple for the penny that would catch the buyer.

The SECRETARY.—What about the Snow apple?

The PRESIDENT.—I never did much with it in the American markets, but the Snow apple is an apple there is money in provided you can grow it clean and a good colour. The Snow apple in the old country markets will command high prices if you get it there in good condition; and I am quite satisfied that the Snow apple or any other apple worthy of export can be shipped in good condition if we could only get over those points I mentioned in the address,—that is, the better handling of our packages by the employees of railways and steamship companies; and if steamship companies would introduce a cold draft—cold blast I call it—through the apartment where the apples are stored, and it could be easily done. The expense would be a mere trifle, and it would encourage shippers very largely. It would be a splendid thing for all concerned,—I know it would,—and by the introduction of such we could ship such varieties as we don't ship now—earlier varieties; and I found a great many of them arrived there last year in very bad order, but that was more on account of the fungus spotting than anything else; I think this year they are so clean that they will ship well. As to Snows, I got quite a large lot from Montreal, and they arrived in really very fine order—beautiful order; I realised an average of 23 shillings a barrel for Snows; they never varied very much.

Mr. PATTISON.—Taking one year with another, what is about the average freight on a barrel of apples sent from here to one of those great markets—Liverpool, London or Glasgow?

The PRESIDENT.—About a dollar a barrel.

Mr. PATTISON.—Is it possible to ship a single barrel from, say, Hamilton to one of those markets at the same rate that you can ship a number of barrels?

The PRESIDENT.—No.

Mr. PATTISON.—What is the lowest number of barrels that can be shipped at the rate you mention?

The PRESIDENT.—They are supposed to go in car-loads; about 150 barrels would be an average car-load. They will take as high as 200 or 210 barrels, but about 150 barrels is a car-load; and you can make your shipping arrangements, in lots that way, at about a dollar a barrel. It is less this year. We are getting freights to Liverpool and London for 90 and 95 cents; and some of the steamship lines where they work very hard for a freight, I have known to work it down and give a rebate at the end of the season, on the general freights.

Mr. CROIL.—Does that 90 cents a barrel mean from Hamilton or from Montreal?

The PRESIDENT.—That means from Goderich to Liverpool or London. It should be a little less from Hamilton, I should say, though it does not make much difference in distances by rail.

Mr. DEMPSEY.—It is the same from Belleville as from Goderich.

The PRESIDENT.—I suppose we get about as low a freight as any one gets.

The SECRETARY.—Do you think we will ever be able to ship overland to India by the Canadian Pacific.

The PRESIDENT.—I think so; that is a matter that will be under test. I have tried to make arrangements this year. I have written to Mr. Van Horne, and he has the matter under consideration just now as to freights. Whether that will come to anything or not I cannot yet say; but if arrangements can be made I am going to send some two or three shipments this fall to India by the Canadian Pacific Railway to Vancouver, and then across the Pacific Ocean direct; but I look upon that as one of the possibilities of the future. (Hear, hear). I don't think it is safe for us to look upon anything now-a-days of that description as impossible. We overcome a great many difficulties in fruit culture, and in the way of finding markets for our fruits—difficulties that we looked upon a few years ago as such that we could never surmount; but I look upon a market in India as a certainty now; I think we can get that market and reach that market, and I don't think we will have much difficulty. I think our best carrying varieties will carry just as well to India as they will to Liverpool; I don't see

that there should be any difficulty about it. At all events, if we had that cold blast introduced into the chamber where the fruit is stored, there should be no difficulty whatever in it.

Mr. PATTISON.—Supposing a man wished to ship a small quantity of barrels to the old country—twenty or thirty—what course would you recommend him to adopt?

The PRESIDENT.—You better send them along with some shipper. In shipping large lots I have taken small lots that way, that people desired to send to their friends in the old country, and had them specially marked in with the other lot, and then transhipped there from a particular station to the address desired; I have often done that, and they did not seem to object to it as a rule. They will not object to it with a large shipper; they may with a small shipper.

Mr. DEMPSEY.—We have never had any difficulty in sending one barrel, two barrels or five barrels, just as the case may be. I have generally shipped them to the Allan Company of Montreal. Invariably they forward them right on, and the steamship rate is charged the same as if I had three or four or five hundred barrels. I did not find any difference on one barrel or on five hundred—so much per barrel. The difference is only a matter of freight from here to Montreal, and we get them through for twenty cents to Montreal; so that the difference in shipping one barrel to Londonderry or Glasgow, or shipping a hundred, per barrel, is simply the freight from here to Montreal—that is, from our place to Montreal. And they did the same last year in my absence, in filling retail orders in England, they shipped them to our commission man at Montreal with instructions to forward and prepay. Well, they cost us the same. He forwarded the bill to us and it was paid. So that I don't see any difficulty in shipping one barrel or ten, or whatever there may be. We don't mind the little difference in the freight from here to Montreal. The Grand Trunk simply throws in their freight—that is all the gain there is in shipping a large quantity.

A MEMBER.—What would be the expense per barrel besides freight—for shipping and storage?

The PRESIDENT.—It depends altogether on the firm you are dealing with. As a rule, amongst firms that do a straight, fair business, they would probably hold the freight and sell it some time within thirty days, and they would charge five per cent to cover everything. There are some markets where there are fees; for instance, in Covent Garden the Duke of Bedford has to receive a certain fee from every fruit-grower in Canada. He has got to receive for rental for every barrel of freight that is sold in Covent Garden, a penny half-penny a barrel; that is the market fee in Covent Garden; but I found that the way a good many brokers work there for the shipper is to take as few barrels into Covent Garden as possible; they will go and sell at the docks or sell at their own store-houses; they will only take into Covent Garden what they can't sell otherwise, and run them off for the best they can get; but usually you can calculate about five per cent commission.

QUALITY IN VEGETABLE LIFE.

Prof. Brown read a paper on this subject as follows:

I introduce this subject not because it is unknown, but because it is used every day without any special notice of it, either among experts or others, as a recognized art, or part of one, or of a natural law, or part of one.

How often we hear the expressions—"that grain is coarse in quality"—"that is timber of fine quality"—"these apples are of fine quality"—and so on. What is really meant by these statements most people have a good idea; that is, they have got the fact that certain vegetable products are so differently constructed, even among varieties of the same kind, that they deserve the term thus applied, because in the experience of the judgment they are either coarse or fine in texture, or some other feature indicating the same thing.

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This is no place to talk farm live stock, otherwise I would ask your attention to a similar use of the term quality, where also considerable uncertainty exists as to its *very definite* meaning and application to particular specimens, but where I think its practical value and the absolute necessity of teaching it are more obvious than in the vegetable kingdom. In the one case the things are not so easily recognized by the eye or hand, and many have to be tested or cut up to enable one to pass an opinion.

I have, therefore, to ask this old and valuable Association of Ontario to place on a more definite footing these points in vegetable life that the experienced are so familiar with and that the novice thinks so dark and difficult.

Many of our best judges have trouble in explaining what they know so well—not being in the habit of teaching or analyzing for the advantage of others.

I desire, meantime, to draw the attention of the Association to several great facts in this connection which seem to govern all vegetable life, with some exceptions probably, and my only trouble will be to condense sufficiently, the field being so large.

Take trees first, and I apprehend *three* things will be found very prominent as a guide to quality namely, *colour, specific gravity, hardiness*. Note the fact that all our white grained timbers are the lightest in weight, and at the same time the most hardy—meaning by hardy the ability to withstand extremes of climate, or perhaps cold rather than heat. Beginning at Hudson's Bay and coming south, are not the following varieties true to the three things I have named? Spruce, poplar, birch, balsam fir, pine, cedar and alder; all white, or largely white in colour of timber, all light in weight and all very hardy. In contradistinction to these varieties, and still coming south, there are ash, elm, maple, hemlock, beech, oak, butternut and walnut, —the marked exception being basswood, but all others comparatively dark-grained, heavy, and much less hardy.

These positions being true, nature tells us that if we want uniform quality of colour, or colorless wood we must go north, if quality by soft, open texture, then go north also, and if quality of character or ability to do well under poor conditions of soil and climate, we must also look to the north.

But besides these governing lines there are sub-divisions as distinct with reference to varieties of species; for example, the white spruce is somewhat farther north than the black spruce, and the wood of which differ considerably in colour if not in hardiness; the balsam poplar is the most northern and whitest of the kind, being the light wood of commerce as against other varieties of poplar, even the aspen, which comes next in the northern limit; the white or common birch of the far north and the black birch of the south; the white cedar of the north, the red cedar of the south; the balsam fir with its soft white wood, as far north as Hudson's Bay, and the several varieties farther south—but not differing so strikingly in colour; the white pine (*Strobus*), and red pine (*Resinosa*), though said to have about equal geographical range are so distinct in manner of distribution, and the white being so much more common everywhere, that I ask you to place this class in the list.

Then, taking what may be called our hardwood, we find the white elm of the north and other varieties of darker shade in the south; the white and black ash intermixed as regards latitude, and most distinctly also the white ash of the north, and the red and black ones of the south.

It is unnecessary to add to these examples, for it can be seen that, while acknowledging several exceptions, there is a most clear order of quality by the points named throughout our Canadian forests.

But one note more while in the forest. I have, at home, about 130 species and varieties of *timber* of trees from most parts of the world, and I have no doubt any one could pick out any distinctly coloured specimen with which he would be able to say yes or no to two at least of the three positions I have submitted as to quality.

I have also a set of 33 sections of wood of Russian apple trees, got from A. C. Tuttle, of Baraboo, Wisconsin. He says that almost exactly in the order of color from lightest to darkest we have in these specimens—all having been grown under similar conditions in the same orchard—the order of what is called their hardiness, so that it is not alone the difference of conditions—say soil and temperature largely—that give us the three things under discussion, but they seem to hold good as a characteristic of varieties

wherever they are, though possibly not so distinct nor so lasting. I invite the attention of the meeting to this characteristic of Russian apple tree wood grown in what is about equal to Ontario conditions. Then, taking advantage of what apple trees we have at the Experimental Farm and a selection of half a dozen specimens from them, I notice the very uniformly white wood of that universally acknowledged general purpose variety called Duchess of Oldenburg; all over, from stem to smallest twig, the wood is an even grained white in comparison with most others, and is probably the most hardy of our apple trees. I think all the crabs are also white wooded, and, of course, are nearly all hardy. The "Twenty-Ounce" apple has not done well with us—has, in fact, nearly all died out—and the specimen of wood is one of the darkest I could find, and is from an apparently healthy tree. In the "Snow" variety, which is generally hardy enough, the wood has a shade of dark, but nothing to some others. The Rhode Island Greening is distinctly much darker than the Snow, and is to some extent less hardy.

We find, therefore, some very marked examples, and some equally marked exceptions to the rule we have laid down in this enquiry.

To conclude upon trees, is it not obvious that more practical value might be realized, fewer mistakes made in selections from different countries and different sections of the same country, each from and to the other, experiments simplified and money saved by a better knowledge of quality among timber and fruit trees? Leaves and bark, and fruit, and age, are not enough to guide us; we have to dissect and study the whole constitution, and no doubt it will be found that physiologists can indicate the like things we have thus briefly indicated, through cells and all the other physical construction of many kinds of plants.

My next enquiry is with reference to cereals, and in this I shall ask you to look at quality through another aspect—one that is probably equally applicable to trees, but is more easily recognized among grains. You will observe I have not even touched upon fruit of any kind in these notes—forest tree fruit, garden or orchard—and so now also I do not propose handling grain, except maybe indirectly, because I think I have material enough for my purpose with the *straw*, as I had with the *timber* in the two examples given.

The straw of all grain, and of wheat particularly, is one of the best indexes to the character of the plant and of its fruit. Were the naked eye able to examine every piece of the construction of this simple stem, from the outer to the inner coating, it would not be necessary to see the grain itself in order to tell what that grain was—whether coarse or fine, or any other of the many points used in judging. But while this is true, as between those varieties having very little distinction, it does not require a very clever eye to recognize between distinct kinds.

I have with me a number of varieties and sub-varieties of wheats, all grown under equal conditions, with which I shall briefly illustrate.

Introductorily, we need not trouble ourselves necessarily now as to whether any variety of wheat is called a winter or a spring one, for that distinction is simply a matter of education, so to speak, and has nothing to do with quality in the abstract.

Let me introduce to you some of Canada's oldest friends—the Treadwell, a bearded variety of well known hardiness and productiveness. The straw of this, as you can see, is thin and strong—that is, it has a compact cellular tissue, a little space from the outside to the inside; the inside is clean, with no soft pith, the hollow space being larger in proportion to the walls; in comparison with it examine the kind called Diehl, the tissue of which is clearly more open, indicating less strength; but the shell is thin and clean; a variety named Diehl Fife—possibly a hybrid—has straw very similar to the Diehl proper. I notice a model of straw in the case of Arnold's Victor—firm, close and compact in texture, well rolled together, as it were, free of any looseness inside, and clean as a whistle. Another by the name of Clawson, or Seneca, shows straw with a decidedly open cellular arrangement, but otherwise good; another under the title of Arnold's Hybrid is characterized by a somewhat open texture and general delicate appearance that, with a transparency equal to the Diehl, indicates some special heredity perhaps.

Everybody used to know the Fife wheat, a spring variety that has been of immense value to Canada. Could we get such another in all its value of adaptability to our con-

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ditions, its good milling proportion, and a grand cropper, the present trouble about renewal of wheat would be set at rest for many years to come. Examine the straw of this old friend, and, even in its degeneracy, you can see the most perfect we have yet examined; close ribbed, compactly built texture, clean out and in, thin in shell, transparent and with large tubing.

As a jump from this take the Arnautka, or Goose Wheat, of which you have heard so much of late years—a fine looking plant with its bold, square, full head. The diameter of the straw is almost two-thirds full of loose open pith, while the skin or bark is nevertheless of good texture.

And, finally, on this branch of this subject you will find an almost exact copy of the Arnautka straw in the sample of Egyptian or Eldorado I have submitted.

Gentlemen, I draw from all these facts that what we call the quality of the straw of cereals is a most certain indication of the same thing in their fruit, called grain; that full, plump, good coloured, and uniform as the sample of grain may be, there is, I shall venture to say, in every case a coarse character in its structure whenever the straw wants quality. In the specimens we have gone over it is very evident that this position is well sustained; and, as nothing equals a practical lesson, allow me to ask you, not me, to judge from four or five samples of straw and grain by the plan we have examined. These samples, I may say, are unknown to myself, so that I cannot help you by any hints when speaking as you examine.

In going over these somewhat simple though interesting points as to "Quality in Vegetable Life," my desire has been to impress upon this Society the importance of more attention being paid to what is within the reach of everybody, whereby fewer mistakes would be made in much of our rural economy.

After the reading of this paper, at the request of Prof. Brown, the President appointed a committee to examine the specimen of grain straw and check off the points made by the Professor; the committee to make an investigation and report. The following were appointed as such committee: Adolphus Pettit, Mr. McDonald (of the *Farmers' Advocate*), and Mr. Honsberger.

The Convention adjourned for dinner.

THE TRADE IN FRUIT AND FRUIT TREES BETWEEN CANADA AND THE UNITED STATES.

On re-assembling in the afternoon, Mr. Archibald Blue, Deputy Minister of Agriculture, read the following paper on the trade in fruit and fruit trees:

The chief object of this Association I understand to be the advancement of the science and art of fruit culture. Its meetings are held for the discussion of all questions bearing on fruit and fruit growing, and it aims to collect and publish useful information on these subjects for the common benefit of all who are either producers or consumers of fruit. It is not a close corporation, as in a sense law and medicine are, for I find by its constitution that "any person may become a member by an annual payment of one dollar;" and, whether a person is a member or not, he has the fullest liberty to practice the art of fruit growing wherever he pleases, and to any extent he pleases. It does not hide its light under a bushel lest any one outside its circle might see and know a better way to plant and prune his vine or his apple tree, for the ubiquitous reporter is made welcome at all its meetings, and an official report of the proceedings is printed at the cost of the province for distribution as a public document. To enquire, to investigate, to prove, to know, and to make the country a present of what is so found out are the object, aim and end for which it has been established and for which it continues to exist; and I think I may be permitted to add that, in the judgment of the whole country, the existence of the Association has been amply justified by its works. No other of the kindred societies in the province has sustained its special interest with a livelier sense of the possibilities of use-

fulness, and I do not know of any society of its own class on the continent that has made a better record in either the science or the art of fruit culture.

I do not propose, however, to deal with practice or theory as related to the production of fruit or vegetables; for whatever I might be able to say from a knowledge of the literature of the subject, I could not hope to say anything which might not be better and more fittingly spoken, with the clear perception which practice and observation in the field afford, by ninety-nine out of a hundred of the fruit growers themselves. A knowledge of the best means of producing fruit is of the first importance—no one will question that; but next to the producing is the consuming, where one grows more than one can eat; and to owners of the fine orchards and gardens of this Niagara peninsula access to markets is one of the first essentials for a successful career in the business. It would be interesting, no doubt, to discuss the whole subject of the fruit trade of the country, domestic and foreign; but I purpose to limit this paper to one section of it, viz., our trade with the United States. For the six years of the present decade (1881-6) our exports of fruit to all countries, as shown by the trade returns of the Dominion, reached an aggregate of \$2,995,193, being a yearly average of nearly half a million. Of these exports, the United States took for consumption, according to the trade returns of that country, the value of \$914,868, or an average of \$152,478 for each year. This is equal to 30 per cent. of our fruit exports; but in two years of the six the United States took 62 per cent. of the whole. As showing how large a share the south-western counties of Ontario had in this trade, it may be stated that the imports at American ports on the St. Clair, Detroit and Niagara rivers for the six years make a total of \$377,885, or 41 per cent. of all the fruit imports of the United States from Canada; but, besides, it is certain that a large part of the fruit sent from those counties goes direct to New York and Chicago. Our total exports of roots and vegetables in the same period of six years are valued in the trade tables at \$5,693,586, whereof the portion shipped to the United States is valued at \$4,825,189, or 85 per cent. of the whole. Our exports of garden and other seeds to all countries in the six years are valued at \$1,661,499, of which the United States took for consumption a quantity valued at \$781,587, or 47 per cent. of the whole. About \$550,000, or 70 per cent., of those imports are reported from the customs districts of the St. Clair, Detroit and Niagara rivers, showing that they were the produce of our grand south-western peninsula. It thus appears that of our total exports of fruit, vegetables and seeds in the six years 1881-6, amounting in value to \$10,350,278, the United States furnished a market for produce of the value of \$6,521,644, or 63 per cent. of the whole. During the same period of six years, our imports of green fruits from the United States, exclusive of oranges and lemons, are valued at \$1,572,100; of fruit trees, plants, shrubs, etc., \$425,686; of vegetables, not canned or preserved, \$636,358; and of seeds, \$1,048,206—making a total of \$3,682,350, or \$613,572 a year. The following table shows the aggregates of quantities and values of the principal articles for the period of six years imported from the States, together with the duties paid thereon:—

Articles.	Quantity.	Value.	Duty.
		\$	\$
Apples, bbl.	182,584	400,449	73,045
Black-, goose-, rasp-, and strawberries, qt.	1,148,562	122,082	22,971
Cherries and currants, qt.	177,500	17,278	1,774
Cranberries, plums, and quinces, bush.	65,380	147,154	16,623
Grapes, lb.	1,748,144	141,176	36,939
Peaches, bush.	122,887	300,662	49,135
Other green fruit. ....	.....	443,299	88,670
Fruit trees, plants, etc. ....	.....	425,686	84,603
Potatoes, bush.	349,811	180,022	34,979
Tomatoes, bush.	46,048	85,442	13,818
Other vegetables. ....	.....	370,894	74,178
Seeds. ....	.....	1,048,206	157,487

In the trade given since 24 we imported fruit trees, 36,646 of 1,152,850 of this importation \$41,919, and of fruit and for years was \$65-

On this subject to refer to a products of Canada trees and shrubs at a less rate of in Council, which articles from the rate of duty is imported into operation on the free list:—

1. Fruits, green
2. Plants, trees
3. Seeds of all

Those articles countries free of the Canadian Tariff the United States of a continental class, are "cabinets" the thane of Canada cordon of customs

Looked at the large interest mistake in failure of its own Act. reciprocate has the changes made on the free list of the United States since for the free exchange by the United States as Congress has articles which are in case of potatoes or make the duty growers of Canada over of their exports States? And be instances are on United States Canada in retaliation for not wise, without

The two chief ment, and (2) to competition. The imports less than the is secured to the

In the trade tables, the numbers of fruit trees of the principal kinds imported are given since 24th February, 1882, and from that date until the end of the fiscal year 1886 we imported from the United States 859,029 apple trees, 154,739 pear trees, 88,860 plum trees, 36,646 cherry trees, and 13,576 quince trees, being an aggregate for the five years of 1,152,850 trees, or enough for an orchard area of 20,500 acres. The declared value of this importation is \$156,503, in addition to which there is a value for other trees of \$41,919, and the total charge of customs duty is \$39,099. The duty paid on all imports of fruit and fruit trees, vegetables and seeds imported from the United States in the six years was \$654,222, or an average of about 18 per cent.

On this subject of the customs tariff on fruits and other articles, I may be allowed to refer to a section of the Tariff Act of 1879, which enumerates certain natural products of Canada and the United States, including green fruit, seeds of all kinds, plants, trees and shrubs, and provides that they may be imported into Canada free of duty, or at a less rate of duty than is provided in the Act, upon proclamation by the Governor in Council, which may be issued whenever it appears to his satisfaction that similar articles from Canada may be imported into the United States free of duty, or at a rate of duty not exceeding that payable on the same under such proclamation when imported into Canada. Now by the United States Tariff Act of 1883, which came into operation on the first of July of that year, the following articles were placed on the free list:—

1. Fruits, green, ripe, or dried, not specially provided for, such as oranges, grapes, preserved fruits, etc.
2. Plants, trees, shrubs and vines of all kinds not otherwise provided for.
3. Seeds of all kinds not specially enumerated, except medicinal seeds.

Those articles have been admitted into the United States from Canada and all other countries free of duty since the first of July, 1883, and notwithstanding the provision of the Canadian Tariff Act of 1879 the duty on similar articles imported into Canada from the United States has been neither removed nor lowered. Our producers have the boon of a continental free market; while our consumers, who vastly outnumber the producing class, are "cabin'd, cribb'd, confin'd, bound in," not "to saucy doubts and fears," as was the thane of Cawdor, but to the tardy market of their own long-wintered country with a cordon of customs posts to keep out the earlier fruits of a sunnier land.

Looked at from the point of view of a consumer, and not without consideration for the large interests of the producer, it seems to me that our Government has made a mistake in failing to meet the legislation of the United States in the spirit of the terms of its own Act. It is possible, I am bound to consider it probable, that the failure to reciprocate has not been intentional, but rather that it has been owing to an oversight of the changes made in the United States tariff whereby the articles referred to were placed on the free list four years ago. Is it for our interest that this attitude towards the United States should continue—that while placing on the statute book a standing offer for the free exchange of specified products we should ignore the acceptance of our offer by the United States? Suppose our neighbors should retaliate, as they threaten to do—as Congress has authorized the President to do—and not only re-impose the old duties on articles which are now free, but, following the recent example of our Government in the case of potatoes and other vegetables, make the rate 25 to 50 per cent. higher than before, or make the duty prohibitory at once, how would it affect the fruit, seed and vegetable growers of Canada? Where could they hope to find a market for the 60 per cent. and over of their export products which during the past six years was taken by the United States? And bear in mind that I am not putting a purely hypothetical case, for numerous instances are on record—notably in connection with the fisheries question—in which the United States Congress prohibited the importation of products of these British provinces in retaliation for the conduct or the policy of the British Government; and I say it is not wise, without excellent cause, to provoke retaliation, or even to seem to provoke it.

The two chief objects of our tariff are: (1) To provide a revenue for the Government, and (2) to give to the home producer a measure of protection against foreign competition. The first of these is served to the extent to which duties are paid on imports less the cost of collection, and the second to the extent to which the home market is secured to the home producer by the exclusion of foreign produce.

uty.

\$

73,045
22,971
1,774
16,623
36,939
49,135
88,670
84,603
84,979
13,818
74,178
57,487

Well, has the tariff served the growers of fruit and fruit trees and of seeds and vegetables in Canada by shutting out or even reducing in volume the imports of these articles from the United States? To answer this question I might compare the years of the last decade with the corresponding years of the present one, and show that under the lighter tariff the competition was apparently less keen than now. Our imports from the United States were less for the six years, 1871-6, than for 1881-6, and our exports to all countries were hardly one-third as much in the former period as in the latter. But let us compare the three years 1881-3 with the three years 1884-6 and see what the imports show. The following table gives the value and duty paid on our imports from the United States of green fruits (exclusive of oranges and lemons), of fruit trees, shrubs and plants, of field and garden seeds and of vegetables for the two periods:—

Classes of Articles.	1881-82-83.		1884-85-86.	
	Value.	Duty.	Value.	Duty.
	\$ c.	\$ c.	\$ c.	\$ c.
Green fruits	642,967 00	123,321 00	929,133 00	165,886 00
Fruit trees, plants, etc.....	198,340 00	41,006 00	227,346 00	43,597 00
Field and garden seeds.....	333,357 00	50,017 00	714,849 00	107,470 00
Potatoes and vegetables.....	220,578 00	40,645 00	415,780 00	82,330 00
Total.....	1,395,242 00	254,989 00	2,287,108 00	399,233 00

From this statement it appears that the imports of the last three years from the United States exceed those of the previous three by \$891,866—the excess in the valuation of green fruits being \$286,166; of fruit trees, plants, etc., \$29,006; of field and garden seeds, \$381,492; and of vegetables, \$195,202. These figures, it appears to me, demonstrate that the present duties do not serve the interests of the Canadian producers by shutting out United States imports or even reducing their volume. A philosophic historian has said that extirpation is the only persecution which can be successful, or even not destructive of its own object. Well, I am disposed to believe that prohibition is the only protection which can protect in the case of the trade we are considering. The fact is that only in a very small degree do American products come into competition with the Canadian at all. The fruits and vegetables which we import from the United States are chiefly those which ripen earlier than ours, and which our dealers import and our people consume because they can be got nowhere else. The best information I can obtain from men in the trade is that while imported strawberries supply our city markets a month earlier than the home grown fruit, they cease to compete when the latter comes in. Being brought a longer distance they have lost freshness and flavor, and besides, the duty of four cents per pound becomes prohibitory in its effect. The same observation is generally true of apples, plums, pears, peaches and vegetables; they are imported from the Southern and Middle States for a few weeks before our own mature, and with the craving appetite for new fruits and vegetables which the diet of a long winter begets, they are bought up eagerly at any price in reason. They compete for a brief season only with the native products, not merely because the trade is made unprofitable by the duty, but because they are by comparison of a poorer quality. If any proof of the correctness of this statement were needed, I have no doubt that it would be speedily forthcoming from the members of this Association; but let me quote an impartial authority—the report of McKittrick, Hamilton & Co., of England—on American apples for the season 1886-7. Here is what they say:—

“Canada, as usual, has been to the fore, and we have had really perfect parcels landed here, for which high prices have been obtained. The early supplies from the Dominion made about same prices as those from the United States, but once their fall fruit was in a condition for shipment they immediately took the lead, and while Boston, Maine and New York Baldwins made 10/3 to 15/3, Canadians sold for 16/ to 18/3. This lead was maintained through the season, the general average of prices being very high.”

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And because it possesses this fine quality, a degree of perfection hardly equalled anywhere else on the continent, Canadian fruit needs no tariff wall for its protection. We are able to compete with the American fruit growers at home or abroad, and I am persuaded that in the products of the orchard and garden, if in no other, it is the common interest of consumers and producers to favor a policy of unrestricted reciprocity with our neighbors. New York, Ohio and Michigan have not suffered by competition with each other, or by competition with sister States eastward, southward and westward, and the great centres of population in those States, growing greater every year, will maintain for all time the best of markets at our doors.

There is one other aspect of the question of trade with the United States to which I must refer, viz. : the relation of fruit and vegetables as articles of diet to the health of our people ; and in looking up the best authorities on this subject I ought to say that I have been aided by my friend Dr. Bryce, the Secretary of the Provincial Board of Health. A high English authority, Dr. Wynter Blyth, of London, stated in a recent address that—

The importance of cabbages, carrots, turnips, of apples, pears, raspberries and strawberries, is far more than their nutritive value ; for without the addition of these substances, even while eating fresh meat, we are liable to decline in health and suffer from eruptions, while if we eat salt meat for any time and consume neither potatoes nor vegetables, nor fruits, then that terrible disease, scurvy, is imminent.

Another authority whom I shall quote is Prof. de Chaumont, who in a lecture on Practical Dietetics (issued by the Council of the International Association of 1884) expressed practically the same opinions as Dr. Blyth. If the blood is in a proper healthy condition, he stated, it is alkaline ; but if it gets into an unhealthy condition, chiefly through being deprived of vegetable food, then it becomes less alkaline, gets into a fluid condition, and the result is the disease we know in its extreme form as scurvy. And he goes on to say :—

This disease in former years was the scourge of our navy, and it is on record that the channel fleet in the middle of the last century had sometimes come into Spithead with no less than 10,000 men disabled by scurvy alone ; and one of the reasons why the enormous hospital at Haslar was built to hold 2,000 patients was on account of the tremendous stress put upon all hospital accommodation by the enormous number of scurvy patients. This condition of things was remonstrated against by the medical officers of the navy, who pointed out the remedy at hand by the use of vegetable acids a long time before it was adopted, but as soon as it was adopted the result was magical. Scurvy disappeared from the navy altogether, and that immense hospital at Haslar was left with only a few cases compared with what it was intended to accommodate. But I should mention that scurvy has by no means disappeared entirely, and so far is it from disappearing that if cases are carefully investigated in ordinary life, even among the better classes, we shall find symptoms of scurvy from time to time. A great many people dislike vegetables, and even dislike fruits, and neglect the use of them. Others from sheer ignorance do not use them, and the result is that again and again diseases that are apparently caused by quite other means are aggravated and complicated by a certain amount of this scorbutic taint.

It hardly seems necessary to point the lesson which these statements of eminent men so unmistakably teach. The use of fruits and vegetables in the diet of our people is so essential that the policy which makes these articles scarce and dear can only be regarded as inhuman and stupid in an eminent degree.

We are proud of our north-land, with its bracing climate, its great lakes, its rich heritage of farm land and forest, and proudest of all of the men who have made and are making it. But let us never close our minds to the fact that it is and ever must be a north-land, where winter reigns half the year, and that we can ill afford to make that winter longer still by a barrier raised to shut out the bounties of nature. And in our relations with our neighbor may we learn the wisdom of the philosophic maxim, "that of all the agencies of civilization and progress of the human race commerce is the most efficient."

Mr. E. MORDEN (Drummondville).—I live on the frontier, and my market for fruit is in the United States very largely. I am able to compete with the United States, and do compete with the United States' fruit growers in their own markets. I sell most of my fruit there, and get my money from there, and I hope the day will come when the fruit growers of Canada will at least treat our neighbors to the south of us with the same liberality that we receive from them.

4-85-86.

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The PRESIDENT.—There is no doubt the question raised by the paper read is a very important one, and one that is receiving a good deal of attention from public men at the present time. We see it every day, and we read something about it every day, and as far as my experience goes it extends pretty much to the export of apples. In the other fruits I have exported some to the United States. There is no doubt about it, as far as apples are concerned we are not only not afraid of the American competition, but we are not afraid of any country in the world. (Applause.) We have met them all; we have met them successfully; and the prices current in the houses in Britain will show that we command the highest prices known for apples. No matter how they pack them, how they cull them, how they select them, we find that our apples lead all in prices. (Applause.) The Americans no doubt come nearer to us in competition than any other country that we have met with as yet, and any country that we know of. The New York State apples generally we find the very best; also the Maine Baldwins, and Nodheads from the State of Maine, are very fine, and they cull and pack them very well indeed. They come pretty closely in competition with us in the markets of Britain; but, taking all the markets combined, and taking good, bad and indifferent as cargoes go, I would be on the safe side in saying there is a usual difference of from two to three shillings a barrel in our favor.

Mr A. G. MUIR.—I would like to ask the President whether, when he estimated the difference in the selling prices of the Canadian and the American barrel, the difference in the size of the barrel was considered in the quotations.

The PRESIDENT.—That is considered. The American barrels vary very much. They have mostly two sizes—two bushels and three pecks and three-bushel barrels. Our barrels now under the Act are three-bushel barrels. The two-bushel-and-three-peck barrel of the American trade rules very low in the market; it is sold at a very great disadvantage. They make a much better proportion out of their three-bushel barrel; but I am speaking of the proportion between that barrel and ours—between their three-bushel barrel and ours. The difference between the other and ours is very much larger indeed, but then they are selling the other at a very great disadvantage to themselves as compared with their three-bushel barrel.

GRAPE GROWING IN ONTARIO.

Papers on discussions on various aspects of grape growing then occupied the attention of the meeting, the subject being introduced by Prof. Brown with the following paper on

GRAPES FROM HIGH ALTITUDES IN ONTARIO.

It is now six years since a committee of this association planted some ninety-six varieties of grape vines at the Ontario Experimental Farm.

The object was a *severe testing* of those considered to be of value to the Province—because a situation 850 feet above Lake Ontario, and therefore about 1200 feet above sea level, is likely to be very trying to fruit of any kind.

Recently, Professor Pantou, our Botanist, gave a short bulletin on this subject, which necessarily, by its briefness, could not bring out some points that I trust may now be gathered.

The ground selected has a southern aspect, without any shelter whatever; the soil a clay loam, somewhat stiff and decidedly spongy with hillside water.

The management has been to grow two canes from each vine, tying up carefully every season so that the young and bearing wood is trained in every direction upon four lines of fence wire five feet in height. This method seemed best adapted where it is necessary, as with us, to lay down and cover for winter protection. We have manured and cultivated well. Pruning is undertaken end of October and beginning of November, as well as shoot pinching in summer, and nothing allowed to get higher than the trellis.

Four hundred and forty vines were planted in 1881 and 210 in 1882, so that we had a total of 650—representing ninety-six varieties.

The first thing to place on record is life and death, and the character of that life.

GRAPE VINES PLANTED 1881-2.

STRONG, VIGOROUS PLANTS.

Agawam.	Martha.
Brighton.	Missouri.
Brant.	Massasoit.
Black Hawk	Merimac.
Clinton.	Nortons (<i>Var.</i>).
Champion.	Noah.
Cornucopia.	Othello.
Concord.	Pocklington.
Cynthiana.	Rogers' 28.
Duchess.	Rogers' 33.
Delaware.	Rogers' 41.
Diicut Amber.	Una.
Elvira.	Uhlund.
Eva.	Venango.
Gaertner.	Wilder.
Hartford Prolific.	(<i>Not represented at Meeting.</i>)
Herbert.	Naomi.
Ives' Seedling.	Barry.
Jefferson.	Pearl.
Janesville.	Maxatawney.
Lindley.	Cottage.
Lady Washington.	Vergennes.
Mary Ann.	Early Dawn.
Moore's Early.	Eumelan.

MEDIUM, IN VIGOR.

Advance.	Transparent.
Amber.	Walter.
Alvey.	(<i>Not represented at Meeting.</i>)
Amber Queen.	Canada.
Faith.	Dempsey 4.
Jessica.	Cayahoga.
Lady.	Isabella.
New Haven.	Creveling.
Rogers' No. 30.	Echland.
Rogers' No. 39.	Worden, of excellent quality.
Rogers' No. 2.	Autonello.
Salem.	

WEAK PLANTS.

Autucheon.	(<i>Not represented at Meeting.</i>)
Black Eagle.	Telegraph.
Elorado.	Monroe.
Iona.	Beauty.
Rochester.	Senasqua.
	Grimes' Golden.
	Prentiss.

FAILURES.

Centennial.	Herbemont.
Croton	Rogers' 5.
Chasselas.	Purity.
Dempsey's 18.	Triumphant.
Dempsey's 25.	Waverly.

The second consideration is as to fruiting and ripening.

Up to the end of 1886, and therefore with an experience of four years fruiting, it may surprise you to know that not more than a dozen of the eighty-six varieties that lived—ten having failed—*ripened* so that they could be eaten. In October, 1886, the list stood thus :

Lindley.	Eumelan.
Delaware.	Herbert.
Moore's Early.	Concord.
Salem.	Clinton.
Massasoit.	Brighton.
Wilder.	Agawam.
Merrimac.	Martha.

Hence it is perfectly clear that the average season in such a position is not a safe grape growing one. Of the above, every one—Salem excepted, which is medium—is on our hardy and vigorous list, so that the fact of their doing well at the Experimental Farm is evidence pretty certain that they would likely do well anywhere else in the Province. Looking to this, therefore, we are prepared to advise the following for hardiness, yield and flavour :

<i>Black.</i>	Brighton.
Wilder.	Lindley.
Worden.	Agawam.
Moore.	<i>White.</i>
Concord.	Niagara,
Barry.	Lady.
<i>Red.</i>	Martha.
Delaware.	

And thirdly, I have to submit evidence of the remarkable character of the season of 1887, as affecting these grapes, for in place of the dozen that it seems, we will be limited to on an average, no fewer than 70 varieties ripened well. Of these I could conveniently bring to the meeting only 54, which you can now examine and prove practically.

The earliest gathering was on 3rd September, the latest the 22nd, so that being all inside this month I have simply put the day of harvesting on the card along with the name, and whether it is a vigorous, medium, or weak plant.

I shall say nothing about the character of the fruit which you are now to taste, but shall close with the order of ripening :—

RIPENING—ONE WEEK INTERVAL.

Most early in ripening :—

Janesville.	Ives' Seedling.
May Red.	Champion.
Moore's Early.	Brant.
Mary Ann.	(<i>Not in collection exhibited.</i>)
Black Hawk.	Early Dawn.
Alvey.	

The PR that is of im such as that— expect to find them in this s perfection. I their grapes w inland section exceptional ye They have rip ripen every y had ; it is qui varieties spoke

Second most early :—

Othello.	Rogers' 39.
Concord.	New Haven.
Cornucopia.	Rogers' 33.
Delaware.	Rogers' 2.
Eldorado.	Norton. (<i>Var.</i>)
Massasoit.	Merrimac.
Lady.	Lindley.
Jessica.	Venango.
Hartford Prolific,	Autuchon.
Faith.	Brighton.
Rochester.	

Third most early :—

Amber Queen.	Wilder.
Dracut's Amber.	Herbert.
Eva.	Lady Washington.
Jefferson.	Iona.
Rogers' 28.	Martha.
Rogers' 30.	(<i>Not in exhibit.</i>)
Rogers' 41.	Telegraph.
Umland.	Cottage.
Cynthiana.	Isabella.
Duchess.	Eumelan.
Gaertner.	Barry.
Una.	Creveling.
Noah.	

Latest in ripening :—

Missouri.	Transparent.
Salem.	Amber.
Lugawana.	Elvira.
Pocklington.	Clinton.
Agawam.	

I beg specially to draw your attention to the *quality of*

Moore's Early.	Lindley.
Massasoit.	Rogers' 41.
Lady.	Salem.
Jessica	Pocklington.

The PRESIDENT.—We have seen something from the Agricultural Farm this year that is of importance. It is a fine thing to bring the varieties all together in a section such as that—a very difficult section, indeed, to grow grapes to perfection. You cannot expect to find grapes coming from that section as fine in bunch or berry as you will find them in this section. It is a much more difficult thing to bring them there to a state of perfection. I visited the farm this year, and I was very much pleased indeed to see that their grapes were likely to ripen. It is a very difficult thing in many of the western inland sections to ripen their grapes. In some they cannot ripen at all. This was an exceptional year. We would only expect that the earlier varieties would ripen at Guelph. They have ripened all varieties this year at the Model Farm; they can't expect them to ripen every year. They can only ripen some varieties in a season such as we have just had; it is quite an exception; and as we have seen from the paper, a large bulk of the varieties spoken of have been comparatively worthless in years past. There is no doubt

that they have accomplished, I think, all that could possibly be expected from that section or from any inland section within reach having the same advantages, or disadvantages rather, as far as grape culture is concerned. I think the audience would probably like to hear the paper of Mr. Beall before going into further discussion on the grape question. Then we will take the grape question up generally and hear from the authorities.

GRAPE CULTURE AND TEMPERATURE.

Mr. BEALL.—I fully agree with you as to this being an exceptional year, and it is for that reason I desire to place some figures before you. Mine is hardly a paper; it is "Notes on Grape Culture and Temperature for the year 1887."

The past unusually dry and hot summer has afforded a good opportunity to ascertain with much certainty, the length of time and the quantity of heat required to ripen the varieties of grapes usually cultivated in this province.

Careful notes have been taken in my grounds of the time of ripening of a few varieties; and I am also enabled to give the number of days and the quantity of heat required for the maturity of each of the varieties named below.

The time is computed from the 15th of May, that being about the time when the grape vine buds begin to expand; the time for uncovering the vines being about one week previous to that date.

The fruit of the varieties named was fully ripe at the dates given.

NAME OF VARIETY.	Date of Ripening.	No. of Days Required.	Mean Max. Temp'ture	Total Heat Required.
Early Victor	August 31.....	108	80.19	8660.73
Worden	Sept. 3.....	111	80.04	8884.93
Moore's Early.....	" 6.....	114	80.05	9125.43
Lady	" 6.....	114	80.05	9125.43
Jessica.....	" 10.....	118	79.57	9389.13
Brighton.....	" 13.....	121	79.36	9603.03
Niagara.....	" 15.....	123	79.21	9742.33
F. B. Hayes.....	" 15.....	123	79.21	9742.33
Prentiss.....	" 15.....	123	79.21	9742.33
Vergennes.....	" 17.....	125	79.05	9871.93
Burnet.....	" 20.....	128	78.75	10080.43
Agawam.....	" 24.....	132	78.17	10317.23

The foregoing goes far to show that the estimate of the mean maximum daily temperature for the full period, which may generally be expected without serious frost, as given in the *Canadian Horticulturist* for 1885, page 81, may be taken as being very nearly correct, *i. e.*, that from the 15th of May to the 1st of October—138 days—the mean maximum daily temperature for the full period must be at least 70° to ripen the earliest varieties, such as Early Victor, Worden and Moore's Early; and that for the later varieties, *viz.*, those ripening a little before but not later than the Concord, 72.5°, or a total of say, 10,000° will be necessary.

Heat seems to be the most important factor in determining the time of ripening the grape, for we find from the foregoing figures that the excessive heat during the past summer has shortened the period of growth fully two weeks, which gives another proof of the truthfulness of the proposition advanced by Boussingault, that "the duration of the vegetation appears to be in the inverse ratio of the mean temperature; so that if we multiply the number of days during which a given plant grows in different climates, by the mean temperature of each, we obtain numbers that are very nearly equal."

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It appears to me, however, that the mean maximum temperature of a given locality is a better guide in the cultivation of grapes than the mean temperature. The mean temperature along the north shore of Lake Ontario and that of the high lands, varying from 20 to perhaps 60 miles north of the lake, are very nearly equal during the summer; but the mean maximum temperature during the same period is many degrees higher inland than along the lake shore; hence the reason why grape culture is so much more successful inland than along the north shore of Lake Ontario from Toronto eastward.

The PRESIDENT.—We would like to hear now from Mr. Pettit, who has grown a large number of varieties here.

EXPERIENCE AT WINONA.

Mr. M. PETTIT then gave his experience at Winona with sixty or seventy varieties. Pretty nearly all of you know, he said, what grapes grow in this section; and we who grow in large quantities for market discuss grapes in a different way from what we have heard it done to-day. We consider them from their financial standpoint—from their real value as grapes to make money from.

The PRESIDENT.—That is what we want to hear.

Mr. PETTIT.—I have these varieties here, and my idea was to take up one after another and comment a little on some of its peculiarities, or something about it, and if thought advisable, pass them about to any person who would like to see or taste them. Perhaps I had better start on white grapes first. Niagara—you have all seen that. I think it has combined more good points as a market grape than any other grape we cultivate, in fact, it scarcely has a failure. It is very, very hardy and productive, and quality good, so that a person in growing grapes for market could sell the Niagara at two cents a pound and make as much money, I fancy, as any other variety at three, unless it might be the Concord. The next is the Noah, very hardy and productive, not quite as productive as the Niagara; I think more hardy, very poor flavor. The next is the Lady Washington. It is very productive, somewhat liable to mildew, and poor in flavor. The Duchess, a very nice grape to eat, but does not succeed very well. It will make a very high growth and winter-kill; very hardy at the root, fine grape to eat. The Prentiss is too weak in the vine. It will have a very heavy load one year, and perhaps take two years to recover; I would not recommend it. The Rebecca is a very nice grape, but not a practical grape for vineyard cultivation.

The PRESIDENT.—There is money in it, I suppose.

Mr. PETTIT.—I don't think so. Elvira, I think, is a wine grape. It is productive, but very poor in quality.

Mr. BEADLE.—It wants more heat than we can give it.

Mr. PETTIT.—The Jessica is a very sweet grape, but I would not recommend it for very extensive cultivation as a market grape. It has a very fine flavor.

The PRESIDENT.—It is more an amateur's grape.

Mr. PETTIT.—Yes. Allan's Hybrid is a very good grape, but I would not recommend that. Martha, a nice sweet little grape, good in quality, but not productive enough. The Lady, a fine grape for dessert; early, and I think, when the vines become established, productive. Its earliness and quality are very much in its favor.

Prof. BROWN.—Do you mean as the vine become established?

Mr. PETTIT.—Yes, as the vine becomes established it seems to be stronger and more productive. Pocklington in some places succeeds admirably. In Mr. Woolverton's grounds, as most of you saw yesterday, it is equal to the Niagara, but in many places it is not much better than many of the other whites that we have referred to; it is too slow in growth. It is almost impossible to get wood enough to bear profitable crop. The Taylor is poor in quality, very rank grower, much like the Clinton. Pearl is very much liable to mildew, and poor in quality. Among the reds is Roger 9, one of the finest red grapes we grow, hardy and productive, very fine in quality, keeps well and ships well. Wyoming Red, a very handsome little red grape, early but not good enough

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in flavor, quite productive. You will see a branch on the other side of the room cut from a four-year old vine; they have passed their time now and become dark, but it is a very pretty grape. Roger's 13 is not as good as many of the other red Rogers. Salem you all know; for vineyard cultivation its greatest fault is being more subject to mildew than some other red Rogers, and in showery weather liable to burst. The Amber I would not recommend. Roger's 1 rather late in ripening; in favored localities it it does very well, and is very fine in flavor, and with me is quite free from mildew. Agawam No. 15 is another of the best red Rogers. The Jefferson is rather late in ripening; a nice grape, but I would not recommend it for vineyard purposes.

Mr. PETTIT.—Iona, a small sample. Many of these samples are small. It ripens late.

Dr. BEADLE.—What do you say of the quality of the Iona when it does ripen?

Mr. PETTIT.—Good, but like the Catawba there are only a few favored localities where it will succeed, that is, every year. Roger's 50, not as good as most red Rogers. Catawba, there are only a few favored localities where it will succeed every year, but where it will it is a profitable crop. Yields well and sells well.

Prof. BROWN.—A good table grape as well as wine?

Mr. PETTIT.—Oh, yes, very fine dessert grape. This you all know is a fine little grape—Delaware; it requires closer pruning and finer cultivation than any other. If properly handled I think it is as profitable as any other grape. The early Victor, good in flavor, not quite early enough, and rather small. Among the blacks is the Creveling; its great fault is straggling bunches; hardy. Here is a grape that originated here in Hamilton, supposed to be a very early grape, and a seedling, but judging from the leaf I am strongly inclined to think it is one of the black Rogers that has got astray, and it is too late in ripening. Roger's 32, much like many of the black Rogers, their characteristics are much the same. A very small sample of Roger's 43; it is not as profitable a crop as 4 or 44. Miriam is a sort of wine grape, very sour, a great deal of coloring matter in it. Any person who wants to cover any fence or building with a vine can plant nothing nicer; the foliage is a very fine, golden hue the early part of the season, and it will grow any distance, and is very hardy. The old Isabella; you all know that its great fault is overloading and taking one year to rest.

Dr. BEADLE.—Do you find it a profitable market grape?

Mr. PETTIT.—I have, yes, although without it is carefully watched it will overload, and takes a year to recover. Munro I would not recommend. Roger's 4, one of the best black Rogers for vineyard cultivation. Worden, a very fine flavored grape, productive and hardy; should take the place the Concord does in everything but shipping; it is a little too tender.

The SECRETARY.—How much before the Concord with you in ripening?

Mr. PETTIT.—Five or six days.

A MEMBER.—How does it ripen with you compared with Moore's Early?

Mr. PETTIT.—It does not color and bloom quite as early; at the same date it will be as sweet.

Mr. MORDEN.—I noticed Mr. Beall placed it before Moore's Early in ripening.

Mr. BEALL.—The coloring of Moore's Early commenced much earlier.

Mr. PETTIT.—Roger's 34 is much the same as many of the black Rogers; they are all very high growers, and somewhat liable to mildew. Here is August Giant; it does not ripen in August. It is a very large grape, pretty good in quality; I think would be a poor shipper; tender.

A MEMBER.—Is that the old Ontario that was shown years ago?

Mr. PETTIT.—I could not tell you; I don't think it is. Eumelan, pretty early, good quality. The old Concord, you all know it. Dracut Amber is in reds what the Champion is in blacks—the first and the poorest. Here is the Champion. Brighton is a fine red grape if taken just when it is ripe; if allowed to hang too long it loses its sprightliness.

Dr. BEADLE.—What about its value for market?

Mr. PETTIT.—I think Roger's No. 9 and 55 fill the place better. Diana, an old grape that you all know, and for packing away for winter use retains its sprightly flavor better than any other grape; keeps well.

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Mr. MORDEN.—What about the Vergennes?

Mr. PETTIT.—I have not had much experience of that, but I think it would keep all winter; it is very tough in the skin. Senasqua I would not recommend. Roger's 19 is a good black grape. I think I have now mentioned most of those that are worthy of mention, and trust you will excuse my very poor way of introducing this matter; and any of you who would like to see, or taste or take any samples, do so.

The PRESIDENT.—Do you think there is any danger of overstocking the market? What market do you get now for the grape crop?

Mr. PETTIT.—Well, the markets of the world now have been pretty well overstocked. Montreal is our great outlet, and Toronto; and there is no question that they have had too many grapes this year rushed in; with a good peach and plum crop the market has been glutted.

The PRESIDENT.—Have you tried any other markets?

Mr. PETTIT.—There have been some shipped to the North-west; but express rates are so high that it injures the business in that way, and it will take too long to get them through by freight.

A MEMBER.—Did you ever ship any to Buffalo or New York?

Mr. PETTIT.—They are lower there than here. Chicago has been much lower than here.

A MEMBER.—Do you think grapes are below a paying profit?

Mr. PETTIT.—No, I don't think that grape-growing is overdone any more than any other line of farming. I think perhaps at present prices, this season's prices even, there is as much money in growing grapes as in any other line of farming.

A MEMBER.—Have you any idea how many grapes are out in Canada?

Mr. PETTIT.—I have not.

Rev. Mr. MURRAY.—Could Mr. Pettit suggest half a dozen varieties for good winter keeping?

Mr. PETTIT.—Diana, Isabella, Salem, Roger's 9, I think Vergennes, but then that is not generally cultivated; the 15 will keep equally well, although you are getting three red Rogers—not much of a variety. The Niagara, if carefully handled, will keep on through January. The great trouble in keeping the Niagara for market is in shipping it; if not carefully handled it is liable to tear loose. Then it discolors, and after it stands a little longer becomes mildewed, and that affects the grape next to it; but if they could be handled carefully and not knocked loose in this way, it will keep a long time.

Dr. BEADLE.—What are the keeping qualities of the Clinton?

Mr. PETTIT.—I never tried it. I think, though, it would keep well. I have seen them hanging on the branches nearly all winter.

PRESERVING GRAPES FOR WINTER.

Mr. MORDEN.—This last question suggests a very important one that it is not too late to discuss for the benefit of the grape interest this year,—How to preserve grapes for the winter. I think there are one or two gentlemen that could give this information. There are a great many grapes in the country, and fruit will be scarce in a few weeks. If these can be preserved for a few weeks it will be to our advantage. It is to be regretted that not much has appeared in print of late on the point.

The PRESIDENT.—We would like very much to hear from one that has had some experience on this point. Mr. Pettit, I think probably you can give us information on that point.

Mr. PETTIT.—I may just say that Mr. Cline and myself, and I think some other growers, last year, owing to the prices being dull late in the season, stored away quite a quantity of Niagaras—just put them away in the baskets. I put away ten ton.

Those grapes kept in the baskets until along in December, and we found at that time that the market for grapes was over, the demand was so light that you could not sell any quantity. One consignment that I sent to Toronto was in the commission house several weeks, and I wrote to know if they had sold them; they said they were still on hand, and I asked them to express them back to me; I thought they would be worth the charges back to use at home, but they had been handled pretty rough and were not worth much. Mr. Cline's experience was far worse than mine in setting them by for a later market; but if carefully packed and set in a cool place in baskets, the Niagara will keep on until the holidays in very good shape. The year before last they kept in prime condition. Last year, from some cause—I don't know what—they did not keep as well.

Mr. JOHN OSBORN, (Beamsville).—Quite a number of years ago—in the early days of the Fruit Growers' Society, I thought I would try an experiment with some Isabellas, and I took a couple of cheese boxes—that was all the extent of my experiment,—a couple of those round cheese boxes,—I put them layer after layer, merely putting some leaves between the layers, and then I dug deep holes in the earth in a dry knoll, and I buried them in the earth. I kept them there until the Fruit Growers' meeting, which was held in February, in Hamilton, and I took some bunches of them to the Fruit Growers' Society, and showed them, and they were really in a remarkable state of preservation; they were pronounced to have been very well kept; they were firm and solid and in a very good state in the month of February; and that was the way I kept them. I have done nothing in the way of experimenting since.

Mr. A. M. SMITH.—Some of you who were in Collingwood last June will remember that I exhibited some specimens of Salem grapes in a very good state of preservation. They were kept by Mr. Kerman. Perhaps he can tell you how he preserved them.

Mr. BOOKER.—Our system of packing grapes and sending to market is not a very good one. In the United States, where the grapes are handled by the hundreds of thousands of pounds, they are gathered in boxes or trays in the fields; those trays are then removed to the packing house; they are then thrown on broad tables and allowed to remain there three or four days until the wood is ripened; then the grapes are packed in baskets and sent to market. In this way they will keep much longer and carry in better condition. At the same time all unripe grapes, musty grapes, etc., are picked out, and the kinds assorted. Thus they go to market in good condition and make a fine appearance. Now, we in Canada gather them right off the vines and pack them up and send them to market and expect them to keep. It is utterly wrong. Some ten or twelve years ago a gentleman, who had a friend in Scotland, wanted us to try the experiment of sending some grapes there. I took some baskets—twenty-pound baskets—of Isabella and kept them in a dry place for about five days, then packed them up and sent them to Glasgow, and they went in very good condition, and the returns were very satisfactory indeed. We never repeated the experiment; but no doubt Isabella and some other varieties could be shipped—if properly handled; but picking them right from the field and sending them away, as we do, to Montreal and other places, no wonder we hear of their arriving in bad condition. We must change our system of handling grapes.

Mr. KERMAN.—Mine is a very old system—one that was practiced before I came to Canada. I take the grapes on a sunny day when they are perfectly dry, and seal the stems, and I have hitherto put them down in a candy box, but if I was to put them in a large quantity I would put them in ten-gallon kegs. Dip the ends in sealing wax; get some dry sawdust; put some of the sawdust at the bottom; put a layer of grapes on; cover them with sawdust; then take the box and shake them till the sawdust has settled in between the grapes, and put a little more on, and then another layer of grapes, and so build it up. Then I take some glue, and glue some strong brown paper right around the box so as to make it perfectly air-tight; and I hang it up in the cellar and let it remain till I want them. I have tried that for four years. There are some gentlemen here who have seen my grapes in July, and they were equally as good as they were the day I took them off the vines. But I have only tried the Salem grape in that way. I have

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tried the Vergennes, and I put them in very small boxes, but they were not well preserved. I believe if the Vergennes had been put in the same as the others they would have kept equally long. When you take your grapes out of the sawdust you can take a little woollen wisp, or anything that you have to clean your piano with, and just dust them off. You cannot do that with the Dianas, although they are a good grape to keep, because when you take them out they will be full of sawdust, and you can't get it out; for if you attempt to get the sawdust out you will knock all your grapes off. I have tried the Amber Queen, the Delaware, the Catawba, the Vergennes and the Salem; but I find there is no grape that is equal to the Vergennes for keeping. They are very fast on the stem; you can take and shake them in July and scarcely shake them off. But as for the Pocklington or the Niagara, I don't think that they would do on my plan. As Mr. Pettit said, many people put them in baskets and hang them up; but the reason they don't keep well is, they don't hide the cellar key. If they would only lock them up and hold the cellar key they would keep them a good deal longer.

Mr. MORDEN.—You can hang them in my cellar as much as you wish.

Dr. BEADLE.—Do you use pine sawdust?

Mr. KERMAN.—No sir, I use all hardwood sawdust, if I can get it. The pine sawdust is apt to give them a taste of the pine, and you can't get the pine sawdust to dry. The finer you can get your sawdust the better.

A MEMBER.—It is more like wood dust that you use—filings; it is finer than ordinary sawdust?

Mr. KERMAN.—Yes.

Mr. ORR.—I think our past experience shows that it is no use to try to pack grapes for market purposes, for every family can put down a few baskets for themselves. We think this so important that the Stony Creek Grape Growers' Club issued 50,000 circulars last year,—sent them to all parts of the Province with the baskets of the fruit; and we have done the same thing this year, and in that circular are recipes for putting down grapes and packing them away for family use. We have sent 50,000 this year, advertising at considerable expense for ourselves and the rest of the growers over Ontario.

A MEMBER.—Is the Niagara grape sufficiently hardy north of Hamilton to stand the winter?

The PRESIDENT.—Oh yes; we have found the Niagara grape hardy all through the west. We grow it at Goderich, and up to the north of that. Along the lake there, any of these varieties are sufficiently hardy. The Niagara is there a high grower and a heavy bearer, as it is here. We never lay them down, although I believe in these colder regions it pays to lay them down. I have made several tests on that from time to time, and my experience is this: You take several vines, lay one vine down, and just opposite it lead the other one up on the trellis, and you will find the one that is laid down, covered over with soil, the best every time. I believe the one that is laid down in winter will bud very much earlier in spring when raised up, and as a result will blossom earlier and ripen its fruit earlier. I think it makes a decided difference. It may not make the same difference in all sections, but I think in the colder sections you will find it makes a most decided difference.

SHIPPING FACILITIES FOR THE TRADE.

The PRESIDENT.—While speaking of the grape, I agree with one gentleman that made the remark that he had tried a shipment to Scotland. Now from my experience last year I have made up my mind that there is a splendid opening for our grapes in Scotland. If I were introducing the trade in the old country, in Britain, I would begin at Glasgow; I would work them in through Scotland first. You must educate the people up to eating our grapes. Those British people require education in eating fruit of all kinds. (Hear, hear.) They don't know how to eat apples yet; they have only commenced. (Laughter.) It is a very few years ago that they knew what an apple was almost; they did not know what a good eating apple was; their idea was only for cooking. They are only beginning

to eat apples, and they are beginning in downright earnest now. I consider that our trade with that country is merely in its infancy; the trade is going to be something enormous in a few years, because they are very fond of good things in that old country. They are some time making up their minds to go into anything; but when they go in they do it in British downright earnest. I believe there is destined to be a good market for our grapes. The question is to be looked into as to the method of shipping; to see if there is any way at all—through the Government or in any other way—of tying down those officials on the railways and steamship companies, compelling them to handle our packages in better shape, and not to fling and toss them about the way they do. I observed they always seemed to handle any article that has a handle to it—anything in the shape of a basket—much better than they will anything like a square box or a round parcel that has no particular hold to take up with the hand; but those packages of that description, they certainly fling them about in any and every shape; and our grapes that we shipped to the Colonial Exhibition certainly sustained more damage just by the bad handling than any other way. I am satisfied they can all be shipped, or the most of our varieties can be shipped, thoroughly well to the old country; they can be shipped in splendid order there if they handle them in a half christian-like way. Another point I was satisfied of over there was this, that only for the wisdom—if it can be called wisdom—of our legislators in framing the Scott Act and practically shutting off the manufacture of wine from the grape, as well as cider from the apple, that a number of manufacturers from that country would be perfectly willing to come to this country and go into the manufacture of wine from our grapes on a large scale. They enquired there regarding our laws particularly. At the Colonial Exhibition we had a number of enquiries on that very question from parties there—manufacturers who got some of our grapes—in fact they were refuse grapes that were unfit for the table that were handed over to them; and they made some tests with them, and at the same time made some tests with some refuse apples we had. I did not hear at the time we came away—although they promised to give us the test on the grapes—I did not hear what the result of the test on the grapes was. I saw some gentlemen at the time, and they said they had great hopes of the test; they thought they would be able to make a very fine quality of wine. The result from the apples they did give me, and the statement was this, that taking the juice of our apples and adding twenty per cent. of water, they had a better article to make cider out of than the pure juice of their own home-grown apples. So much for the cider and the juice of our apples. I believe the grape-growers ought to pursue this question of a market for our grapes, and it is time to pursue it now. I believe it would pay to follow up that British market, and begin at Glasgow. There was a gentleman at the meeting at Colingwood that spoke there about our grapes, and he is a broker in Glasgow, a very responsible man, I think, from all I have seen or known of him for the last two years, and he would like to handle our grapes to a small extent. Of course it is a trade that must be handled carefully, because people must acquire that taste for our grapes first. Those who do eat grapes there are accustomed only to hot-house grapes or the poor white Spanish grape, which is a very poor affair compared with many of our varieties; and I think there will be no difficulty in introducing our grapes if gone about in the right way and gone about carefully. I think it is going to be one of the most important markets that we can ship to.

Mr. ORR.—What can the Spanish grape be laid down there for?

The PRESIDENT.—They sell them for about tenpence a pound—sixpence to tenpence a pound. They come there sometimes damaged greatly. Well, you know, we could lay our grapes in there much lower than that.

A. H. PETTIT.—I think you will find no one in this room who will undertake the shipment of Niagara grapes to the old country; but I think the suggestion you threw out last night could be acted upon, in reference to transportation. It is very difficult for shippers to deal with those large transportation companies, and if the case were properly handled there would be any quantity of grapes sent forward this year; and it is not too late to do it yet. Now I would suggest that the only body in this country who can successfully do it should do it—the representatives of the fruit-growers of Ontario; and

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I would move that the President, Vice-President, Mr. Dempsey and the Secretary be a committee to correspond and confer with the steamship companies, or take such steps as may be necessary, in reference to getting facilities for the shipment of our grapes to the old country. Shipments that have been tried by our shippers are very discouraging, and as long as they turn out discouragingly the shippers of this country must be content to take a large discount on their apples. It is simply that they are cooked on board ship—placed in hot storage, or something of that kind. I think the matter of the fruit trade of this country has got now to be of such importance that if ever we are to get accommodation from the steamship companies it ought to be now.

Mr. MORDEN seconded the motion, authorizing the committee to speak for the whole of the fruit-growers of Ontario, which was put and carried unanimously.

The PRESIDENT.—For my own part I will have no objection at all. In fact for some years past I have had a good deal of such business with these companies, and I now take what some people might call a fiendish delight in pitching into them. (Laughter.) They require it; they certainly do. They speak well to us; they receive us very nicely indeed, and they promise everything that can be promised from any one; but my experience has been that there has been very little good done by it so far. However, we can make another trial, and the only thing is to keep continually at them; and I have found a good way of working, it is this,—to go to one steamship company and say, "Now, we are going to try you, but we are going to try these other companies, too"; and when we go to a Canadian company and say, "We are going to try you, but we don't like the way you handle goods; we are compelled now to ship by New York, and we are going to try that and let you loose altogether." This gets them down on their knees, I find, and they want to hold the trade, and they promise then; and I believe they handle a good deal better when we pit the one against the other. There is becoming now a very strong competition for our freight trade; the American lines are bidding very strongly against the Canadian lines; and I think there is more chance of getting something from them in that way than we have had for years past.

Dr. BEADLE.—I was going to ask in what order those Spanish grapes usually arrive; they are packed in cork saw-dust?

The PRESIDENT.—Yes; you would open up a little cask, and the grapes would be quite decayed and broken up. There was a good deal of loss one way or the other in every package opened.

Mr. OSBORN.—How were the goods packed that were sent to the Exhibition?

The PRESIDENT.—In several ways; in two or three bunches in a berry box, and those boxes contained in a case with some paper in them. I don't think we had any in saw-dust; had we, Mr. Dempsey?

Mr. DEMPSEY.—No.

Mr. OSBORN.—How would you recommend packing for shipment?

The PRESIDENT.—That is something that has to be experimented upon. I would hardly give an opinion on it yet. We should try the saw-dust; but I believe in trying the saw-dust our grapes would have to be cut and kept for some time until the wood and the stems thoroughly ripened and dried up, and then we should see that nothing was packed there but perfect berries.

Mr. OSBORN.—Something has been said about educating the British taste to the eating of grapes. It is quite correct that their taste is not educated yet as to the eating of apples. I have letters from dealers, and the only thing they ask for is red apples. They say, "nice showy red apples,"—that is all the length of their education; they don't ask for our fine varieties.

Mr. KERMAN.—You should take into consideration not only packing but unpacking again. You will find there will be more grapes broken in the unpacking than, in the transport, unless they are packed in such form that you could take them out without having to break them off the stem.

Mr. ORR.—Last year Mr. Smith, emigration agent in Hamilton, got three baskets of Niagaras from me. They were packed in ten-pound packages, with tissue paper. One each was sent to emigration agents in England, Ireland and Scotland, and he got reports from them that they all arrived there in first-rate condition.

Mr. DEMPSEY.—I had in my charge a few baskets of grapes when I went across that were packed in baskets, probably fifteen pounds to the basket. Every one of those baskets arrived in perfect order. They arrived just as nice as some of your grapes I saw when I arrived in Toronto. With respect to your Spanish grapes, I saw in Glasgow sold some hundreds of barrels of them, and they were sold for less than our apples were bringing; they were sold at auction. I fancy that those Spanish grapes can be laid down in England for less money than our grapes; but our grapes, to my taste, are much superior to those. Then there seems to be no difficulty in shipping them any distance, that is, the Spanish grapes; you are all aware what they are and how they will stand shipment. I think some of them, as I saw them there, could be almost counted as safe to walk over and not crush them. (Laughter.) They were very firm and solid—almost unfit to eat. I bought them in London one day; I bought a bunch, particularly I remember, for threepence, that weighed a pound and a half; so that they are sold from some fruit stands in London very cheap indeed. They were not these white grapes such as we see generally of the Spanish grapes, but they were a pink color, much superior to the white. I have seen there some of those grapes peddled or hawked—they call it there—around the streets by boys, in baskets. I have seen them sold for threepence a bunch, fourpence a bunch, and so on. Those bunches all go over a pound, or fully a pound. I am a little suspicious about our grape shipments ever being satisfactory, to England; notwithstanding, I am satisfied that we can lay them down in Glasgow nearly as perfect, if we can obtain cold storage, as we convey them here; but we must have a basket with a handle to it. They will always pick them up with a handle; but if they are in a box, I don't care what you mark on the box, or if you stand right by and say, "There is precious fruit there I don't want destroyed," they are just as sure to drop it upside down when they set it down after carrying it on board ship, or off ship, or anywhere else—just as sure to drop it upside down as they have it in their hand. That seems to be their nature. (Laughter.) I don't know where they get it from.

Mr. MORDEN.—The question I wished to start was this, is there not some method of keeping grapes till Christmas without the sawdust. It seems to me it can be done after weather-curing for some days, that they might be packed, perhaps, in leaves—in dry, autumn leaves, surrounded with paper—or in a paper bag, and perhaps that paper bag within a basket, and the basket hung in a cool, airy place, and when cold in the fruit house a little stove could be used; and those grapes, put upon our own Christmas market, would prove profitable. It seems to me that this is a little problem that could be solved, and that the grapes could be preserved from now until Christmas, cheaply, without the use of sawdust. I have seen a neighbour of mine shipping grapes at Christmas. I am not aware of his methods, but I think he did not adopt the sawdust plan. I predict we will see a good deal of fruit shipping at Christmas within a few years. I think it can be done, but I have no experience.

A MEMBER.—Can you find a market?

Mr. MORDEN.—I should say so.

The PRESIDENT.—As we have only a few minutes to spare we must close the discussion. The Secretary has a couple of questions here and will read them.

THE PEACH-BORER.

Q.—When is the best time to hunt the peach-borer, and how many times a year? How old is the tree before the borer ceases to molest it? Also, is it injurious to a peach orchard to plough it the latter part of this month (September) or the first of next?

The PRESIDENT.—I think the Secretary can answer that.

The SECRETARY.—I can give my own practice with regard to this peach-borer. The worm develops into a moth during the summer months, in June, July, and August; and, in order to prevent his escape and his doing mischief to other trees, it is necessary that he should be destroyed early in the season; and, therefore, I usually go over my peach trees in May or early in June to take them out and destroy them, and then I have them

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banked up—a bank of earth up a little above the collar of the tree, because the moth deposits its eggs just at the neck there, as it were, between the trunk and the root, and the borer works down into the root; and, by a little mound of fine earth around the tree, I find the work of this enemy is quite avoided, and the tree is protected against this borer. I never found a tree old enough yet to withstand his attacks. As to the cultivation of the peach orchard, I think it is not best to cultivate too late in the season, because it is best to get maturity of growth before the winter season; but, perhaps, after the growth of the season is completed, and the leaves have fallen, it would be safe enough.

WINTER INJURY TO RED RASPBERRIES.

Q.—Can any gentleman explain the injury to red and hybrid raspberries last winter, although peaches, quinces, grapes, and blackberries came through safely?

Mr. HILBORN.—I don't think I can answer that question. I think that was asked by Mr. MORDEN. He was talking to me yesterday about it, and it is a mystery to me; I don't understand it. I would like to hear some one speak on the question who does understand it. In my experience, I found that where they were killed as he spoke of that they are killed by winter-killing, and I have never found the Shaffers to be injured where the Cuthbert would stand.

Mr. MORDEN.—This injury to the red raspberries extended through the United States to some extent, and extended through this country to some extent. It probably was more special where there was a mistake in the pruning, that is, where they were clipped off at this season and there was a later growth; but, even admitting that, it is rather strange, it was exceptional. I never lost points before, nor have I known it; but during the past winter the Cuthberts were badly injured. I think it very remarkable that the blackberry should go through unharmed to the very tip—a thing they very seldom do, even with us—and that the red raspberry should perish almost by wholesale. Mine perished altogether almost, so that I ploughed them up. Where such was the case the old wood was trimmed out, and they were fall pruned. I think we can avoid that by not being over eager. Leave the pruning over till the spring; that is what I shall do this year.

A MEMBER.—Were the plants scarred down to the ground, or was it the tips?

Mr. MORDEN.—All the way down; everything; some with the tips, however, and some clear to the ground—a thing unknown, almost, even where the roots were entirely destroyed: and they suffered the most where the snow banks failed to lodge. I found that on the west side of the patch where there were snow banks, they came through safely.

A MEMBER.—I would sometimes find that raspberry canes were injured in a mild winter by the sudden changes in the weather from hot to cold, and would generally notice that on the side of the branch towards the sun they would be injured the most. The north side of a raspberry cane might be quite green, while the side exposed to the sun would be killed entirely.

Mr. MORDEN.—I suspect that this was done in April.

REPORT OF THE FRUIT COMMITTEE

The PRESIDENT.—There is a report from the Fruit Committee; and I think, as there would be no time to hear it,—it is a description of the fruits on the table,—will the meeting consider the report as read?

The report of the committee is as follows:

Mr. Allen Moyer, Jordan, exhibits a seedling grape of good quality, although past its time of ripening; also a seedling peach of fine appearance and quality, good.

Mr. Dennis Vanduzer exhibits the Centennial peach, Orange quince, and Beurre Clairgeau pear, all fine specimens.

Mr. J. H. Biggar, of Winona, some fine specimens of Niagara grapes.

B. R. Nelles exhibits six varieties of grapes; very fine.

A. H. Pettit, several varieties of apples, pears and grapes.

Mr. J. Armstrong, some fine samples of Northern Spy, Holland Pippin, Roxbury Russet, and R. I. Greening.

Mr. E. J. Woolverton, Goodale, Keiffer, Pres't Druard, Belle De Beaufort, Vicar Beurre Clairgeau, and Duchesse D'Angouleme pears, all very good specimens; also Diana Rogers 44, 15 and 4, Ann Arbor, Delaware, Moore's Early, Worden, Perkins, Pocklington and Brighton.

Mr. P. E. Bucke, of Ottawa, exhibits three bunches of a new grape, the Northern Light, originating in the Ottawa Valley, of fair quality.

Mr. Linus Woolverton exhibits quite a number of seedling apples, No. 1 to No. 9, of beautiful appearance, and some of good quality; also some fine samples of his seedling, the Princess Louise or Woolverton apple.

Mr. P. C. Dempsey, of Albany, shows some fine pears, grown by him from imported stock; one variety to all appearance resembling the Bartlett, yet later in ripening and of excellent quality, will no doubt create some excitement among fruit growers in the near future.

Dr. Millward exhibits Winter Nelis and another pear without name.

Mr. I. F. Calder shows Flemish Beauty, Duchesse D'Angouleme, Sheldon, Kingsessing and Bartlett Pears; also Æsopus Spitzenberg, R. I. Greening, Seek, Talman Sweet, Snow, and Gloria Mundi apples, all fine specimens.

Mr. W. D. Kitchen exhibits one branch of a Niagara vine, with one hundred fine bunches, an immense crop.

Mr. S. A. Nelles exhibits a small branch, upon which were twenty-eight nice specimens of Lady apple.

Mr. D. Kerman, some canned plums, very beautiful in appearance; also some good specimens of Catawba, Woodruff Red, and Delaware grapes and Sheldon pears.

Messrs. Smith and Kerman exhibit Smith's extra late and Centennial peach; also the Princess Louise or Woolverton apple, very fine specimens.

Mr. F. G. H. Pattison exhibits four varieties of apples, fine samples.

Mr. Thomas Beall, of Lindsay, three varieties of grapes, Niagara, Burnet, and Agawam, very fine, and also Catawba grapes and Grimes Golden apple, grown by D. Laek, of Lindsay.

Mr. M. Pettit, of Winona, exhibits sixty-six varieties of grapes, some of superior excellence, all grown on his experimental grounds, a full report of which may be found in the proceedings.

Mr. J. R. Pettit exhibits Concord and Rogers 15, very good samples.

Mr. A. G. Muir shows Brighton and Niagara, fine specimens.

Mr. C. S. Nelles, some beautiful bunches of Niagara grapes.

Professor Brown, of the Agricultural College, Guelph, shows some forty odd varieties of grapes grown upon the experimental grounds, which attracted much attention, and many varieties were of excellent quality.

Mr. John D. Roberts, of Cobourg, shows a fine collection of foreign varieties of apples, grown at Cobourg from imported stock. Among them are fine samples of the following varieties, viz., Lord Suffield, Cellini, Cox's Pomona, Cox's Orange Pippin, Margil, Lady Henniker, Small's Admirable, Reinette Superfine, Tower of Glammis, Hawthorden New, Bedfordshire Foundling, Worcester Pearmain, Peter Smith and Nonnetil.

To sum up, your committee can only repeat again that the specimens placed upon the tables were very numerous indeed, and of very fine quality throughout; and to attempt to give a fuller report upon the various exhibits, would require very much more time than your committee were allowed.

A. H. PETTIT,
P. C. DEMPSEY, } Fruit Committee.
D. KERMAN, }

Grimsby, 28th Sept., 1887.

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A MEMBER.—What about the next meeting?

The PRESIDENT.—That is left with the Executive Committee, and will be decided on shortly. We can't tell where the next meeting will be. It will hardly be held in Grimsby so soon after this meeting; but you may rest assured a meeting will be held in Grimsby before long. We have taken a fancy to the Grimsby Park, and we want to have a mass meeting of the fruit-growers. I think it would be a fine thing to get a mass meeting of the fruit-growers to assemble together at the Park. I think it would be a grand place to discuss all the matters connected with our Association. Again we bid you farewell. We shall long remember you and your attendance here. I am of the opinion that this has been one of the best meetings we have had in the history of our Association. (Applause.)

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TREASURER'S REPORT FOR THE YEAR 1886-7.

RECEIPTS.		EXPENDITURE.	
	\$ c.		\$ c.
Balance on hand at last audit.....	740 00	Estate of D. W. Beadle.....	729 47
Members' fees.....	1,880 75	“ “ per Copp, Clark & Co.....	394 03
Advertisements.....	82 88	Canadian Horticulturist.....	1,114 07
Government grant.....	1,800 00	Audit 1886.....	20 00
Sale of fruits shown at Colonial Exhi- bition.....	67 16	Stenographer.....	137 50
Back numbers and bound volumes Hor- ticulturist.....	20 90	Officers' expenses.....	301 81
Trial trip.....	13 50	Freight, express and duty.....	125 08
Surplus lithographs.....	7 00	Postage and telegrams.....	76 57
		Plant distribution.....	268 18
		Printing and stationery.....	60 75
		Chromo lithographs.....	202 63
		Wrappers, etc.....	8 25
		Illustrations.....	12 75
		Commissions.....	123 90
		Caretaker, Winter Meeting.....	2 00
		Discounts and collections.....	20 13
		Small items.....	5 63
		Salary Secretary-Treasurer and Editor	500 00
		Clerical assistance.....	10 00
		Balance on hand.....	499 44
Total receipts.....	4,612 19		4,612 16

I, the undersigned Auditor, have duly examined the accounts of the Treasurer of the Fruit Growers' Association of Ontario, and certify them to be correct, showing a balance of \$499.44 in the bank to the credit of the Association.

CHARLES DRURY,

Auditor.

TORONTO, September 25th, 1887.

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APPENDIX.

I.—REPORT ON CANADIAN FRUITS EXHIBITED AT THE COLONIAL AND INDIAN EXHIBITION, OCTOBER 20th, 1886.

A special meeting of members of the Fruit Committee of the Royal Horticultural Society was held this day in the Colonial and Indian Exhibition, F. F. Rivers, Esq., in the chair, to inspect the collection of hardy fruits exhibited by the Canadian Commission.

These comprised extensive collections of apples, pears, grapes, etc., from the Provinces of Ontario, Columbia, Quebec, Nova Scotia, New Brunswick, etc.

Apples constituted the most prominent and important feature, and proved of much interest to the committee, many of the examples shown being of large size and extremely handsome in appearance—the high coloration of many being specially remarkable and noteworthy—greatly excelling in this respect the same varieties grown in this country.

The following varieties of apples were specially noted as possessing fine appearance, viz:—Beauty of Kent, Blenheim Orange, Ben Davis, Boston Russet, Blue Pearmain, (good) Bourassa Russet, (Scarlet Russet), Baldwin, large, good, Cayuga Red Streak, Colvert, Canada Red, Clyde Beauty, large, Emperor Alexander, extremely handsome, Fillbasket, Fallawater, Flushing Spitzenburg, Foundling, excellent quality, handsome, Guile Noire, dark, Gravenstein, good, Gloria Mundi, very large, Hamilton's Beauty, Hawker Pippin, Hyslop Crabs, very beautiful, Jonathan, small, bright, good late, Johnston Red, small, King of Tomkins County, very large and beautiful, King of the Pippins, Mann, late green, Maiden's Blush, very handsome, Mammoth Pippin, Northern Spy, Ribston Pippin, Republican, Snow or Fameuse, excellent, St. Lawrence, Seek no Further, Swazie Pomme Grise, Trenton, very handsome and good, Twenty Ounce, Vandevere, peculiarly spotted, Wealthy, fine quality, good color, Wagener, Wellington, Yellow Bellefleur, fine quality.

Cox's Orange Pippin was remarked as being greatly inferior to those of English growth, both in appearance and quality.

The collection of pears did not present such an attractive appearance, some very fine samples were, however, shown of the following varieties: Beurré Clairgeau, Beurré Hardy, Beurré d'Anjou, Duchesse d'Angoulême, Flemish Beauty, Louise Bonne of Jersey, Marie Louise, Mount Vernon, Onondaga, Vicar of Winkfield, White Doyenne (extremely rich.)

Grapes made a conspicuous display, but of these, as dessert fruit, no opinion could be expressed—the peculiar foxy taste and gelatinous flesh belonging to the grapes of America requiring some experience to discriminate. Some of Rogers' new seedlings were remarked as both large and handsome.

The following new seedling fruits, submitted to the committee, were considered worthy:

(1) Apple—Trenton Seedling from Golden Russet, raised by Mr. P. C. Dempsey, Ontario. Fruit medium size, sound, bright red; flesh tender, sweet, and extremely pleasant, somewhat resembles the Snow Apple.

(2) Apple Seedling from Mr. C. G. Fitzgerald, London, Ontario. Fruit medium size, highly colored; fine, tender flesh.

(3) Apple Seedling from Mr. W. Scott, Lambeth, Ontario, greatly resemble "Duchess of Oldenburg."

(4) Seedling Pear (Dempsey) raised by Mr. Dempsey, Trenton, Ontario, from William Bon Chretien and Duchesse d'Angouleme. Fruit large, resembling Duchesse d'Angouleme; flesh melting, sweet and pleasant.

(5) Seedling Grape Emerald, from Prof. Wm. Saunders, London, Ontario, was considered the best of the Canadian sorts exhibited.

The following resolution was unanimously passed by the committee:

"Having inspected the extensive and attractive exhibition of hardy fruits comprising apples, pears, grapes, etc., from the several fruit growing provinces of the Dominion of Canada, the committee desire to express the great gratification they derived from the opportunity of seeing the fine growth and high color of the majority of the specimens. Many varieties were tasted and found excellent, more especially the tender fleshed apples.

"In comparing some well known varieties that have long been in cultivation in Great Britain, the Canadian apples are found to differ in that rich flavour which is peculiar to some of the British apples.

"The committee are aware that some samples of fruit were gathered before maturity in order to be presented at this Exhibition."

(Signed) A. T. BARROW,
Secretary to the Fruit Committee of the Royal Horticultural Society.

II.—STATUTORY PROVISIONS.

It is provided by the Agriculture and Arts Act, 49 Victoria, chap. 11 (1886), that the Fruit Growers' Association shall be a body corporate, comprising not less than fifty members, each paying an annual subscription fee of not less than \$1; that it shall hold an annual meeting at such time and place as may be determined upon; that the retiring officers shall at such meeting present a full report of their proceedings, and of the proceedings of the Association, and a detailed statement of its receipts and expenditure for the previous year duly audited by the Auditors; that the Association shall at such meeting elect a President, a Vice-President, and one Director from each of the Agricultural Divisions of the Province (mentioned in Schedule A following), and the officers and directors so elected shall appoint from amongst themselves, or otherwise, a Secretary and a Treasurer, or a Secretary-Treasurer; and that the Association shall also elect two Auditors.

Vacancies occurring through death, resignation, or otherwise in the directorate of the Fruit Growers' Association, shall be filled by the Board of Directors.

The officers shall have full power to act for and on behalf of the Association, and all grants of money and other funds of the Association shall be received and expended under their direction, subject nevertheless to the by-laws and regulations of the Association.

A copy of the Annual Report of its proceedings, a statement of receipts and expenditure, a list of the officers elected, and also such general information on matters of special interest as the Association have been able to obtain, shall be sent to the Commissioner of Agriculture within forty days after the holding of such annual meeting.

III.—SCHEDULE A.—AGRICULTURAL DIVISIONS.

1. Stormont, Dundas, Glengarry, Prescott and Cornwall.
2. Lanark North, Lanark South, Renfrew North, Renfrew South, Carleton, Russell and the City of Ottawa.
3. Frontenac, City of Kingston, Leeds and Grenville North, Leeds South, Grenville South and Brockville.
4. Hastings East, Hastings North, Hastings West, Addington, Lennox and Prince Edward.
5. Durham East, Durham West, Northumberland East, Northumberland West, Peterborough East, Peterborough West, Victoria North (including Haliburton) and Victoria South.
6. York East, York North, York West, Ontario North, Ontario South, Peel, Cardwell and City of Toronto.
7. Wellington Centre, Wellington South, Wellington West, Waterloo North, Waterloo South, Wentworth North, Wentworth South, Dufferin, Halton and City of Hamilton.
8. Lincoln, Niagara, Welland, Haldimand and Monck.
9. Elgin East, Elgin West, Brant North, Brant South, Oxford North, Oxford South, Norfolk North and Norfolk South.
10. Huron East, Huron South, Huron West, Bruce North, Bruce South, Grey East, Grey North and Grey South.
11. Perth North, Perth South, Middlesex East, Middlesex North, Middlesex West and City of London.
12. Essex North, Essex South, Kent East, Kent West, Lambton East and Lambton West.
13. Algoma East, Algoma West, Simcoe East, Simcoe South, Simcoe West, Muskoka and Parry Sound.

IV.—CONSTITUTION OF THE ASSOCIATION.

Art. I.—This Association shall be called "The Fruit Growers' Association of Ontario."

Art. II.—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.

Art. III.—The annual meeting of the Association shall be held at such time and place as shall be designated by the Association.

Art. IV.—The officers of the Association shall be composed of a President, Vice-President, a Secretary, or a Secretary-Treasurer, and thirteen Directors.

Art. V.—Any person may become a member by an annual payment of one dollar, and a payment of ten dollars shall constitute a member for life.

Art. VI.—This Constitution may be amended by a vote of a majority of the members present at any regular meeting, notice of the proposed amendments having been given at the previous meeting.

Art. VII.—The said Officers and Directors shall prepare and present to the annual meeting of the Association a report of their proceedings during the year, in which shall be stated the names of all the members of the Association, the places of meeting during the year, and such information as the Association shall have been able to obtain on the subject of fruit culture in the Province during the year. There shall also be presented at the said annual meeting a detailed statement of the receipts and disbursements of the Association during the year, which report and statement shall be entered in the journal and signed by the President as being a correct copy; and a true copy thereof, certified by the Secretary for the time being, shall be sent to the Commissioner of Agriculture within forty days after the holding of such annual meeting.

Art. VIII.—The Association shall have power to make, alter and amend By-laws for prescribing the mode of admission of new members, the election of officers, and otherwise regulating the administration of its affairs and property.

V.—BY-LAWS.

1. The President, Vice-President and Secretary-Treasurer shall be *ex-officio* members of all committees.
 2. The directors may offer premiums to any persons originating or introducing any new fruit adapted to the climate of the Province which shall possess such distinctive excellence as shall, in their opinion, render the same of special value; also for essays upon such subjects connected with fruit-growing as they may designate, under such rules and regulations as they may prescribe.
 3. The Secretary shall prepare an annual report containing the minutes of the proceedings of meetings during the year; a detailed statement of receipts and expenditure; the reports upon fruits received from different localities; and all essays to which prizes have been awarded, and such other information in regard to fruit culture as may have been received during the year, and submit the same to the Directors or any Committee of Directors appointed for this purpose, and, with their sanction, after presenting the same at the annual meeting, cause the same to be printed by and through the Publication Committee, and send a copy thereof to each member of the Association and to the Commissioner of Agriculture.
 4. Seven Directors shall constitute a quorum, and if at any meeting of Directors there shall not be a quorum, the members present may adjourn the meeting from time to time until a quorum shall be obtained.
 5. The annual subscription shall be due in advance at the annual meeting.
 6. The President (or in case of his disability, the Vice-President) may convene special meetings at such times and places as he may deem advisable, and he shall convene such special meetings as shall be requested in writing by five members.
 7. The President may deliver an address on some subject relating to the objects of the Association.
 8. The Treasurer shall receive all moneys belonging to the Association, keep a correct account thereof, and submit the same to the Directors at any legal meeting of such Directors, five days' notice having been previously given for that purpose.
 9. The Directors shall audit and pass all accounts, which, when approved of by the President's signature, shall be submitted to and paid by the Treasurer.
 10. It shall be the duty of the Secretary to keep a correct record of the proceedings of the Association, conduct the correspondence, give not less than ten days' notice of all meetings to the members, and specify the business of special meetings.
 11. The Directors, touching the conduct of the Association, shall at all times have absolute power and control of the funds and property of the Association, subject however to the meaning and construction of the Constitution.
 12. At special meetings no business shall be transacted except that stated in the Secretary's circular.
 13. The order of business shall be: (1) Reading of the minutes; (2) Reading of the Directors' Report; (3) Reading of the Treasurer's Report; (4) Reading of prize essays; (5) President's Address; (6) Election of officers, and (7) Miscellaneous business.
 14. These By-Laws may be amended at any general meeting by a vote of two-thirds of the members present.
 15. Each member of the Fruit Committee shall be charged with the duty of accumulating information touching the state of the fruit crop, the introduction of new varieties, the market value of fruits in his particular section of the country, together with such other general and useful information touching fruit interests as may be desirable, and report in writing to the Secretary of the Association on or before the fifteenth day of September in each year.
- The President, Vice-President and Secretary shall be *ex-officio* members of the Board of Directors and of all Committees. The reasonable and necessary expenses of Directors and officers in attending meetings of the Board of Directors and of Committees shall be provided from the funds of the Association.