

TWENTY-SEVENTH ANNUAL REPORT
OF THE
FRUIT GROWERS' ASSOCIATION
OF ONTARIO
1895.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO.)

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.



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ANNUAL MEETING

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TWENTY-SEVENTH ANNUAL REPORT
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FRUIT GROWERS' ASSOCIATION OF ONTARIO,
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To the Honorable John Dryden, Minister of Agriculture :

SIR,—I have the honor to transmit to you the Twenty-seventh Annual Report of the Fruit Growers' Association of Ontario. The meeting at Woodstock was well attended by interested fruit-growers, and the subjects brought forward by the fruit experts from various parts of our province were of public concern, as, for instance, Spraying of Apple Orchards, Packing and Grading Fruit for Export, Causes of Barren Fruit Trees, etc. It is believed that the remedies under consideration will be the means of bringing to our fruit growers an era of more fruitful and consequently more profitable orcharding.

I have the honor to be, Sir,

Your obedient servant,

L. WOOLVERTON,

Secretary.

GRIMSBY, January 8th, 1896.

OFFICERS FOR 1896.

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Murray Pettit Winona.

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AUDITORS.

A. H. Pettit Grimsby.
George E. Fisher Freeman.

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THE ANNUAL MEETING, 1895.

The annual meeting of the Fruit Growers' Association of Ontario was opened on Wednesday, December 11th, 1895, in the town of Woodstock.

THE PRESIDENT'S ADDRESS.

Mr. Murray Pettit, of Winona, President of the Association, occupied the chair, and delivered the following address :

The season through which we have just passed will long be remembered by horticulturists as one of unprecedented frosts and drouths in almost all portions of the province. As a result the fruit crop has been more or less damaged, and in many cases ruined. The almost entire absence of fungus diseases have in a measure compensated the loss, and our markets have been fairly well supplied with a much better quality of fruits than in former years. The result of the drouth has been like a mathematical demonstration of the saying, "Good drainage, good cultivation, and plenty of manure, will enable land to stand almost any amount of drouth and still produce crops." I regret that I am unable to give any statistics in regard to the past season's crop, as it is impossible to gather anything reliable, even from local sections of the province. It is unfortunate that in this age, when every line of business is more or less dependent for success upon statistical data, that we have no better means of acquiring this information. During the past year many new horticultural societies have been formed, through the enthusiastic work of our old director and co-worker, Mr. Beall. These societies bring people together for the comparison and the enlargement of views. The local societies gather and formulate the experience and wisdom of the community. It is then brought to this Society to carry on and complete, and from one end of this province to the other to-day can be seen the deep imprint of organized horticultural activity. It is seen in the bending orchard, the burdened vineyard and fruitful garden. Fruit growing is becoming one of our great industries, whole farms are being planted and given the most scientific care and cultivation. Thousands of homes are fully supplied with fruits and flowers from their own gardens, and there is yet grand work to be done through organization. Should we allow the far-off valleys of California to supply the demand at our very doors that our own fruit should supply, annually taking thousands of dollars from this Dominion to support the fruit growing industries of another country while we are looking anxiously for markets? Does it not teach us that we must produce more good fruit, and less of an inferior quality; that we must cultivate, spray, fertilize and thin, pick, grade and pack better? When we notice the yearly growth of competition in the fruit markets, it becomes clear to us that the time has come when we must grow such varieties of the various fruits as we find succeed best in the various sections; in other words, we must make specialties of growing only such kinds as we can bring to the highest state

of perfection. A portion of our fine large apples and other fruits should be wrapped in paper to meet the demand of the better class of trade. The growth of the fruit-growing industry, and the rapidly increasing demand in the markets of the world for the very best, will compel us to take these advanced steps in our profession or be left in the rear to meditate over lost opportunities. The ratification of the French treaty will be a severe check on the rapid growth of the grape-growing industry of this province, and will increase the importation of foreign wines, as the conditions of this treaty will allow all countries the same privileges. The concessions made will involve a loss of revenue amounting to \$60,000 annually on the basis of importation from France in 1892. We fail to see why our wine-producing industry should be exempted from the full advantages conferred by the National Policy, and sacrificed to the interests of a foreign country. The developing of markets is one of the most important questions in connection with the fruit growing industry of this province. It is much to be regretted that the trial shipment of over ten tons of our choicest fruit to Great Britain was a failure; it is also a matter of congratulation that the Dominion Government has promised to make several trial shipments next season. At the last session of the Provincial Parliament the Hon. Minister of Agriculture introduced and carried a bill to suppress frauds in the sale of fruit. This is in the direction that this Association has always advocated, viz.: a better system of picking, grading and packing fruit, which means a greater consumption and more extended markets. While we are grateful for this, does it reach far enough? Should not the grower be protected? How much greater is his loss, when after purchasing, planting and cultivating an orchard for years, he finds it not true to name and of worthless varieties? Should we not ask for still more? New insects are continually appearing, also fungi not before observed, in different countries; trees from these countries are being imported every year into this province, and as the inroads already made by these enemies to fruit culture are a serious loss to the grower, should we not ask to be protected from such formidable enemies as the San Jose Scale and others, by the enactment of such quarantine regulations as now exist in California, which makes provision for all plants, trees, cuttings, grafts, buds, scions, seeds or pits brought into the state, to be disinfected on arrival at any point where they are to be unloaded; and for all peach, nectarine, apricot, plum or other trees, budded upon peach stocks or roots, and all pits raised or grown in a district where the peach yellows or peach rosette is known to exist, to be prohibited from being planted or offered for sale? Good results are already being seen from the amendments made to the Black Knot and Yellows Act. In my own township, where the diseases were spreading to an alarming extent, after vigorously enforcing the act for two years scarcely a vestige of the diseases remains; and it can, I believe, be entirely stamped out. The very thorough and complete system of spraying experiments conducted under the Provincial Government during the past season will, I trust, give us valuable results, and no doubt will be one of the most interesting subjects on our programme. It is such an important matter in our work and one in which there is yet so much to be learned that I trust we will be able to give it a good share of our time for discussion. Many improvements will yet have to be made before our spraying apparatus will reach the desired end

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for which it is intended, without the loss of a great deal of time and patience. Any of them while new will spray pure water* to perfection, but after one or two seasons' use with Bordeaux mixture they are failures. The question of forestry is of too great importance to be overlooked, in my estimation it overshadows all other questions of public economy to-day. The destruction of the forest areas has unbalanced the forces of nature, our climate is becoming full of extremes. The situation is one that challenges the attention of every thoughtful man. Wood lands should be preserved by absolute force where the Government has the right, and by all encouraging legislature where it has no control. To demonstrate the financial injury that is being inflicted on the present generation by the waste of material and the wrong that is being done to posterity by the destruction of young growths and germs of future forests by domestic animals should be one of the first duties of every society or association connected with agriculture, and this Association above all others should take the lead. The planting and beautifying of our school grounds, parks, cemeteries, homes and highways has received considerable attention from this Association, and will, I trust, receive still more.

COMMITTEES.

The following committees were appointed :

Fruit—Prof. Hutt, Mr. Race and Mr. Nicol.

Committee on Resolutions—G. R. Pattullo, W. M. Orr and A. M. Smith.

Committee on Nominations—The President nominated A. M. Smith and Mr. McNeill ; the meeting nominated D. W. Karn, T. H. Race and G. C. Caston,

The Secretary read letters of regret from J. A. Morton, Wingham ; R. B. Whyte, Ottawa ; Sir Oliver Mowat, Prof. Panton and Sir Richard Cartwright.

GREEN FRUIT: HOW CAN WE PREVENT ITS FLOODING OUR MARKETS?

Mr. A. M. SMITH, of St. Catharines, read the following paper :

I believe it will readily be conceded that anything that brings discredit upon the fruit business or creates distrust between the producers and consumers of fruit is a proper subject to bring before this meeting for discussion. In the past we have had the subject of dishonest packing—putting all the best samples on top of the packages and the culls in the bottom—discussed with good results, and there has been a remedy provided. Now there is another grievance among consumers, and though not of such a glaring character, yet it is one which if let alone may assume proportions that will seriously injure the trade. I refer to shipping green or immature fruits to our markets. Of course in shipping to distant markets some kinds of fruits require to be picked before fully ripe and will mature during and after transportation. Take pears, for instance ; while grapes if picked before they are ripe, though they may be partially colored, will never ripen or be fit to eat. Pears even and peaches if picked too green will not ripen, but will shrivel up and decay. But it is grapes more particularly, and fruit picked at this stage of immaturity that is the subject of complaint. There are a great many men, and I think they are closely related to the dishonest packers, who as soon as their fruit begins to color, hurry it off to market in order to get ahead of their neighbors and secure

a big price, thinking the scarcity and looks will sell it, not stopping to think or seeming to care about its effects upon the stomachs of the consumers or upon their own reputation as fruit growers. They remind me of a story I heard at a fruit growers' meeting in Rochester about a down east Yankee who was pretty sharp and had taken advantage of some of his neighbors in sundry horse trades and other deals, and among others had cheated a fellow by the name of Jones. It happened there was a protracted meeting in the place and a good many were converted, and among the rest this sharp Yankee saw the error of his ways and professed conversion. One night he got up in the meeting and told the brethren that he knew he had been a great sinner, but he was going to do better and if he had wronged any of them he asked their forgiveness, and if they would come to him he would make restitution. Next morning Jones was at his house long before daylight and rapped at the door. The man wanted to know what was up and what he wanted so early. "Wal," says Jones, "you know what you promised last night in the meetin', you said as how you was goin' to pay all of us fellows back you had cheated and I thought I'd get here 'arly, for I knowed there would be a terrible rush." These fruit growers think there is going to be a terrible rush and the market will be glutted and they want to get there first. The consumer buys it because it is the first in the market, takes it home before he has a chance to test it, and is disgusted with it. The children, who are willing to eat anything that is fruit, devour it, and there is a sleepless night and perhaps a doctor's bill to pay. In consequence that man does not bring home any more fruit for a month. This class of fruit is not ordered from the grower by dealers who have any regard for their reputation, but is consigned by him to commission men who generally sell it to retailers, who dispose of it to consumers. I have corresponded with some of the leading commission men in London, Toronto, Ottawa and Montreal, and they all admit that it is an evil and hurts the market for better fruit; but they say it is a difficult question to deal with. They admit there are tons of grapes sold every year at high prices that are not fit to eat. People buy them because they are first in the market, but the retailers say they seldom come back for the second lot. The commission men of course do not like to refuse to handle this early fruit, for if they did they would lose the handling of the remainder of the crops, and it often sells at high prices and they make a corresponding profit. Nevertheless one of them told me he frequently had losses in handling it. His customers would come back after he had made returns to the grower complaining of its rotting on their hands and he had to help make good their loss. The only remedy suggested by them is from one who thinks the commission men should combine and refuse to handle it and thus drive it from the market. I leave the question with you, trusting some way may be devised to remedy the evil.

The SECRETARY: I think the evil of selling frozen grapes should be included with that of selling immature fruit. They were hurried into the markets, and people who tasted them did not want any more, and people who had stored good grapes in their cellars found no sale for them.

Mr. McNEILL: This matter of selling green and frozen and immature fruit is doing a great deal of damage to the fruit grower, but the remedy suggested is only a partial one, though not altogether ineffective. Another partial remedy may be had in the matter of co-operative selling. It appears to me that in Ontario we are a little behind the times in selling our fruits; and many of these evils might be remedied if we could go in for some system such as is working on the other side of the line. Instead of shipping individually, if it were possible to ship co-operatively, and thus secure some union, the temptation to ship green fruit would be removed. Just so long as there is competition, immature fruit will be put on the market, because the man who ships the first fruit gets the highest price, and therefore he considers it essential that he should have fruit from his own orchard. I have orders for grapes every year if I can put them in at a certain date, and with the invoices of my first shipments I always say: "This fruit is not matured, and does not represent the quality of our grapes;" but I cannot afford to refuse to sell green fruit. We all do it; everybody does it. If people can get a colored fruit that looks all right they want it, and there is not a shipper among us that does not do it. The best price I get is from this immature fruit. We pick just as soon as it gets black, and

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we have a greater profit from those vines than we have from any grapes on the farm. I am satisfied it is a loss to the fruit growers as a whole; but it is a gain to me individually if I can put fruit on market a day or two ahead of my competitors. In our section, where the sale of grapes is in the hands of comparatively few growers, I do not see why we could not form a selling corporation among ourselves and have the results pooled, so as to remove entirely the temptation to ship immature fruit, and also ensure greater economy in the shipping. The same correspondent who now sells our crop will sell our neighbor's crop as well. The mere amount spent in securing market reports and in many other ways for my own would sell my neighbor's fruit as well, and I would be none the worse off, because we could sell for better prices, and the consumption, instead of being lessened would be increased, because we could open up markets for the whole of us that would not pay any individual to open up. If we had some such organizations as the Niagara Stock Fruit Company, and had them change their methods, so that instead of appointing agents in different cities and resting with that, they should secure contracts from growers, insuring that these agents had a supply of fruit that they could handle as best suited the needs of the market, it would not be very difficult to start with grapes and extend the plan to other fruits if it were found to work well there. Therefore I would commend to the fruit growers here this idea, and to urge upon this company, as it is already established and composed of reputable gentlemen whom we all trust, and endeavor to bring such pressure to bear upon them as would induce them to take up this plan and devise some scheme by which they can secure from growers their crops for sale, and handle it in that way without appointing agents. Not that they would abandon appointing agents entirely, but they should not rest on that system alone. I think the appointing of agents in some cases is not advantageous; it is putting another middleman where there are too many already, but in some cases it would be necessary. The fruit exchanges in New York State and the grape districts on the other side and in the peach districts of Delaware State, work very satisfactorily. I believe it did not work satisfactorily in Michigan, but we have some representatives of that state here who might enlighten us.

Mr. WATKINS, of Michigan, said: We came over here not to give you any instruction in fruit growing or horticulture, but rather in order to learn something ourselves; but if we can say anything that will help you we shall be only too happy to do so. (Applause.)

Mr. L. B. RICE, of Port Huron, Michigan: The question was asked by the President of our Society last week in reference to the matter Mr. McNeill refers to—why farmers and fruit growers cannot organize themselves into co-operative companies to build cold storage houses at the centres of shipment, and in that way have their fruit assorted and sent out under commission as he suggests—why it is that dealers so soon creep in and those things go to the wall? Professor Bailey, of Cornell University, and others answered that we must first broaden the foundation of the business education of the farmer so that he will rise above these petty jealousies, and then we can combine; so that your work has to go deep and thorough to ever succeed with these combinations. (Hear, hear.)

Mr. CASTON (Craighurst): In the case of grapes, plums and peaches I think that growers find it necessary to pick them a little on the green side in order to have them stand for a few days in the basket, and the transportation companies and some expressmen do not give them very gentle handling, and fruit, with the exception of the pear, if picked before it is ripe, is to a certain extent insipid. Some varieties of the Roger's grape if picked before ripe are fit to eat, but other varieties are not; and it is so with some fruit for canning purposes, which, as a rule, are picked a little too much on the green side. They come in contact in the grocery and fruit stores with California fruit, and the amount of the latter that is sold in this country is surprising. People will pay a little more for it. Mr. Orr suggests that it is on account of their dry climate that their fruit will keep much better. Theirs is grown in a perfectly dry atmosphere, while ours is grown in a moist atmosphere and cannot keep so long. This is a very difficult problem to solve. It is a question of quick transportation and sale more than anything else. Growers are afraid to leave their peaches and plums and other perishable fruit on the tree till they are ripe, because they know they will be in a bad condition when they are sold. You cannot ship apples to the North-west unless you pick them in a condition when they are

absolutely insipid. One of our dealers tried this plan last summer, but only the Duchess got there all right; the Astrachans he had a serious loss on. The Duchess is a splendid apple, and in high favor if you get it at its right stage; but you cannot get it at its right stage and send it any distance. I cannot offer any solution of the problem except quick transportation and quick sale.

Mr. MORDEN (Niagara Falls South): There is another question, of careful handling. The great difficulty we have to contend with in fruit transportation to-day is that it is bruised all to pieces. Last summer I sent a picking of berries to Buffalo, twenty miles away, and they were handled all right on the train, but when they got two or three streets away, by some race-horse methods that they adopted, they had those berries mashed, and almost destroyed the price of them. Now, if we could get a quick and careful transport a good deal of this difficulty would be avoided.

Mr. CASTON: Another question in regard to transportation might be mentioned. I never received a consignment of grapes that had not been broken open and quantities of them stolen. (Hear, hear.) A friend of mine had some peaches shipped to him and he would only accept them for what was in the basket. The express company tried to make him pay for the full amount, but he refused to do it, and finally they accepted pay for what was there. In some of the packages half of them were gone. It is simply disgraceful.

Mr. MCNEILL: That is the fault of the shipper himself. We have frequently had baskets opened, but make it a matter of principle to follow every such case to the bitter end, and sometimes I follow a case for six months till I get a rebate of perhaps a dollar on the shipment. In the winter months I take all these complaints and follow them up, and I have never failed to have the freight and expressmen make the loss good. I can say to their credit they have never failed, when I have brought home to them the undoubted proof of loss while in their hands, to have the loss made good. I have correspondence two inches thick over some trifling shipment where the basket was broken into. When carriers know they are being watched by the shipper they will not break them open. Shippers are to blame in not following up these losses by a persistent system of inspection.

APPLE CULTURE.

Mr. E HERSEE, of Woodstock, read the following paper:

We learn that the apple formerly originated from the wild crab of northern Europe, and now it is cultivated throughout the whole world, and the fruit we now enjoy is so entirely unlike the original species that we hardly recognize it as belonging to the same. Yet if we plant the seed of our most improved varieties it reverts to its original type, so by the good cultivation and the improved condition of the soil, with the workings of our experimental stations and of our fruit growers' associations, we have been enabled to bring to the front many new and improved varieties.

My idea in apple culture is to strive and improve on previous years' methods.

There are now in existence many notions in regard to cultivating the orchard, and these suggestions have led inexperienced people to suppose that no one but an experienced person could do the work. *This is a mistake.* I would say let us get acquainted with our trees, look at them, visit them daily; they need it. For example: Put a horse in a field and let it care for itself; will it do well? I think not. So trees need our attention and our daily visits.

My experience gained in planting a young orchard is that the growth must not be checked. We must not expect that a tree planted in the grass with simply a small portion of the sod worked around it will make the same growth that the same tree would if planted in cultivated soil. I would say a tree planted in cultivated ground will make three times more growth than one planted in the sod; the grass will exhaust the soil of its moisture and fertility, and the consequence is the tree will only exist.

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The question is often asked, can I crop my orchard? This is an important question, but I would say, yes; such crops as the following have been found desirable for a young orchard, and then not too close to the trees. Corn is a good crop, as it does not attain much growth until most of the tree-growth is made. Potatoes are not so good, as the growth is at the same time as that of the trees. Also good crops of carrots can be raised, short-rooted sorts being preferred. A fall crop of flat turnips can be grown without harm. Strawberries, currants, gooseberries, rhubarb, can be grown without injury to the orchard. All this must be understood to be done under good cultivation and the free use of manures, stable manure being preferred, with an annual application of potash or wood ashes. My reason for suggesting the cropping of the young orchard with crops mentioned is this, that we are more liable to make free use of the cultivator than we would otherwise do if we had put it into grass or grain. But, as a rule, such crops will hardly pay after the trees are three years planted. The owner must then take his profit out in the increased value of his orchard, as I do not think it is wise to crop after that time. The cultivation of young orchards should cease each season about August 1st, as it is almost certain to prolong the growth, and the trees will be injured through the winter.

A few words about manuring. For young trees stable manure will always be found good, and the best time to apply it is in the fall, or very early in the spring. If put on through the summer it produces late growth, which is injurious to the trees. For orchards that have reached maturity, and are bearing heavily, manure can be used more freely, especially in the spring of the fruiting year, for a good many trees are weakened by their effort to produce a large crop of fruit, and especially if it be a dry season. Trees that are weak from fruiting or poverty of the soil are more subject and liable to disease. A good many fertilizers are now being manufactured which are profitable to use on the orchard, but I think bone and potash the best suited for producing fruit.

In conclusion, I would say the pruning must not be forgotten from the first year the trees are planted. They should have constant attention. Go and visit them every day if possible and see how they are doing. You will get to like them. What looks better on the farm than a well-pruned and well-kept orchard? Yes, and what pays better? Young trees should be allowed to grow with a close head. After forming the head, little is needed each year but to keep it balanced and regular in shape, pinching out the buds of those branches that are outgrowing the others. If it is found branches are crossing each other and are liable to come together, cut them out at once. Do not wait till they get large and then do it. This will injure the tree, weaken and shorten the life of it. And do not forget to let the sunshine and air into your trees.

I would say, lastly, to farmers and others, give your boys a start in growing fruits. They will learn early how to manage and care for them, and it will thus be a means of profit to both parties. Fruit appreciates good care and attention, therefore do not become disheartened. Become a member of the Fruit Growers' Association, read the *Horticulturist* and learn what it is and you will get your reward.

Mr. MORDEN: I do not know upon what grounds potatoes in orchards are objected to. I understand potatoes use a good deal of potash, and in a soil deficient in potash if we were to plant potatoes it might be necessary to restore the potash. If so, that would get over the difficulty. I have seen the practice of planting potatoes a year previous to the strawberry condemned because the potatoes are a potash crop. I would like to hear from gentlemen with more chemical knowledge than I have on this matter. Potatoes in many ways are very suitable. They are often dug quite early, you cultivate the ground quite frequently during the season, and also in digging the potatoes out.

Mr. HERSEE: The growth of potatoes is the same with that of the trees—that is, at the same time—and hence they are objectionable.

Mr. RACE: I made a point of planting strawberries in the fall after taking out a crop of early potatoes, and I have recommended that to the farmers.

Mr. GREINER (Niagara Falls, N. Y.): We have at various times planted potatoes amongst young trees in the orchards, and I do not think that the practice should be in any way objected to if the potatoes have the proper food and the trees have the proper

food. As long as you grow double crops you will use double manure. In regard to strawberries following after potatoes, it is exactly the same principle. With good culture, with the manure that the early potatoes usually receive—and we always manure early potatoes very heavy, more so than late potatoes—we think that the land is brought in the very best state for the succeeding crop. I do not see a single reason why we should not plant strawberries after potatoes. Of course the potato requires potash; therefore we usually feed potash manures a little heavier. If we use the concentrated fertilizers we take the special potato manures which contain a very high percentage of potash—sometimes as high as ten per cent.—or, as I usually prefer, we use the potash salts directly, unmixed, by sowing the same way as we sow grain over the land broadcast, and I have seen good results from that. On the whole it is a question simply of cultivation and manuring.

Mr. RICE: One of the points in the paper should not be overlooked—the one in regard to using suitable manures. We are troubled a good deal with dry seasons, and if manure is put on in the spring it is very apt not to assimilate itself to the soil, so we have to be very careful in applying suitable manures to the soil in the spring of the year.

Mr. MORDEN: When do you apply manures, then, to an orchard?

Mr. RICE: I should apply it late in the fall without cultivating it into the ground.

Mr. McNEILL: You may plant an apple orchard and grow fruit well and do this as often as you please, but if you fail to get the right varieties there is no profit in it. The whole question turns on a matter of varieties. Thousands of trees in this province to-day are worthless because of not being the right varieties, and there are hundreds of farmers discouraged because they have no information on the proper varieties. As in grape culture, the money is made on two or three varieties.

The PRESIDENT: That was the case when these orchards were being planted; but now this Association has a carefully prepared list suitable to the different sections of this province and recommended for planting by this Association.

Mr. CASTON: The question of varieties is a question of locality to a very great extent. As to manuring, my observation leads me to the conclusion that the best way to supply nitrogen to the soil is to plow in clover. The mechanical condition of the soil furnished by a great amount of humus is a great advantage. Where we have a bare soil without sufficient humus the tree does not do so well apart from the fertilizing. We can supply a concentrated fertilizer having a large percentage of potash and a sufficient quantity of phosphoric acid and supply the nitrogen by plowing in clover. I never advise the seeding down of an orchard except with red clover that should be plowed under when it gets to its very best. Do not apply any stable or barn-yard manure at all to the orchard. It can be better furnished by plowing in a heavy crop of clover, and the other ingredients supplied by ashes.

Mr. TURNER (Cornwall): Mr. Caston has struck an important point in reference to humus. There is too much humus taken out of the soil and too little put back. I have grown a patch of strawberries for two years, and since the crop was taken off I cleaned out the patch and sowed red clover, and as soon as that was in blossom I turned it in. I expect to have some splendid soil for strawberries next year.

The SECRETARY: I do not think it should go out from our meeting that we do not recommend barn-yard manure for our apple orchards or for any of our garden plantations. I have always been under the impression that barn-yard manure was the best fertilizer that could possibly be applied, because it contains the various ingredients that we want to get in our orchards. It is the most complete fertilizer perhaps that we can apply; but because of the lack of barn-yard manure and the impossibility of furnishing enough of it for our orchards, it is necessary to use commercial fertilizers. In a barn-yard manure we furnish a certain amount of humus also. In regard to orchard crops, I think buckwheat is one that is easily grown and easily sown after we are through with our other farm work, and which cleans the orchard of weeds, and is in my opinion a very desirable crop—not quite so desirable as hoed crops, which mean a lot of cultivation through the summer; but buck-

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wheat answers a good purpose and also saves us a large amount of work which we perhaps would not have time to do. Speaking of varieties, I think a good deal of the Cranberry Pippin. I do not know that it is widely known. I have a clipping from the *Produce World*, of London, England, which draws special attention to the Cranberry Pippin as being a desirable apple in the London market. A correspondent in Scotland to whom I sent a hundred cases of this apple this season wrote me a letter recently in which he said that it sells well just now, bringing a high price, but still he does not know about recommending it for a standard fancy apple for their market, which I had proposed it for. From Glasgow I hear very favorably concerning the apple. I packed 500 boxes and scattered them over Glasgow, Edinburgh and Sydney, N.S.W. When the reports come in I can tell whether this apple is going to succeed.

Mr. MCNEILL: What are the defects of the apple?

The SECRETARY: In some soils it is inclined to have little warts on it. It does not spot. For two years I have had the finest of samples. Its chief defect is in its quality, which is only ordinary like the Ben Davis.

Mr. CASTON: I believe they are growing that apple in some localities under the impression that it is the Gravenstein.

Mr. BOULTER (Picton): I see by the heading of Mr. Hersee's paper that he is the proprietor of nurseries. I read his paper over carefully, and I must say there are a great many good points in it. However, we have learned a good deal by experience—a pretty good school, but the tuition is very, very high. I think one of the most important things to tell a man who is starting out, or an old man who is willing to learn, is how far apart to put his apple trees. In 1878 I put out 1,000 trees, 24x36. I was persuaded that I could grow as much again of fruit if I would stick another row in; consequently I inter-rowed them. In the spring of 1879 I bought another thousand and put them out, 24x36, and I let them remain and did not inter-row. I have carefully kept those apple trees pruned very close, because I claim that every tree requires a peculiar manner of trimming. You would not trim a Spy like a Talman Sweet or a Greening like a Ben Davis. I made the serious mistake of my life in that orchard. I have carried out a good many experiments, particularly the washing of those trees every year with good strong lye made from good wood ashes. I burn up some six or seven acres of wood every year, and every pound of the ashes has gone on that orchard for the last twelve or fourteen years. After the trees are out seventeen years I have got to go to work and cut out that alternate tree or else not raise a crop of Northern Spys that will compare favorably with any others that are on the market, although the trees are all right and growing beautifully. You must let the sun and air into your trees to get the colored apples. Last spring I put all my manure on the orchard and plowed it in with a gang-plow. It was too dry; I got no benefit from it this year. The frosts of last spring hurt my orchards fearfully. You can't grow a good Spy where the sun cannot strike it. You do not want your trees nearer than thirty feet.

Mr. BEADLE: Say forty.

Mr. BOULTER: It depends on how much land you have. If you have two hundred acres of land I would say spread them out.

Mr. RACE: You would not recommend these people to wash a very young tree with very strong lye?

Mr. BOULTER: I would recommend as soon as the tree was out two years to wash it with very weak lye. Take one-third an ordinary run of ashes and two-thirds water; and as the tree grows increase the strength of the lye. Do not be afraid to put it on strong as the tree is four or five years old, and you will have no lice, no moss growing on it and no rough bark. The bark on my trees is apparently just as smooth as the day they were put out. The tree should be looked after just as well as the ground upon which it is grown. A poor fellow down at South Bay told an agent, who had offered to put in his trees—that he wanted them put in "top down." The agent asked what for, and the man replied, "because for fifteen years I have been putting them out roots down

and I can't make them grow." (Laughter). Every one of my two thousand trees I trimmed with a jackknife myself, and I did not leave a sprout over eight inches long on any one of them. You can grow a top any time you like. Get a good trunk and the top will come out all right. Too many put out trees and never trim and cut back. It is of the utmost necessity to cut the top well back the first year. I do not put anything in my orchard. I calculate that the trees will need all that the ground will produce. We go through it with a gang-plow when necessary, and we keep it worked up with a large spring-tooth harrow—just keep the weeds worked down and keep all the manure in it I possibly can. I believe nothing can be put on an orchard that is better than good wood ashes.

Mr. RICE: I find that when I put buckwheat on my land we have no cutworms the following season.

I sow the buckwheat about the first of August, because I do not want to take it off my ground nor to ripen too much while my trees are young so as to harbor mice. Another thing we have to look at is, that if your ground is bare during winter, the rain that falls on it packs it harder and harder and does not sink into the ground, but runs off and is not there to be raised by capillary attraction the next year to furnish the moisture needed in your orchard. To prevent the rains from washing off the ground I mix a liberal amount of rye with the buckwheat so when the frosts come the buckwheat is killed down and forms a little protection with the straw, and then the rye comes on. In the spring plow your rye right under and go on with the cultivation of your soil. Thus you give the moisture to the soil, you protect your soil from the hard freezings, and all that sort of thing, and you furnish humus.

Mr. CASTON: I believe it possible from my own experiments to furnish the necessary manure to an orchard without the use of barn-yard manure at all. One of the most successful farmers in west Ontario considers clover the sheet anchor of farming. In regard to the time of plowing under, we find that clover is in that state early in June. We have sufficient moisture in the soil. If we plow it under, then we find in August when the drouth is at its greatest, that we have the ground in the very best mechanical condition; and I will guarantee that you can find the moisture within an inch or two of the top where that clover is plowed under.

APPLE GROWING IN THE VALLEY OF THE UPPER ST. LAWRENCE.

Mr. HAROLD JONES, of Maitland, read the following paper:

Before entering on the subject of this paper I will endeavor to give you an idea of how favorably we are situated for the growing of most of the hardier fruits.

The land draining into the river from Kingston to Cornwall, a distance of about 120 miles, is more or less adapted to fruit raising, but I will speak more particularly of that section lying in the vicinity of Brockville, where I can speak from personal knowledge and experience.

The general character of the soil is from clay loam to gravel and sand, and for a distance varying from one to three miles from the river is exceptionally free from late spring or early fall frosts; only once in my memory have we had a spring frost that would injure the grape blossoms, and we have never to my knowledge lost an apple crop through the same cause.

Among the summer and early fall varieties of apples that have proved hardy and prolific with us, I might mention the Yellow Transparent, Red Astrachan, Brockville Beauty, Duchess of Oldenburg, and St. Lawrence.

Of these the Duchess is without doubt the best paying of its season, well maintaining its character for hardiness and freedom from fungous diseases. The St. Lawrence, when kept free from spot, comes next in order of profit, bearing medium to large crops of large,

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well-colored fruit. The Brockville Beauty is not as free-growing a tree as the two varieties just mentioned, but though a moderate grower, it produces immense crops of small to medium-sized fruit that takes well on the market owing to its excellent cooking qualities. The Red Astrachan is fairly productive, but owing to the defect in the tree of splitting at the crotches and unevenness in the ripening of the fruit, it has been grown to a very limited extent. The Yellow Transparent proves itself an ironclad in every respect, but owing to the fruit dropping so badly it has a very limited space in our orchards.

Of the fall and early winter varieties the standards are—Fameuse, Wealthy, Baxter or La Rue, Longfield, and McIntosh Red.

The Fameuse stands first of all in this section. The tree is a good free grower of upright to spreading habit, and bears very heavy crops of fruit, rather above medium in size, and colors almost to a crimson, bringing the highest price in our markets of any variety we have to offer of the same season.

The Wealthy ranks next in point of value. The character of the tree is somewhat similar to the Fameuse; though in some cases showing indications of blight; the fruit drops easily, and should be picked as soon as it gets color.

The Baxter is a hardy, upright grower, large, wide foliage, and bears moderate crops of large, handsome fruit.

The Longfield gives promise of becoming a very valuable variety; though inclined to over-bear, it gives a crop of medium-sized fruit that colors very well, the most of the apples having a decided blush, which, in contrast with the pure white skin, makes it appear quite handsome.

McIntosh Red seems hardy and fairly productive, but has been grown only to a limited extent in this section.

In winter fruits we have not been so fortunate in growing paying crops, though the Golden Russet, Canada Red, Pewaukee, Scott's Winter, Ben Davis, Yellow Belleflower, and Blue Pearmain are all hardy, vigorous trees.

The Golden Russet, when grown under favorable circumstances, such as thorough and continuous cultivation and liberally fed with fertilizers, will yield handsome returns, but when grown in sod it does not compare favorably with many other varieties under the same conditions, for the fruit will be small and undeveloped in color, flavor, and grain, and generally very few on a tree.

The Canada Red, though spoken of highly in some sections, proves itself a very unprofitable variety with us on account of its poor bearing qualities.

Of the other varieties mentioned the conditions are normal with the general reports from other parts of the province.

Of the two seedling apples shown on the table, I wish to draw particular attention to the one that is known in our section as the Scarlet Pippin. This apple originated in the vicinity of Brockville, and has been pretty generally planted in the counties of Leeds and Grenville. The fruit is well worthy of consideration by the Committee on New Fruits, and deserves a place in the list for judges at county agricultural fairs, as it is in good demand on the Ottawa and other markets, and is often called for by the commission merchants. The tree is an upright grower, vigorous and hardy, free from fungous diseases, and bears abundantly; season about the same as Wealthy or earlier, and the handsome color of the fruit will sell it at any time for dessert or cooking.

The large green or yellow seedling has been brought to my notice by one of my neighbors, Geo. Bowyer. He claims for it hardiness and productiveness in the tree, and exceptional keeping qualities in the fruit. He prizes it very highly as a dessert apple in May and June. — Quite worthy of notice.

It is gratifying to note the readiness with which our orchards respond to cultivation, both in the growth of new wood and development of blossom buds, but where cultivation

cannot be practised owing to the spreading branches, I find that spreading swamp muck at the rate of about a load to four trees gives good results, as it keeps the ground cool and retains the moisture.

Of the insect enemies that trouble us most, I wish to speak particularly of the Cigar-shaped Case Bearer (*Coleophora Fletcherella*) that has infested our orchards of late years, causing immense damage to both trees and fruit.

In the spring of 1894 I first noticed this insect, and realizing the serious nature of the case, I devoted considerable time in carefully spraying that portion of my orchard most seriously affected. In August of that year I paid a visit to Mr. James Fletcher, Central Experimental Farm, Ottawa, and through his kindness and attention I have been able to learn the life history of the insect, and after working carefully under his wise guidance for seasons, I may say that on the whole I have made satisfactory progress in destroying it. Although this insect is not known in some parts of Ontario, it is surely working west, and it would be wise for every orchardist to read Mr. Fletcher's report on pages 201 to 206 in the Central Experimental Farm report for 1894, and be ready to battle with the first appearance of the worm. I have found the following plan of spraying to prove the most satisfactory when fighting the Case Bearer and fungi at the same time, viz :

- 1st. Spray copper sulphate, one to twenty-five gallons water, before buds open.
- 2nd. Spray Bordeaux mixture and Paris green just before blossom.
- 3rd. Spray kerosene emulsion, one to nine of water, immediately after spraying No. 2.
- 4th. Spray Bordeaux mixture and Paris green when blossom falls.
- 5th. Spray Bordeaux mixture and Paris green when fruit is half an inch in diameter.
- 6th. Spray kerosene emulsion, one to five of water about the first of October, or just about the time that young Case Bearers begin to leave the foliage and attach themselves to the twigs for winter.

I find this last spraying to prove of great advantage in reducing the number of insects that attach themselves to the twigs for winter, as I have observed in many cases that the insects do not leave the leaf, but fall with it to the ground and perish.

In the raising of plums, pears and cherries in this section there has been very little done, mostly owing to want of knowledge in varieties to plant, but I am confident from those planted that there are great possibilities before us, and in the near future I hope to be able to make a satisfactory report on these varieties.

Mr. JONES, in the course of reading his paper, said : I have had good results from spreading the barn-yard manure in February on the snow, then every year or two mulching the ground with swamp muck, about one wagon load to four trees or so, which keeps the orchard in a fine, healthy, cool condition, gives the apples a chance to attain very full size under severe drouth and keeps the sod so that you can lift it at any time with the manure fork and turn it over—in fact, the sod is half rotten all the time under this plan.

Mr. BOULTER asked for a description of the Cigar-shaped Case Bearer.

Mr. JONES : It appears the latter part of August and is then less than one-sixteenth of an inch in length. This small insect pierces the leaf, and passing in between the upper and lower surface, cuts that portion of the leaf on both sides of it and comes out with a little case on it. It leaves an oblong hole in the leaf one-sixteenth of an inch in length. Then it lifts itself on its head, as it were, right up like a little cigar, and it lives upon the leaf for the balance of the season while the leaf is green, and then in the fall of the year it crawls from the leaf to the twig of the plant and attaches itself to the twig and hibernates until the following spring, when it does the damage. In the spring it works up towards the blossom bud and the leaf bud of the twig, and as soon as the growth opens the insect pierces the stem of the blossom, and that is the most serious damage to the whole crop. Then, if they are very bad, they will

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nip the foliage as it comes on. After the foliage and blossoms appear, then the insects pass along on the under side of the leaf, puncturing it, drawing themselves out of their own case, and eating along the membrane of the leaf between the upper and the under coverings; and that is where the difficulty in controlling them lies. They only attack a very small outer portion of the leaf, and that is on the under side, and then they eat along the under surface. They go on eating at the leaf till the first of July, when they appear as a fly or moth again for the August egg, and the history goes round again.

Professor CRAIG: I would like to bear testimony to the good work Mr. Jones has done in the matter of the Case Bearer. It is not in my department, but I happen to know that it is through his good offices and the intelligent and persevering way in which he has carried on experiments under Mr. Fletcher's direction that the solution of the best remedy for this insect has been brought to a successful issue. Mr. Fletcher has given me a memorandum to hand to Mr. Jones on the subject, but I see that it covers practically the ground that Mr. Jones has told you, with, I think, the sole exception that in the first spraying with kerosene emulsion Mr. Fletcher recommends using that mixture diluted at the rate of one to five instead of one to nine, which is the ordinary strength, that is, if you use it before the foliage, and Mr. Fletcher is of opinion that it is advisable to do that. The ordinary Riley-Hubbard mixture is diluted one to nine, and Mr. Fletcher recommends one to five.

Mr. JONES: Though I have not seen Mr. Fletcher's report, I judge from Prof. Craig's remarks that I was to add one more spraying to my present list, making it seven instead of six, because we could not do very well without spraying No. 3—that is, spraying just before the blossom opens. That is of great advantage in controlling the insect. If we have to spray with kerosene emulsion one to five that would be the seventh spraying merely.

Professor CRAIG: No; I think it was to take the place of one of the other sprayings.

Mr. JONES: Take the place of the copper sulphate spraying in the first place?

Professor CRAIG: I should think so, although it is not expressly stated.

Mr. JONES: I may say that I did the last spraying under the belief that the leaf has served its function as lungs to the tree, and it is ready to drop at any time, so if there is any injury to the leaf at that time it is no injury to the tree. The leaf has served its function by the first of October.

Mr. ORR: Would there be any danger of the emulsion affecting the trees injuriously?

Mr. JONES: No. I was able to use the emulsion without injury, and Mr. Guinard, Mr. Fletcher's assistant, has borne me out in that more than once.

The SECRETARY: If applied too freely there is danger in the use of pure kerosene. In destroying the bark louse I used kerosene very freely, and as it was a tree I could experiment on I smothered it with kerosene and applied it two or three times, and the bark shuffled off entirely; so I think it is possible to even destroy the bark itself.

Mr. MCNEILL: The necessity of careful observation in this connection is shown by the fact that Prof. Craig noted some insect attacking the leaf of the tree somewhat similar to the Case Bearer, and he drew the attention of Prof. Fletcher, who wrote me asking me to make some notes upon it. I looked at some trees I had and found to my amazement that there was scarcely a perfect leaf on the tree—that they were burrowed much in the same way as this Cigar Case insect—and I had never noticed it. It emphasizes the necessity of fruit growers being alert in the matter of observation.

Professor CRAIG: That insect Mr. McNeill refers to is the Leaf Sewer.

EXPERIENCE IN SHIPPING APPLES TO BRITISH COLUMBIA.

Mr. BOULTER, of Picton, read the following paper :

The subject assigned to me by your Secretary is one, I think, of vast importance to the fruit growers of Ontario, and, as all of us know, prior to the constructing of the band of steel now connecting us with this far away part of our Dominion, very little was known of this province. From all we could learn it was very rich in minerals and fish, that it possessed a beautiful climate, and great has been our anticipations since it has been brought into closer connections with its sister provinces to the east.

From personal experience, I know the subject I have selected will be well criticised as many persons who have interests at stake possibly will say I am wrong in my theory in saying that I believe Ontario will have to supply all the good winter apples this province will require. On my first trip in 1887 I paid a good deal of attention to the climate and the possibilities of fruit growing there. Three thousand miles away is a long haul by rail to ship apples for profit, and as my business is directly connected with fruit growing, I having sent the first car load of canned fruits and vegetables over the Rockies *via*. C. P. R. in 1886, which proved successful ; on my second trip I was determined to see if our winter apples, once introduced, would not come into demand. I was satisfied British Columbia could grow fine plums and pears, cherries, strawberries, raspberries, and some varieties of summer apples, but all the apple trees I saw were of a scraggy nature. The nights are too cool, and the weather is not warm enough to fully mature a good winter apple. In this I was borne out by a report from a horticultural association I saw published at Victoria in August, which said that after twenty-five years of trial they could not succeed in maturing fine flavored winter apples.

Our present Governor-General is spending large sums in the Okanagan district, believing that he can succeed. However, as he has plenty of money to spend, experience will teach him later on if he can be successful. In 1893 I sent out three car loads of the choicest Spys, Baldwins, Ben Davis and a few Golden Russets I could select, paying from \$2 to \$2.50 per barrel for them. As it was quite late, I sent them by the southern route—the Northern Pacific. They arrived in good shape and realized a fair profit at Victoria and Vancouver, and I was wired to forward two more cars of Northern Spys, but it was too late then to send a good article.

In 1894 I was earnestly requested to ship more, but the Legislature of British Columbia in that year passed a very stringent law regarding the importation of fruit liable in any way to be infested with any pests or fungous disease, and knowing that our fruit was not wholly clean from specks or fungus, I dropped out. But several cars were shipped, and on arrival were seized, and the total contents were destroyed.

The following extract from the Horticultural Board Act of British Columbia will explain :

Inspection of Imported Fruit.

"6. All importers of fruit must give notice to a member of the Board of Horticulture, or his agent, or the Inspector of Fruit Pests, upon the arrival of any and all shipments of fruit ; and all fruit and fruit packages imported into this province shall be inspected, and if found to be free from insect pests and fungous disease a clean certificate shall be issued therefor in conformity with the Rules and Regulations of the Provincial Board of Horticulture : Provided, however, that no fruit or fruit packages imported into this Province shall be removed from any dock, wharf, mole or station where such fruit and fruit packages have been landed before inspection and such clean certificate thereof shall have been obtained, and all such fruit and fruit packages as may be found infested with any insect pest or fungous disease shall be either destroyed by the importers thereof by such process as any member of this Board, the Inspector of Fruit Pests, or any agent appointed by this Board may direct, or shall be re-shipped by the importers thereof to the country from whence such infested fruit was exported.

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Inspection of Imported and Home-grown Fruit.

"7. All fruit, whether imported or grown in this province, or exposed for sale, shall be subject to inspection under the authority of this Board, and if found to be infected with any injurious insect pest or the larva thereof, shall be quarantined or may be destroyed at the expense of the owner of said fruit by such methods as this Board or its agents may direct.

Stencilling and Labelling.

"8. All persons shipping, sending, or delivering any fruit, fruit trees, scions, cuttings, or plants within the province shall place upon or securely attach to each box, crate, or other package or parcel containing the same, a distinct stamp, mark, or label showing the name of the producer and shipper or sender, and the locality where grown, but boxes and barrels containing fruit shall be stencilled or stamped with letters not less than three-quarters of an inch in length."

On my annual trip this year, from all I could learn, the apples sent in 1894 were not fit to be shipped to any place, many of them being a small, miserable, scabby lot, full of codling moths, etc., and I did not wonder at the authorities in refusing to allow them to remain in the country. However, I refused to attempt this year to ship any, although promised a good price, as, from all I could learn, a few apples if found with any fungous disease would condemn the whole car load. Now, what is best to do? I noticed that all the apples at Victoria, coming from Oregon and Missouri, were packed in boxes of about fifty pounds each, and they can be easily inspected. I sent out some fine Spys to the several wholesale houses in this way, along with canned goods, to test them, and being carefully selected they passed through.

I believe a good trade can be successfully worked up by packing in this way, using the utmost care. Will it pay? Yes, I think it will. Freight will be lower, as more can be shipped in a car than in barrels, and unless the duty is removed I think money can be made in shipping apples to British Columbia. They must have our apples, as the Missouri, Oregon and Washington apples do not compare with them.

Mr. BOULTER added that he believed there was a good market for Ontario apples in Prince Edward Island, but the apples must be put up right, and he thought a good demand could be created.

Mr. CASTON: What does it cost per barrel to ship to British Columbia?

Mr. BOULTER: I used to pay \$1.10 per hundred pounds, one hundred and fifty pounds to the barrel. You can calculate about a cent a pound on apples.

Mr. SMITH: I would like to know how British Columbia happened to get such good Russets and Spitzenbergs and Baldwins as they had in Chicago at the World's Fair.

The SECRETARY: Yellow Belleflower also. The Spitzenbergs were finer than we have ever grown in Ontario.

Mr. BOULTER: I don't say that they cannot grow a winter apple in British Columbia; possibly they can in some very favored localities. I am speaking generally of the Province of British Columbia, and I am satisfied the climate is not right for growing apples.

The SECRETARY: Do I understand you to say it is because they do not grow vigorous trees they cannot produce the quantity they require?

Mr. BOULTER: Yes, partly that. Their trees are not vigorous growers, and I claim that a tree that is not vigorous growing tree never can produce first-class fruit.

Mr. HUTT: Is not their fruit much larger than ours?

Mr. BOULTER: It may be larger. They might pick out some very large apples and send to the World's Fair. Although they may have sent some to the World's Fair from some favored locality we will have to supply winter apples to British Columbia. Where you cannot grow real good corn you cannot grow good winter apples, and in British Columbia you cannot grow good corn.

Mr. RACE: This report we have received from Mr. Boulter seems to be very contradictory of a report we got two years ago from Chicago, which led us to believe that the Ontario fruit grower was in a very few years going to meet with very keen competition in the North-west and from British Columbia. According to Mr. Boulter we have nothing to fear at all from the competition likely to come from the Pacific Coast. Which of this reports are we to believe? If Mr. Boulter's paper is correct it is certainly encouraging to the Ontario fruit growers; but if the reports of two years ago that were given to us very largely by our own representatives in Chicago are correct, the apple of British Columbia is going to be a very strong competitor of the Ontario apple.

The SECRETARY: I think Mr. Pettit and Mr. Craig who are present will bear me out in saying that the beautiful pears and apples that were shown from British Columbia excelled any we had on exhibition at Chicago. It is very possible that in the parts Mr. Boulter has visited in British Columbia the apple does not succeed; but there must be some parts, though they may be very limited where it does grow to great perfection.

Prof. CRAIG: I was very much interested in Mr. Boulter's discussion, not only on general principles but on account of reference to the Experimental Farm—which, however, had nothing to do with the passing of the law restricting fruit which is infested by insects or fungi from going into British Columbia. We should consider first that British Columbia has a very diversified climate. You will find greater variations within shorter distances. On the lower part of our Experimental Farm at Agassiz we could not grow apples, but on the higher lands we could grow them to perfection, and we show you samples from there. A few days ago a gentleman at Toronto sent me half a dozen varieties of apples grown on his farm, and I brought them along. In regard to insects, there is one thing that the fruit growers of British Columbia have not to contend with,—they have no codling moth in that province. You may just consider what that would be worth to you, and what you would do to get rid of it. I think they are justified in exercising every precaution possible to keep injurious insects out of the province. Neither have they any San Jose scale; and they are trying their best to keep their orchards clear from these pests, and they pay an inspector \$1,500 per year for that purpose. These specimens of apples I have here were grown by irrigation, and these are the districts where they are going to grow the finest fruit. In the coast regions they cannot produce apples of the finest quality, but in the interior regions where they have a much drier atmosphere and good soil and where they are able to irrigate, and also in other districts where they have just the amount of moisture with more cold, they can produce apples of fine quality and appearance.

Mr. CASTON: It seems as if the coast climate of British Columbia resembles very much the climate of Britain, and we do not find that they produce any long-keeping apples there.

Mr. RICE: But I must acknowledge to you to-day that I never saw a finer exhibit of apples than you are showing here; and in our market at Port Huron we have no apples this year; we have had to have our apples shipped in. We had some very fine, large, beautiful red apples, selling at \$1.75 per barrel. At the same time our buyers were begging for Greenings grown below Toronto somewhere—they did not know where, but on Canadian soil—and paying at wholesale \$3.25 per barrel—(Hear, hear). I never saw such Greenings anywhere in the world; and I thought then of what was said at one Canadian horticultural meeting,—“What will we do with the Rhode Island Greening? They are forced on to us; the tree men are making us grow it here in Canada, and it brings such a low price?” They decided that the only way was to refuse to buy it. What if you had refused to buy it when it brings such prices now?

Mr. A. H. PETTIT: I have never been to British Columbia to see the different parts where fruit is grown, but at the World's Fair we certainly had a beautiful exhibition of apples from that country of very large size, fine color and good quality. Yet, from what I could learn, I look upon that country as likely to be quite a market for Canadian apples; and why? Because their apples grow to enormous size, and are not of that keeping quality that we grow in the more northerly section of the country. The farther north you can grow an apple, if it is the home of that apple, the better keeping qualities

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it possesses, and thus we will lengthen out the fruit season and give them a fruit of equal quality with their own, though perhaps not of that enormous size. At that exhibition there was a rivalry between the different states of the Union and the provinces of Canada as to which could show the biggest apple. I do not know which came out ahead, but they were of enormous size. The State of Idaho, under a system of irrigation, produces apples of enormous size and very high color indeed, but I do not think that class of fruit has the keeping quality that fruit has when grown in the more northerly portions of Ontario.

Mr. BEADLE: Do those apples have the same high flavor that our apples have that are grown in the northern climate?

Mr. PETTIT: No, I do not think so; neither do I think that our overgrown apples have. It is the medium size and color that gives you the quality in all cases.

Mr. DEMPSEY: I had the pleasure of comparing a sample of the Hastings apple that was grown in British Columbia this year, and I could not detect any difference between it and the apple grown on my place; the flavor was equally as good, though not so highly colored.

Prof. CRAIG: That was grown at Agassiz.

The Secretary introduced Mr. HASKINS, of Hamilton, who made a few remarks, saying he had not been able to give the question of fruit growing the consideration that he used to in olden times.

The meeting adjourned at 12.30 until 2 o'clock.

FIRST DAY—AFTERNOON SESSION.

The SECRETARY read a letter from the Michigan Horticultural Society, appointing Messrs. Taft, Watkins and Rice as delegates to this meeting. He moved that these gentlemen be invited to take part in all our discussions.

Mr. MCNEILL seconded the motion cordially, as he had frequently enjoyed the hospitality of the Michigan fruit growers, and nowhere did he find a warmer welcome than in Michigan.

The motion was enthusiastically carried.

QUESTION DRAWER.

The Secretary read question No. 3 as follows: "How can the grape and rose thrip be destroyed?" and read a letter from Prof. Fletcher as follows:

"I notice among the subjects suggested for discussion at the Woodstock meeting question 3: *How can the grape and rose thrip be destroyed?*" I have had a good deal of experience during the past eight years with both of these insects. I have had no trouble in controlling either with the kerosene emulsion made by the Riley-Hubbard formula (two gallons kerosene oil and one gallon of soapsuds, containing one-half pound of soap) reduced with nine parts of water. If this mixture be sprayed forcibly through vines on trellises or into rose bushes at the time the insects are in the nymph condition it is a sure remedy. When the leaf-hoppers have acquired their wings two or three applications are necessary."

Mr. MCNEILL: The rose thrip has begun to be a serious pest. I would like to hear about it from Mr. Orr.

Mr. ORR: The thrip has been troubling us a good deal for many years, but very much worse this year than in previous ones. About eight acres of grapes that I have were badly infested with them this year. The difficulty in treating the thrip is that they work entirely on the under side of the leaf. I understand that treating them with

a preparation of tobacco water or with the coal-oil emulsion is effectual in destroying them, but I have done nothing in that direction yet at all, from the fact that it seems almost impossible to reach them, and I would like very much to get some other opinion on the matter.

The SECRETARY: Mr. Fletcher said on two occasions in writing to me that he had no difficulty in destroying it with two or three applications of the kerosene emulsion.

Mr. MCNEILL: If it continues to increase it will be a very serious pest, but three applications is more than we could hope to give with profit at the present prices of grapes. I was hoping that we could learn how to knock it out with one application, or attack it at a certain period of its growth when we could get rid of it with very little trouble.

The SECRETARY read the question: "Are apple storehouses desirable for Canadian growers?"

Mr. DEMPSEY: I think it is desirable for any man that is producing from 500 barrels up to have an apple house. No one can understand the benefit to be derived from an apple house unless he has had one. It is very convenient to place the fruit in, and you are not compelled to sell the fruit right away; whereas, without a fruit house, you are often compelled to sell when prices are rather low. Keep them a month or so and you will nearly double your money. You can keep until April apples that are usually placed on the market say the fore part of January. Last winter from my fruit house I shipped on the first day of April to England Spys, Seek-no Furtherers and many other varieties.

OUR FRUIT EXHIBITIONS, AND HOW TO MAKE THEM EDUCATIVE.

Mr. R. B. THORNTON, of Woodstock, read the following paper:

Although fruit growing is recognized as one of the most important branches of agriculture, yet no other industry is pursued with less intelligence by the great majority engaged in it. I refer more particularly to our farmers and their orchards than to the comparatively few fruit growers who have entered into the business for pecuniary gain or pleasure.

For proof, ask the army of agents who annually canvass the country for orders, how many men do they find who select stock, plant, prune, cultivate and care for their orchards and gardens in such a way as to make the enterprise every way successful and profitable. Or ask the fruit packers what percentage of the orchards are inviting to the shipper. Or ask the grower himself the names of the different varieties grown by him, and how few can give the names correctly.

The reasons for such a state of ignorance are obvious: 1st. Such a long time intervenes between planting and abundant bearing that if a mistake be made in planting it will be too expensive to attempt a remedy when your orchard reaches maturity. 2nd. Very few record the names of their trees when planting or can remember the names till bearing. 3rd. New and untried varieties are being pushed so hard by enterprising nurserymen that instead of promoting the interest of fruit culture the result is in most cases attended with disappointment, failure and discouragement.

Again, if you attend our local agricultural fairs and carefully study the fruit department year after year, you will agree with me, either that the various boards of directors have got into a rut, or else that fruit growing has reached the limit of its possibilities.

I believe in the exhibition of fruit, in giving prizes and in making the competition as keen as possible between growers if you would stimulate to success; but I do not believe that it conduces to the attainment of any of these objects to find a man on guard whose duty consists, not in describing, naming and showing the merits of new fruits, but

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Mr. MORDE the disappointme find that people use, and that is ta ing new things, Convention at N had been tested

in guarding the fruit with a long stick, or giving you a hint to move on. I fear that very many exhibit fruit more for the sake of the paltry prize of fifty or twenty-five cents than because they have entered a contest in which forethought, science and skill combine with nature to win praise, admiration and success.

To make an exhibition of fruit educative I would suggest the following :

1st. Revise the prize list by leaving out such kinds as do not possess sufficient merit to deserve general cultivation in that particular district.

2nd. Print in the prize list opposite the name of each kind of fruit a score of merit marks as at present accepted by the Provincial Association of Fruit Growers, basing the award of prizes upon this score.

3rd. Distinguish in the list between summer, fall and winter varieties, and keep them separate on the exhibition tables.

4th. Give exhibitors the option of any six varieties out of the total list of old kinds, subject to the score as printed in the prize list, at the same time increase the value of the prizes for first, second and third in said groups.

5th. Attach a printed label to each plate of fruit in type large enough to be read outside the guard rail.

6th. Engage one qualified judge, who alone will be responsible for the way prizes are given. Pay him for his time and require him to remain with the fruit each day until the close of the fair; to answer questions and give such information as may be required.

7th. Let the Provincial Association request the Government, through the Minister of Agriculture, to send an expert judge of fruit to at least one fall fair in each county annually until each society in turn shall have the benefit of his knowledge and judgment.

8th. Add the names of such new varieties of fruit each year to prize list as shall in the judgment of the Provincial Association deserve a place in the list.

9th. Offer special prizes for new varieties not on the list which are accompanied by a description of their respective merits. The kind of soil where grown, age of tree, or anything else that may entitle it to favorable consideration.

The SECRETARY: I would like to emphasize the point in regard to labelling. One of the difficulties which visitors to many fairs have is to find what the varieties are. They will strain their eyes and necks and with the greatest difficulty try to decipher some very poorly-written names attached to the fruit, and possibly fail after all to make out what they are. One of the benefits of visiting these fairs is to ask about new varieties and become acquainted with them. Therefore some plan should be found by which fruit would be labelled with printed names elevated in such a way that they could be read by every passer-by. I think we should keep very clearly in mind that the object of fairs is educative, to give information, and therefore there should be somebody on hand to answer the questions of visitors in regard to the exhibits in the room.

Mr. BOULTER: At our meeting last night steps were taken that will lead to proper persons being selected as judges at these fairs. Usually some straight-laced fellow is put in charge of the exhibit, whose whole object seems to be to keep visitors moving on. There is no information given at all, and persons are allowed to look only about five minutes before they are asked to move on. Experts should be appointed who could give information. A committee has been appointed to select good judges and recommend them to the Toronto, Ottawa and London exhibitions, and perhaps these recommendations will be extended later on.

Mr. MORDEN: There is a matter that ought to be touched upon more fully, namely, the disappointment that arises from sending out high priced, highly-lauded varieties. We find that people with small lots in towns have them filled up with material that is of no use, and that is taking the place of something that will produce fruit. Farmers are planting new things, unknown, untested, probably good for nothing. At the Nurserymen's Convention at Niagara Falls, N. Y., I urged that no new fruit should be sent out until it had been tested at a large number of independent stations, and if it had merit the orig-

inator would get a free advertisement. It would become known through the whole country that it was a good fruit. If it was good for nothing it would end there; and that is the way it should be. Instead of that our nurserymen are trying to get hold of a wonderful novelty. They can make novelties to order out of any old variety; and the largest nurserymen are sometimes the largest offenders. They send out a hundred agents, each of whom is instructed to push this variety, and it is pushed on to every farmer, and ninety-nine times out of one hundred it produces nothing, and it is taking the place of something that would produce fruit. We had a very close vote in the Nurserymen's Convention, but I found it a failure to get a vote there. I asked, too, that the nurserymen's catalogues as issued should be a reliable guide. We find that fruit is described in the flaming colors of the originator. You will find the champion grape described as of excellent quality, and all that sort of thing. This Association should demand that catalogues should be reliable. It is certainly very discouraging to every planter to get varieties that are worthless; and a great proportion of this high-priced stuff is not worth planting at all.

Mr. SMITH: I think that planters are a good deal to blame themselves in not informing themselves in regard to varieties that are adapted to their locality, and for taking the word of every travelling agent that comes along. I should think by this time that a good many of them would begin to learn that it is not all gospel that the tree agent talks to them. I think we are making a step in advance in this direction. If local organizations, such as the Society here, would take pains to have their exhibit correctly named, it would be a step in an educative line as suggested by the paper.

Mr. MCNEILL: The Government think so much of our bodily health that they license doctors for fear we will not know enough to get the right man to cure our bodily ills; they think so much of our pockets that they will not allow an auctioneer to sell stuff unless he is authorized by license. That is paternalism in a mild form. It has always been so, and we get used to it. Still they allow men who want agents at three dollars a day to advertise that "no experience is required." (Hear, hear, and laughter.) And it appears to me that it would be a step in the right direction to have fruit men licensed. I believe that the business then would rise to a dignity that it has not now. (Hear, hear). I have leisure sometimes, and could probably make an honest dollar by selling fruit, but I am ashamed to appear as a tree agent. (Laughter). If I paid a license and could reply upon my respectability and have something to show for it, I believe that I might do something in that line. Seriously, I believe it would be a step in the right direction to protect the farmers and those who are not informed and that cannot reasonably get themselves informed upon varieties, by seeing that only men who are responsible should be allowed to sell these things. Stockmen are now seeing that horses are licensed, and in every way they are protecting those who cannot reasonably inform themselves on these subjects; and why should the country be flooded with tree agents that are parasites, and that keep respectable men out of the business? (Applause).

Mr. SMITH That plan is adopted in some western states.

Mr. RICE: The trouble with us in Michigan is that we allow anybody that has a good tongue to talk and lots of brass in his face to go out and beat the poor man, and the consequence is they drive respectable men out of the business. It is the fault of nurserymen. I was riding with one of the leading nurserymen of Rochester, N. Y., and I said to him, "Mr. B—, do you instruct your agents to recommend the Russian Mulberry to people through the country?" "Mr. Rice, we sell just what people want. That is our business." "Mr. B—, how would people know that they wanted the Russian Mulberry if your agents did not tell them so?" Still the answer was, "we raise and sell what people want." I asked him the question in another form. He says, "Mr. Rice, let us talk about something else." (Laughter). Now, it is the money that is in these things that makes the nurserymen take this course. They will put a novelty on. They will say to a man, "go and I will give you so much a day." The tree will cost him perhaps ten cents or five cents. He reasons—he does not tell the man so—"you sell that variety; you tell them it is something new and here is a flaming picture of it, and it is nicely described; tell them there was nothing like it ever grown in the world before and it will

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bear the next year after you set it out—(Laughter)—and not only that, but it is the most beautiful tree next to the Tree of Life almost, and fair to look upon, and everything and you ask \$1.50 for that tree." Now then, you see if this man gulls three men in a day he more than pays his wages; whatever else he does is clear profit. So that by making a specialty of that kind they can afford to pay good wages to anybody that has got a voluble tongue and a brassy face.

Mr. A. H. PETTIT: I do not think at the present time we suffer to the extent that we did a few years ago with this tree agent business in this country. I think that our farmers and fruit growers, as a rule, have become very much better posted than they were in the early days of this work, and, no doubt, in the early history many mistakes were made. We have been discussing this question for years as a Fruit Growers' Association, and we appealed to the Government for a grant along that line to establish throughout the province at suitable points, and to represent certain localities, fruit experiment stations, where all the new kinds of fruit recommended by these people for cultivation will be thoroughly tested and reported upon, in order that every information can be given to the people in advance as far as it is possible to do so. These stations are doing most excellent work, and the work is coming on as rapidly as it possibly can. Another effort we are making is to have at the great Industrial Exhibition at Toronto, where the largest possible number of people attend, an exhibit of the large variety of fruits the stations are testing, and give all the information we can as to the hardiness, productiveness and good quality of such varieties as are placed before our people to plant, and therefore to buy. I think this difficulty will be overcome in a very few years. I think the evil will cure itself very rapidly. Another point is in regard to cultivation. I think horticulture is as fairly and well done throughout Ontario as any other branch of agriculture. It is becoming better and better every day, and travel where you will to-day you will see many samples of orchards that are well cultivated, well pruned and very well cared for. (Cheers.)

Mr. WATKINS, of Michigan: I think the manner of handling the tree list by our Society is a good one. Every year we have a complete list of everything that is worthy of cultivation, and some that are not. We have a committee that revises that list every year. If a variety should become unworthy of cultivation, it is struck out. New ones that are tested at our sub-station, under the careful supervision of President Lyon, are put on the list, and that revised list is a very valuable feature. Our list of apple trees in trial now is nearly 300, and there are two trees of each variety, and they are fruited right along from year to year until they become what you might call standard.

Mr. RACE: We have not heard anything at all from any local men.

Mr. T. H. PARKER, President of the Woodstock Horticultural Society: Our local association undertook to correct the names of much fruit that they believed was improperly named. They sent for Mr. A. McD. Allan, who was experienced in that line, and he spent a day or two here and also visited St. Thomas and Ingersoll, and I was with him at some of these places, and it was really amusing to see the strange names that some of these apples had, and many of them were wrongly named. The thing was not followed up, and I do not suppose that much benefit was derived from that single visit. It seems to me that the matter rests a good deal with the local societies. If they were willing to expend a few dollars in engaging an expert to attend their fairs and act as a judge and correct the names of these fruits, it might be a very great benefit to the country generally.

Mr. LEITH, Woodstock: I think very often mistakes are made in the placing of labels on apples at all, because they are not true to the names placed on them. I have made it a point to get the proper names of certain trees in my own orchard that may be starting to bear, and when I go to an exhibition, or a display like the one you have here, I look very carefully at labels on fruit, supposing they are placed there by men who ought to know, and I go away with the impression that I have got the correct name, but sometimes I find afterwards that it was not the correct name.

I am sure the great majority of people who go to our agricultural shows pay very little attention to getting information from the displays of fruit, and anything that will give them the correct names of certain fruit, I think, would be desirable.

Mr. THORNTON: I have attended a large number of local fairs in this county, both this year and last, and know of only one fair in Oxford county where they labelled the fruit. That was at Embro; and the thought struck me that the idea should be embodied in every exhibition throughout the Province. Hence I wrote this paper. I believe it would do a great deal in educating the people in regard to fruits. I know there is a very general ignorance by fruit growers as to the names of their fruits. They may know what pleases them and what gives them satisfactory returns in their own orchards, but they do not know what would be the most profitable to grow for market, because they are not generally sufficiently well informed. In attending some of our own local fairs, I noticed many fruits exhibited that were wrongly named, and I also noticed that many judges knew absolutely nothing about it, except a few varieties. Last year at a very important fair in our county the first prize for Baldwins was given to a collection of Spitzzenbergs. (Laughter.) This year at one of our fairs the judge said, as he passed around (I was standing near by): "I don't know anything about pears; I will just award prizes according to their appearance;" and he passed on the whole in that manner. I suppose people who received the prizes went away with the idea that their particular fruit was the best on exhibition; and some of them were incorrectly named, and yet they obtained the prize.

The SECRETARY: We were up at Clarksburg not long ago, and a gentleman showed us a very fine tree of pears, and he said: "You see what fine Louise Bonne pears we have here." I said: "Those are Clairgeau." He said: "That can't be; they have taken the prize for Louise Bonne at the exhibition here for years."

Mr. RICE: You conduct your exhibitions here very different from what we do. With us, if you can't read the label plainly, you can take it up and handle it, and nobody will find any fault. A man will walk along and have a little word with you, and there is nothing said to hurt your feelings, or anything of the kind. I visited your fair in London and never saw such a beautiful display of fruit, but there was scarcely a name I could see. I put my hand down to pick up a label and heard a loud voice say: "Hands off!" I was frightened. Everybody was looking at me. Up above everybody stood a man with an eagle eye watching. I did not know what to do. I went to one of the directors and I said: "My dear sir, I am from the United States, and I want to look at your fruit; I wish you would tell that man up there not to shout at me again—he frightens me." (Laughter.) He called up and said: "Let this man look at anything he wants to." I went around then and spent two hours looking over the fruit, and I then found out that when the man shouted "Hands off!" he had no reference to me. (Laughter.) If you could have more confidence in each other, it would be better. Don't be so dishonest among your neighbors so that nobody can trust you—(Laughter)—and do be more honest among yourselves, and tell yourself that you won't steal anything, and let your neighbor find that out, too, and then when you go in to look over this fruit you will have a great deal better chance. (Hear, hear.)

Mr. MCNEILL: That is the John Bull of it. Down at Montreal some of the finest grounds are enclosed with walls of stone six feet high, and I felt like getting dynamite and blowing them down. Whenever you see that big six foot wall you may know it is some hard headed fellow from England or Scotland.

Mr. WATKINS: We have taken down all our yard fences and opened the street. (Hear, hear.)

Mr. MORDEN: That is what we do at Niagara Falls, Canada, too, in addition to those things mentioned by Mr. Thornton.

Prof. CRAIG: There are one or two other ways in which you can obtain the names of your varieties—because that is one of the most important features along the educative side, of value in our fall exhibitions. You have your provincial society here, the pre-

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sident and secretary of which are experts; then you have at Guelph a horticultural division with Mr. Hutt as professor of horticulture, who will always be glad to identify specimens for you as far as he can if sent to him; and lastly at Ottawa you have an institution that is willing as far as possible to aid in this work, and any specimens you may send to me as horticulturist of the Experimental Farm I shall be very pleased to examine as fully and as far as my other duties allow me. You may send specimens free to the Experimental Farm. Then you have an important committee in connection with this Association that is doing excellent work—the Committee on New Fruits, of which Dr. Beadle is chairman, whose duty is to investigate the merits of all seedlings and fruits without name, including new varieties to be put upon the market. Now if you will send samples to me at Ottawa I shall forward them after examination to Dr. Beadle and to Mr. McD. Allan, who is also a member of that committee and our combined observations are presented at the annual meeting. We are thus able in a measure to keep track of new varieties.

A DELEGATE: Would you send one apple or two or three?

Prof. CRAIG: It is always better to send four or five specimens, because it is very difficult to get one apple that is exactly representative of its type. If you have five or six, then I can send one to Dr. Beadle and one to Mr. Allan, so that we can make our report much more conclusive and valuable. I trust that you will bear in mind these suggestions and act upon them.

THE BLOOMING PERIOD OF FRUIT TREES.

Prof. CRAIG: Those who attended the meeting at Orillia, will remember a very excellent paper we had from Professor Beach from the Experiment Station at Geneva, N.Y. He gave us some very valuable information in regard to the blossoms of fruit trees, and the power of the blossoms of the different varieties of grape vines to fertilize themselves and so set fruit. This investigation was instituted by Professor Waite of the United States Department of Agriculture at Washington. Mr. Waite worked on pears, and the results of his researches opened up a very wide field for investigation, and it was somewhat in extension of that work that I began work on the apple blossom. I may say, however, that the work was begun previous to this season. My object at this time is to present to you in a very crude, but I hope suggestive way the results of these investigations, more for the purpose of asking your co-operation and for getting the fruit growers of this province thinking about this matter, than to give you very valuable information at this time—though I think there are some points that will be of interest and value to you.

NOTES ON THE BLOSSOMING OF FRUIT TREES IN CANADA.

By JOHN CRAIG, HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

The cause of the unfruitfulness of orchards has always at horticultural conventions and elsewhere been prolific of much surmise, conjecture and I may say variation of opinion. The possibility of the trouble existing at least in part in the blossom has been mooted only in recent years. As a rule, I think we are prone to lay too much stress upon a single feature in the management of an orchard, and too little upon the collateral practices which make a harmonious and well balanced programme in the life of the average apple orchard. Some orchardists pin their faith to varieties, others to location and cultivation, others again to manuring or pruning, and perhaps still others—though I have not yet heard of them—to spraying. Undoubtedly we cannot expect orchards in which the trees are so closely planted as to be fighting for the mutual ground and perhaps for nourishment at twenty years of age to continue long and of healthy and fruitful condition. In passing, I may say that in certain localities with certain varieties

close planting is desirable and may be practiced with profit, but this is the exception. Nor is it reasonable to expect trees to continue to yield profitable crops of apples year after year, when year after year we are taking away from the soil and putting nothing back.

But granted that the trees are planted at the proper distances apart, that they are cultivated, pruned and manured reasonably and rationally, we do not in most cases reap entire success unless the previous good treatment has been followed up by judicious and well directed efforts, having in view the destruction of injurious and noxious insects. There are instances on record where even after all this labor and all these various precautions have been taken that the orchard still remains obdurate and refuses to bear defying all attempts to coax it into fruitfulness. One says root prune to stop superabundant growth; another says top prune to let in the light; another says give manure to stimulate; another, seed down to check growth; and still another, spray to induce fruitfulness. All these councillors may have been listened to, their advice acted upon, but still without success. We then begin to observe the conditions which surround orchards of a similar character. As a rule these observations lead to the conclusion that orchards made of varieties intermingled are more fruitful than those in which the varieties are separated and planted in large blocks. Professor Beach, in his admirable address on this subject, before the Association at Orillia last year, cited a remarkable instance of this kind. The orchard was made up in part of Baldwins and of Greenings planted in blocks and in part of Baldwins and Greenings mingled with other varieties.

Where the two varieties mentioned were planted in blocks unmixed with other kinds they were unfruitful, but when mingled with other varieties the converse was true. This points at least to partial infertility of the blossom with its own pollen and points to the desirability of intermingling varieties in the orchard. In the case of certain varieties of American plums this belief has prevailed for some time and no doubt is well founded. The valuable investigations of Professors Beach and Waite upon grapes and pears clearly set forth a similar condition of affairs in the case of these fruits. Similar experiments with apples have been commenced at Ottawa, but need further confirmation before they can be announced with authority. In connection with these experiments an attempt has been made to secure records of the blossoming period of the different classes of fruits in the Dominion. To obtain such a record was only possible to the kind co-operation of the fruit-growers of Canada. It gives me pleasure to acknowledge the hearty and kind manner in which they have aided me in this work. The weather was most unfavorable, however, for obtaining records which could be considered representative of normal seasons. We all remember the extreme heat of early spring which hastily awakened our fruit trees into blossoming activity, having finally the effect of crowding the whole blossoming period in some districts at least, into the compass of a few days. This so disturbed the natural blossoming periods of all fruits as to render the records only relatively correct, both as to periodic difference between varieties and the annual date of occurrence. Before going into the remainder of the subject, it might be interesting to us for a moment to look at the construction of the normal apple blossom.

THE APPLE BLOSSOM.

The apple blossom exhibits a characteristic peculiar to the pomaceous division of the rose family. On making a vertical section of an apple blossom we find the organs composing it to be arranged as follows, beginning at the outside, first, a calyx or enveloping and protecting sheath composed of five parts called sepals; second, the delicately coloured corolla, also of five parts called petals. These two series serve to protect the delicate organs within from heat and cold and also attract to the blossom insects which play an important part in the distribution of pollen. The stamens or pollen-bearing organs, fifteen to twenty in number, are arranged next in order on the top of the closed receptacle. In the centre are found the pistils or carpels, five in number and corresponding to the five divisions in the core of an apple. An elementary knowledge of the parts

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To return again to our records, observations covering a great many points from Prince Edward Island to British Columbia were made. These are in no slight degree interesting, merely from the standpoint of statistical record, showing as they do the great climatic variation discovered in travelling from west to east. If it is imperative to the fullest success that varieties should be intermingled, then we should know the most suitable varieties to plant adjacent to each other, and this we can only ascertain by accurate observations extending over several seasons. These records also impress us with a fuller knowledge of the climatic variation found in the comparatively limited area of the fruit belt of Ontario. We find that Red Astrachan came into bloom at Windsor on May 3rd, South Niagara on the 8th, Burlington on May 10th, Lindsay on the 12th, and Ottawa on the 15th May. Northern Spy opened its flowers at Windsor on May 8th, South Niagara on May 10th, Burlington on May 20th, Lindsay on 16th and Ottawa on the 24th, being a difference of twelve days in one case and sixteen in the other. These two varieties also illustrate the comparatively wide differences in the habits of trees with regard to their blossoming periods. The difference would be much more strongly marked did Red Astrachan bloom with the earliest of its class. As a preliminary result of these investigations the following groups may be arranged according to the dates on which they were in full bloom :

- 1.—Earliest Group—Duchess, Fameuse, McIntosh Red, Ben Davis.
- 2.—Middle Group } Baldwin, Golden Russet, Wealthy, Wagener, Yellow Transparent and Astrachan.
- 3.—Last Group } Alexander, Maiden's Blush, Northern Spy, Ribston Pippin, Roxborough Russet, Talman Sweet.

The pears easily fall into two groups as recorded the past season. It is probable that during the normal season the blossoming period of some will be much longer and probably considerably modified in many cases. They stand this year as follows :

- 1.—First Group—Howell, Keifer, Seckel, Sheldon, Anjou.
- 2.—Second Group—Bartlett, Clapp, Duchess, Flemish Beauty.

PLUMS.

- 1.—First Group—Burbank, Duane's Purple, Lombard, Bradshaw.
- 2.—Second Group—German Prune, Imperial Gage, Moore's Arctic, Reine Claude.

CHERRIES.

In Ontario there was practically no difference in the blossoming period of different varieties last season.

These notes are offered only in a suggestive way to horticultural observers who may be and I may say should be interested in this subject. Success will come to the fruit grower of the present and of the future very much in the proportion in which hard thinking enters into the details of horticultural operations. Allow me to submit this subject as one of the details which will bear some thinking and upon which I make bold to ask the co-operation of my friends, the practical fruit growers of Ontario.

Mr. J. B. HALL, of Woodstock : Is there any way in which we can assist in fertilizing the various kinds of fruit—whether we can do it by insects or otherwise? If by insects, what is the most useful and least expensive and troublesome?

Prof. CRAIG : The paper I have just presented is an endeavor to get over some difficulties in that way. By intermingling the varieties which blossom about the same time nature will do the work, but to those of us who have orchards or blocks of single varieties and do not find them profitable I would advise the keeping of bees or the top-grafting of certain varieties with others which bloom at the same time.

Mr. BEADLE : Advise both keeping bees and grafting too, otherwise they may not get the pollen.

Mr. HALL : Are the bees a blessing or a curse?

Prof. CRAIG : I am sorry we have not that eminent defender of bees, Mr. Holtermann, here, who conducts the department in the *Horticulturist*. I think he could defend the bee much more ably than I can, but I have not one iota of hesitation in saying that the bee is a great blessing to the fruit grower. (Hear, hear.)

Mr. RACE : It depends somewhat on the end you are fooling with. (Laughter.)

Prof. CRAIG : I have even known cases when men fooled with the business end of a bee that it proved a blessing. (Laughter.) I know that there have been statements made to the effect that bees injure grapes, but I don't think they are well founded. I think in every case that has been investigated it was found that the grapes had already burst, and the bees simply visited the grapes to extract some grape sugar and grape juice; they are not provided with the kind of weapons to break the skins.

Mr. GEORGE BLAKE : What benefit to the fruit growers is this cross-fertilization? Would it be a benefit to the apple grown from this blossom, or would you get the benefit from the offspring raised from the seed?

Prof. CRAIG : Well fertilized apple blossoms mean usually well developed apples. In case the fruit did not set of itself this year, then you would get the benefit this year, but where your apples fruit freely then there is no necessity for further fertilization. I may say that no actual change takes place in the product of this year—that is, the fruit is not modified to any extent by the pollen which may be carried from another tree.

Mr. BLAKE : It seems to me this is splitting hairs. It does not benefit us fruit growers. Now the practical benefits to fruit men I want to see brought out clearly. In raising fruit we have got to go back to the grafting system; we cannot depend on that fertilized offspring, and we lose the benefit of this cross-fertilization.

Prof. CRAIG : No, sir; allow me to explain. If you want to get a new variety it must be done through cross-fertilization; if you want to multiply that variety it is done through grafting or budding.

Mr. BLAKE : As practical fruit raisers we do not want to raise new varieties; we want to get the benefit of cross-fertilization in the present crop of apples. Does it do us any good?

Prof. CRAIG : Certainly, in a case where a variety has not sufficient pollen.

Mr. BLAKE : Our orchards are deteriorating and our fruits are not what they used to be, so if we can benefit the present generation I shall be glad. I have been in the fruit business for years. I have made a great many mistakes. If I had had the experience I have to-day I might have been thousands of dollars in pocket. My first mistake was to go into too many varieties. I have been grafting and budding and experimenting all my life. If I had just gone into two or three main varieties I would have been very successful, but I have not made it a very paying business.

The SECRETARY : Have you not some varieties that do not bear very well?

Mr. BLAKE : Yes.

The SECRETARY : Mr. Craig has explained that if you want them to bear you should plant some other variety near them.

Mr. BLAKE : If I had gone into Kings and Baldwins thirty years ago I would have been independent to-day.

Mr. SHORT (Calgary) : I would like to ask Prof. Craig if he has run across any varieties of apples, pear, plum or cherry that we will grow in Southern Alberta, south of Calgary, in a dry section where we have to irrigate.

Prof. CRAIG : We have had no success in any portion of the North-West Territories in growing apples. I have had one specimen sent from Prince Albert last year—a specimen of Whitney Crab—which in that section was considered a great curiosity. I know

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Prince Albert is a much more favorable locality than further south, as far as our experience with forestry goes to show; but I do not think that we can hope with our present list of apples to have any of them succeed in that climate. We have been sending out seed of the hardy varieties of Russian apples and grapes to settlers asking them to plant the seed and allow the tree to remain where the seed was planted. Perhaps we may get fruit in this way, and I have advised them to go on planting seed until we find something sufficiently hardy to stand the climate.

Mr. SHORT: What do you find the difficulty? Is it the Chinook winds?

Prof. CRAIG: The trees have not the ability to stand the cold.

Mr. SHORT: I have planted trees. They would do all right the first season, but in the next June or July they would die. They would leaf in the spring.

Prof. CRAIG: They had been root-killed.

Mr. RACE: This gentleman (Mr. Blake) says that he has had an orchard of Kings that he has made fruitful.

Mr. BLAKE: It is a very high locality, and they have been very average bearers every year. I have planted them mixed with Baldwins. I do not know whether that has produced an effect, because I have not planted them separately to see.

The SECRETARY: What are they grafted on?

Mr. BLAKE: On the natural fruit stock, mostly top-grafted.

Mr. RACE: And they bear every year?

Mr. BLAKE: Bear every year, and very fine, smooth apples, too.

Prof. CRAIG: Did they begin to bear young?

Mr. BLAKE: Yes; my oldest tree has been bearing for thirty years, and bears healthy fine apples now.

Mr. PEART, of Burlington: It seems to be established beyond dispute that there are some varieties of strawberries that are sterile, and at Orillia last year the Brighton and Lindley grape and Bartlett pear were stated to be sterile. Have there been any experiments to show that any variety of apples is absolutely sterile?

Prof. CRAIG: I have been carrying on some work for two years on that line. It is a very simple investigation. You simply have to cover the blossom of the apple with a paper sack to exclude all outside pollen. At the farm at Ottawa we have not yet in bearing a number of commercial varieties which I would like to report on, such as the Baldwin, the King, the Spy, and apples of that class. I have got results of a great many hardier kinds like Yellow Transparent and a number of Russians, but have not got results sufficiently definite to warrant me in giving them to the public yet. The experiments will be carried on and the results published as soon as possible.

Mr. BEADLE: Mr. Waite sent me a paper some two or three years ago in which he set forth some investigation he had made, and he had come to the conclusion that the Northern Spy was self-sterile; that if you plant a large block of Northern Spys together you would get no fruit. I remember at our convention at Hamilton Mr. Rice told us about an orchard that had been barren of fruit for twenty-eight years, and he was besieged with questions. I remember asking him if he had Northern Spys anywhere else than in that block. He said yes, he had a few in an orchard near his house mixed with other trees, and I asked the question if they bore there. He answered that they bore very well there. Then I made the remark that botanists knew very well that there were certain varieties of fruit that were self-sterile. I remember some shrubs that grew in my own grounds that were self-sterile, but when I got other shrubs of the same variety planted near they bore seed rapidly. Now, I do not know whether this Northern Spy is self-sterile or not, but possibly this may be a solution of Mr. Rice's trouble. I sent a copy of Mr. Waite's paper to the Secretary, who published it in the *Horticulturist*. I was in hopes that it would fall into Mr. Rice's hands, and perhaps set him to try the experiment of grafting some of his Northern Spys with some other variety and see if it would have any effect upon his orchard.

Mr. TURNER: I think the orchard referred to in Hamilton belonged to Mr. Fisher, of Burlington, and he is here to-day.

Mr. FISHER: I have nothing more to say about that orchard. It continues to disappoint me every year. I would like to ask Mr. Craig if in the course of his experiments he is prepared to recommend a variety for each group—a variety strong in pollen that would be suitable for fertilizing each group that he has made according to the time of blossoming.

Mr. CRAIG: Mr. Fisher's question opens up another avenue. He says, "A variety strong in pollen." That means a variety with pollen of more than ordinary vitality. I do not know that.

Mr. CASTON: Or abundance of it.

Prof. CRAIG: It is not always the abundance of it; it is the character of the pollen itself, and that can only be found out by testing the germinating power of pollen just as you test the germinating power of seed. I cannot tell you whether the pollen of one variety is more vital than that of another.

Mr. FISHER: It is the fertilizing power we are after.

Prof. CRAIG: Well, that lies in the vitality.

Mr. BOULTER: I have 400 Golden Russets in one block and I have never had a crop of apples on them yet, and they have been thoroughly cultivated. They are all Golden Russets with the exception of two or three Ben Davis that were bought from an American for Golden Russets. (Laughter.) Wherever those Ben Davis' are they are bearing, and a little radius around of the Golden Russets have had apples on. I have 200 more Golden Russets, and the first thousand trees I put cut, that have a row of Northern Spys and Maiden's Blush put right through them, and there I had some Golden Russets this fall, and that is all I had. On the other side of the orchard there are 300 Northern Spys in a solid body. Mr. Caston has been recommending top grafting, and I think I will take chances on that and top graft some of those Golden Russets. It is possible that the Russets having no other variety among them may be the cause of their not producing as well as they should. I never thought of that till to-day.

Mr. HALL: I think if you got two or three bees in your orchard they would carry your fertilizing element, although I don't suppose you would then get any honey for your table.

Mr. CASTON: There are some seasons when the bees don't get a chance to work.

Mr. HALL: Then you don't get any fruit.

Mr. CASTON: No. I am never so well pleased as when I see the bees busy. Last spring we had an extraordinary spectacle, the trees being white with blossom and white with snow at the same time, and the bees had no chance to work. The next farm to mine had an orchard that did well because the bees worked there when they could not work in mine. I attributed the difference largely to that fact. I was asked if there was any apple that would fertilize the Spy. I think this one shown here is suitable. It is known in our district as the Red Pound; the Fruit Growers' Association named it the La Rue, and it is known in some sections as the Baxter. It originated down near Brockville, I think, on the St. Lawrence. I would recommend any one who is trying the experiment of grafting their Northern Spys to try the Baxter. It is a free grower.

Mr. SHERRINGTON, Walkerton: I am in favor of bees as a fertilizing power in orchards. In a village in our vicinity an old Scotchman who had a considerable plum orchard, said to a large bee-keeper one day when the weather was very still and damp and the bees were not flying, "Are your bees flying to-day?" The bee-keeper replied "No, it is too cold, damp, wet." "Well," said the Scotchman, "my plum trees are all out in bloom, and I can have no plums this year." Neither had he. Another man had another orchard of plums that were in full bloom a little time before or after this incident. The weather was fine and the bees were flying in the orchard thick. The man had fires all over the orchard smoking the bees away. He said, "You must take these

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bees out or I will not have any plums;" but the bees did not care for the smoking and kept on with their work, and that man had a large crop of plums. If there had been winds to carry the pollen from one bloom to the other the Scotchman would have got plums, and so would the second man without the bees, probably; but the bees were the main means of bringing the crop of plums to that man's orchard.

Mr. BOULTER: Don't you think the smoke drove the curculio out of the plums?

Mr. SHERRINGTON: The curculio comes after the plum. I have a large orchard with Spys in a block, and I have noticed times that they did not bear; still I think they are not so far away but what they can be cross-fertilized with the other varieties, and I think it is very wise in planting to intersperse different varieties in the orchard.

You are all aware that there are varieties that will not self fertilize, and I think it is a very important point in planting to mix the varieties; but care should be taken that the soil is suitable for the different varieties. I have found on certain soils the Baldwin does well and on others it does not do anything. When the soil suits, the Baldwin is a good variety to plant with the Spys.

Mr. BOULTER: What is the best soil for Baldwins?

Mr. SHERRINGTON: In our localities the best is a light soil—a sandy loam. On the clays they don't do so well. I would certainly put bees in any orchard that has not got them. I would never think of trying to grow fruit without bees.

Prof. CRAIG: We should not go so far the other way as to think that all fruit tree blossoms are unable to fertilize themselves; in other words are self sterile. The majority are, and I was speaking of the exceptions. Most of the European plums are able to fertilize themselves, the blossoms being self-fertile, so that if they don't bear fruit it may be on account of some climatic influence—very great heat or sudden and prolonged heavy rains I think would wash away pollen so as to injure fertilization.

Mr. HALL: The professor has forgotten that he told us a few moments ago that it is important to have a foreigner to marry with this lassie bloom—that cross-fertilization is what was wanted to make a good offspring.

Prof. CRAIG: But you must remember that there are different sections of this subject. I was speaking of producing new varieties. I told Mr. Blake that the pollen of another variety had no influence on the fruit of this year, but if he wanted to produce a new variety he must cross it.

Mr. HALL: The strengthening quality of the apple, for instance?

Prof. CRAIG: That is what I say. Ordinarily it has no effect on the fruit of this year in changing its appearance other than helping development generally.

Mr. HALL: Does not it make it better in quality, larger in size, better in shape?

Prof. CRAIG: I don't think it will affect the quality or shape, but may improve the size.

Mr. SHERRINGTON: In one of our orchards a very close observer found growing on a Rhode Island Greening a perfect Golden Russet. All the difference was that just around the stem you would see the Greening, but the rest was a perfect russet. In the spring he cut the apple, but there was not a perfect seed in it. What was the cause?

Mr. BLAKE: I would like to ask, if the fertilizing fruit does not affect the present year's fruit, why do we plant strawberries of different sexes to fertilize the blossoms, to have the fruit of the present year?

Prof. CRAIG: To get fruit. In one case you don't get fruit, and in the other case you do get fruit. There are exceptions which nobody can explain. In all the animal kingdom we have what we call "sports." I had two specimens of apples sent into me this year each of which exhibited two varieties. One was a Golden Russet on one side as perfect as could be, and the other half was Ben Davis; and the line of demarcation was just as clear cut as if it had been painted by hand. I don't think this was the effect of cross-fertilization; it was probably a "sport."

The PRESIDENT: What was the flavor?

Prof. CRAIG: The flavor was Golden Russet throughout. It grew on a Golden Russet tree. I had another specimen of the same kind from Nova Scotia. These I only regard as "sports," and I don't know of any way of accounting for them.

Mr. SHERRINGTON: I have frequently met with raspberries where one-half would be red and the other half yellow. Is not that accounted for by the fertilizing of the fruit in its blossom?

Prof. CRAIG: I don't think so, because you can't get that constant effect every time. I have crossed hundreds of blossoms of strawberries and apples without that result.

Mr. WATKINS (Michigan): In my immediate vicinity there is a large tract of country about twenty miles long and two or three miles wide, called the Burr Oak Plains, very fertile farm land, and most excellent fruit land for about twenty years. All of a sudden that land, planted to orchards, began to dwindle, and after twenty-five years there has not been a bushel of apples taken out of the entire tract. We have such tracts all over the state. Every device that we could conceive of has been tried to produce fruit on this ground—frequently farm lands bearing heavy crops—a clay shale with a great deal of lime and plenty of potash, and supposed to be excellent fruit land. Now, if the pollenizing is perfect, what is the reason of all kinds of varieties failing on that land? Right by the side of that land there is a rise of broken land with a heavy clay loam bearing fruit perfectly to this day. You can almost throw a stone from one to the other along its whole line. It seems to me that sterilizes the whole matter of pollenization.

Mr. BEADLE: Do those orchards blossom well?

Mr. WATKINS: Perfectly, and perfectly thrifty trees, but no fruit.

Mr. BOULTER: And plenty of bees?

Mr. WATKINS: Yes, sir.

Mr. RICE (Michigan): I don't want you to learn any wrong lessons from my orchard, and if you can learn any good lessons from it, and get any good out of it, you will do better than I can. I will make you a little statement in regard to it. My orchard is situated in Wayne county, New York, the banner county for apples in the world. (Hear, hear.) If the evaporated fruit from that vicinity could be made up into apple pies they would reach continuously around the world. (Laughter.) My orchard stands on a hill, which is mostly heavy clay loam. As you stand on that hill in spring time and look along up the ridge road to the west and off towards the lake and see the orchards in bloom in every direction, you will see that you are in the midst of a garden of orchards, and they are all productive. I was always quite a theorist, and about thirty years ago people said that nurserymen were ruining their stock by continually cutting their grafts from nursery rows; and I said I will not ruin my orchards. I sent to Rochester for the trees. I said I cared nothing for the varieties, I was going to top-graft my trees from the very best stock to be obtained from the whole country; and I got good, nice stock, and I think that they stated that they were mostly Alexander apples, but there were some Northern Spies in the stock. After planting I had an expert go right through and top-graft. In cutting the scions I went to my father's orchard twenty rods away down on the ridge road—just down hill, as you might say—and I cut from Baldwin trees that were planted fifty years ago, trees bought from Maxwell Bros., of Geneva, and which, from the time they were large enough to bear, had never and have never really failed a crop. I cut, not from water-sprouts, not from lower limbs, but from the top limbs of the tree, so as to be sure to get the place where the wood was best developed and the buds best developed and in the best order. I did the same with my Greenings, and we went through and grafted. The stock took remarkably well, and the trees thrived and grew, and I thought of the happy days I was going to have selling the fruit and living at ease. I waited for those days, and they didn't come. I went off to Michigan, where I had a piece of wild land, and I have been strugg-

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gling along there, occasionally going down to look at my orchard. I have not been there for four years. I don't care much about seeing it. One year the Greening trees bore \$500 worth of fruit. I got half of it. The Baldwins have never borne a crop. The orchard extends in such a manner that the corners are on the south of the orchard, the furthest from the crown of the hill, and there are the longest rows in the orchard, the hill being narrower in the west end and wider in the east end. There are four rows of Greenings on the south of the line the entire length, and then come in the Baldwins. A few Golden Russets were planted about half way among the Baldwins. Two or three Red Astrachans were planted, and one or two earlier apples, and so on through—they were scattered through the orchard. Now, we have tried to get a crop of fruit, and we did not do it, and we can't tell why. The orchard blossoms, yet the trees don't produce. That orchard over the fence that I used to go and steal apples out of when I was a little boy is still there and bearing in a very nice way.

PEAR GROWING FOR PROFIT.

Mr. E. E. BEMAN, of Newcastle, read the following paper :

In preparing this paper, I have endeavored to give a few practical details, necessary to observe in making a successful business of pear growing, gained from experience in a fairly successful pursuit of pear growing for market for some twenty years, with an orchard of about two thousand trees. I will be as brief as possible, giving mainly practical pointers and leaving the theoretical part of the subject to others who may have more time to spend in that line.

The first thing to be taken into consideration is the soil and situation, for if that is not right, the whole business will only result in failure. I do not think there is much use to attempt growing pears any great distance from the ameliorating influence of the great bodies of waters with which our province is so abundantly supplied. The best soil I believe to be composed of a good, rich clay loam surface soil, with a deep alluvial clay subsoil. The pear being a deep-rooted tree, requires a soil in which the roots can extend downwards without obstruction, so as to obtain a plentiful supply of moisture, but the subsoil must not be springy, nor too retentive of water, unless it can be easily underdrained. The worst soil, in my opinion, is a cold, wet, quicksand subsoil.

In preparing the soil for planting, I would work it in about the same manner that I would if I intended to grow a first-class crop of grain by manuring, plowing, clearing from weeds and getting it in good condition for spring planting.

In planting an orchard for profit I would select standard trees. Dwarf trees may possibly succeed with a great deal of petting and pampering, but I have had no success with them in my own orchard. Select good, thrifty, but not too rapidly grown trees, not more than two years old. I would much rather have good one-year-old trees than three years old at the same price. As to what varieties to plant, this is a difficult question to answer. A variety that will succeed well in one locality may not do so a few miles away, or even on an adjoining farm if the soil is different. The surest way is to find out what varieties succeed in your own locality and on a similar soil. You also want to take into consideration the market you send your fruit to and what varieties sell at best prices. I would not advise planting too many varieties unless you are like myself, fond of experimenting and willing to lose money in doing so. Of course you can top-graft any that do not prove satisfactory when they come into bearing. As a rule I do not think the very early varieties are profitable. The principal varieties that I grow in my own orchard are the following: Bartlett and Clapp's Favorite. Duchesse Precoce ripens a few days later than Bartlett, resembles it in appearance, not quite so good for dessert, but very fine for canning, an exceedingly productive and profitable variety. Wilmot, a local seedling, not quite large enough, but very hardy, healthy, productive, of good quality when well grown and a good shipper, ripening from ten days to two weeks later than Bartlett, usually sells at fair prices. I also grow the following in smaller proportion: Anjou, Winter Nelson, Sheldon, Beurre Bose, Boussock, Goodale Howell, Mount Vernon and about one hundred and fifty other varieties, new and old, for the purpose of testing them.

There is one thing I want particularly to call your attention to and that is the distance apart to plant the trees. They are generally planted too close. I made that mistake in planting my own orchard, and now have to suffer the inconvenience of their being too close together to conveniently drive between the rows for the purpose of spraying and drawing out the fruit. Mark out the rows twenty-five feet apart, the rows running north and south if possible to allow each side to get the benefit of the sun. They can be planted a little closer in the rows, say about twenty feet. Prepare the trees by cutting off any broken roots and cutting back the last year's growth from one-half to three-fourths to balance the loss of the roots. Plant as early in the spring as the ground can be got in good condition, that is, when the earth is comparatively dry and friable.

Your orchard is now started, but do not think the work is quite finished, it has only commenced. On your careful attention to it now depends the pleasure and the profit to be derived from it in the future. Give it careful cultivation. You can grow any kind of hoe crop to make it pay expenses, but do not grow any kind of grain crop, as by so doing you will seriously injure the trees. Put on sufficient manure to keep up a good healthy growth of wood. They will require special attention to trimming while young. The natural form of growth of the pear is the pyramidal, and it is best to train them in that form by giving careful annual attention in the latter part of winter and early spring, cutting back shoots that may have grown too strong, thinning out superfluous ones and occasionally pinching back some of the strongest in summer. You can get a well formed pyramidal top, with about three branches in each tier and each tier about eighteen inches to two feet apart, always watching that the lower branches have the advantage by keeping the top ones cut back or pinching back in summer. After the trees get well into bearing they will not require much trimming, only occasionally cutting out any interlacing branches and dead wood. I am now coming to a point in the management of a pear orchard in which many of you will disagree with me. We will suppose the trees have attained a good size, some commencing to bear freely. I would now seed down to clover and endeavor as much as possible to keep it into clover by annually sowing a few pounds of seed late in the winter, just as the snow is nearly all gone. Then when you have a very fine crop of grass don't get too greedy and try to take two crops from your land—a heavy crop of hay and a fine crop of pears. Be satisfied with the pear crop alone. Cut your clover about the same time it blossoms out and let it remain on the ground to rot and you will have a splendid mulch; keeping the sod comparatively open and the soil moist. The decayed clover will give you the nitrogen and humus necessary to keep the soil in good condition. Then before your pears are ripe cut the clover again and leave it also on the ground, never removing any of the hay, and you will have a nice clean orchard to work in with a good soft cushion for any pears that may be blown off. I cannot say that this method will answer equally as well in all soils, but I know from practical experience that it is a success in my own orchard. I have about two acres that has been seeded to grass about ten years, and it is the part of the orchard that has the best and largest trees, has had the least loss from blight and has produced the most and best fruit. One special reason I have for advocating growing in grass is the greatly diminished liability to blight, which is undoubtedly the greatest drawback to success in pear growing. In the part seeded to grass I have had very little loss from blight, while the cultivated part has suffered severely. I have it nearly all seeded down at present.

In regard to manures, I am inclined to think that the pear requires heavier manuring than the apple. I would use freely of stable manure, but not enough to produce too rank growth. As the ashes of both wood and fruit contain large quantities of potash and phosphates, I would apply plenty of unleached ashes if easily obtained; or if difficult to get, would use muriate of potash, to give the potash and bone dust to supply the phosphates. I will not in this paper say much about picking, packing and marketing. Pick most of pears before fully ripe, especially the earlier varieties. A very good way to tell when to pick is to gently raise the pear, and if it parts freely from the branch it is ready to pick. Handle carefully all through. Use the cleanest and neatest package you can get, whether barrels or baskets. Never use old dirty barrels to save a few cents. Pack under cover to keep all clean, and pack honestly, keeping out all wormy and poor fruit. You can

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feed them to the hogs or sell them at home as culls. Then you will not be ashamed to put your name on your packages. Have them as good in the bottom of the barrel or basket as on top, and in time you will become known as an honest grower and packer, and you will get much better prices than you would by putting a few poor ones into the packages and spoiling the whole sample. In marketing, if you send to a commission merchant try to pick on an honest and reliable man, and send all your fruit to him rather than sending to several men in the same city. As a rule you will get better prices by so doing, as your name will become known to his customers and they will take your fruit in preference to other brands not known to them.

Regarding the profits of pear culture, I think it pays as well and perhaps better than most branches of fruit culture in this province, providing all the conditions of soil and locality are right; but if they are not you will find the business very unsatisfactory. Not that I would discourage anyone from planting, but merely advising the same caution you would exercise in commencing any other business pursuit. If you know by other trees growing on your own land or in your immediate vicinity and on similar soil that they succeed, you will be safe to plant. Otherwise I would advise planting a few at first until you ascertain the adaptability of your soil to their growth.

The SECRETARY: I visited Mr. Beman's orchard this summer, and can vouch for the truth of what he has stated—the thrift of his trees and the excellence of his orchard—in every particular, and the excellence of the fruit that he grows under the methods that he has discussed. His orchard is beautifully situated on the north shore of Lake Ontario at Newcastle. His packages stand high in the Montreal market as those of an honest packer, and he is getting the benefit of that reputation. I think it would be interesting for us to know how he packs the fruit, the packages he uses and so on.

Mr. BEMAN: I have sent to Montreal market, which I find generally better than the Toronto market. I find that barrels pay better than baskets, taking into consideration the price of the barrels and the putting in the fruit. As a rule I put all my best pears in barrels. Possibly the Montreal market required a little different plan of packing, but I have been informed by the commission men there that they send a great deal of fruit out to other points, and they want it picked a little on the green side, and they rather have it in barrels. As for baskets, I packed quite a few, and they are sold in Montreal. This year I sent quite a few baskets to Toronto, and they did better than what I sent to Montreal. I always pack under cover; it keeps the fruit and the barrels and everything else cleaner. I very often in the barrels make two samples. Very often if I have very fine grown ones I will make two or three or four barrels of the very best that I have and mark them as "Extra choice selected," or something in that way. The second quality would of course be of first-class fruit, even in size, but not large. I think by keeping the large ones out and putting them in a separate barrel you would really get a better price for the mediums than if you put the extra large ones in. Then I have a third class occasionally, with some varieties, and I send them to market and advise the commission men what the quality is and sell them on their market. I put in them nothing but sound, nice fruit in every respect, though not so large. If I can sell the culls at home, well and good; if not, I feed them out. Hogs will eat them, and it is better to do that than lose money by sending them away.

Mr. RACE: Do you pasture sheep or hogs on the orchard?

Mr. BEMAN: I never pasture sheep or hogs at all. My soil is very deep. The subsoil would be a good alluvial clay running down some places possibly eight or ten feet before you come to any stone at all, and of course there is any amount of moisture down there, and I don't find any difficulty from grass drying out; in fact I cut the grass down and it lies there, and at any time in the summer you may lift the grass up and find the ground all moist often in the driest seasons. The grass perhaps does abstract considerable moisture, but if the land is bare it will abstract it. I would be inclined to deal with apples in the same way as I have pears.

Mr. BEADLE: You have not been troubled with field mice?

Mr. BEMAN: No; I keep a good many cats, and they keep the mice down.

Mr. RICE: How do you protect the birds if you keep cats?

Mr. BEMAN: They have to stand the chances.

Mr. BOULTER: I understand you to say you put the trees about twenty or twenty-five feet apart.

Mr. BEMAN: I put mine sixteen feet apart, but if I were planting again I would not put them closer than twenty-five feet. In the oldest part of my orchards the trees have been planted twenty-one or twenty-two years, and the branches are so low now that I can scarcely drive through in spraying them.

Mr. BOULTER: As I am a large buyer of pears I was particularly pleased about that point in packing. I will hunt you up next summer.

Mr. FISHER (Burlington): Have you never had trouble from mice?

Mr. BEMAN: Not for ten or fifteen years.

Mr. FISHER: How long have you been pursuing this practice?

Mr. BEMAN: I have had one part seeded down now about ten years without having plowed up.

Mr. FISHER: The trees were large trees when you commenced this practice?

Mr. BEMAN: Yes.

Mr. FISHER: You would not dare to do this among small trees?

Mr. BEMAN: Oh, certainly not. I would keep it cultivated till the trees commenced to bear, or till the trees get a good size—for probably eight or nine years.

Mr. BOULTER: Don't you tread the first snow that comes in the fall around your trees?

Mr. BEMAN: No.

Mr. FISHER: That would be an awful task.

Mr. BEMAN: I have two thousand trees. You can tramp a great deal in a day, but I have never done it. One year I did lose quite a number of trees.

Mr. FISHER: The greatest disappointment that I have had in growing fruit trees was from field mice. I have endeavored to keep the orchards perfectly clean, but that doesn't keep the mice out. I find tracks of mice every spring all through my orchards that have been plowed and cleaned all through the season. They go through the orchards every winter in spite of the cultivating, and orchards that have been cultivated regularly are just the same as those that have not been cultivated. You say your experience with dwarf pears has not been satisfactory?

Mr. BEMAN: Not at all, I have not had any dwarfs now for about ten or fifteen years. I planted about forty trees altogether, a number of varieties, and they gradually disappeared and I have not one left.

Mr. FISHER: My experience with the Dwarf Duchess has been eminently successful. I have a large number of trees, and they have borne well and paid me well. The fruit sells well and it is of a pretty good quality.

Mr. BEMAN: In my locality the Duchess is not a success at all.

Mr. BOULTER: I noticed that Mr. Beman eliminated the Flemish Beauty entirely from his list.

Mr. BEMAN: I was so well pleased with the Flemish Beauty when I started that I planted 1,200 trees; but when they commenced to scab I top-grafted the whole lot except a few large ones. There is one point perhaps I should mention, and that is, for instance, the Bartlett, which is not a high growing tree. I have found as a rule it is rather strong and begins bearing very early. There is one variety I intend to plant ten

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acres of—that is the Tyson, which is one of the hardiest growing trees. It is large and strong, and grows in pyramidal form. When they get large enough, in say two or three years' growth, having formed a nice top, then I would top-graft them to any other varieties that I think suitable. But the Tyson is not a success as a market pear, in some sections being rather small.

Prof. CRAIG: Would you top-graft on the main branches?

Mr. BEMAN: I would top-graft as far out as I possibly could. I don't top-graft any branches more than from a quarter of an inch to an inch stock. Of course this involves a great deal more labor in top-grafting, but I lose less time and have a better crop.

Prof. CRAIG: Have you tried the Keifer?

Mr. BEMAN: I have tried the Keifer. It grows well for a time and after that it becomes unhealthy. I planted three or four trees and lost all of them.

Mr. DEMPSEY: Does the Keifer grow large with you?

Mr. BEMAN: No.

Mr. MORDEN: The Keifer in Southern Ontario and Western Niagara would be a success on light soils, and will grow a fruit that not a half a dozen men in this room would stick up their nose at; but grown further north in Ontario or on soils more clayey, the quality I think would be rather doubtful, but at Niagara Falls we can get a magnificent crop of very nice fruit every year, and it only failed this year from that late frost.

Mr. BEMAN: I am trying a somewhat similar one, the Garber, a seedling from some of the Japanese varieties of pears, and I find it grows and succeeds a little better than the Keifer, but I think it is scarcely a good pear for canning. It has not been satisfactory to me, only it is a very fine grower, and it might make a very fine stock; I cannot tell yet.

Mr. MORDEN: Keep your Keifers on the trees as long as you can.

Mr. BEMAN: That is what I do. I keep them on the same as I would any winter pear.

Mr. BOULTER: Have you found the Sheldon a good pear?

Mr. BEMAN: It is not a perfectly hardy pear, and with me it has blown off very badly; otherwise it was a fine market pear.

Mr. BOULTER: The Bartlett is rather delicate.

Mr. BEMAN: I think it is better to graft it on another variety. I have top-grafted 150 Flemish Beauties into Bartletts, and they are much larger than the trees that we originally planted as Bartletts; so I think that if I wanted to grow Bartletts I would do better by growing them on a hardy healthy stock off larger trees, and produce better fruit.

Mr. BOULTER: I put out 500 pear trees in 1879. In 1884 and 1885 I lost every Bartlett, every Sheldon, Osband's Summer, and Beurre d'Anjou; and all I had left was Clapp's Favorite and Flemish Beautys. The rest were winter killed. I am very anxious to grow Bartletts, as we use an immense quantity of them for canning, and we are now top-grafting all our Flemish Beautys with Bartletts. I have great hopes of the Sheldon pear.

Mr. ORR: I have planted pears on virgin soil that has never been cultivated, and that has been in sod since they were four years old. I cultivated them up to that date to give them growth, and I have them that have been cultivated regularly, and the blight has affected them equally; I see no difference whatever. I have never lost a tree of Sheldons; they are bearing splendidly, but as stated, they are apt to drop off. Every tree of my Clapp's Favorite is gone. I think the mouse question can be easily settled. We want one more association—the No-Fence Association. (Hear, hear). Twelve years ago in our section we determined to have no fences and we had a great fight with the

neighbors and with the municipal council, but we prevailed, and we took down our fences. The fences and the old ditches are the harbor for mice. We put tiles into the old draining ditches and closed them up. We had no fences between our neighbors, no fences on the road, and we have no mice.

A DELEGATE: Where do you live?

Mr. ORR: Fruitland, nine miles from Hamilton.

Mr. FISHER: I would like to ask Mr. Beman if in his experience in grafting large trees he has found the growth of top-grafted pear trees any more subject to blight than that of a tree that has grown up from the roots.

Mr. BEMAN: No, I have not; in fact I never noticed any difference.

Mr. FISHER: We had trees where the fruit was no good, and we top-grafted them, and for several years I raised Bartletts of superior quality on these grafts, but they have been blighted terribly; a top-grafted pear tree is more liable to blight.

Mr. BEMAN: In those two acres I spoke of there are about 150 in that block of Bartletts top-grafted on the Flemish Beautys, and I don't think I have lost more than one or two; in fact in the whole 300 I think I have only lost three or four trees.

Prof. CRAIG: Some three years ago I attempted to get some information with regard to the prevalence of blight in orchards cultivated in different ways, and to investigate the subject generally. I sent out a number of circulars to as many pear growers as I could find over the provinces of Ontario, Quebec and Nova Scotia, and asked a number of questions, and in duplicating the results I found about 65 per cent. of replies were in favor of growing pears in sod with a view to immunity from blight, and these replies were based on their experiences in that method of cultivation, and it was quite in line with what Mr. Beman said, though I think with Mr. Orr that you find exceptions, that it is impossible to account for. But I think in the majority of cases after pear trees come into bearing they are less liable to be affected with blight if grown in sod. Experiments have shown that the bacteria or germ which causes pear blight grows much more rapidly in a variety which has a superabundance of juice, and any variety when growing rapidly has much more juice in its tissues than when growing slowly. Arguing along that line, it is more reasonable to suppose that a variety growing rapidly would have more juice in its tissues and would be more likely to be blighted than otherwise. So I think Mr. Beman's method would be the right one in the majority of cases, and would hold true.

Mr. BEMAN: I have seeded down two acres, and was so well satisfied that I seeded the rest of the orchard last spring, but some of it had got a little dirty and I wanted to have it in a nice condition; in fact, I have been growing strawberries, which is not a very nice crop to get in good condition if you allow it to go too long. While on one part I sowed buckwheat, partly to get it into good condition—I thought buckwheat was good to sow in an orchard anyway—I summer-fallowed the other part. The part I summer-fallowed blighted very badly. The blight was very bad that year; blight seems to follow certain years. The part that was in buckwheat did not average nearly so bad. The next year I changed around again and the part that I seeded I sowed a few oats on, and the part that had been in buckwheat before, I summer-fallowed; and the part I summer-fallowed then was worse than the other, and the part that had a little grain in I suppose kept the soil cool and it was much freer from blight than the other. Judging from that, I would say that the soil should be protected in some way, either by growing grass or buckwheat, or by mulching.

Mr. BOULTER: Have you ever tried putting ashes around the trees?

Mr. BEMAN: Yes, and it is a great benefit.

The SECRETARY: Would Mr. Fisher tell us what packages he uses for the Duchess pear, and when he puts it on the market? We would like to know because the Duchess has not been very profitable of late.

Mr. FISHER: I got my best prices from a full barrel of hard green fruit. I make more grades than Mr. Beman does. I always take out a fancy grade, and I consider

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this fancy grade of mine away beyond No. 1. (Hear, hear). There is no place in the barrel suitable for it. If it is left with the pile we of course would put it on the face, and it does not fairly represent the contents of the barrel, so we put it in a barrel by itself. Then I make about two grades—a No. 1, according to the sizes, and a No. 2—and always keep out the soft fruit and put it in a barrel by itself. This will make five or six grades of almost any kind of pears that I handle. As to the time: last winter I had a considerable quantity of Bartlett pears kept in Montreal in cold storage till about the 1st of April, and my commission men were so disappointed at the result that they paid the cold storage themselves. I think there is no time so good for selling pears as during the season of pears.

Mr. BOULTER: When a man wants to buy them.

Mr. FISHER: People are looking for them then. They are not looking for them in the spring or any other time out of their season. If we had some means of extending the season so that we could hold our fruit for a week or two till the glut was over, it would often sell at better prices than if sent forward when we now have to send it; but my experience with Montreal market this year was a little different from Mr. Beman's. I found Montreal market good for pears when mine were ripe. I got telegram after telegram from Montreal asking for pears, and those that I sent down there sold well at \$10 a barrel.

Mr. SMITH: Did you get \$10 a barrel for Duchess?

Mr. FISHER: No, sir. Bartletts.

The SECRETARY: What was the date?

Mr. FISHER: I don't remember the date; it would be perhaps the 10th of September.

The SECRETARY: You kept them as long as you could in the orchard?

Mr. FISHER: Yes.

Mr. MORDEN: Do you plant your dwarf trees deeply?

Mr. FISHER: I plant them very deeply, so that the union is at least a foot below the surface, and it may be that my trees root above the union and become standard. We have trees on the farm that have been standing for forty or fifty years. With me the dwarf tree is not a temporary tree.

The SECRETARY: I have been differing from both these gentlemen in shipping Bartlett pears. I always put the finest fruit in the smallest packages instead of the biggest. Extras I put in a basket; and I fancy I do better in that way than if I put them in barrels. With regard to extending the season of the Bartlett I have usually tried to do that, because at the height of the season they bring a very low price when the markets are full of them. So for two years past I have sent a lot of baskets of prime Bartletts, that were picked firm, to a cold storage warehouse, and paid to have them kept for two or three weeks until the glut of Bartlett pears was over. That just simply prolonged the market. By doing that I found I could get an advanced price over what I would have got had I sold them immediately. I think perhaps that is about the best way we can handle our Bartlett pears. I think Mr. Beman has the advantage over us all in that respect, as I understand he can leave his pears in his orchard unpicked, and save his cold storage altogether, until about the time when we would keep them in cold storage. His situation on the shore is such that for some reason or other I believe he is able to leave them unpicked until the season for selling.

Mr. FISHER: There is a gentleman living in Burlington who raises a considerable quantity of pears, who used boxes last year for shipping to Toronto. Each individual pear he wrapped in tissue paper by itself, and he realized about \$12 a barrel for fruit shipped in that way. The size of the box was about four to the barrel.

The SECRETARY: But the secret of the high price was the time he put them on the market more than the package, probably.

Mr. FISHER: They were put on the market at the time of ripening; they had no cold storage.

Mr. HUGGARD: I have some sixty varieties of pears and some four or five hundred trees, and am interested in pear culture. I live near Mr. Beman, and have been watching his orchard. Our system is to grow corn the first year the young trees are set out—in other words, to cultivate the land thoroughly. In twenty years I have only lost from blight some eight or ten Flemish Beautys and one Clapp out of eight. I attribute this very largely to the extensive use of ashes. I have been asked twenty times a year how to get black knot out of cherries and plums. I replied at once, "By using plenty of ashes." I have never seen a tree where there was an abundance of ashes put round the roots that had black knot on it, that is if the ashes were put on before the tree was affected by black knot.

Mr. ORR: Is it the same with blight?

Mr. HUGGARD: My pear trees that were blighted and died got the same treatment as the other ones. In an orchard immediately below Oshawa, in a far more favorable locality than mine and equally as good land, I don't think the owner has three trees left in good condition out of 600. He didn't use ashes. I have a good word to say for the Keifer. I think I was the first man in South Ontario that had the Keifer growing. I brought it with me in a valise from Philadelphia from the Centennial, and have had them ever since. The trees never show the first sign of blight. They commenced to bear when they were three years, and some of them when they were two years planted, and they bear incessantly—(Hear, hear)—and if anyone will tell me how I can grow just half the number without spending time to take them off, I will be very grateful. On some of my trees this year I had thirteen props, on some nine, and so on. The quality of the pear depends largely on its cultivation and treatment afterwards. Situated as we are, immediately on the north shore of Lake Ontario, we often get an easterly wind and south-westerly wind that damages a large number of orchards over our section. It is largely the farmers' fault that they lose so much. The last twenty or twenty five years I have been preaching to the people to plant evergreens, but because they get them for nothing they won't set them out. In the county of Kent we find men that will buy five or six thousand evergreens to set around their orchards for protection, and they grow thirty or forty feet high. They have larger crops than we have in Oxford or Ontario county, because the wind is a very serious thing in our apple and pear orchards. We trim our young pear trees severely the first two or three years until they commence fruiting. We cultivate the ground and keep it very rich, so that when they are about six or eight years old they are in pretty full bearing. We set them out 16x20, and so far our trees don't seem to interfere, because they bear so much fruit annually that their limbs are simply like weeping trees. A pear like the Keifer with me overbears, while we have one or two other varieties that bear too many pears. We have quite a number of Clapp's Favorite that are large, beautiful, lofty, clean trees. I would not plant another Clapp's Favorite if you were to give it to me for nothing, because with me they will not bear. I have twenty or twenty-five Beurre d'Anjou, and they have not yielded me half a dollar a tree since they were planted quite a number of years ago. On the other hand one Keifer tree realized \$11, and the Bartletts usually produce from five to eight dollars a tree where the fruit is allowed by the wind to remain till picking time. We make three grades of our fruit. If I am passing a tree any time through the summer and see a pear that is cracked or knotted I take it off the tree at once. If I see a twig or a branch that I think should be removed it comes off at the same time; and keeping an eye to business like this you soon get a neatly formed orchard without having to remove great large branches later on, which it is very injudicious to do. I find where you feed the trees and take care of them they will take care of you, without a doubt. I believe a large percentage of the blight to-day is produced by not thoroughly underdraining your soil. Mr. Beman said he would not set an orchard out in any soil if it had a swampy or leachy bottom; that is the worst kind for an orchard, but more especially for pears. I have a few Duchess trees which load every year with very fine specimens of fruit. We market our Keifers usually in barrels. I sent some thirty baskets to Montreal the other day, as they were requested instead of barrels for local use. Last year I sent them in barrels and realized a good profit. My

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Keifers have paid me double any other kind of pear except the Bartletts. I think the chief trouble about pear growing in this country is that growers do not first make the land rich enough. They don't underdrain it enough, and they seed it down too soon after the young trees are planted. I don't purpose cutting out any wood till after the tree commences fruiting. I think I have a very handsome young orchard growing. With regard to cold storage, I just finished constructing one last week; I have brought a specimen of some summer apples we have kept in it since the frost began until now.

Mr. RICE announced that the delegation from the Michigan Horticultural Society had brought copies of their annual report for 1894 for distribution, and would be glad to have the names of local societies to whom they might be sent.

PROFITS OF FRUIT GROWING.

The SECRETARY: There are one or two questions that might be taken up. One is "Should inexperienced men be advised to leave their business and engage in fruit growing for profit?" You know that very often people interested in the sale of trees are inclined to rather exaggerate the profits of fruit growing. Now, I don't think that is the wish of this Society. We want to place before the public an honest view of this business. The other day I had a visit from a gentleman who is head master of a high school at a salary of \$1,500 a year. He said he had been directed to me for advice, and wanted to know whether I thought it would be advisable for him to throw up his position and go into fruit growing. His age was about forty and he had two or three thousand dollars saved up and he was ready for hard work and thought he could do a good deal better and have a more comfortable home for his old age by going into fruit growing. I told him I would not advise him to do it and he was very much disappointed, and when he went away he thanked me for my advice, but nevertheless he said "I am inclined to go into it yet."

Mr. MORDEN: In my neighborhood of Niagara Falls I think I have seen more men fail at fruit culture after they go into it in that way than any other employment I can think of. I find our grocery keepers and our various tradesmen endure pretty well, but our fruit growers come and go, and the same is true somewhat of market gardening. There is a popular fallacy that there is a lot of money in fruit, that any man that cannot succeed in anything else can succeed in fruit growing. There is nobody knows more about farming than the man that lives in the centre of a very large city (laughter), and it is so in regard to fruit growing. I think our friends in the Grimsby district would agree in saying that there are a lot of people who rush into it and rush out of it again.

Prof. CRAIG: I would like to hear Mr. McNeill's views.

Mr. MCNEILL: I am in the position of the high school master who gave up a very good situation to go into fruit growing (laughter). I can say here that I do not regret it—(Hear, hear)—although I have been in the high school at least one month of the twelve ever since I left it, and like to get back, for no one enjoys teaching better than I do, and I had a first-rate laboratory just as I wanted it for teaching natural science; yet, candidly, I am very glad I gave it up. I am much better physically, and I believe mentally. School teaching is usually regarded as an intellectual occupation. In most cases a man's intellect can't get to a funeral quicker than by taking up a class. He has to get out from his associations and strike out on independent lines before he can maintain his intellectual life; that is my experience. The man who will devote himself exclusively to a school is on a fair way to intellectual decay. I would like to qualify that a little if I had time, but I cannot take time to do it. In addition to that I like to work, and I would rather to-day go out and work in a vineyard or a corn field than to be cooped up in any school-room that I know of for a whole day, and taking the whole work all the way through it is pleasant, and if any man cannot enjoy being out in the sunlight and air there is something wrong with him. (Hear, hear.) But as a money making institution fruit growing has not altogether been a success. For one or two years we made money rapidly—there

happened to be good times—but during the last two years we have had to learn some severe lessons of economy to make both ends meet, and I would not recommend it. I would say it is almost impossible for any high school teacher at the age of forty to make fruit growing a success. His physical powers are so run down that he cannot make a success of the work. At forty it is difficult for a man to get his body into position for the work—it is a dangerous experiment. If he has always been used to violent exercise it may not hurt him, but if he has always been in a school the chances are that the wrench to his physical system will be more than he can stand and his pocket will be decidedly worse. I have no hesitation in saying that ninety-nine people out of a hundred that go into fruit growing without a preliminary training on a farm from youth, or some other training in a preliminary way, will fail. I will put this as a rider. I got into it partly from the love of it and partly because I dabbled in real estate. I found a property that I thought was going to rise in value, and I thought I would not only get the increase in value, but make a profit out of it. I made it in that way, but I lost it in the actual practice of fruit growing. Notwithstanding that for a number of years I have been experimenting upon a large tract of land, yet when I got into the actual practice of fruit growing I found I had to begin almost at the bottom and learn the details all the way up. There is just as much in fruit growing as in anything else. A lady of my acquaintance, noticing the rough condition of my hands, asked me if I did not think I was wasting my life up there on the farm, at the same time complimenting me on my ability. I said "I find there is just as much opportunity for the exercise of every bit of ability that is in me as I did in the Windsor High School—(Hear, hear)—and if there is a bit of brains that is not thoroughly and systematically exercised on that farm, I would like you to find it out." (Hear, hear.) I don't feel it in any sense derogatory to me or anybody else to go into the matter of fruit growing. I feel just as much dignity when I am drawing a load of manure to the back end of the farm as I ever did when I was before a class. At the same time there is no money in it. A man is not sure every year of making a little beyond his expenses until he serves as an apprentice. If he has served his apprenticeship on a farm and is a man of considerable brains he can make money by it. I have served my apprenticeship now, and I believe I can make money out of it. There is money in it, but not for the amateur. It is a trade, it is a profession, just as much as any other profession, and has to be learned in the same way. As a novice would fail if he went into the watch-making, so if he goes into the fruit growing business he will fail. (Hear, hear, and applause).

Mr. A. H. PETTIT: I would just like to give the audience a living example in this matter of fruit growing. Here is a gentleman who has taught a high school for a number of years, and he is here to-day as a practical fruit grower with all the energy any man might wish; you can see that from his remarks. I visited his place and saw that everything on his farm looks prosperous and successful, so I think he stands as a successful example of a fruit grower, coming to the place where my friend Mr. Woolverton advised the other high school teacher not to go. In regard to Mr. Morden's remarks, you can't point me a man in the Niagara district that has left the profession of fruit growing and gone back to farming or any other business. If there is any one profession above another where a man can live an enjoyable life, a profitable one, a successful one, and one that he can leave and hand down to his children, it is fruit growing. That can be followed out to advantage by the man who mixes a considerable amount of brains with his work. (Hear, hear, and applause).

TOP GRAFTING ON TOLMAN SWEET.

Mr. PRESIDENT: Mr. Caston has a subject which he will introduce now.

Mr. CASTON: I think the question of top grafting on hardy varieties is one of the most important for fruit growers in this country. The King stands at the head of all apples to day, as you will find from circulars sent from the Old Country; and yet the trouble is that it is not a good bearer. There is more money in that apple if you could

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get it to bear well than any other apple in Canada. Last year and the year before the Newton Pippin brought a higher price in United States, selling at thirty shillings a barrel, but the popular taste in the Old Country is more favorable to a colored apple. This year we find the King sells away ahead of the Newton Pippin, having been sold as high as twenty-three shillings a barrel lately, while the Newton Pippin has not brought more than eighteen or twenty. In the fall of '94 I found an orchard about five or six miles from my home on the side of a hill where an American had been around a few years before and put in a seedling, and a graft had been put in on each side of the King, and it was literally bent down in the shape of a cone loaded with the finest specimens of King apples I ever saw. It was facing the south and these grafts were growing on the old seedling. I always advocate grafting these tender varieties on a hardy stock, for you will find that it is the stock of a tree which first gives out. Sometimes we have found them to be killed by the frost, sometimes bursting of the bark, and in 1884-5 we had them killed in the crotches—I lost sixty in that way. Such varieties as the Tolman Sweet and the Duchess would stand any year in almost any climate, and when we top-graft them in the branches we get above the point of most danger. It stands to reason that that hardy trunk is more able to carry up the nutriment to those tender varieties than its own trunk would be. [Mr. Caston here exhibited specimens of the King and Duchess of Oldenberg of about the same age and taken from about the same position in the orchard.] The wood of the Tolman Sweet resembles that of the Duchess very much. I claim we should have that kind of wood to resist the coldness in the winter. When Mr. Blake said he succeeded in growing the King by grafting it on a seedling he struck, a most important point. We cannot grow the King in our county successfully at all by growing the tree on its own roots. It is too tender. They will grow till they begin to bear, and then they will do the same as the Greening, the Baldwin and the Northern Spy; but you can grow them by top-grafting them on a native seedling or on a Tolman Sweet. I prefer the Tolman Sweet because you are absolutely sure you have a hardy stock to graft on. I think the Tolman Sweet is a longer lived tree, and it does not require so much training, and it forms a very nice top for grafting on. This grafting requires to be done while the tree is young; it is not a bit of use grafting on an old tree while the wood has become dark. Make about three graftings of it, and it takes but a very few to form a top. After my experience of twenty years along this line I think this question of grafting the best varieties of fruit is one of the most important in this Province of Ontario. It is perhaps not important to the Niagara peninsula or the southern counties, but it is to the northern counties. I think it would apply to pears as well as apples.

Mr. BLAKE: My experience in grafting Kings on the bearing trees has been most successful. They bear more heavily grafted on the bearing trees, while the trees that are grafted on to Kings while they are quite young are not as fruitful as those that have been grafted in late years on older trees. I have noticed that in grafting them on Golden Russets the Kings are more prolific bearers than when grafted on any other variety.

The King in this last twenty years will outsell any apple in this market. I could fetch Kings in this market and sell every bag; there would not be another apple sold till those Kings were sold.

Mr. RICE (Michigan): This matter was brought up in our Society, and Mr. Morrill, of Benton Harbor, made a statement that in his orchard he had a number of varieties of trees. Among others were the Tolman Sweets and he re-grafted his Tolman Sweets to some other variety growing alongside of it. As they came into bearing his re-grafted Tolman Sweets yielded him from year to year about an average of four bushels of fine apples more than the same variety in the rows adjoining. Now, if that is true it shows a great and very important difference in the amount of money you are going to take from your orchard; and I have taken pains to ask the people about the country if they have known of any instance where Tolman Sweets have been grafted to any other apples, and what the results were, and invariably they were heavy producers of fine fruit.

Mr. SHERRINGTON: I think there have been some good suggestions thrown out here for your experimental stations to take up; for instance this top-grafting on to different varieties of stocks. With us the King is not a good bearer at all. The trees seem hardy and thrifty growers, but they do not bear the fruit. In other locations not far away it is said that they bear very well. Now possibly there is something in the soil to cause this King to bear.

Mr. RACE: I did not know there was any difficulty about the hardiness of the King-

Mr. CASTON; Oh, yes.

Mr. BLAKE: There is a distinct variation between that apple and the one shown on the table.

Prof. CRAIG: One is from British Columbia and the other is from Ontario.

The Convention adjourned at 5.45 till 7.30 p.m.

FIRST DAY—EVENING SESSION.

This session was held in the Town Hall, Hon. John Dryden presiding.

Hon. Mr. DRYDEN said: I am very glad to meet you, gentlemen. I have come because I want the Fruit Growers' Association to realize that I am just one of themselves, and consequently I want the outside public to understand and know definitely that I am in hearty sympathy with the work you are engaged in, and that anything I can do at any time to further the work of the fruit growers or assist the Association is doing, I will be only too glad to do it. This Association is one of the oldest in connection with agriculture in this province. I remember the work it was doing in my younger days. When I was a young man I was a member of the Association, and I have now on the farm trees growing which came through this Association. I believe in those old days a good deal of the work of the Association was lost somewhat—that is to say, no real record was kept of it, and although good did result, not as much resulted as if a good record had been taken of what was done. No real record was taken of the results of sending out new fruits. At the present time the Government is not suffering any information of this kind to go to waste, but gathering it up for the benefit of the public. (Applause.)

Mr. J. S. COLE, Mayor of Woodstock, said: It affords me great pleasure to be here with you, and in my official capacity to welcome you. In doing so I am sure I voice the sentiments, not only of Woodstock, but of the surrounding districts, and I think the delegates last year deserve a great deal of praise for drawing the Convention to this town. It advertises our town to a great extent and brings strangers here. We are proud of our town, and consider it one of the best in the province. We are all interested in it, both young and old, male and female, and interested in the development of one of the industries that I look upon as almost in its infancy. I think the people are just waking up to the fact that there can be markets opened up for the productions of this country. (Applause.) While I am glad to see a number of men from our rural districts taking an interest in this industry, I regret that at this season of the year our town is not looking its very best. It has got on its winter mantle, and is not so attractive as it would be in June. I think in no town in this province are there people that take more pride in keeping trim and neat their premises and boulevards than in Woodstock. Our town is noted for its maple trees. I offer to you the freedom of the town, and extend to you a very hearty welcome. (Applause.)

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ADDRESS OF WELCOME.

Mr. T. H. PARKER, President of the Local Society, read the following address of welcome:

Mr. Chairman and Gentlemen of the Fruit Growers' Association:

On behalf of the Woodstock Horticultural Society I beg to thank you for the honor you have done them in holding your annual meeting here under its auspices. The information that we may get from so many trained and experienced fruit growers and horticulturists will no doubt be very valuable to our members, as well as to the province generally. Your Association is doing a good work in developing the fruit growing capabilities of our country. No government can spend a reasonable amount of money to better advantage than in assisting such institutions as yours.

Our society has not been in existence more than nine months, yet we have about ninety members. We have not done much as yet, but hope that these meetings will stir us up to greater efforts. The annual meeting of your Association took place here about twelve years ago. I believe it was a most satisfactory meeting to all concerned. Trusting that this meeting may be equally so, I again thank you for your presence here.

Hon. Mr. DRYDEN: On behalf of the Fruit Growers' Association, I am asked to offer a few words in reply to what has been said by these gentlemen. I am sure the fruit growers appreciate the words of welcome that have been given, and the truthfulness of the remark about this being one of the best towns in the province. The difficulty with me is, I have just left another town where we had a meeting last night, which, they say, is best described as the Royal City, and they claim that is the best spot. It seems wherever you go there is a certain amount of pride which the local people have in their own town or city. I am very glad that is so. Often, in visiting various towns in company with the Lieutenant-Governor, I have seen over the archway the words, "Welcome to the Garden of Ontario." It seems every town and every city is the best, and every township and every county is the garden, and the only thing a stranger can conclude is that all the towns are beautiful and that all the country is a garden spot. (Hear, hear.) My friend, in giving us welcome, spoke about the information they will be likely to receive from these meetings. I am very glad he suggested that thought. That is just exactly one of the things that it is expected will be given to the public by an association of this kind. Since I have had the honor of occupying the position which I do in the Government of this province I have been endeavoring to use the information which you, gentlemen, bring to these meetings by extending it to the people generally, that a connection be made between the farmers of the country and my Department, and I have offered to give them all the information which you receive here in a report which will be published later on. I conceive in that way that I am fulfilling one of the legitimate functions of my existence as head of the Department, by conveying information to the people so that they will be enabled to do better for themselves than they have ever done before. I believe in the education of everybody, and this is one kind of education which I refer to. I believe that those who are to undertake fruit growing ought to know something about it; and I don't know any other means of disseminating information except to use the experience of the oldest fruit growers, and to have it put in such shape that those who cannot attend these meetings may read it in their own homes. Then my friend suggested that all classes of the community are interested in the work of this and other agricultural societies; that is another good thought which ought to be emphasized here. We have had such experience as compels us to the view that this country depends perhaps more than we have thought on the success of agriculture. All classes depend upon it. Depression in agriculture touches the agricultural pocket first, but it is now touching the pockets of the people who live in the villages, towns and cities, and whether they are willing to admit it or not, they are forced to the conclusion and conviction that it is nothing but the truth that if our agriculturists do not prosper neither can they. Therefore all classes of people should give a helping hand to carry forward this good work. We are glad to know that the fruit growers are to have

the freedom of this town. I would suggest that the Mayor did not mean that you are to go away without paying your hotel-bills.—(laughter)—What he means is that you are to have perfect liberty to walk up and down these beautiful streets without fear of being molested by anybody—(laughter)—He means that you are to have the use of your eyes here, and take whatever you can that will benefit you that you are permitted to see in the city. I trust that you will use the freedom he has just given, and that you will go away feeling that this is a good town in which to hold conventions, and that you may have some disposition to come back on another occasion. I am sure that every member of the Association will be pleased with their visit here, and I trust the meetings will be of such a character as that not only the people in Woodstock will receive information but that the members of the Fruit Growers' Association themselves will receive valuable information to aid them in their important work. (Applause.)

PRIVATE CONSERVATORIES.

Mr. D. W. KARN read the following paper :

I have had the above subject assigned to me for a short paper. In opening this question for discussion to-night I feel myself utterly incompetent to deal with the subject, having no knowledge or experience apart from the little I have obtained in connection with my own home life. Therefore I shall only speak of it from the standpoint of growing and producing flowers, shrubs and foliage plants for private use.

Most modern houses to-day, especially in our towns and cities, are lighted by gas, and when this is the case it is almost impossible to succeed in the cultivation of flowers, as the gas is a deadly element to all plant life. The only means to overcome this difficulty is to erect conservatories or greenhouses adjoining the house, but so separated as to exclude all the blighting effects of gas. In designing a conservatory, light, heat, air and water have to be considered. The simplest form of constructing a conservatory is a lean-to, so built as to face the south if possible. This can be made ornamental if so desired by means of architectural embellishments.

Heating is a very important item. The best and most approved method is hot water. There are numerous styles of hot water boilers, but they are all built upon the same principle, each inventor striving to expose the greatest possible heating surface to the action of the fire. It is preferable to heat the conservatory independently of the house, as during very severe weather it is necessary to force the fire in order to maintain a proper degree of heat, which in many instances would give too much heat in the house.

Ventilation is accomplished in various ways. In small houses by lifting or sliding the sashes placed in the roof for that purpose. Shading is required as spring approaches, when the rays of the sun increase in power and light. This can be accomplished by washing the glass with lime-wash or with whiting and milk, but if you prefer you can use a screen of muslin or thin cotton.

A conservatory covering some 550 feet of surface measurement and about 5,000 cubic feet of air space can be sufficiently heated in all kinds of weather with a hot water boiler costing from \$50 to \$75 and will consume from five to six tons of coal a season, so that with an outlay of \$250 or \$300 apart from the running expenses any one may have a conservatory, together with all the enjoyment and pleasure of being surrounded during the dreary months of winter with beautiful flowers and green foliage. To love and cultivate flowers is one of the few pleasures that improve alike the mind and heart and make every true lover of these beautiful creations of infinite love, wiser, purer and nobler. It is a pleasure that brings no pain, a sweet without a snare. If we would develop and increase the appreciation of the beautiful and our ability to enjoy the marvellous beauty which is everywhere around us we must have the educating and refining influence of plants and flowers in the home. Our homes must be made attractive so that lasting influence for good may be thrown around those entrusted to our care. The

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Creator doubtless could have made a world without a flower, but He in His wisdom did not do so, and after creating man in His own image He placed him in a beautiful garden in which was every plant that was pleasant to the sight or good for food. When man became a law breaker he was expelled from this garden and had to work for food among the thorns and thistles. In all parts of the civilized world to-day the refinement, innocence and happiness of the people may be measured by the flowers they cultivate.

The conservatory places within our reach at all times plants and flowers for the decoration of our parlors and dining rooms. There is nothing to my mind that lends so much charm and beauty to any home as a tasteful disposition of plants and flowers. The amount of genuine satisfaction, rest and pleasure that a business man receives and enjoys in spending a few minutes in the conservatory each and every day more than repays him for the additional expense incurred in maintaining the same. I am convinced that many who could afford the expense of a conservatory if they would only try the experiment would be loud in their praises of the pleasure and satisfaction derived therefrom.

The necessary materials used in building a conservatory can be purchased already manufactured to shape, so that any ordinary carpenter can easily construct and complete the work. The putting in position of the hot water pipes is only the work of a few hours by some competent steam or pipe fitter. With the conservatory thus completed you are in a position to cultivate successfully plants and flowers, native and otherwise.

THE ONTARIO AGRICULTURAL COLLEGE AND HORTICULTURE.

Dr. MILLS said: Not being a horticulturist, I have but little to say to you this evening, therefore I asked the chairman to be so kind as to allow me to speak what little I have to say before my friend Dr. Saunders, who has had so long and so varied an experience as a horticulturist, that he might have the remainder of the time at the disposal of the meeting. I desire first of all to congratulate you most sincerely on the work which you have done and are doing from year to year in this province in sending out new varieties of plants and fruit trees to be tested by the members of the Association in different localities: secondly, in preparing lists of apples and grapes adapted to the different climatic conditions which we find in this province. I think that a very valuable work, and I hope you may extend it to cover plums, raspberries, pears and some other fruits. Thirdly, I congratulate you on the dissemination of much valuable information through the publication of the *Canadian Horticulturist*, which has done and is doing such valuable work. Fourthly, I congratulate you on the publication of so valuable papers, addresses and discussions in your annual report—so valuable as to amply justify the Minister of Agriculture in spending the public money in distributing it to the people and farmers of the province at large. Fifthly, I congratulate you on the help you are giving to the Minister of Agriculture in carrying on the work of our provincial fruit and experiment stations. That help already given has been valuable, and we expect to have it continued. Sixthly, I congratulate you on the very valuable assistance which you gave the Government in making so excellent an exhibit of fruit at the Centennial Exhibition in Philadelphia and at the great World's Fair in Chicago. (The chairman: Hear, hear.) I have often asked myself whether it was really possible that at that great Fair, with such extraordinary competition as there was there in fruit, that this Province of Ontario should actually receive about thirty-five per cent. more marks or points for its fruit exhibit than any state in the United States. Think of it. Thirty or thirty-five per cent. ahead of California, of Florida, and of the great State of New York, of Oregon, and of every other state in that great country. It seems to me a very great achievement, and that great credit is due in the first place to the ability, industry and enterprise of our people at large; in the second place, to the assistance given by the Government to make that exhibit; in the third place, to the help of this Association from its directors and members all over this province; and fourthly, and largely to our friend Mr. A. H. Pettit, one of

the esteemed members of your Association. (Applause.) Now, I have often thought of that achievement. I don't know why it has rested on my mind so much, but it actually has, because it seems to me so extraordinary indeed; and as often as I did so I have said to myself that of the many wise and good things which the Hon. John Dryden has done since he became Minister of Agriculture, he never did a wiser or more magnanimous thing than when he selected a strong pronounced political opponent, Mr. A. H. Pettit, to prepare our fruit exhibit and to take charge of it at the World's Fair at Chicago. (Applause.) I say it is a blessing to a country when men in high places do the best thing for the country regardless, to some extent at least, of party claims and party demands. (Hear, hear and applause.) Now I want to say that in my own judgment Mr. Pettit did his work there about as well as it was possible for any man to do it; and had a less able, less shrewd and less energetic man charge of the work of preparing that exhibit and looking after it in Chicago, the results would I know have been very different, because he had very able and very shrewd men to compete with at that great World's Fair. Now, I came here merely to bring greetings from the Agricultural College at Guelph, from the staff of that institution, and tell you we are interested in your work and wish you abundant success in every department of it. We are doing something in horticulture at Guelph, but in judging us I wish you always to bear in mind two things: First, that our climatic conditions at Guelph are very unfavorable—I believe even more unfavorable than at Ottawa, as some of you know—and in the second place that we cannot, like our friends at Ottawa, devote the whole of our time to experimental work. At Guelph our chief work is to instruct the young men who come to us from year to year, and our horticulturist, like other members of the staff, has to give altogether the greater portion of his time to education rather than to experimental work. We are doing something along the line of horticulture at Guelph. We have a course of lectures on fruit growing concerning the varieties grown in this province, methods of preparation, planting, cultivation and all the rest of it; second, on vegetable growing; we have a large vegetable garden for practical instruction and a full course of lectures on the growing of vegetable; third, on floral culture to some extent; and in the fourth place to a limited extent landscape gardening. That is the outline of our course of instruction in the department of agriculture. In addition to that we have, I think, a pretty thorough course of practical work in the outside department. In grafting we have practice throughout the winter; we have a building and all appliances adapted to that work until students become somewhat proficient in the work of grafting. We have pruning work in season on apples, raspberries, vines and other plants. We do something at hand-pollination, and endeavor to give a practical course in testing and planting seeds, the preparation of plants by cuttings, by budding and transplanting, the preparation of soil for greenhouse plants, and in the preparation and application of spraying mixtures. As to the equipment for work in horticulture, we had very little until the present Minister took charge of the Department of Agriculture. I think now we can claim to be as well equipped in these lines as most institutions on the continent. We have a nice young orchard—I am sorry to say it is a young orchard, because a good many mistakes were made years ago in planting out orchards here in the wrong place, and they had to be rooted up. We have a fair-sized vineyard, a small-sized fruit plantation presenting a fair variety; we have eight acres in forest-tree plantation; a good arboretum on the College lawn arranged originally by our friends Messrs. Saunders, Bead'le, Beall, Dempsey and some others. It has since grown to be a very fine one, and of great service to us in instruction. Then we have a large group of flower beds in front of the College throughout the summer and autumn, and we have a garden of about six acres devoted every year to the growing of vegetables for practical purposes, and also for purposes of instruction. We have six good greenhouses, I think up to the requirements of the present time—one large house for forcing vegetables for winter and early spring growing lettuce, radishes, cauliflowers, rhubarb, cucumbers and tomatoes all through the winter and until such vegetables can be obtained from the outside in early summer. Then we have a good propagating house with a very good propagating oven in it, and an intermediate house, a tropical house, a conservatory, and perhaps what is more important, we have a house that is adapted more es-

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pecially for laboratory work of students in hybridizing, seed-testing and other things of that kind, and close by we have a large and commodious class-room so arranged that the plants can be taken in there all the winter through to illustrate lectures on horticulture and botany; and in conjunction with that class-room we have also a room for microscopy, furnished with microscopes and all other appliances necessary for the study of plant physiology and plant etiology, including all the injurious fungi that fruit growers are struggling against at this present time. So that you see in our course of instruction and our practical work we have a fair outline for doing something that ought to be of value to the students who come to us, and also to the province at large. We have not had this equipment long, and have only got nicely to work, but we hope in the near future to be able to do something that will be of benefit to you and to us and to the country in which we live. Now I wish to refer to one or two items of our experimental work. I wish to tell you that the black walnut is growing very nicely with us, to our surprise, notwithstanding the inclement climate of Guelph. We have a nice clump that was planted in 1880. The growth is slow, but the trees are growing healthy. The average diameter is between five and six inches, some of them reach between seven and eight inches in diameter. This is something we scarcely expected in the neighborhood of Guelph. Last year our horticulturist, Mr. Hutt, planted 123 varieties of strawberries in a plot near the College, and if he can protect them from the students and citizens and visitors we have through the summer we hope he may be able to report something in regard to that work not many months hence. We have only begun experimental work, and the time is chiefly taken up with teaching, but we hope to do something more in that line. (Applause.)

The CHAIRMAN: Mr. Mills has referred to my magnanimity in appointing my friend Mr. Pettit, but he does not know I have had to suffer for it. Not long ago I was engaged with a member of the Conservative party, and this was one of the attacks he made upon me, that we had spent too much money in connection with the World's Fair. He read two or three items, and two names were mentioned. One of these was my friend Richard Gibson, of Delaware, and the other my friend Mr. A. H. Pettit. When I took occasion to tell my good man that these two men, whose names he had read out, were members of his own party, he blushed all over his face and wished he had not said anything about it. (Laughter.) But I said these men belonged to a different type of Conservative to what he happened to belong to. Mr. Gibson and Mr. Pettit are both loyal to the best interests of their province, whereas this man wanted to find fault with us because we were holding up our province to the gaze of the world and advertising our products everywhere. (Applause.)

THE PROGRESS OF HORTICULTURAL WORK AT THE DOMINION EXPERIMENTAL FARMS.

Prof. SAUNDERS, in introducing his paper said: While sitting here, I could not help recalling the scene of twelve years ago, when I had the pleasure of being present in this same room at the annual meeting of this Association. I was thinking what a world of change has taken place during those twelve years—the great volume of information that has been given to the public on the subject of fruit growing, and the wonderful advancement that has taken place over the whole of the Dominion in the cultivation of these most valuable articles of diet; the twelve volumes of the *Horticulturist* that have been published since then, replete with information in every direction; the twelve annual reports of the Fruit Growers' Association which have been distributed among thousands of farmers, carrying to them all the information they need in regard to the cultivation of varieties; the enlightened measures which have been adopted by the Province of Ontario; of this preparation of which we have heard so admirably from Dr. Mills for the instruction of young men at Guelph, which has all been established since we last had the pleasure of meeting at Woodstock—not the instruction itself but its horticultural department—largely through the earnest efforts of Dr. Mills, aided by the kind help of the good Minister of

Agriculture at his back ; and the young men of the present day have all these advantages which we old fellows of the past have never had the privilege of using. However, we have done our best. I miss some faces to-night that were here twelve years ago. Some have gone to their long rest—some noble men who have done good work. I am thankful, however, that a good many of the old faces remain to grace the present meeting, and I hope that those who are here of the old stock, as well as many of the new, will be spared for many years to continue the good work they have been doing. The study of horticulture embraces both the science and art of the cultivation of fruit, garden, plants and ornamental trees, both for educational purposes and for use. The art of gardening is a very ancient and honorable one, and is very congenial to man's nature ; it exerts a refining and elevating influence which no other occupation can give.

The study of horticulture embraces both the science and the art of the cultivation of garden plants, fruits and ornamental trees both for decorative purposes and for use. The art of gardening is an ancient and an honorable one and very congenial to man's nature over which it exercises a refining influence. The careful student of the sacred word will observe that in the earliest mention we have of a garden, in Genesis 2, that the beautiful and ornamental is placed before the useful. In the 9th verse of that chapter we read, "and out of the ground made the Lord God to grow every tree that is pleasant to the sight and good for food." Thus provision was made that the sense of beauty which the eye detects and which captivates and refines the mind, should be fed at least equally with the grosser sense of bodily appetite the outcome of our physical needs. In a new country, however, like ours, where at first the struggle for subsistence is keen and the subjugation of nature to man's needs a primary consideration, the regard for the useful naturally takes precedence. It is needful for man's existence that he be fed, and in the steady improvement which has taken place in the condition of our people we want our diet now to include choice viands. Thus fruit growing has become a very important branch of industry, the magnitude of which is only understood by those who have looked into the subject carefully, and the possibilities of fruit growing in this great Dominion cannot yet be estimated. In the Act of Parliament by which the experimental farms were established, among other objects of research prescribed, was that of testing the merits, hardiness and adaptability of new and untried varieties of fruits, vegetable plants and trees, also to conduct experiments in the planting of trees for timber or shelter. Thus the whole domain of horticulture was included. During my remarks on this occasion I hope to be able to show you that this important division of the work has not been neglected at any of the experimental farms. In order to present this subject to you clearly it will be necessary that I treat of each farm separately since they are located in widely different climates, in each of which there are difficulties to encounter.

Perhaps it would be well that I should give you at the outset a very brief sketch of the system of Dominion experimental farms and indicate to you the districts which these several farms are intended to serve.

The experimental farms of the Dominion of Canada are five in number and contain in all more than 3,000 acres of land. They consist of a central farm near the Capital, Ottawa, and four branch farms. The central farm has been established near the boundary line between Ontario and Quebec, and serves the purposes of both these important provinces. One of the branch farms has been located at Nappan, Nova Scotia, near the dividing line between Nova Scotia and New Brunswick, and serves for the three Maritime Provinces. Another has been established at Brandon, in Manitoba, for the Province of Manitoba, a third at Indian Head, in the Provisional Territory of Assiniboia, as an aid to agriculture in the North-west Territories, while the fourth has been located at Agassiz, in the coast climate of British Columbia, where it serves a like purpose for that province.

At all these farms many experiments are in progress in all branches of agriculture, horticulture and arboriculture, and much has already been done towards solving many problems of great importance to farmers and fruit growers. In selecting the sites for the Experimental farms due regard has been had to the great variations in climate in differ-

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ent parts of the Dominion, and they have been so placed as to render efficient help to the more thickly settled districts and at the same time to cover the most varied conditions which influence the operations of the farmer and fruit grower in Canada.

Let us first look eastward and glance at Prince Edward Island, one of the most fertile districts in the Dominion. Fruit growing there has thus far been somewhat limited, but most of the orchards which have been planted and looked after with a reasonable degree of care have done well and there seems no reason why the cultivation of fruit could not be much extended there with great advantage to the people. Increased attention is now being given to this subject on the Island, and young orchards are being planted at many different points.

In Nova Scotia fruit growing has made wonderful progress especially of late years, and notably in the Annapolis valley. Eight or nine years ago this industry in Nova Scotia was almost confined to this valley, but since then orchards have been planted in many other districts with much success, and now it is generally held that apples of first quality as well as many other fruits can be grown to advantage in many other parts of Nova Scotia. The Annapolis valley has undoubtedly and special advantages in the way of suitable soil and shelter, and large crops of beautiful bright colored and high flavored fruits are annually produced there.

Foremost among the apples grown in this favored locality stands the Gravenstein, a handsome, yellow apple, of a delightful flavour and crisp and juicy flesh, which now commands high prices in Great Britain and is much appreciated in Boston and other cities across the border. The Gravenstein is a European apple which originated at a place of that name in Germany, and it is highly prized as a table apple throughout Central Europe. Several years ago a red sport of this apple occurred in the Annapolis Valley, in the orchard of a Mr. Banks, and this apple is now known as the Banks. The beautiful red colour with which this sport is adorned on a yellow ground makes the apple very attractive for dessert purposes. It is singular that a red form of this apple has originated in Germany, and two other forms in Denmark, which are striped with red.

The Gravenstein, from Gravenstein, of the German catalogues, is described as a large, splendid, yellow table apple, of very fine flavour, ripening from October to January. The red Gravenstein is spoken of as similar in size and quality, but red, and the time of ripening is from November to February.

In a European catalogue of Danish apples, the ordinary Gravenstein is said to ripen from October to January. Gravenstein, of Gundestrup, is said to be a large table apple, of excellent quality but striped with red; ripe October to January. There is also a Gravenstein of Tarnborg, which is described as large, of a very fine yellow color, striped with red on those parts exposed to the sun. This is said to be the finest of all table and market apples. It is singular that this variety of apple should have shown such tendencies to sport, mainly in the matter of color, at such widely distant points and under different conditions of climate.

The Baldwin, which is a native of Massachusetts, is also largely grown in the Annapolis Valley, and the trees bear very heavy crops. The Nonpareil is another favorite there. This is a russet, of English origin, of good flavor and an excellent keeper. Of late years there have been very extensive additions to the orchards in this valley, and the output of fruit is rapidly increasing. All varieties of apples can be grown there, also plums, pears and cherries.

The Bear River district, which is situated a few miles below the town of Annapolis, is the most noted locality in Nova Scotia for cherry growing. Several years ago I paid a visit there at the time the cherry season was at its height, and was astonished at the number of cherry trees growing in that neighborhood and at the large crops produced. The cherry seemed to be one of the commonest trees in the locality. They were to be found everywhere, in orchards, gardens and fields and even along the roadsides, where the laboring man going to and fro to his work, or the traveller passing through the district, could halt and refresh themselves at will. In looking over some of the orchards

I was surprised at the absence of most of the familiar cultivated forms, and a careful examination convinced me that the greater part of the cherries grown in that section of the country were seedlings of some of the better named sorts. There were among them cherries of every shade of color, and great diversity of foliage. Most of the foliage partook of the Bigarreau type, some resembled that of the Dukes and Morellos, and others again were more or less intermediate in character. The best of the seedlings were increased by budding them on the less desirable sorts and in this way, the average product had been brought up to a good standard of quality. Thousands of boxes of cherries are sent yearly from this district to St. John, Halifax and other cities.

When the Experimental Farm was started at Nappan, N. S., it was the general opinion that fruit would not succeed there, but experience has since shown that apples can be grown successfully not only there, but in many other parts of Nova Scotia, which were at that time thought to be unfavorable for fruit growing. At the Experimental Farm at Nappan we now have under test 288 varieties of large fruits and seventy five of small fruits. We also have in the ornamental plantations 279 varieties of trees and shrubs. These large plantations are being increased from year to year and are assisting in awakening much general interest in horticulture in the provinces.

NOVA SCOTIA.

Number of varieties of fruits under test at Nappan, N.S., at the close of 1895 :

Large Fruits. Apples, 147 ; pears, 36 ; plums, 41 ; cherries, 39 ; crab-apples, 12 ; apricots, 3 ; nuts, 10 ; total, 288.

Small Fruits. Grapes, 9 ; Strawberries, 20 ; Raspberries (red, white and black), 15 ; Blackberries, 4 ; Black currants, 3 ; red and white currants, 8 ; gooseberries, 15 ; dwarf juneberries, 1 ; total, 75. Grand total, 363 ;

Fruit growing is also advancing, although less rapidly, in some parts of New Brunswick. The climate of this province is less favorable to the growth of large fruits, nevertheless apples, in many localities, have done well. The growing of late strawberries for the Boston market is quite an important industry in some sections of New Brunswick, for the reason that the cool summer climate enables the growers to place their fruit on the market in first-class condition after the crop in all competing districts is over.

CENTRAL EXPERIMENTAL FARM, ONTARIO.

Much progress has been made in horticulture at this institution. The fruit department at first was in charge of Mr. W. W. Hilborn and subsequently under that of Mr. John Craig. In the report given by Mr. Hilborn of the progress of the work to the close of 1887 he gives the number of varieties of large fruits then under test as 556, and of small fruits 325, total 881, as follows :

Large Fruits. Apples, 297 ; pears, 101 ; plums, 72 ; cherries, 71 ; peaches, 11 ; apricots, 4 ; total, 556.

Small Fruits. Grapes, 127 ; currants, 20 ; gooseberries, 30 ; raspberries (not including 200 seedlings unnamed), 38 ; blackberries, 20 ; strawberries, 90 ; total, 325. Grand total, 881.

Since Mr. Craig took charge of the fruits the number has been largely increased, and the varieties of large fruits now under test number 788 and the small fruits 604, making a total of 1,392 varieties to watch over and take notes of.

The climate of Ottawa is too severe to admit of the cultivation of peaches, apricots or nectarines, or of the finer varieties of plums or pears or of Bigarreau cherries. Nearly all the varieties of these fruits readily obtainable have, however, been tried with the hope that some might be found sufficiently hardy, but they have nearly all failed. Some of the finest varieties of apples have also proven too tender for this district, which, while it is colder than western Ontario, is fairly representative of the settled portions of eastern

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and northern Ontario and of the Province of Quebec. The collection at the Central Farm is particularly rich in Russian varieties of apples; also in the improved forms of the native plum. To both of these classes of fruit Mr. Craig has given special attention. Grapes have done remarkably well at this farm and the collection now contains 176 varieties, nearly 150 of which ripened their fruit fairly well last season. A large collection of varieties of English gooseberries has been accumulated which it is now expected can be grown successfully since a remedy has been found for the mildew. Including the American sorts, of which there are not many, this group now contains 128 varieties. This large collection of fruits is very instructive, and Mr. Craig has done much to disseminate some of the large fruits found to be specially worthy by distributing scions to applicants for grafting.

The number of varieties of fruits under test at the Central Experimental Farm at the close of 1895 was as follows:

Large Fruits. Apples (American, 209, Russian, 225), 434; crab-apples, 17; cherries, 94; plums, 166; pears, 55; nuts, 9; peaches, 5; quinces, 4; mulberries, 4; total, 788.

Small Fruits. Grapes, 176; raspberries (red, yellow and black), 110; blackberries, 25; gooseberries, 128; currants, 21; strawberries, 140; juneberries, 4; total, 604. Grand total, 1,392.

The possibilities of extending the fruit growing industry in Canada are almost unlimited, and with ample cold storage facilities so as to admit of shipping to distant points in good condition the markets may be much enlarged and production greatly stimulated.

A large amount of work has also been done at the Central Farm in the testing of vegetables by Mr. Craig.

In the planting of ornamental trees and shrubs excellent progress has also been made at this institution. It is only eight years since this branch of the work was begun, and now in the arboretum and botanic garden (to which sixty-five acres of land have been devoted) together with those other portions adjacent to the buildings which are devoted to ornamental work, a very large collection, numbering more than 1,000 varieties has been brought together for test, and quite a large proportion of them are proving hardy. The results of these experiments will do much to demonstrate the favorable character of the climate of eastern Canada.

(The speaker here showed photographs of views of the Farm and of the trees and shrubs).

It has long been a reproach to Canada that while most of the smaller colonies of Great Britain were doing efficient work in this direction, Canada, one of the brightest gems in the British Empire, with enormous possibilities, had done nothing. This stigma has been removed and a collection worthy of the country is being rapidly brought together, comprising many of the most desirable and beautiful forms from all parts of the world.

Apart from the scientific value of this collection which is very great, the charming effects produced by the judicious grouping of the more ornamental species is of great educational use to the public generally, and the visitors to the farm, who number many thousands each year, carry home with them pleasant memories of these beautiful pictures in landscape art, and many thus become inspired with a desire to beautify and improve their own surroundings, and thus bring these elevating and refining influences to bear on their own households.

One of the most striking features in connection with this ornamental work, is the large number of sample hedges which have been planted. Experiments are being tried with more than sixty varieties of trees to determine their fitness for this purpose. These hedges are arranged in a regular series, each being fifty feet long and ten feet apart. Experiments are also being carried on with all the more valuable timber trees for the

purpose of determining their annual growth in this climate, and the relative time required to produce merchantable timber. Twenty acres of land are devoted to these timber-tree tests.

Lovers of flowers will also find at the Central Farm much to interest them. Apart from the botanic garden which now contains more than 800 species and varieties of hardy perennials, there are special beds devoted to particular plants which are worthy of mention. First, there is a fine collection of that queen of flowers, the rose. Of hybrid remontants there are more than 200 varieties, and of the more tender perpetual bloomers about seventy-five different sorts. The hybrid remontants are cut back before winter to about a foot in height and earth thrown up around the stems to a depth of eight or nine inches and the whole lightly covered with strawy manure from the barn-yard. Under this treatment most of the varieties usually winter well and produce a wealth of bloom in June and July, and more or less flowers from then on to October. There is also a large collection of pæonies, embracing 131 varieties, another of Irises with more than 200 varieties, including a large number of the Japanese sorts, forms of *I. Kemperi* with flowers measuring from five to seven inches across, which seem to stand our climate perfectly. There are also large beds of lilies, including sixty-four species and varieties. Other beds are devoted to pansies, gaillardias, Dianthus, tulips, hyacinths, narcissi and gladioli, and others to mixed annuals and perennials.

A new feature in this branch of the work has lately been started in a series of large beds devoted to the wild flowers found in different parts of the Dominion. One of these is devoted to Ontario, another to Quebet, and others to the Maritime provinces, Manitoba, the Northwest Territories and British Columbia, the object being to show in these beds those species of native growth which are most conspicuous for their beauty and valuable for cultivation.

A conservatory in connection with a propagating and seed-testing house contains an interesting collection of economic plants, orchids and the newer varieties of house plants.

MANITOBA.

Passing now by a long stride of about 1,500 miles we bring you to Brandon, Man., where the most easterly of the three western experimental farms is located. Here there are climatic difficulties to contend with which interfere with the successful cultivation of most of the large fruits. For this reason the experimental tests have been mainly confined to the hardiest sorts. Since the establishment of this farm 241 varieties of large fruits have been tried, including all the hardiest forms obtainable from Siberia and other parts of Russia, and from other cold climates in northern Europe. These have consisted of

Large fruits, now mostly dead: Apples, 175; pears, 14; plums, 22; cherries, 18; crab-apples, 12; total, 241.

Small fruits, mostly living, except grapes: Grapes, 26; strawberries, 18; raspberries, 29; blackberries, 9; black currants, 22; red and white currants, 13; gooseberries, 24; dwarf June-berries, 1; total 147; grand total, 388.

These tests have been several times repeated during the past six years with the object of testing these fruit trees under various conditions of shelter, but up to the present time very little success has attended the efforts made. We have succeeded in fruiting several varieties of the wild plum, which is native in some parts of Manitoba, and is perfectly hardy, and much attention has of late been given to the securing of such improved varieties of the wild plum as have been originated in the north-western States, especially in Minnesota. It is believed that in a short time an orchard consisting of these improved forms of the wild type can be successfully established, and that these varieties of fruit will be very acceptable and useful to the people.

No success worthy of mention has yet attended the testing at Brandon of any of the hardy varieties of apples, nor of any of the crab-apples grown in the east. There is, however, one wild crab, a very small one with fruit about the size of a cherry, which was

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obtained from the northern part of Siberia, which has stood the climate perfectly for the past four or five years, and during the last two seasons has borne some fruit. Experiments are now being conducted with the object of improving this fruit, and in 1893 this Siberian variety, known as the berried pyrus (*Pyrus Baccata*), was cross-fertilized with pollen from some of the hardiest varieties of apples, such as Duchess, Tetofsky, Wealthy, Yellow Transparent, and Anis, also with pollen from the Hyslop and Transcendant crabs. The seeds obtained from these various crosses were sown, and we now have about 150 one-year old trees as the result of this work. It is hoped that in four or five years when these young trees come to fruit, that there will be found amongst them some improved forms such as will be serviceable to the people of Manitoba. This is slow work but it is being prosecuted with as much haste as nature will admit of.

Sand cherries have also succeeded well. Among these there are promising forms from different sections of the country which vary much in size, colour, and quality, some of them being very good and serviceable.

A fair measure of success has attended the experiments with some of the small fruits, of which 147 varieties have been tested. The most successful have been the red, white and black currants, and gooseberries, and also the hardier sorts of raspberries. Strawberries have been a partial success, but all attempts to grow our eastern varieties of grapes have thus far failed. Examples of the wild frost grape found growing in the Red River valley have of late been secured and planted, and it is hoped that eventually some improved forms of this fruit may be obtained from that source.

A much larger measure of success has attended the experiments with ornamental trees and shrubs, and there are thus far about 100 species and varieties which have proven hardy at this farm. Every year some additions are being made to this list, which will, no doubt, in time assume goodly proportions and give to the people of Manitoba sufficient material for the beautifying of their homes, not only in the cities but also on the prairie farms.

THE NORTH-WEST.

Another step of 183 miles brings us to the next experimental farm at Indian Head in Eastern Assiniboia, one of the Northwest Territories. While this is one of the finest grain-producing districts in the whole northwest the conditions of climate which prevail during the winter and early spring are, I think, less favorable for tree growth than those of Manitoba. A similar line of experiments to those conducted at Brandon have been carried on here with large fruits, involving the testing of 203 varieties of large fruits, nearly all of which have failed, and 127 varieties of small fruits, a part of which have been successful.

Large fruits, tested at Indian Head, mostly dead: Apples, 154; pears, 9; plums, 14; cherries, 14; crab-apples, 12; total, 203.

Small fruits, mostly living, excepting grapes: Grapes, 26; strawberries, 16; raspberries, 26; blackberries, 4; black currants, 16; red and white currants, 14; gooseberries, 23; miscellaneous sand cherry and dwarf June-berry, 2; total, 127; grand total, 330.

The successes referred to at Brandon with the *Pyrus Baccata*, the Manitoba wild plum and the sand cherry have been repeated here. Many varieties of currants, gooseberries and raspberries are cultivated with a fair measure of success. The proportion of failures to successes in the experiments with strawberries have been very large, while grapes have thus far failed entirely. In the growing of ornamental trees and shrubs the success has been encouraging, and we now have upwards of ninety varieties which have proven hardy at this farm.

BRITISH COLUMBIA.

We now skip over 500 miles of plains and another 500 miles of mountains and find ourselves in the coast climate of British Columbia, where the most westerly of the experimental farms has been located, about seventy miles east of Vancouver. Here the climate

is mild, and much resembles that of some parts of England, and the apple, pear, plum and cherry thrive wonderfully well and produce abundant crops. Since fruit culture promises to become one of the most important industries in this province, a very large number of varieties have been brought together for test, nearly all of which are doing well. The test orchards at this farm now contain, I believe, the largest number of varieties of fruit to be found in any one place in the world.

At present the large fruits number 1,204, and the small fruits 393 varieties, making a total of nearly 1,600 different sorts, and when the orders for the coming year, which have been placed in Europe and the United States, are filled, and some additional varieties sent from the Central Farm, the number will exceed 2,200 in all.

The number of varieties of fruits under test at Agassiz, B.C., at the close of 1895, were:

Large fruits: Apples, 508; crab-apples, 28; pears, 154; plums, 176; cherries, 86; peaches, 159; apricots, 22; nectarines, 15; figs, 15; quinces, 5; medlars, 3; mulberries, 8; nuts, 25; total, 1,204.

Small fruits: Grapes, 101; strawberries, 98; raspberries, red and white, 41; raspberries, black, 18; blackberries, 29; black currants, 37; red and white currants, 23; gooseberries, 42; miscellaneous, 4; total, 393. Grand total, 1,597.

For profitable growing in that climate I would place plums first, which bear wonderfully heavy crops, followed by apples, pears and cherries, all of which do well. Peaches, apricots and nectarines have not yet given satisfactory results, although the trees usually come through the winter well and more or less fruit is borne. Figs, quinces and medlars have been tried for several years without much return; the trees, however, are young yet. The larger mulberries have produced excellent crops. Many varieties of nuts are under test, and most of them are doing very well, some of the filberts having borne good crops for the last two years. The English and Japanese walnuts, the Spanish and the improved varieties of American chestnuts, and a number of varieties of almonds are all making good progress and promise well for the future.

In addition to the large orchards which have been planted in the valley land on this farm, four orchards have been set out on the bench lands on the side of the mountain at the back of the farm. These have been planted at different heights from 150 to 1,050 feet above the valley. The trees and vines on the mountain side have made excellent growth and they are earlier in blossoming in the spring and in maturing their fruit in the autumn than those planted on the level. This is a very important experiment for that province, for the reason that there is a very large quantity of such bench land which is of no value for the purposes of general agriculture and when it is fairly proven that fruit can be profitably grown in such locations a great impetus will be given to this industry.

With a climate so favourable as to permit of the wintering of the Rhododendron, European Holly, Yew, Laburnum and the Laurels, it is not surprising that a very large number of ornamental trees and shrubs succeed there, and this we have found to be the case. Some 500 or 600 species and varieties have been tested already and many others are under trial.

Experiments are also being carried on with forest trees, especially with the more valuable hardwood timber trees of the east, with the object of ascertaining whether these useful species will grow to advantage in that climate. British Columbia with all its wealth of timber has scarcely any hard-woods. None of the most valuable eastern species being represented in that country. About twenty thousand young trees have been planted on the mountain bench lands, consisting mainly of black walnut, ash, elm, hickory, oak, wild cherry and butternut and many of these are growing well. If they succeed and grow as rapidly as other timber trees in that climate, this will be a great incentive to the planting of these useful species on a larger scale with the view of eventually supplying the needs of British Columbia in this particular.

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From this somewhat hurried summary it will be seen that much progress has already been made in horticultural work on the experimental farms and much more is being planned. To some whose eyes have not been opened, or whose senses have been blunted by the pressing cares of life or the greed of gain, nature is almost a sealed book. They see but few of its beauties, enjoy little of its pleasures, and often look on the expenditure of money on such objects of interest as wasteful. Are not these lovely shrubs and trees and flowers which combine so much grace and beauty and which afford such quiet delight to all lovers of nature, expressions of the thoughts of the great Creator? He has established and sustains the laws which govern their growth and which bring about those marvellous changes in form and in color which have given us some of the most beautiful things we have in cultivation. Who would be so presumptuous as to say that what the Creator has made and pronounced good is not worthy of man's attention and study? On the contrary, I would say with the old writer "What God has thought it worth His while to create is worthy of man's careful attention and enquiry." These objects afford us pleasing lessons for contemplation at all times. We may allow our thoughts to dwell on the seed with its store of nourishment laid up within, with which to feed the young germ when favorable conditions call it into active life, and which serve to sustain it until the roots are sufficiently developed to gather food from the soil. We may study the young plantlet when it first appears above ground and watch from time to time its growth and progress to maturity. Can we not learn lessons of wisdom from the wonderful system of circulation it has, by which the elements of nutrition are taken in by the tiny rootlets and carried from thence to the leaves to be elaborated and fitted to serve its purpose in the gradual building up of the structure. Further, from the admirable manner in which the bundles of woody tissue are put together, which give strength to the tree, which enables it to resist the force of wind and storm, and also to form timber of different degrees of strength and of various textures suitable for man's use. We may also study with profit the wonderful arrangements whereby the exhalations of animals, which would otherwise soon poison the atmosphere, are taken up and appropriated as food by plants, and the stores thus made and laid up in the tissues of the plant become again suitable and nourishing food for the animal, and thus the wonderful circle of harmony between the animal and the vegetable world is maintained. We may also study with profit the wealth of grace and beauty displayed on every hand, which captivates and refines the mind and leads us from nature up to nature's God.

Let it be the aim of this useful Association to strive to elevate the tastes of its fellow-citizens, first, by cultivating the very best sorts of fruits, with which to supply their tables, and next by assisting them to introduce into their gardens and about their houses some of the very beautiful forms of trees and shrubs which have been shown to be hardy in our climate. Let them grow as nature has intended them to do, and gradually develop their special forms of beauty without mutilation. Then those who see them will not long lack that inspiration which will prompt to imitation, and thus the good work will progress, extending its refining influences far and wide, and diffusing happiness and contentment among its possessors. Let us not forget the lesson taught us by the great Master in that remarkable sermon on the Mount when He gazed on the beautiful lilies growing about Him and said: "Consider the lilies; for I say unto you that even Solomon in all his glory was not arrayed like one of these."

The meeting closed at 10.30 by singing the National Anthem.

SECOND DAY—MORNING.

By the courtesy of the local Horticultural Society and the Mayor and the corporation of Woodstock, the delegates to the convention were driven through the town.

At Woodstock College the delegates took particular pleasure in inspecting the work of the manual training department, which was in full swing, the students working in wood and iron, and all the machinery being in motion. The physical science department

also excited considerable interest. An elaborate luncheon was served, and at its conclusion Principal Bates voiced the welcome of the management of the college to the delegates, making allusion to the similarity of the work of the college and of the Association in regard to the soil, best methods of cultivation, nature of the seed sown and of the fruit expected, the atmosphere, etc.

Mr. G. R. Patullo, County Registrar, responded on behalf of the local association. He referred to the way in which Canada, at the World's Fair, distanced all competitors in the fruit department. In cheese making, which had been learned from our American friends, Canada had shown at the World's Fair, that in this, as in many other institutions the pupil had excelled the teacher. We beat them at their own game, so to speak. (Applause and laughter.) We have been surprised to learn that Ontario is such a splendid fruit-growing district; the truth of the matter is that none of us had realized it until the wonderful success had been achieved. Ontario had been represented as a good place for skating and tobogganing, but it was not supposed that it could compete with the great States of the Union, such as California and Florida, in fruit growing; but it is proven that even in that respect we can surpass the Americans. (Hear, hear.) He had been delighted with the meeting thus far, and surprised at the extent and variety of the discussions. They had disposed of mice and vermin of all kinds in connection with the fruit trees; they had disposed of the potato bug and the bee; but there was one subject that they seemed to struggle with in vain, and that was the truthless tree agent. (Laughter.) He seemed to stagger them all. Here was a great field for missionary enterprise. (Laughter.) He concluded by thanking the College authorities for their generous entertainment.

Hon. John Dryden was next introduced as Minister of Agriculture and a Governor of McMaster University, of which Woodstock College is an academic department for young men. He spoke favorably of the institution and eloquently advocated a liberal education for farmers' sons. In his opinion there was nothing in a true education that should drive men or women away from industrial pursuits.

Messrs. M. Pettit, W. E. Wellington and Prof. Saunders also spoke along similar lines. After a chorus by the college boys, the delegates repaired to the Town Hall for the afternoon session.

SECOND DAY—AFTERNOON SESSION.

Convention resumed at 2.30 p.m., Mr. A. H. Pettit being asked to take the chair.

QUESTION DRAWER.

Question: What four varieties of peaches would you recommend for this locality?

Mr. J. W. SMITH: Considering it a cold locality, pretty high, I would recommend Early Rivers as the best early peach and Hill's Chili for a later peach. Probably the next best would be Garfield; with us it has done better than Early Crawford. I would name Crosby for the last one; it comes in about the time of the late Crawford; it is a smallish peach and good flavor.

Question: In planting an assortment of two hundred young apple trees what kind would you recommend and how many of each variety, local and foreign markets considered?

Mr. DEMPSEY: I would put in about twenty Duchess, about twenty Wealthy, about twenty Gravensteins; the balance I would equally divide with the Ontario, Ben Davis and Stark.

The SECRETARY: Is the Stark an abundant bearer?

Mr. DEMPSEY: Yes.

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The SECRETARY: Is it a good shipper and seller?

Mr. DEMPSEY: Yes; it has a better flavor than the Ben Davis, I think, and keeps fully as well.

The SECRETARY: What about the Ontario?

Mr. DEMPSEY: The Ontario bears so heavy it is very apt to run a little small without thinning the fruit.

The SECRETARY: Is it subject to scab?

Mr. DEMPSEY: I have never seen any scab on them.

Mr. RICE: Is the Ontario a seedling of the Spy?

Mr. DEMPSEY: It is one of Charles Arnold's seedlings, of Paris—a cross between the Wagener and the Spy. It has the bearing qualities of the Wagener; it is more acid than the Spy and keeps fully as well.

The SECRETARY: In this connection I would mention the Cranberry Pippin, which for southern Ontario is a very good market apple. It is of ordinary quality, but it is a showy apple and a good bearer, and it has borne heavy crops when many other varieties did not bear. Even the Baldwin failed to produce, and this apple produced freely; that is why I thought a good deal of it.

Mr. CASTON: I would like to draw attention to an apple from the eastern end of the province called the Fallwater. In the county of Simcoe it is a perfectly healthy tree, an abundant bearer and clear of fungus scab. It is a handsome apple. It was quoted in Liverpool this fall at 17s. a barrel. It is firm fruit, good shipper and good cooker.

Mr. RACE: It has no quality.

Mr. MCNEILL: 17s. is the quality.

Mr. RACE: They will give that until they find out what it is.

Mr. DEMPSEY: My experience is that I can grow more Baldwins than Fallwaters. The latter drops prematurely with me.

Mr. SHERRINGTON: The Fallwater is not an annual bearer with us; only about once in two years we get a crop. It is really a fine apple, but I do not consider the quality equal to our other winter apples. In cooking it does not fall down like the Spy, Baldwins, Greenings; it will be about the same as the Ben Davis, and its season with us is about the end of March.

The SECRETARY: I think it will be best that the balance of the questions be referred to a committee, as they are of such a nature that they would occupy the whole afternoon in discussion. They go into great detail with regard to the best varieties of every sort of fruit and the best methods of planting them. Many of these points were brought out in yesterday's papers and discussions.

SPRAYING AND THE CULTIVATION OF ORCHARDS.

Mr. J. C. HARRIS, of Ingersoll, read the following paper:

I am here to-day with the desire to listen to your discussions and to gain information on questions with which you are much more familiar than myself, rather than with the expectation of giving you any instruction. The topic before us, "The spraying and Cultivation of Apple Orchards," is an important one. I do not purpose in this paper to go into details, but rather to give a few general points apt to be overlooked by the amateurs. First, let us look at a few causes why apple culture is not more generally successful. A tree when young, like an animal should always be kept growing, and how best can we accomplish this? After having our orchards well set out, having due regard to location, drainage and richness of soil, the surface earth about the tree should be kept stirred once every two weeks or oftener, especially in very dry weather. I consider this

superior to either mulching or watering, and have seen young apple trees first year planted treated in this way make two feet in one season. If one has not the time for this I consider mulching next best. But for the healthfulness and vigor of the tree I consider the former practice much superior, especially the first season, as it keeps the soil moist during the severest drouth, and also allows the sun's action upon the soil, while mulching only serves to keep the soil moist. This practice also of shallow cultivation adds materially to the size and quality of the apple after the tree comes into bearing. We occasionally see productive orchards standing in sod. This only proves the land is unusually rich; as a rule this is not the case. Seeding down an orchard for a few years in some cases may prove beneficial, but the majority of orchards contradict this experience. Cultivation should begin in the spring as soon as the ground is fit for work and discontinued in August to give the tree time to mature its wood before the coming hard frosts.

Another most important point to be considered, what shall we feed our trees? The question of what the orchards require to form wood, leaves and fruit is one for us to study. We are told the ash of fruits contains from fifty to seventy-five per cent. of potash and only a small proportion of other ingredients, which certainly proves that potash is the principal one taken from the soil by our various fruit crops. Unleached wood ashes contain a very large percentage of potash, we are told from twelve to fifteen cents' worth in a bushel, beside from six to ten cents' worth of other ingredients. Therefore if we can purchase these at from nine to twelve cents per bushel I do not think we can get a cheaper fertilizer for our orchards. Stable manure, where available, applied in combination with the ashes would certainly prove beneficial, but should be withheld if there proves to be too much wood growth at the expense of fruit. If we neglect to feed our trees we must come to the conclusion apple growing does not pay. Another point we will look into is pruning. The tree should be kept symmetrical and open from its youth, never allow a year to pass without performing this important operation, which will prevent the need of removing any large limbs which is certainly detrimental to the tree's welfare. Boots made from some soft material such as rubber should be worn while pruning, not to loosen or remove any bark from the limbs by standing upon them.

Be very careful to encourage and protect fruit spurs when pruning and also picking. These little twigs or spurs along the limbs is just where we find some of our choicest fruit. Some time ago an old man who has made a business of pruning for many years in our locality came into my orchard and asked for a job of pruning. So I thought it a chance perhaps of getting some new idea on the subject. He took the saw and commenced cleaning the limbs of all their fruit spurs. I can assure you he did not continue very long. I know of no better way of encouraging the growth of these fruit spurs than shallow cultivation and the use of wood ashes, and I think as a rule a tree filled with these spurs will before long be filled with fruit. I will here give you my experience in spraying in 1894. The May frosts ruined the crop of 1895. Having had but the one season's experience my practical knowledge is but limited. However, I can say with me it has proven a decided success for the prevention of apple spot or apple scab, and the destruction of the codling moth. How often the failure of the crop of apples or pears is laid at the door of the weather clerk when if a close examination had been made the presence of fungi or insects sapping away the plant life would have been discovered, and a timely application of the various methods of prevention and remedy now known would save a large proportion of our product from their attacks.

First let us consider the various remedies which have proven the most effective and practical in our warfare against these diseases and insect pests. The Bordeaux mixture, composed of copper sulphate six pounds, quicklime four pounds, water fifty gallons, is the one most commonly used, and has proved very effectual in preventing the black spot or apple scab.

Paris green or London purple, in the proportion of a quarter of a pound to fifty gallons of water, or in the same quantity of the Bordeaux mixture, has been found sufficient to destroy the codling moth or tent caterpillar. Paris green is entirely insoluble in water, hence, in its application, some means must be resorted to in order to keep the mixture

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well stirred. I will here give you as near as possible the percentage of marketable fruit gathered from three different orchards, each having had a different number of the above remedies.

No 1 is a young orchard sprayed five times which turned out an abundant yield of nearly perfect fruit, not over five per cent. being unmarketable. First application just as buds began to swell: Six pounds copper sulphate, fifty gallons of water. Second application just before blossoms opened: Bordeaux mixture and London purple. Third application just before blossoms fell, with the same. Fourth a fortnight later, same. Fifth three weeks latter, same.

Orchard No. 2 was treated same as No. 1, with the omission of first application of copper sulphate. The results from this orchard were considerably behind the first one, although about the finest crop I ever had.

Orchard No. 3 was sprayed twice, once before blossoms opened and once just after they had fallen, with the same mixture as the others. I consider this one paid handsomely for the outlay, although there was probably twenty or twenty-five per cent. unmarketable. I do not feel justified in saying the difference in orchards, No. 1 and 2, was wholly due to the first application of copper sulphate; orchard No. 1 being much younger and not containing Spys or other kinds most liable to be affected by scab, had much to do with it. However, in my opinion the application before blossoms opened is of fully as much value and possibly more than the subsequent ones in preventing these fungous diseases. Again, orchard No. 3 had the two and three applications and was comparatively free from scab, but was seriously affected with codling moth. Now what do we naturally gather from reviewing the results of the different number of applications in the three different orchards.

First, that the first application before blossoms opened is of fully more importance for the prevention of fungous diseases than the later ones; also that it requires a series of applications of insecticides to successfully cope with the codling moth. I might say just here, in orchard No. 2 a few Spy trees were sprayed on one side only. The other side, which was more favorably exposed to sun and air, had scarcely a marketable specimen on it. The side treated was laden with beautiful fruit.

As to the preparing of the Bordeaux mixture: Have one large barrel for the copper sulphate, another for the lime, put in a coarse sack the number of pounds of copper sulphate you wish to dissolve; suspend it in barrel No. 1, containing half the number of gallons of water that you have pounds of copper sulphate. If any remains dissolve it in some hot water. Then every gallon of the mixture contains just two pounds of copper sulphate, which makes it in a convenient form for use. Fresh lime should be slacked, strained through a fine sieve and a No. 2 barrel filled with it in such a proportion that every gallon contains just two pounds of lime. This is easily done by weighing the lime before slacking, and using one-half the number of gallons of water there are pounds of lime in slacking it. Now take three gallons of copper sulphate from barrel No. 1 and two gallons of lime from barrel No. 2 and put them in the barrel we use for spraying; fill up with forty-five gallons of water, mix well and our Bordeaux mixture is ready for use. Add four ounces of Paris green or London purple for destruction of codling moth. I might add that for spraying high trees, use a ladder made of two by four scantling, fourteen feet long, fastened to back end of spraying waggon. A man getting on the top of this ladder can do the work almost perfectly, and much more easily than by holding the nozzle on the end of a long pole or rod, as is sometimes recommended.

In conclusion, I will mention some of the most important points to be remembered in spraying:

1. Have a good outfit with not less than eighteen feet of hose to reach the top of ladder for treating very high trees.
2. Keep the liquid well stirred or your efforts will be fruitless.
3. Be sure and start in time. Do not wait for the weather. I will here relate a little circumstance which occurred the past season: I sprayed some red currant bushes before a very heavy, dashing thunderstorm. I could not find a currant worm on the

bushes the rest of the season. About a rod from these was a few gooseberry bushes unsprayed; the worms ate every leaf from them. The Bordeaux remained on bushes for three months.

4. Be sure your lime is fresh, and put in fully four pounds.

5. Get formula for Bordeaux mixture from a reliable source. Do not depend on the circular you get with your pump; some of them are worse than useless.

6. Remember the June spraying, just after blossoms fall, is the most important for the destruction of the codling moth, and do it thoroughly.

Spraying may not protect against all the effects of a late frost or a long, continuous rain, but it helps. Anything that strengthens a tree or plant in one direction increases its resistant powers in another. There are other ways in which the results are beneficial besides those mentioned.

The leaves of our trees when affected by the scab fall prematurely, carrying with them much potash, a potash acid, a direct loss to the strength of the tree. Now, if the leaves can be made by spraying to hold fast until the proper time for maturity of growth their fertilizing constituents will be withdrawn from the leaves into the body of the tree, and there be stored up for the following year.

EXPERIMENTS IN SPRAYING IN 1895.

Mr. A. H. PETTIT said: I have been conducting the spraying experiments throughout the province during the past season, and was waiting to get the final returns, and make a report that will be satisfactory and which will be published in some of our reports. I can simply now give you a synopsis of the work we have done, and the results. The first intimation we had of this work was through the Honorable the Minister of Agriculture. It appeared to him that some good work could be done throughout the province to assist the fruit growers, by sending out three spraying outfits, so that our fruit growers might see the work in operation and also the results at the close of the season. The work was entrusted to me, and our plan of operation was to touch those centres of fruit culture where a large number of people could have an opportunity of seeing the work during its progress, and of noting the results. One of our drawbacks was the peculiarity of the season. As many of you know, we jumped as it were from winter weather to warm summer weather, hastening the budding and blossoming of the fruit. In covering so wide a territory the work had to be done at the exact moment, in order that we should not be too late at the other end of the route which each outfit had to take. We commenced in the county of Essex and went through to the county of Welland, visiting ten points; then we commenced in the county of Lambton and round the Georgian Bay district to the county of York, Newmarket, as a second division, ten places; then we commenced at Whitby, in the county of Ontario, through as far as Cornwall and the county of Dundas in the east, ten places. Three outfits travelled that territory throughout the season, covering it in every case in twelve, and in one case I think, thirteen days for each round. Now this spraying experiment was thoroughly, practically and fully done as laid down in the bulletins or our Agricultural College and of the Experiment Station at Ottawa. It was simply carrying out what they stated would destroy the fungi and prevent the codling moth from injuring our fruit to any extent. I purchased the best quality of copper sulphate that could be got in the country. It was all in one cask, and it was all weighed from that cask for the whole territory. The Paris green was dealt with in the same manner. It was of the best quality we could get, and was weighed by the druggist in four ounce packages, just the quantity we intended to use each time; and that also covered the whole experiment, so that it was not using a little Paris green here and a little of another brand there, a little less quantity here and a little more quantity there, but we carried out the experiment exactly as laid down in these bulletins. In going through the territory early in the season to make the necessary arrangements I was exceedingly pleased with the enthusiasm and satisfaction with which I was received

by the fruit people present. We have a la spraying pump points through pumps. I the pumps that w that I asked tion. They b mixture, and tree; that wo as to agitation whole work; their pumps a a little dinner the trees, and had done. Th deaux mixture some of our pu to do. I said those gentlemen of Ontario as hear and appla

It was sin doing. There allowing it to "Boss" nozzle don't see the re like the dew, s ture. It must all appreciate t that line. We gave six applic come back to days, the only the third applic had not fully r might have com the season I vis some sections o blossom was fu! as I would like the best of resu in what line is the foliage—foli we have vigor in and we may exp have this. The app'es. At nea of specimens, an You all know th ways; and I bel mies, and for th marked as it wo out the season I were asked, and orchard, the solu

by the fruit growers of those district. In many instances we had no less than 100 people present to co-operate in carrying out this work. The work was thoroughly done. We have a large number of pump manufacturers in our country who are manufacturing spraying pumps. I asked them if they were prepared to supply pumps to the various points throughout the province. They said they were, and that they had excellent spraying pumps. I then told them that I wished them to prove to me that they had spraying pumps that would do this work thoroughly and well, and in order to convince myself of that I asked them to bring those pumps to my own place and give a practical demonstration. They brought their pumps. I furnished them with fifty gallons of the Bordeaux mixture, and told them that the mixture had to be applied evenly and thoroughly to the tree; that would test not only the pump but the nozzle, and test the excellence of the pump as to agitation. "You must keep the liquid thoroughly agitated" I said "during the whole work; unless you do so the work can never be done perfectly." They brought their pumps and the mixture was applied; and then I wished to draw their attention to a little dinner or something of that kind in order to allow the sun to dry the spray on the trees, and afterward I invited them back to the orchard to see the work their pumps had done. The first four or five trees were thoroughly covered with the lime of the Bordeaux mixture, but later on there was no show. Now, I believe that was the first time some of our pump manufacturers realized what the real work was which their pumps had to do. I said that must not be; there must be more agitation. Now since that time those gentlemen have improved on those pumps till I believe we have in the province of Ontario as good spraying pumps as can be found manufactured in the world. (Hear, hear and applause).

It was simply that they should know what their pumps were actually capable of doing. There is no use of our deceiving ourselves by putting this liquid into a barrel, allowing it to settle to the bottom, pumping it out in a round stream like that with a "Boss" nozzle, letting it all run off the trees, and then in the fall of the year saying "I don't see the results of the work that was done." It must be evenly applied, covering it like the dew, so that every part and parcel of the tree would be covered with this mixture. It must be done at the proper time and in a thorough manner. I think you will all appreciate the great advantage it would be for all our fruit growers to carry it out on that line. We commenced on the 24th of April and we finished on the 20th of July. We gave six applications at each point. When we got to the other end we immediately come back to where we began and passed over again—the ten points covering ten days, the only hindrance being two Sundays and holidays, except at the time of the third application, when I called my assistants in for two days for fear the blossoms had not fully matured and were not falling sufficiently from the trees, lest our bee men might have complained that we were pushing the matter rather hastily. At the end of the season I visited each and every one of those points. What result did I find? In some sections of the country where the frost was very severe just at the time that the blossom was fully out and immediately following a drouth our results are not so marked as I would like to see, though we had some results even in those cases. We have got the best of results throughout the whole territory except in two or three points. Now, in what line is that best result shown? First, it is shown in the healthy appearance of the foliage—foliage more vigorous, and we all know what that means in a fruit tree; if we have vigor in the tree and good healthy foliage we may expect good fruit buds to set, and we may expect possibly better results from the work of the next year than we would have this. The next point was in the cleanness and the perfectness of the specimens of apples. At nearly every point that I inspected you can see an increase in size, cleanness of specimens, and in many cases much larger crop than where the trees were not sprayed. You all know that this year the frost and the drouth continuing had its effect in many ways; and I believe that the frost assisted in destroying the fungi as well as insect enemies, and for that reason the difference between the unsprayed and sprayed was not so marked as it would have been in almost any season during the last ten years. Throughout the season I kept and had the experimenters keep a book in which certain questions were asked, and they had to fill them out each day. These were, the condition of the orchard, the solution applied, the weather on the day of the application, and the general

appearance each day they visited and did their work, not only of the trees that were sprayed but of the trees that were unsprayed. The solution was applied in fair weather, no rains to wash it off, and we should have had the full results of that experiment. I want to offer one suggestion, and I think every one will agree with it, although we have been doing it the other way. It is supposed that our first application should be the copper sulphate solution only—four, five or six pound as the case may be. I notice some of the bulletins claim it is better to use six, and some four, but I used four throughout this work. Now I would suggest that every solution in the future on the apple—I won't say other fruits—should be the full Bordeaux mixture, because in many parts of our province our people are being troubled more or less by the bud moth, and it would be an advantage if we could prevent the bud moth by using the Bordeaux mixture in the first application. The second reason is that the Bordeaux mixture will not hinder the work of the copper sulphate; it will do its work just as well as if it was applied alone. We can also destroy any other insects that might be injurious to the tree during the application. The only addition would be the slight cost of the lime and Paris green; it will be a trifling matter in comparison with the good work it might do.

Mr. MCNEILL: Do you mean the Bordeaux mixture or do you mean the Paris green with the sulphate of copper?

Mr. PETTIT: I mean the full Bordeaux mixture—a little of the copper sulphate with the addition of the Paris green; that the full application should be given every time.

Mr. CASTON: That is to bare trees?

Mr. PETTIT: To the trees from start to finish.

Mr. MCNEILL: To the dormant wood?

Mr. PETTIT: Yes. The lime will fasten the Paris green and copper sulphate to the tree, and that may destroy the bud moth at the start. I would like to say a word on another subject—the question of cultivation. I have travelled over this province several times, and have been a fruit grower all my life, and I have observed marked results that follow good cultivation. I believe in ninety-nine cases out of a hundred the man who plants his orchard with good judgment in selecting varieties, and cultivates it well, and has heart in the work, will succeed and make it pay well. I won't say there is no instance where a man has never cultivated his orchard and yet had good crops; but the man who cultivates his corn or any other crop is the man who will profit by the business, and he is a credit to his country. Unless we cultivate, prune and handle our orchards in that way we never can get perfect specimens of fruit. I have brought these two apples up to illustrate what I mean. Unless the tree is well grown and thoroughly pruned, so that the sunlight of heaven can get in, you cannot have the quality and the color in your fruit. Here is an apple that has the quality, and that will bring you money every day, while this other is an apple that will neither be a first-class keeper nor have the quality. It cannot have quality without the color. (Mr. Pettit exhibited two Northern Spy apples, one of a very high color and the other very dull, as proofs of his argument). Another point we need to find out when we go to plant an orchard is: Where is the home of that apple? I find in the northern sections of our country apples of a high keeping quality and producing abundantly. Why is it? Simply because it is the home of that apple. If we can locate a variety in its right place that is the variety we should plant, and the one that will be successful. I am frequently asked to recommend varieties for certain localities. I think a man in that locality should visit the orchards in his neighborhood, study the question himself, the soil and climatic conditions, and plant that which will be hardy, and he will not go astray. At these annual meetings we have an opportunity to study and exhibit and show and explain. You get the views of all the different sections of the province. I always think there is most excellent reading between the lines, and we want to do that as well as reading along the lines. One more word about this pump question: I am asked a thousand times which pump I would recommend after having used five manufacturers' pumps. Now, gentlemen, I will tell you what you want in a pump: You want a pump

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with plenty of power; you want a thoroughly good nozzle, one that will apply this mixture in a fine spray to your trees, and a first-class agitator; and when you have got these never mind who is the manufacturer; if he furnishes these you have got a good pump, and as far as capabilities go you are as well able to judge that as I am. I would say this to the manufacturers: Don't be trying to manufacture a cheap and nasty pump, because you will do more injury to our cause than otherwise you could do. When a man goes to spray in a busy time and his pump gives out, it discourages him, and it ends in disaster all around. I say to the manufacturers: Manufacture a first class article, the best you can make, and I believe our fruit growers as a whole will be better satisfied with it than if they got one for fifty cents.

The PRESIDENT: The subjects that have been presented to you in the paper and in discussion, are before you. I shall ask Prof. Craig to open the discussion.

Prof. CRAIG: It afforded me a great deal of pleasure last year when I was made aware of the proposed action of the Provincial Government through the Minister of Agriculture with regard to the carrying on of spraying experiments which had been started during the previous year, and I was especially gratified to know that such an admirable selection had been made in the man who was to do it. After the magnificent success which Ontario achieved at the World's Fair under his oversight there was not much difficulty in making a choice of the man who has carried this work on to successful completion, and after the report we have from Mr. Pettit to-day I think that choice was perfectly justifiable. Last summer in a trip through the western part of the province, I visited with Mr. Pettit some of the stations at which he carried on his work, and I wish to corroborate in a general way the results he has stated. I found in Essex County in the orchards treated, the insect depredations were very much lessened and the quality of the fruit very much improved. We had excellent opportunities for observing these points, because in nearly every case there were orchards alongside that had not been treated, and also in the same orchard some of the trees were not sprayed. The work was carried out on a perfectly practical basis, and in a way to give definite results. In regard to the formula used I don't think it is necessary for us to use more copper sulphate than the results of our experiments in the past, show to be needful. We have very conclusive results to show us that four pounds of copper sulphate and the same amount of lime are as effectual as using more, which only increases the expense. I wish to pay a tribute to Mr. Harris' paper, for it showed the result of careful individual research, and that is what we need not only on the part of the experimenters, but of individual fruit growers throughout the country, who can by the result of these practical experiments strengthen the hands of special investigators who are appointed for the purpose. After my experience in spraying for five years I don't think it necessary to use a stronger formula than that used by Mr. Pettit in his work during the past season, and that which is recommended by both Guelph College and the Experimental Farm at Ottawa, viz., four pounds of copper sulphate and four pounds of lime; and when we add four ounces of Paris green to a barrel of water, about forty gallons, we have a formula easily remembered and very efficient.

Mr. SMITH: Would you agree with Mr. Pettit in recommending a full application?

Prof. CRAIG: The copper sulphate as the first application was recommended with a view of destroying the apple spot only, and it was recommended because it was more easily applied and was much cheaper than the Bordeaux mixture. At that time we did not have in mind the destruction of this very injurious pest, the bud moth, which has been spreading over the province, and which is annually becoming more destructive; and I quite agree with Mr. Pettit that with the view of destroying that insect and other insects, such as the cigar-shaped case bearer, the Bordeaux mixture with the addition of Paris green for a first application would be more satisfactory. It is really the same amount of copper sulphate, because we use four pounds to fifty gallons in one case and two pounds to twenty-five gallons in the other; it is only the addition of the lime and the additional inconvenience of applying it.

Mr. BEADLE: Lime makes it adhere a great deal better.

Prof. CRAIG: Yes, and everyone who has used lime in destroying fungous pests where the same attack plants will find it exceedingly useful. It may interest you to see a photograph which I took of a spraying apparatus which I have used at the Ottawa Farm, and which is especially useful in orchards where the trees are rather close together. It is simply a barrel set in an ordinary dump cart, and the barrel is stood on end, and the cart is floored over on a level with the top. That floor holds the barrel in place, and also gives the man a platform to stand upon who is operating the spraying. (Photograph exhibited.) In connection with the experiments for the prevention of disease which effect our grape vine, I have a couple of photographs which represent two vines of the same variety in the Experimental Farm at Ottawa; one which was sprayed for the prevention of a disease which we know as the "bird's-eye spot," and the other which was not sprayed. In one case the foliage is so dense that you cannot see the fruit; in the other case the vines are entirely defoliated, and what little fruit still remains can be plainly seen. These little object lessons I leave in the vineyard for the benefit of visitors, and they are often more conclusive than any feeble words which I may be able to offer. I am exceedingly pleased to see the active steps which the Provincial Government have taken in this matter, and the practical manner in which the man who has charge of it has carried it out.

Mr. PETTIT: I want to tell you how that wonderful work at the World's Fair was accomplished, for the glory does not all rest on my shoulders by any means. The satisfactory result was achieved by the patriotic assistance of the fruit growers of the Province of Ontario placing in my hands fruits that the judges who were appointed had to score as they did, and that is the way you got the rewards, and not all through my efforts in the matter. I thank you for your flattering remarks, but they were getting a little too thick. (Laughter and applause.)

Mr. W. E. SAUNDERS (London): Bordeaux mixture has been recommended with the addition of Paris green, for the destruction of the bud moth. Of course Paris green destroys the bud moth. Why should not sulphate of copper, the solution of which is more easily applied, and which perhaps is more active in destroying the fungus spores as they lie on the tree, be added to the Paris green instead of the Bordeaux mixture?

Prof. CRAIG: Mr. Pettit's idea in recommending the Bordeaux mixture was that, with the addition of lime, you have the Paris green on the trees for a longer time. The copper sulphate, I suppose, being in a dissolved form when it is put on, is therefore the more readily washed off; and it would be natural to suppose that the Paris green would be washed off with it more readily than if it was plastered on, as it would be more or less when applied with the lime instead of the Bordeaux mixture. The idea is to hold the poison there for a longer period, and in more effective form than you can when applied with the copper sulphate. There is no objection, when the trees are dormant, to applying the Paris green with the copper sulphate solution.

A DELEGATE: I would like to ask Prof. Craig a question. I am not well posted at all in the black knot and those other things in regard to the spores floating in the atmosphere from tree to tree. Do you not think, if we could have the Bordeaux mixture fastened upon the wood and branches early in the season, it would destroy those spores that float and lodge upon our trees before they could penetrate the wood and create what we call the black knot?

Prof. CRAIG: Some experiments have been carried on in preventing the black knot by spraying with Bordeaux mixture. At Ottawa we are surrounded by such remarkably favorable environments that black knot has not yet attacked us, though I found the other day a specimen, and I thought perhaps, with careful treatment, I might be able to produce some from this. (Laughter.) Prof. Lodeman, of the Cornell University, began some experiments for the prevention of black knot by spraying with the Bordeaux mixture, and they showed that there was reason to hope that we could successfully deter the growth and multiplication of the black knot by spraying. Of course he sprayed the tree at that period when the spores are being most actively disseminated; those periods being usually the months of June and March. He gave his trees several applications, but the

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Mr. McNEILL : I have no hesitation in saying, after some years of experience, that spraying is an undoubted and positive cure to a very large extent—fully as large as has been testified to here—of these fungous and insect enemies.

Mr. CASTON : The law which requires branches affected by black knot to be destroyed is, in many cases, a dead letter because not enforced, and unfortunately you will find a great many hedges that are literally breeding-grounds for black knot, the spores being carried in the wind. There will be no immunity as long as these hedges exist.

Mr. M. PETTIT : Since the Act has been amended and made more workable it has been rigorously enforced for two years in our township. Black knot was spreading to an alarming extent, and now scarcely a vestige of it is to be seen. I believe it could be entirely wiped out.

Mr. PEART : We asked the township of Nelson to appoint an inspector, under the provisions of the Act, over a year ago. They appointed two inspectors, one for the northern half of the township, and another for the southern half. It has had a remarkably good effect. Wagon loads upon wagon loads of cherry trees affected with black knot have been cut down and burnt, and I think I may safely say that at least seventy-five per cent. of the black knot of the township has been wiped out.

Mr. M. PETTIT : Simply cutting off the affected branches is not sufficient ; letting them lie on the ground is just about as bad as letting them stand ; they must be burnt.

Mr. ORR : Before the inspectors were appointed in our township, cherry trees were loaded with black knot, and every plum orchard, as far as I know, was seriously affected. I was going through my plum orchard, of fourteen hundred trees, the other day, and I found but one tree affected, and that is on the trunk, and we are treating it with coal oil to save the tree. We have succeeded in saving every tree.

Mr. TURNER : I can speak for the St. Lawrence district, that a mere glance shows a difference in the foliage between the sprayed and unsprayed trees at the points visited by Mr. Pettit. The sprayed trees were interspersed throughout the orchard, just an odd tree here and there, which gave a very severe test. The results in the fruit were also very satisfactory indeed. I regret that Mr. Pettit did not speak in regard to the pruning and care of fruit trees which he had observed in his travels.

Mr. RICE : I once had a pear tree, one limb of which did not bear for several years, and one limb was bearing. In watching for the cause I found that a little grape-vine had got a tendril around that limb and cut into it and caused that limb to produce four or five pears—at least these were the only pears on the tree, and I judge that was the cause of it.

Mr. WM. GRAY, a veteran fruit grower in this locality, being called upon by the President, said : I am very much pleased to see the improvement that has been made in these gatherings. I remember that at the meeting of this Association in this hall some twelve years ago we had perhaps about two dozen. I think our Governments have acted very wisely in establishing these experimental farms ; I think it is one of the most beneficial acts they have ever done. I think there is nothing that improves a country and people like horticulture and farming interests. I wish that every person in the province would take the *Canadian Horticulturist* ; any one issue is worth to the people ten times the amount they pay for it. I have taken it from its first issue, and would always recommend it. It is required as much in the farm as in the garden.

The PRESIDENT : We have with us the Honorable the Minister of Agriculture, and as he is obliged to leave on the next train, and as we are anxious to hear something from him, I will now ask him to address you.

PRESENT DAY REQUIREMENTS OF OUR FRUIT TRADE.

Hon. Mr. DRYDEN said: I desire to congratulate the members of the Ontario Fruit Growers' Association on the energy they are displaying in the prosecution of the work for which this Association is organized. I shall not be speaking offensively of the past when I say that in my judgment you are renewing your youth, and now occupy a more prominent place in the minds of the people than at any time in your past history. I am very glad that such is the case, for at no time in the history of the province has there been so much need for activity along this line. The depressed condition of many departments of agriculture is forcing our people to consider what particular branch they may turn their attention to with any considerable profit. Just now there is no branch that is more attractive and presents greater possibilities than that of fruit growing. It has become clear that certain portions of this province are peculiarly fitted for the production of the finest fruit. Some localities are specially adapted for the production of plums; others, while not being equal in this direction, are found admirably adapted for the production of the finest apples. In some sections of the province the very finest quality of peaches can easily be produced, while in almost every section smaller fruits grow in great luxuriance. Some idea of the immense trade in fruit may be had from a glance at the photographs Prof. Craig has just shown me—one representing Winona station before the train arrives, and the other taken after the arrival of the train. Such a volume of business at one station indicates the enormous value of the whole industry throughout the province.

By those unfamiliar with fruit growing, who have in the past been engaged largely in other directions, and who desire to commence this industry, the very first thing needed is definite and reliable information. Naturally they look to an association of this kind, in whose ranks are found the oldest and most experienced fruit growers, to supply this need. May I remind you that it is in order that you may be conditioned to accomplish this that the Legislature gives you your annual grant. It is not merely that you may help each other, which is in itself commendable, but that through you the masses of our farmers may be educated along this line. Of late years my Department has multiplied the information annually given to the public in reference to various agricultural products, and we have also multiplied the constituency of readers who await the annual issue of each report. I am glad to tell you on this occasion that none of these reports are more eagerly sought for than that which comes through the efforts of this Association.

To make a success of any calling it is self-evident that knowledge of its requirements is the first requisite. No one would think of opening out a large mercantile establishment without some previous knowledge of the business. We do not allow a physician to practice unless by previous examination he furnishes a guarantee of proper equipment. No teacher can get a position in any of the schools of the country without such a preparation as is required by the Department. While this is acknowledged to be right, there have been in the past too many who believed that no previous knowledge was necessary in agricultural pursuits. By bitter experience many have discovered that the same principle holds here as in other callings; ignorance means certain failure, while knowledge leads to success. We provide free schools to fit professional men for their callings, the wisdom of which all classes acknowledge; and I affirm that one of the legitimate functions of the Government is to give to the people in addition the knowledge they require in order to fit them to do their best in agricultural pursuits.

Your business naturally divides itself into two parts—first, the knowledge necessary for the best production, and, second, that which is requisite to place the results of your labors on the market in the best possible condition. If we take the larger fruits—and I presume the same statement will hold good in reference to those that are smaller—the first thing concerning which the beginner will require information is as to the best varieties and those likely to be most successful in his particular locality. I am free to confess that this has been, and perhaps is now, a very difficult question to answer. I

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have given some attention to the subject, and yet I have not definitely made up my mind as to what I should say to a beginner if he came to me seeking advice in this regard. There are some who would give him a name of a variety or varieties which they are willing to confess are somewhat inferior, but which they claim are at present in demand, because of its color or size. I have some doubts as to whether such advice ought to be accepted. The inferior apple will in the end be rejected by the market, no matter what its color; it needs only to be placed alongside of something that is superior, and the latter will inevitably take its place. Because such a variety at the present moment attracts attention on account of its exterior appearance is no reason why ten years from now that variety will hold its place on the market. I take the same ground in the production of fruit as I do in the production of every other agricultural product, and I should like to say here that my belief is that more than ever the future will show that the article which has *intrinsic merit* will in the long run win. To advise a man to-day to plant a tree that produces finely colored fruit, but which is of itself of little value, is to lead him into a quagmire of disappointment.

When a beginner asks for information on this point there are several things that he must consider: First, will the variety, however valuable it may be, stand his climate; second, is it such a variety as is suitable for his soil; third, will it commence to bear during its early life, or must he wait ten or fifteen years before he can reap the fruit of his labors; fourth, is the variety a good bearing variety; and fifth, does it bear annually or only every other year. All these things ought to be taken into consideration in addition to the question as to whether the fruit contains in itself the points of excellence sought for in the best markets.

What I have said in reference to apples would, I presume, be equally true with reference to any other fruit. Now, it was in order to obviate this difficulty and to afford the information I have suggested, that my Department recommended to the Legislature the establishment of the fruit experiment stations that are now organized in different portions of the province. Some of us have found by bitter experience that the recommendation of a fruit grower in the Niagara district as to variety cannot be considered reliable when put into practice in some of the other districts of the province; the tree may be too tender, the soil may be unsuitable, etc. These experiment stations will give an opportunity to the beginner who desires information to go and examine for himself, and to ask the necessary questions of one who is authorized and conditioned to speak accurately in reference to the matter. Although we may not see the results of the establishment of these stations in the immediate future, those who live in the years beyond will find that this work will have borne abundant fruit to the advantage of fruit growers generally.

Having selected his variety, the next thing concerning which the beginner desires knowledge is as to proper cultivation. One difficulty I find in taking advantage of the knowledge that members of an association such as this have to offer is that they do not take into account that there are hundreds of people who are entirely without information as to how to proceed. So many things are taken for granted and not mentioned, but which should be if the beginner is to have the advantage of the experience of those who are older. It is quite possible for me to give you directions as to the erection of a silo and yet leave out two or three little items, which will probably not be noticed by the beginner, but which will lead to the entire failure of the whole concern. I am afraid that even the members of this Association do not fully understand the dense ignorance that prevails in many quarters in reference to the details connected with fruit culture. Information is needed how to plant, how to prune and how to cultivate generally. It is said that "eternal vigilance is the price of liberty," and with equal truth it may be declared that eternal vigilance is the price that must be paid for superior fruit.

One of the special things in cultivation which will demand the attention of all fruit growers in the future is that which has occupied a considerable portion of your time in the discussions that have taken place at this meeting; I refer to the necessity for spraying in order to produce the very best results. In mentioning this matter, I do not speak

of it in any guessing sort of way. I have arrived at that position when I am prepared to say that in some portions of the country those who refuse to attend to this matter will be unable to secure the best results. Men observe their trees looking unhealthy, they observe the leaves looking different to what they did in former years, but they never dream that this is owing to some disease they can correct by means of a spraying pump. This information must be given to the people, it means thousands of dollars of revenue to the country, because without it the fruit will be inferior and irregular and more or less unsalable; with it we shall be able to keep the trees healthy, the foliage full and clean and the fruit without spot or blemish.

We have done something in this direction already by sending through some of the counties a spraying outfit, showing how the work should be done. We have published bulletins giving full information as to the proper time for spraying and the ingredients of the various mixtures, but we have reached only a small percentage of the people interested. This work must be vigorously prosecuted in the future until all have had an opportunity to take advantage of our instruction. What, I ask, has placed our cheese ahead of all others? I answer, instruction of the people, and I assert that similar education will yet place our fruit in the same enviable place.

I am looking forward to the day when the fruit, especially of the Province of Ontario, will be sent to its best market in Great Britain in such a condition as to command the admiration of the Englishman; and when we have done that we shall have no difficulty in maintaining our hold upon the market. Depend upon it that in that market the best and best only will win the first place. It is largely with the Englishman a matter of confidence; once establish the fact that Canadian apples are the best, and that they are honestly placed upon the market, and they will command the price which their quality will warrant.

In educational matters we are wont to say to the young man just starting out: "Do your best and remember there is plenty of room at the top, while you will find the lower rounds of the ladder very much overcrowded." The same thing is true in reference to agricultural products: there is room in the best markets if we can attain the topmost round of the ladder. I have courage enough to say to this meeting now, that with the education we have given, and which we propose to give to the people in the future, we shall attain this place. (Applause.)

It will soon be manifest to everyone, whether he be educated or otherwise, that there is no money in producing fruit that can be stamped only as third class. The money has been made in the past, and will be made in the future, by those who pay such care and attention to cultivation as will enable them to produce the very best quality. This is the doctrine I am preaching everywhere, and I propose to continue to do so, for although other political nostrums are proposed labelled "N. P.," "P. I.," "P. P. A.," etc., each of which is to bring peace, joy and prosperity, wealth will only come by the improved production of such articles as the world needs. Lord Salisbury spoke truly when he said that "all England must depend on the energy of her people;" and if I should add anything to his statement it would be that Canada must depend on the energy of her people, intelligently directed by education.

But it is of no use our producing a good thing unless we are able to place it on the market where its excellence will be acknowledged. The proper marketing of our fruit demands several things; first, it must be placed in the best and most attractive package—in the sort of package demanded by the market where it is sent. I think we are extremely foolish in this country if we refuse to consider the tastes and requirements of the people to whom we are sending our fruit. If they say to us, "Your packages are too large and not of the right shape," we ought to accept their suggestion and try to meet their requirements. If they require a square package in preference to a round one, by all means let us provide a square package. Then we ought to remember that the man who is willing to pay the highest price must know that he is certain of receiving the quality of fruit that is equivalent to the money he is paying. My judgment is that

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it never did pay, and that in the future more than in the past, it will not pay to send in these packages anything that is inferior. If culls are to be sold, let them be sold to our own people as culls, where comparatively no expense in the way of freight needs to be added to the great value of the article. But when we present our goods for the best customers let us see to it that it is honestly done, for in this as in other matters, Dr. Franklin's maxim will be found true that "Honesty is the best policy." On Monday of this week I received a letter from an old friend who is at present visiting in England. His former business having been that of a merchant he naturally takes a deep interest in the merchandise of his country as presented on the market in England. He says: "For over a month I have visited Smithfield market in Manchester, and to put it mildly, I am ashamed of the way Canadian apples are packed. With few exceptions one-fourth in each barrel are small, deformed and worm-eaten. The wholesale dealers assert that Canadian apples are liked best, and if purchasers could depend that the contents of each barrel would be similar in size and all of one kind, Canadians would hold the front rank in fruit."

Why should a Canadian visiting an English market thus have occasion to blush for the work of his own country? How long will it be before apple growers and apple packers learn the lesson that it is a suicidal policy thus to practice dishonesty. If I had my way, I do not hesitate to say that the man who thus undertakes to deceive our best customers and spoil our best market ought to be punished as his action deserves.

In addition to proper packing, proper transportation facilities must be provided, especially for the more tender fruits, if they are to reach the market at all. To send them there in a half destroyed state is worse than useless. I am glad to know that some effort has been made to undertake this work of cold storage shipments, but the effort so far has been an utter and entire failure. I have with me the report of the first shipment sent over under the cold storage system, and the statement of those to whom it was sent is that it would have gone much better if it had been sent in the ordinary way in the hold of the ship. This must be remedied, and I should like to see the fruit growers stand up and demand that some one be authorized to undertake the work who will see that it is properly performed." It is not enough for those in authority to say, "We have provided you with facilities. We must know that these facilities are of the very best. We have to compete with nations that are supplied with all the appliances of the very latest and best description. They are constantly making improvements in this regard. We cannot afford, if we would obtain what we ought to obtain in these markets, to send our fruit in any, but the very best condition. No government having the interests of the people at heart can long afford to disregard the claims of the fruit growers in this matter. There is every encouragement to afford assistance. We have proved our ability in this country to produce the very best fruit that can be placed upon any market. Our climate and our soil are such as in this regard will give us a decided advantage. Our people have the pluck and ambition necessary to make them excel. We will give them the knowledge requisite to the greatest skill; but all this is comparatively valueless unless those in authority are prepared, not in name but in reality, to assist in providing means of transport to the only certain market. What is being done for Australia must be done for Canada. It is not so much "fast service" that is needed as *safe service*. This Association ought to press its just claims. The Government which I represent here will always be prepared to render its best assistance to further improve products, but the matter of commerce must be dealt with elsewhere. I believe promises have already been given; it will be your duty to insist on their fulfilment. If these things are attended to, as I believe they will be, there is no fear that so far as fruit is concerned, Canada will hold a first place in the industrial race of the nations.

Mr. BOULTEUR: While I differ politically from the Minister of Agriculture, I feel a great deal of pride as a member of this Association in having the privilege of listening to him, and I certainly have a great amount of pleasure in moving a vote of thanks to him for his very able address.

SECRETARY WOOLVERTON seconded the motion, which was carried amid applause.

Hon. Mr. DRYDEN said all the thanks he required would be that the people would take heed to the thoughts he had suggested. With the Association at his back he proposed to continue on this line.

Mr. BOULTER, expressed his dissent from the report in one of the newspapers as to his remarks in the course of his paper read yesterday on British Columbia fruit, and asserted that he had never said British Columbia could not produce fruit; he had extolled certain kinds of fruit grown there, and said there were certain localities in British Columbia where they could grow good fruit; but there was not a man that tasted the British Columbia Northern Spy last night, that said it came up to the Ontario Spy.

Prof. SAUNDERS: During my ten years visits to British Columbia I have had opportunity of going over all their fruit sections and seeing their orchards and examining their fruits. I would not like to go as far as Mr. Boulter goes in regard to their quality; neither would I like to say British Columbia apples, all the way through, are equal to Ontario apples. I am sure that they are not in many sections, but I want to call your attention to the fact that there are two or three distinct climates in British Columbia. East of the Coast Mountain range we have a climate like that of England, with a heavy rainfall; that is about seventy miles from the ocean. This side of it you come to a climate practically rainless, where everything must be grown by irrigation. In that section the apples will probably be not quite so highly flavored as they would if grown in the ordinary way. The apples shown last night were from the dry section; they came from the orchard of Mr. Earl at Ashcroft, where they have no water to speak of. I was quite willing to admit that the flavor was not equal to the King as we have it here, for it is a little past its prime; but I have eaten good Kings at Agassiz, and the Government don't pamper their fruit trees any more than they pamper their officers—(laughter)—they give them good honest treatment, and that is all they can expect. Our orchard has not had any special fertilizing. The only good ground the people have for locating in Agassiz is that we have such a pure soil. At the same time we are producing some of the finest fruit that has ever been produced in British Columbia on that same soil, and we have now several hundred varieties of apples coming into fruit. Last year our Superintendent in an ordinary cellar kept some late-keeping varieties till spring; but we have not yet been able to pronounce definitely whether British Columbia is equal to Ontario in this particular, but from what I know and have seen of it I believe it can produce good winter fruit such as Spys and other late-keeping varieties that will command good prices in the world.

Mr. BOULTER: On the coast?

Mr. SAUNDERS: On the coast, I mean; I have not seen enough of the interior. I would like to bring before the notice of the Association some remarkable variations which have occurred at Ottawa in the common Virginia Creeper. This as it grows naturally has to be tied and pegged against the walls of houses. It is a very desirable vine for covering trellises and verandahs. A "sport" has occurred at Ottawa which, I think, is the same as Nicholson, in his "Garden," calls the Hirsute form, or hairy form. The tendrils have formed sucker-like discs at the end, and hence in growing it sticks to walls or woodwork or anything of that kind just as firmly and freely and fully as the A. Veitchü does. Where the Veitchü can be grown this has no advantages, but where it cannot be grown on account of its tenderness (and that applies to the greater part of Canada) this variety, I believe, will grow—indeed, it will succeed—anywhere over Ontario, Quebec, or any part of the North-West Territories, because it is a native there; and I was going to suggest to the Association that, if they thought fit, it might be well to send out some rooted plants of this to members of the Association, and we would be very glad to propagate enough to distribute, so that it will be better known.

Mr. L. W.

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PACKING AND GRADING APPLES.

Mr. L. WOOLVERTON, Secretary of the Association, read the following paper :

At the last meeting of our Association, at Orillia, the subject of packing and grading apples for the English market was discussed, but no very decided conclusions were reached. That some reform in fruit packing is needed is a settled question, as is proven by nearly every barrel of apples or basket of peaches purchased in our markets. The other day I ordered a basket of nice yellow peaches from the Hamilton fruit market, as mine had all been harvested and I wished a few for home use. When the top layer was removed the rest of the contents were white fleshed peaches and rotten at that. Who, that buys a barrel of apples in our city markets, expects to find the middle as good as the two top layers. I heard a packer once explaining that he was accustomed to put the poorer apples at the bottom, in order that they might bear the pressure of heading and thus save his finer specimens. "No, no," said the dealer who was shipping the apples, "do not put your poor apples at the bottom, put them in the middle, because the buyers open both ends of the barrel." Many times I have watched packers working under the directions of some of our large apple buyers packing apples in our orchards, and it is an open secret that the centre of the barrel is filled up with almost whatever comes. They say they have no time to carefully assort and grade the fruit. Well, if this is the case, then the apples that are thus packed should never be marked with XXX or "Extra Selected Canadian Apples." This kind of thing is bad enough in our own home markets, leading to want of confidence on the part of the public in purchasing fruit; but the damage to our country is a serious one, when it is practised in a wholesale way in connection with our export trade—a trade which is assuming immense importance. If, of the ten thousands of barrels that are being landed in Liverpool, London and Glasgow markets and are being constantly distributed throughout the United Kingdom, a large portion of them are packed in the way I have described, how can any honest, dealer who only ships a few hundred barrels in one season, ever hope to establish any reputation for his own fruit in face of so much badly packed Canadian fruit.

Even in spite of this terrible injustice which is being done to Canadian apple growers by apple dealers, Canadian Baldwins are kept away up in the English markets. For instance, under date of October 26, Messrs. Woodall & Co., of Liverpool, quote Canadian Baldwins at 16s. to 18s. 6d.; Boston Baldwins at 14s. to 16s. 3d.; Canadian Greenings, 15s. to 17s.; New York Greenings, 11s. to 13s.; Canadian Kings at 20s. to 25s.; New York Kings at 17s. to 21s.; and this in spite of the fact that our apples go to Liverpool without being packed in any uniform grade, or marks which have any definite meaning. If, under such adverse conditions, our fruit has met with such a favorable reputation in the British markets, what might we expect if our apples were put up in uniform grades and were properly marked? I have received orders from Edinburgh for extra selected apples of assorted varieties at four dollars per barrel, f. o. b. at Grimsby, when at the same time the common price paid by apple dealers in the vicinity was only one dollar per barrel for the fruit. Surely there is room for a fine trade in Canadian apples if once we are able to assure the distant buyer of the quality indicated by a certain grade or brand marked upon the outside of the barrel.

I do not know that it makes very much difference what package is decided upon for the export trade. Whether anything better could be thought of than our customary apple barrel is a question. During the past season I have been making some experiments with an apple case which when full weighs between fifty and sixty pounds, according to the variety contained therein. This package I have lined with shelving paper, and all the fruit was wrapped with tissue paper, and nothing was allowed to go into these packages but a fancy grade of fruit. Some of us have combined in sending about one hundred cases to Sydney, N. S. W., to the care of Mr. J. S. Larke, the Dominion Commissioner there, who had written me that the market there is bare of apples during the months of October, November and December of each year. When the report of the result of this shipment comes to hand I will be glad to place before you all the information. I have myself sent 100 cases to our Provincial agent

in England, Mr. P. Byrne, of Liverpool, in order that I may compare the two markets for Canadian fruit. I have also forwarded a carload of barrels and cases to Edinburgh and one to Glasgow, and, on receiving the returns from each of these, I will be able to compare the advantages of these different packages, and these results I will also be glad to make public through *The Canadian Horticulturist*. Uniformity in the size of our packages is certainly of importance. Some of our apple growers use the flour barrel, of which the length of stave is about thirty inches; others use the legal apple barrel of Canada, of which, I am informed, the length of stave is twenty-eight inches, or about twenty-seven inches from croe to croe. However, the difference in the two barrels is easily detected when they are standing side by side, and the fault here is in giving excessive measure, and not in cheating the buyer. In the smaller packages uniformity is sadly needed. At a meeting of fruit growers called at Grimsby during the summer this question was considered, and it was decided to ask the Ontario Legislature to regulate fruit packages according to the following scheme, it being understood that these sizes do not apply to fancy baskets in crates, but only to ordinary fruit baskets. The names given them are only to distinguish them; the sizes are supposed to be the same for each number, no matter what fruit is put in them. Taking wheat of standard weight as a medium to determine the capacity of packages, the sizes of fruit baskets were recommended as follows:

| | Pounds. | Ounces. |
|---|---------|---------|
| No. 1—Pint berry box, should contain of wheat..... | .. | 12½ |
| “ 2—Quart berry box “ “ | 1 | 9 |
| “ 3—Half peach basket “ “ | 11 | 4 |
| “ 4—10-pound grape basket “ “ | 13 | 14 |
| “ 5—12-quart peach basket “ “ | 22 | 8 |
| “ 6—16-quart grape basket, or 20-lb grape basket, should contain of wheat | 30 | .. |

I mention this here, in order that it may be discussed at this meeting.

But, to return to the important subject of grading, I believe that, even in our own markets, contracts could be made with much greater facility if we had some regularly established and well-known grades. I am sure that I may take it to be an established point with the members of this Association here present that the grading of our apples, at least for export, is desirable. The next point to be considered is, are the grades proposed satisfactory?

The following is a definition of the grades as found in the Dominion Inspection Act and also as proposed in the first draft of Mr. Dryden's Bill for the prevention of fraud in the sale of fruit:

Grade “No. 1” shall consist of well grown specimens of one variety, as nearly uniform as possible in size, and throughout of good form and color, sound and whole, and free from worms, bruises or disease.

Grade “No. 2” shall consist of well grown specimens of one variety, sound and whole, and throughout reasonably free from the defects mentioned in the preceding paragraph, but which, on account of inequality of size, lack of color or other defects, could not be included in grade “No. 1.”

Of course the packer may have both his extra and his fancy grades, which will be private, and which he may use at his discretion, but these are only sub-divisions of grade No. 1.

Possibly some shippers will object to the terms “grade No. 1” and “grade No. 2.” When the Bill was up before the House last spring some shippers said, “No, it will never do to put No. 2 on our apple barrels. Nobody will buy them if we do.” Well possibly the term “No. 2” is too strong, being so often applied to culls which are only fit for cider. If that objection is offered by many packers, I would propose that we simply say “grade A” and “grade B,” instead of “grade 1” and “grade 2.” However, for myself I am satisfied to use the terms already proposed.

The next question before us is: Shall the marking of the grades on packages of apples and other fruits be made compulsory? This is an important subject. The Bill presented to the House last spring met with the stiffest opposition from apple buyers,

because it read: They do not want to be responsible for the grading of the fruit. Well, the grade upon which every packer or a shipper responsible for the fruit becomes unfair in the grading of the fruit is meant by “makes it a fraud” will in time determine which they are an Act of Parliament towards increasing

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Let us now of fraud in the fruits were exported two verbal changes effective:

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 - (1) The word “barrel, basket or other cover of any material”
 - (2) The word “durable manner”
2. Every person, basket, or other article a durable manner
 - (a) The words “the case may be, and”
 - (b) Except in the Province, of the pack
 - (c) The name of
3. For the purpose
 - (a) Grade “No. 1” in size, and throughout
 - (b) Grade “No. 2” out reasonably free from inequality of size, lack
4. All fruit not offered for sale in b

because it read "For the purpose of this Act, the fruit *shall be* graded as follows." They do not wish to be compelled to mark the grades. They feel that the next step would be inspection and that careless packing might be mistaken for fraudulent packing. Well, perhaps it was too sweeping to compel every packer and shipper to mark the grade upon every barrel. Uniform ideas with regard to grading do not prevail, and every packer might not be posted with regard to the definitions of the various grades, or a shipper might buy a car of apples on speculation and afterwards himself become responsible for the grading which had been done by some one else, and thus he might become unfairly subject to a fine. Perhaps, therefore, it would be better not to make the grading compulsory, but by all means let us have a Bill that clearly defines what is meant by "grade No. 1" and "grade No. 2" when these terms are used and that makes it a fraud to brand a barrel as No. 1, which contains No. 2 apples. Buyers will in time demand that there be a uniformity respecting the grade of all the apples which they are purchasing, and further, the fact that such grades have been defined by an Act of Parliament and agreed to by our Canadian growers, will go a long way towards increasing the confidence of the buyer in making his purchase.

Then if a buyer in Ottawa or in Liverpool buys a carload of apples marked "grade No. 1," and they prove not to be up to the legal definition of that grade as laid down in the Act, the buyer will not be obliged to pay the sum agreed upon. These conditions will increase the trade in apples, the very thing that we fruit growers of Ontario desire to encourage.

The next point is: Shall there be a Provincial inspector, whose business would be to seize or confiscate any fruit offered for sale which he might discover to be fraudulently packed? I am inclined to think that this also would be a step in the right direction, and the fact that graded fruit was subject to inspection would tend to produce a wholesome fear of fraudulent packing on the part of all packers. But as fruit growers are the only class of men who never cheat, I need say no more under this head.

Let us now read very carefully and consider the proposed Bill for the prevention of fraud in the sale of fruit, from which those sections which refer to the grading of fruits were expunged before it was passed. I am inclined to think that with one or two verbal changes these clauses might be preserved and render the bill much more effective:

Proposed Bill.

AN ACT FOR THE PREVENTION OF FRAUD IN THE SALE OF FRUIT.

1. In sections 2 to 6 inclusive of this Act unless a contrary intention appears:

- (1) The word "fruit" shall mean and include apples and pears.
- (2) The word "packing" or "packed" shall mean and include the placing of fruit in any box, crate, barrel, basket or other article and the covering and securing of the same with slats or bars or with a lid or cover of any material whatever.

2. Every person packing fruit for sale in bulk *shall* mark upon the outside of the box, crate, barrel, basket, or other article in which the fruit is packed, in plain and legible words to be branded or written in a durable manner in or upon the material of which the article is composed:

- (a) The words "No. 1" or "No. 2," according to the grade of the fruit, or the word "ungraded," as the case may be, and
- (b) Except in the case of ungraded fruit, the name and post office address including the name of the Province, of the packer,
- (c) The name of the variety so packed.

3. For the purposes of this Act *fruit shall be* graded as follows:

- (a) Grade "No. 1" shall consist of well grown specimens of one variety, as nearly as possible uniform in size, and throughout of good form and color, sound and whole, and free from worms, bruises or disease.
- (b) Grade "No. 2" shall consist of well grown specimens of one variety, sound and whole, and throughout reasonably free from the defects mentioned in the preceding paragraph, but which on account of inequality of size, lack of color or other defects, could not be included in grade "No. 1."

4. All fruit not coming within the classes mentioned in section 3 of this Act, and which is packed and offered for sale in bulk, shall be classed as "ungraded."

5. Every person who after packing fruit or causing it to be packed, shall sell such fruit or offer the same for sale or otherwise dispose of the same without having made the marks required by section 2 of this Act, or any of them, shall be liable on summary conviction therefor to a penalty of not less than \$1 nor more than \$5 and costs.

6. Every person who with intent to defraud :

(a) Alters, effaces, obliterates, or covers wholly or partially, or causes to be altered, effaced, obliterated or covered, any packer's marks made on any article required to be marked under the provisions of this Act, or

(b) Counterfeits any such marks or brands or writes the same on any such article, after the same has been once marked, or

(c) Empties or partially empties any such marked article, in order to put into the same any other fruit (of the same or any other kind) not contained therein at the time of the original marking, or

(d) Uses for the purposes of packing fruit, any article bearing marks previously made by any other packer, or

(e) In making or purporting to make any of the marks required by this Act, falsely states the grade of fruit packed in the article marked or the name or address of the packer or the weight or measure of the fruit so packed,

Shall be liable on summary conviction therefor to a fine of not less than \$1 nor more than \$5 and costs.

7. Every person who shall knowingly and with intent to defraud so place or arrange apples, pears, plums, peaches, nectarines, cherries, grapes, apricots or berries of any description whatever, whether graded or ungraded, in any box, crate, barrel, basket, or other article, for delivery to any other person in such a manner as to conceal defects in size or quality in any portion of such fruit by covering the same with fruit of larger size or better quality or otherwise shall be liable on summary conviction therefor to a penalty of not less than \$1 nor more than \$5 and costs.

8. Every person receiving fruit of any kind mentioned in the preceding section for sale in bulk on commission, shall, within one week after any sale by him of such fruit or any part thereof, mail to the address of the consignor of such fruit a written notice of the price or prices received therefor and the name and address of the purchaser, and any person failing to send such notice or to give the particulars therein, required by this section, shall be liable, on summary conviction therefor, to a penalty of not less than \$1 or more than \$5 and costs.

9. No prosecution or conviction under this Act shall be a bar to any proceeding for the recovery of penalties which may be imposed under any other Act, nor to any action for the recovery of damages which may be brought by any person injured or defrauded by the sale of fruit in violation of the provisions of this Act, but all such penalties may be recovered, and all such actions may be brought in the same manner as if this Act had not been passed.

The changes which I would propose are as follows :

In section 2, instead of "every person packing fruit for sale shall mark on the outside, etc., I would substitute the words "may mark."

Then in section 3, for the words "fruit shall be graded," I would substitute the words "the grading of apples and other large fruits shall be defined."

Section 5 I would omit entirely.

The following is a copy of the Bill as passed by the Legislature :

AN ACT FOR THE PREVENTION OF FRAUD IN THE SALE OF FRUIT.

Vict. 58, Chap. 48.

I. Every person who with intent to defraud :

(a) Alters, effaces, obliterates, or covers wholly or partially, or causes to be altered, effaced, obliterated or covered, any packer's marks made on any article in which any fruit is offered for sale, or

(b) Counterfeits any such marks or brands or writes the same on any such article, after the same has been once marked, or

(c) Empties or partially empties any such marked article, in order to put into the same any other fruit (of the same or any other kind) not contained therein at the time of the original marking, or

(d) Uses for the purposes of packing fruit, any article bearing marks previously made by any other packer, or

(e) Falsely states the grade of fruit packed in the article marked or the name or address of the packer or the weight or measure of the fruit so packed

Shall be liable on summary conviction therefor to a fine of not less than \$1 or more than \$5 and costs.

2. Every person who shall knowingly and with intent to defraud so place or arrange apples, pears, plums, peaches, nectarines, cherries, grapes, apricots or berries of any description whatever, in any box, crate, barrel, basket or other article, for delivery to any other person in such a manner as to conceal defects in size or quality in any portion of such fruit by covering the same with fruit of larger size or better quality or otherwise shall be liable on summary conviction therefor to a penalty of not less than \$1 nor more than \$5 and costs.

3. Every person who, after receiving such fruit on commission, shall, within one week after receipt thereof, fail to send a statement in regard to the names and addresses of the

4. No person shall be liable for any penalties which may be brought under this Act, but all such actions may be brought in the same manner as if this Act had not been passed.

Prof. CR.

with regard to the fruit. There is no doubt that it has been frequently mentioned rather briefly in the Dominion of the other provinces to come to the aid of our surplus. The period of the time we have a surplus of the demand on account of the market. Mr. Dr. now to hear there was a big I am here to night I thought and a body of time to make a Minister of Agriculture this perishable devoted to this modulation as has tion of butter; of the fruit grown of the Government instead of a said that those We had had no mistake in making whether that reason from since not the knowledge and the fruit decided were be blame on the see that that it was needed. condition. The If we have a we have a temptation and in tight in the chemical

3. Every person receiving fruit of any kind mentioned in the preceding section for sale in bulk on commission, shall, when requested to do so by the consignor in writing, furnish the said consignor, within one week after receiving notice or after disposing of the fruit as may be requested, with a written detailed statement in regard to the sale or disposal of the same, giving the price or prices received therefor and the names and addresses of the purchasers.

4. No prosecution or conviction under this Act shall be a bar to any proceeding for the recovery of penalties which may be imposed under any other Act, nor to any action for the recovery of damages which may be brought by any person injured or defrauded by the sale of fruit in violation of the provisions of this Act, but all such penalties may be recovered, and all such actions may be brought in the same manner as if this Act had not been passed.

EXPORT TRADE IN APPLES AND OTHER FRUITS.

Prof. CRAIG, said: I wish to make an explanation to the fruit growers of Ontario with regard to the trial shipment referred to at this Convention at different times. There is no need for me to dilate on the fruit interests of this country. That has been frequently given to you at different times already. I had intended running over rather briefly the resources of the different provinces, because I wanted to speak to you from the Dominion standpoint, as I am a Dominion officer and have the interests of the other provinces at heart as well as Ontario, but time will not permit at present. I want to come to that part of the subject which takes up the question of how we might get rid of our surplus products largely of a perishable character, and that brings us to a period of the year between the middle of August and the first of November. At that time we have a quantity of fruit of a perishable character in the country much in excess of the demands of our home market. Last year at the request of the fruit growers, on account of pressure brought from various points, we decided to make a trial shipment. Mr. Dryden referred to that this afternoon, and I am sorry he is not here just now to hear what I have to say on the matter, because if there was any failure—and there was a big failure—there is no one perhaps more to blame than I am myself, and I am here to take the responsibility of that failure. Mr. Saunders in his remarks last night I thought, rather put the onus on the fruit growers. Well, it does not rest there, and a body of men who are not to blame should not receive it. I want at the present time to make an explanation. The Fruit Growers' Association waited upon the Minister of Agriculture at Ottawa and asked him for some help towards getting fruit of this perishable class to England. There was no appropriation at that time to be specially devoted to this work, but he stated his desire and willingness to give them such accommodation as had been already prepared by a special vote of money for the exportation of butter; and I went to some of the pear growing districts and waited on some of the fruit growers, and we immediately decided that it was well to take advantage of the Government's offer at that time, and so we just interposed one shipment of fruit instead of a single shipment of butter. Now, that was an experiment. Mr. Dryden said that those who had charge of it should know. Without doing how could we know? We had had no experience in the line of shipping fruit, and I may say we made a mistake in making such a large experiment, but we had not the knowledge before us whether that fruit was going to get over there in good condition. We might reason from similar cases, and possibly might have reasoned more correctly, but we had not the knowledge before us, and we did the best we could under the circumstances and the fruit growers gave us the fruit and put it up in packages which we mutually decided were best and we shipped by Montreal. I do not want to lay any particular blame on the transportation company, but I will say that I asked them specially to see that that car was specially watched en route and that ice was put in whenever it was needed. However, it arrived there without ice, and the fruit in a very warm condition. There are two conditions to be kept in mind in sending fruit in this way. If we have a temperature of forty to fifty degrees we should have ventilation. If we have a temperature of thirty-two to thirty-four degrees we could ship without ventilation and in tight packages. In the case of low temperature no change takes place in the chemical make-up of the fruit, and no heat is generated; in the other cases a

slight change takes place and heat is generated. We had those close packages and had no ventilation. We had to keep the temperature sufficiently low that there would be no need of ventilation. That hope failed. I helped to put ice in the car at Montreal, and it was loaded at night and under the best possible conditions; but there was a sufficient amount of heat in the boxes to melt the ice that was in the compartment to keep it cool, so that by the time it arrived in England the ice had all disappeared and the fruit had generated a considerable amount of heat—so much so that it caused a great deal of decay and was a failure. But we are not going to stop there, and as the onus of the failure rests upon the officials of the Dominion Government I am pleased to say that the Government has now under consideration a scheme for the carrying out of this work next year to what I hope will be a successful issue. The outline of the plan has not been fully sketched yet, but I trust that it will be something like this—that eight or ten trial shipments—not necessarily large, because our experience of the past will show that we can get information with small quantities just as well as with large—will be made covering the perishable fruits of the different provinces; that these shipments will begin about the middle of August and be carried on as long as we see that we are deriving information of a valuable character to growers. That plan I think can be worked very well with the dead meat scheme which Professor Robertson outlined at Guelph the other day and which is also under consideration by the Government, and I have every faith that we can put our perishable products on the English markets in a good selling condition and that they will be of sufficient quality to attract the attention of buyers over there. I do not want to say a word against the commission men on that side, but I know they are a difficult lot of men to move out of certain channels, and it is difficult to get them to adopt new ideas, and I do not know that we can through them arrive at the best results on this matter, but we shall do our very best to bring this work to a successful completion and use our very best judgment; and I would ask the co-operation of the fruit growers in regard to suggestions, and anything else that may be given along that line to the officials who are likely to have this matter in charge. (Applause.)

Mr. A. H. PETTIT: I also regret Mr. Dryden's absence from the room just now, because I want to reply to one or two remarks he made to-day in regard to the shipment of our fruit to foreign countries. In my estimation we are to-day in a rut, and we have to get out of that rut. Why is it that the fruit growers of this country most capable of putting their fruit up in proper shape and forwarding it to the British market are not doing so? Well, I will tell you why I am not doing that, as one. For fifteen years I have exported to foreign countries more or less apples each year, and I have come to the conclusion that the system of handling fruits in England is not a system that is in the interest of fruit growers of this country. We have also had a little experience in our own cities and towns during the last four or five years in handling fruit in that manner. They have been trying it in Montreal and Toronto—that is the auction business. Do you think for one moment that the fruit growers of this country can put up their apples, ship them to London and those points and have them auctioned at a common sale? I would ask Mr. Karn, who is in the room, would that be the way that he would expect to receive returns for his pianos and organs were he to ship them to those cities and have them put up at auction? We must get out of that rut and educate our men to put up fruits for fancy markets and then sell to the consumer of fruit in the best possible condition without the expense of the middleman if possible. Until we can arrive at that point I do not think we can win the confidence of the fruit growers of this country to put up their apples and ship them to that market. Now, how are they shipped there to-day? I have been both buyer and shipper, and I know. To-day the condition is this, that if I buy ten or fifteen thousand barrels we begin taking our apples throughout our section from the 10th to the 14th of October. Now how long have you got to do this picking and packing? (A voice: "About two weeks.") They employ a number of people to pick their apples and pack them, and pay them so much a barrel to put them up. They want to put up as many as they can; it is natural that they want to make as much money as they can—that is all they are working for. Now I claim as a rule they cannot get experienced men to pack those apples as they should be packed in that space of time,

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and not being packed in proper condition they are sold in the Old Country to the discredit of many growers who are not to blame in this matter. I say there is no man more capable of packing apples for the British market than the grower himself; and we must get out of that rut so that we can ship them to the market up to a certain brand. A gentleman says: "Why don't you work up a brand of your own for the British market?" I did that once. My apples brought me a good price and got me a great deal of credit for arriving in good condition. What was the experience next year? London got crowded with apples and the commission men, who had branches in London, Glasgow and Liverpool, advised that I had better ship to Glasgow. I got a great deal of credit again; they arrived in fine condition. The advice next year was to ship to Liverpool; the next year the advice was to ship to Chicago, and they went there. My life is not long enough to establish a character in that way, and if I have to ship to different points each year I will never reach the goal I aimed at in the beginning. Let us get out of the rut, if it is possible to do so. The Old Country people are very staid in their ways; everything has to be done through a certain channel; but I believe if we as fruit growers were united in this matter and asked Prof. Craig and the Government, in connection with these fruit experiments they are going to try, that they would also go on to that country and establish a trade for us in some limited way, we in time would get out of that rut and be dealing with the consumers of that country, to the advantage of the fruit growers of Canada.

Mr. BOULTER: Do you recommend that each grower pack his own apples and ship them to England?

Mr. PETTIT: I say when you get out of the rut in the Old Country that you are in now and have your goods handled as they ought to be, directly by the consumer, then I say let the fruit growers pack the fruit themselves and sell them to the best advantage, and in my opinion they will get double the money they are getting now.

Mr. BOULTER: If I had a thousand barrels of apples and was selling them I never would pack one of them. I would rather the man who bought those apples would oversee the packing of them, and send his men. I would pick them and put them there and let them pack them, because if you pack them and the price of apples dropped, no matter how much, there would be some rebate required on them, and you would have trouble before you got through with that buyer. The experience of the growers in Prince Edward county, who have had thirty or forty years' experience, is that it is better for them to sell their apples either by the orchard or by the barrel and let the buyer send on his men. They are not employed by the barrel, but they hire these men by the day and they put up their apples, and the result is that when the farmer's apples are drawn to the car he gets his money and his responsibility ceases, no matter what the fluctuation of the market. As a large buyer of peaches in the Toronto market, I say it is scandalous the way the fruit is put up. I had a wholesale man in Quebec last August say that his experience in 1894 was that he never got a decent peach from the city of Toronto—worthless things in the bottom and middle and good peaches on the top. Now there is a great deal to be learned in packing. I believe Mr. Woolverton has endeavored as far as in his power to improve the system of our growers in putting up a better class of fruit and using boxes. As regards grading: If No. 1 and No. 2 are objectionable as names why not have the words "Standard" and "Extra Standard;" but I do hope that some system of grading fruit will be recommended by this Association to the Government and carried out.

Mr. PETTIT: As regards Mr. Boulter's remarks about last year's peaches, I am only surprised that he got a few good ones on top, for I don't think there were any good peaches in the peach-growing section last year—they were the poorest that were ever grown in that section. I believe the fruit growers of this country can pack their fruit just as nicely and well as any other class of people on the face of the earth. (A voice: "Of course they can;"—hear, hear.) I say they want education along the line of the best method of packing for foreign markets. There is our weak point, and when we get out of that rut in regard to shipping to the British market we will

get a healthy business along that line. I beg to move our appreciation of the action of the Government in proposing to take along that line by the trial shipments, and that we as fruit growers hope that they will carry it to a successful issue in the interests of the fruit growers of Canada.

Mr. BOULTER seconded the motion.

Mr. CASTON: The short time between the picking and the shipping of the apples does not make it practical to pack them properly for the Old Country. In Meaford and Thornbury they have frost-proof storehouses—paying so much a barrel in the orchard and taking everything except the culls, and putting them all in the barrel quickly, pressing them sufficiently to keep them from bruising until they reach the storehouse. We always give instructions to packers to pick them carefully. Sometimes with some hard apples it is impossible to detect a poor one, and pickers will shake them off the trees in a hurry. If they stay in barrels any time and are repacked we can detect them. McWilliam & Everist, who handle about fifty thousand barrels a year, are doing the same thing—having them repacked for the English market, with the exception of fancy packing in cases. Repacking is the most practical way of doing it for the Old Country.

Mr. MCNEILL: We should decidedly thank the Government, and particularly Prof. Craig, and not the slightest blame should be attached to him, for he had not the facilities at hand which were needed for successful cold storage. It is one of those mistakes that anyone is liable to make, and one scarcely anybody can foresee. I think Prof. Craig is saying too much when he says he is to blame for this thing, and I think we should thank him for the efforts he has made in this direction.

Mr. A. H. PETTIT: We all know we can make a small shipment of these perishable fruits to England without the least trouble; but what we want to provide for is the large shipment, the commercial shipment, such as you and I would want to make if we were shipping a carload; because if you put a carload together in the hot season of the year it would itself create heat.

Mr. SHUTTLEWORTH (Bow Park): Denmark is producing fine apples; France is producing good apples, and they are putting up all kinds of fruit in just as good condition as we are, and yet they are nearer the market. I don't think we will be able to export the kind of grapes grown here at the present time. England is getting grapes from Lisbon, very much superior to anything we have here, and which suit the English taste; they are accustomed to eat a fancy grape, one they can bite. Englishmen don't swallow the seed; they usually bite the grape; they have been accustomed to eat what they call the highest class of grape. The Lisbon grape is better in that way, as they don't give a sour taste in the mouth, while our grapes give a sour taste. In France and Jersey Island they have very fine fruit, and these are very near the English market. When I opened up fruit that was branded as No. 1, I have been almost ashamed I was a Canadian; that will confirm what the gentleman wrote to Mr. Dryden. You may call your grapes No. 1 or No. 2—an Englishman don't care what you call them as long as you give him what he pays for. I don't think that anyone who understands the condition of the market will object to having fruit graded No. 1 and No. 2. Only those who have a desire to get No. 1 prices for No. 2 fruit would object, and these we want to get rid of, whether growers or exporters. Our firm handles about a third of the total exports of American apples to Europe; that is, we handle from three to five hundred thousand barrels a year, and I have watched very closely this matter of classification and grading, and a great many of our apples classed as No. 1 are not No. 1. I wish we could have a law that the packer of apples not No. 1 who brands them as No. 1 should be fined and punished, because it is a fraud, the same as shipping a filled cheese. In trying this experiment I think the Government should really understand the conditions that exist in the English markets and what they have to compete with before they disappoint shippers. Tomatoes from France and Jersey Island and Spain, come over to England, costing for freight about one and sixpence, a large case holds what may be considered a barrel; they come in packed in boxes about 175 or 180 pounds in a box.

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The PRESIDENT: This is a very interesting question, and we invite apple buyers and shippers to join in the discussion.

Mr. SHUTTLEWORTH: I am not only a shipper; I am a grower. I claim I am a Canadian grower now, I am Canadian born, though I have been living in England so long, and I would like to give my views more definitely on the point, in a uniform manner, that is dealing with each question. I would be glad to answer any questions. I would like to see our Canadian trade increased.

On motion of the SECRETARY it was decided to resume the discussion to-morrow morning after the election of officers, and the meeting adjourned at 6.15 p.m.

SECOND DAY—EVENING SESSION.

The session was held in the town hall, the audience being larger than during the day.

President PETTIT read his annual address, which appears at the beginning of this report.

THE IMPROVEMENT OF THE GLADIOLUS.

Mr. H. H. GROFF, of Simcoe, read the following paper:

In an article published during the present year, by one of the leading horticultural journals of America, the statement was made that "there had been no improvement in the Gladiolus during the past ten years." It will be of interest to consider the general condition of this popular flower at that time, after it had been before the public for some forty years, and since then, during which all the new strains have been introduced. But before going more fully into the question, I beg to advance the claim that there has been more improvement during the past five years, than during the whole preceding period of its history.

The Gladiolus of ten years ago descended from a cross between two Cape species, and is known as the hybrids of Gandavensis, the section in general cultivation. For many years the varieties originating from this cross have been inbred without careful selection, which has resulted in one of the most variable plants known to the hybridizer; in fact this condition is made ground for the claim, that there is no advantage to be gained by hand pollenizing, as the leading varieties of commerce are the outcome of natural fertilization.

The extent to which this indiscriminate seed raising has been conducted, may be better understood when it is known that commercial seedlings are often grown from seed than can be bought for a few shillings per pound. Such seed can hardly be produced from valuable varieties, for the process of said raising is most exhaustive to plant life, and so apparent is its effect on the degenerated vitality of the hybrids of Gandavensis, that if they survive the effort, it cannot generally be repeated without an intervening season of rest.

Now to admit this sweeping assertion, is to concede that the work done during a comparatively recent period, the first results of which were introduced about five years ago, has indicated no advance on the line of improvement, and that the time of Kelway, Souchet, Lemoine and others has been wasted, in their efforts to increase the beauty and strength of the subject of this paper.

It will here be in order to consider the meaning of the term improvement as applied to the Gladiolus; and I take the practical and popular ground that it should mean; first, the beauty of the individual flower; second, strength and vitality of the plant; and third, arrangement. During the past season, many visitors to my trial

grounds containing some 1,000 named varieties, would stop before a hybrid of distinct merit; the plant and straight spike stood six feet high, bearing a few open flowers rivaling the orchid in its richness and beauty; and without exception it was pronounced the gem of the collection, thus proving the first principles of improvement.

We often hear objections made to a variety or strain, condemning it for lack of substance. Now, while Camellia like petals are most desirable and too rarely obtainable, their absence cannot be made a point for rejection, unless at the sacrifice of some of our most beautiful varieties. Substance is largely a question of weather; for if after a period of cool moist conditions, a few hours of intense heat prevail, very common occurrences in our variable climate, large flowers must wilt, and the larger they are the worse they are affected. The remedy, however, is easy and most satisfactory, cut the spike when the first flower opens, blooming in the house, where the last bud of any size will do even better than in the open ground. This treatment also strengthens the bulb.

The first of the crosses between the hybrids of Gandavensis species is popularly known as the Lemoine section, the varieties of which in general cultivation partake largely of the characteristics of the species, their peculiarity being rather weak plants with crooked stems bearing small bell-shaped flowers. From these conditions the past five years have seen developed one of the most beautiful and popular Gladioli in existence, a plant of great vigor, straight spikes, and flowers of the largest size.

Among the newer hybrids and the best finished of the crosses with the species Saundersonii, is the Nanceianus section introduced in 1890. While the general coloring of this strain is in shades of red, partaking as it does so largely of the blood of the species, the wide open flowers are of enormous size, and great richness and brilliancy of coloring. The plants of the newer varieties are robust, the flowers of good substance, and bulbs of great vitality. To say that this is no improvement is to ignore a class, the influence of which will be seen in choice work yet to be introduced.

That section of European origin offered under the name of Childs in 1893, is the latest of the Saundersonii crosses in order of introduction; it is the result of crossing the hybrids of Gandavensis on the species. The plant is of robust habit, with flowers of the largest size. While lacking the finish and coloring of the Nanceianus section, it contains the first break from red shades among the Saundersonii hybrids as known to the amateur.

It has been my privilege to test many varieties in advance of their dissemination, among which are the new hybrids originated by Mr. F. E. Gray, of Alhambra, California. When these are introduced, the value of the infusion of new blood of the species will be more fully appreciated. With me these plants bearing spikes over two feet in length, attained a height of fully six feet, with flowers of the Gandavensis form four inches and more in diameter.

Without reference to any strains yet to be introduced, it is with every confidence that I rest my contention on the evidence preceding, that the Gladiolus has improved, and will continue to do so for many years to come.

Mr. W. E. SAUNDERS: I would like to ask if Mr. Groff has obtained any very different results by planting bulbs at different depths in the earth; also, I would like to know the parentage of Nanceianus on both sides.

Mr. GROFF: My reason for not giving details in connection with any of the various sections was that they were fairly well known. The parentage is a cross between the Lemoine and a species of Sandersonii. My rule is to plant six inches for large bulbs. My reason for that is that the new corm forms above the old one, reducing the depth to five, whereas if you plant only four inches, as often recommended, it reduces it to three. However, if your soil is shallow it would be much better to plant nearer the surface and ridge it than plant so that the new roots will find no nourishment in the barren subsoil. My own soils of course have that peculiarity.

Mr. MITCHELL: It has been my practice about blooming time, or a little before, to earth the stems, and I find it did them no damage, and helped to keep them from falling over.

Mr. GROFF: I like to have a hundred varieties to recommend to you.

The SECRETARY:

Mr. GROFF: There is a great number of varieties, there is a great number of varieties, not get thirty or forty, change I suppose.

Mr. G. B. BROWN: Where?

Mr. GROFF: I have introduced into foreign markets seeds as a novelty, like to say a few words in proof of the improvement of the shades practical of by no less an authority than myself, in advance of it, suitable character ever saw, after the best of its kind, both with me, and in this way was before be understood hand-pollinated of the varieties of the increase of distillate latest introduction Burbank's new introduced, his last a result of former the crossing of the already supported seed as a novelty, dress.

Mr. RICE:

Mr. GROFF: There is nothing contrary. I might bulbs, not use of

Mr. LOUGH: Do you encourage stock?

Mr. GROFF: I degenerate, and the pean introducers from which seed is the exception, the climatic change my rule to endeavor of the flower from but it has been in

Mr. GROFF: I have not tried that. I am always working between the rows, and I like to have a footing as level as possible. I always plant a depth of six inches; but I recommend that as an alternative where shallow planting is practical, if it is necessary.

The SECRETARY: Which bulbs are best for amateurs to plant?

Mr. GROFF: Canadian grown bulbs. You may think that this is talking shop, but there is a great deal in having your stock acclimatized. Last year I imported some three hundred varieties from one of the leading firms in Holland, and from the whole lot I did not get thirty spikes of bloom, and of them about fifty per cent. died, as a result of the change I suppose.

Mr. G. R. PATTULLO: Has your success been such as to give you a market elsewhere?

Mr. GROFF: Yes; but I have not been long enough engaged in the work of reaching into foreign markets; still for 1896 the leading firms of America are listing my hybridized seeds as a novelty, each one bearing my name and address. If not out of order, I would like to say a few words as to my own work. While in a general way it is for the improvement of all the sections, specially it is with the idea of producing new colors and shades practically unknown to the amateur, my lines of operation having been approved of by no less an authority than M. Lemoine. With this view I am constantly corresponding with specialists in Europe and America, securing their most choice work often in advance of its commercial dissemination, for the purpose of crossing with varieties of a suitable character in my own collection. One sends me a seedling, the most beautiful he ever saw, after importing freely the cream of the latest foreign work. Another seedling, the best of its type, would neither increase nor produce seed with its originator, but did both with me, showing the benefit of climatic change. One variety of rare merit secured in this way was pronounced by an expert to be worth its weight in gold. It will therefore be understood that the chief object of my work is the production of new varieties by hand-pollinated seed, my experience with which has been that fully seventy-five per cent. of the varieties thus produced are worth retaining. After some years of selection and increase of distinct varieties of merit, for the coming year's work I have added all of the latest introductions of Souchet, Lemoine and others, including the whole stock of Mr. Burbank's new California strain, described by him as "the cream of all he ever produced, his last and best selection." In adding the above to my already choice stock, the result of former work justifies me in the conclusion that seed and seedlings produced from the crossing of these strains must be the greatest advance in commerce. This claim is already supported by the fact that the leading firms of America are willing to list my seed as a novelty, to be furnished in the original packets, each bearing my name and address.

Mr. RICE: Do you plant them out first?

Mr. GROFF: Plant them out first. Of course they can be forced under glass, but there is nothing to be gained by it as affecting the quality of the flower—in fact the contrary. I might say that if you wish to start them you should always use bulblet-growing bulbs, not use old bulbs.

Mr. LOUGHEAD: Do you consider using large bulbs that they are apt to degenerate? Do you encourage growing from spawn and bulblets in order to keep up the quality of the stock?

Mr. GROFF: It is the general experience of growers that varieties of the *Gandevensis* degenerate, and that has been my own experience, inasmuch as it is the custom of European introducers to send us high-priced bulbs running from one to three dollars each from which seed has been raised, and if these produce the characteristic of the flower it is the exception, and they often die before they recover sufficient strength after enduring the climatic changes to really let you see what they should be; and it has always been my rule to endeavor to procure grown bulbs from these. You can get the characteristic of the flower from the old bulb, as a rule, the first season if you are able to carry it over, but it has been invariably declined; they simply won't furnish them.

Mr. MCNEILL: What diseases are the bulbs subject to? I found that when I transferred my collection to stiff clay I lost them all with a fungus disease that left the bulb in cup-like shapes with a resinous margin.

Mr. GROFF: On my own ground, although it is very small, where I have four varieties of soil, when I plant in stiff clay I open out a trench, putting in my bulbs and fill it up with loam; and stiff clay is the one soil that is objected to for the growing of the bulb. The disease I presume will be attributed to the condition of the soil on which it is grown.

Mr. MCNEILL: You have never observed that disease?

Mr. GROFF: Mine have always been healthy.

Prof. CRAIG: Please repeat your instructions about cutting off the flowers in hot weather.

Mr. GROFF: I think this bulb should be grown very extensively in every garden for cut flowers. When the first bud opens, cut off simply a spike, not too low or you would injure the bulb in its development. They will bloom set in water in the house. In the large cities where light colors are used for general purposes, funeral decorations and others, they bloom them in the cellar to eradicate any colored stains that might be developed by the light.

Prof. CRAIG: What time do you cut them?

Mr. GROFF: Just as the first flower opens.

A DELEGATE: Planting the same bulb year after year, does it degenerate?

Mr. GROFF: In the *Gandensis* that is the case. At the same time an infusion of the blood of the species has increased their vitality to such an extent that you can plant them indefinitely.

A DELEGATE: How would you replace—get new ones?

Mr. GROFF: Yes, unless you get old bulbs a second time. Dealers like to send out the old bulbs in preference to the small ones.

PUBLIC PARKS AND GARDENS.

Mr. G. R. PATULLO, Registrar of Oxford, read the following paper:

Coming first to the second part of my topic, I shall say little; for the question has already been dealt with by another member of our Association, who is much more competent for the work than I. Then, too, the desirability of public gardens in all our chief towns and cities is almost universally acknowledged, if not carried into practical effect. Of the character of such gardens, their number, size, arrangement, design and attractions, a layman must hesitate to speak in the presence of an audience that represents the expert horticulturists of the country. But that public gardens of such character and extent as are appropriate to the varying circumstances of the several towns and cities of the country, yea, and of villages also, would be a great attraction and would also be of material advantage, is undoubted. For the most casual observer will have noticed that one of the features by which a town or city is judged by a stranger is the attention that is given to beautifying it, by handsome tree-lined streets, well-kept boulevards and lawns, and tastefully arranged gardens, public and private. All these contribute to make up the character of a town or city, and by them too, the character of the citizens is determined in popular estimation. They indicate not only thrift, and a degree of prosperity, but also intelligence, good taste and culture. Hence they become important elements in attracting population and in making home-life worth living. All this and much more might be said about public gardens; but I desire specially to speak, by way of suggestion chiefly, upon the subject of public parks. Thus far Canadians may be said to have had little time for the consideration of matters other than those that pertain to the most practical side of daily life. The pioneers who have hewn from the primeval forest the beautiful homes and homesteads

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that now dot our land were concerned chiefly in a struggle for existence. They had first to overcome the great obstacles that nature placed in their path and when that task was accomplished, as it was most nobly, they, alas, were for the most part, quite past the age to turn their attention to the work of beautifying and making more attractive the land in which they had cast their lot. That task is now ours. Our forefathers may be said to have represented the common school of our natural progress. We represent the high school, the collegiate institute and the university. That public parks are deemed desirable and indeed necessary in our national progress may be inferred by the action that has already been taken in establishing several of them by both the Dominion and provincial Governments. The first of these established was that at Niagara Falls. This in a sense is an international park, for the great State of New York, preceded the Province of Ontario in setting aside a reservation for park purposes immediately opposite that subsequently established by the Ontario Government. By this joint action, Niagara Falls—once a hissing and a by-word because of the petty devices that were practiced upon visitors to the World's greatest waterfall—is now one of the most beautiful and delightful spots for the tourist and visitor, and one to which he may go and enjoy to the full as cheaply as he may pay a visit to any city in the land. Thither go annually tens of thousands of visitors where formerly there were not hundreds, and there citizens of the two great Anglo-Saxon speaking nations of this continent can meet in friendly social intercourse let us hope may under the shadow of the great Falls the roar of whose thunder forever hush all sounds of strife and discord between those who are proud to own a common mother. The provincial Government has also established a public park in the northeastern portion of the province. The Algonquin Park, with a vast territory of forest land, with lakes, rivers and waterfalls, that are destined to make it a delightful place of resort for the pleasure seeker, the lone fisherman and the huntsman. At Rondeau also on Lake Erie, another park with somewhat similar attractions has been established, and others will doubtless follow. The Dominion Government, too, has most wisely taken advantage of the surpassing beauties of the Rocky Mountains scenery to establish a great national park at Banff. Apart from the natural attractions of this park it is rapidly becoming a popular sanitary resort because of the curative qualities of the baths there. All these parks have been established with the cordial endorsement of both political parties for each side of the House vied with the other in giving authority for the necessary legislation and expenditure.

But while our public park system is so far satisfactory, why not extend it still farther? The parks already mentioned are perhaps chiefly for the pleasure seeker, the tourist, the fisherman or hunter—in a word for those who, in a sense, least need the recreation and enjoyment which they may afford. Why not extend the system so as to include in their enjoyment and advantages all classes of the community? So as to make it possible for the poorest and the humblest citizen of the land to enjoy the free pure air and all the attractions that a pretty park affords? This is the question and the message that I have for the Provincial Horticultural Association. My meaning is briefly this:—Why should not only every city and town, but also every village and township in the province have a public park or parks? Is there one of them that does not offer the natural advantages thereof? And how many of them invite you by their great and transparent attractions to go in and appropriate them for park purposes? Speaking for this county, and in point of picturequeness it lacks the attractions that lake, river and mountain scenery afford, there is not a township, nor indeed a considerable village, where a beautiful park could not be acquired and established at a small cost. There the poorest citizen with his wife and family may go as opportunity offers to enjoy the pure air, the green sward, the shady grove and it may be the sweet song of the birds that are denied to him within the limits of their own humble home. Mothers and children would especially enjoy such a boon and the latter would surely wax stronger and better, and become healthier and happier men and women because of it.

There is much talk current now-a-days of what our country produces and what it manufactures. But its most important product, must always be its people. That they may grow up to be strong, healthy and happy is a first consideration. And whatever we can do to accomplish that is a national gain. Life must be made attractive alike to the

rich and the poor—to those whom Abraham Lincoln was wont to call the common people. If we are to be a contented, happy and prosperous people—a people united in the grand purpose of building up a new enlightened and great nationality on this continent.

Mr. RICE: I fully approve of the paper, and looking at the location of this beautiful city situated as it is among the everlasting hills, I have been thinking our friends might have a very interesting park here. I have often been pointed to a hill near here as being the loftiest in this section of Canada. (Hear, hear.) We always look at that with great admiration—with its rounded, beautiful form, the little patch of woods on one side, and all its associations, overlooking as it does the stream that runs below, and the railroad trains, and all that. Now, why not have the top of that hill made into a beautiful park, planted with your choicest maples that I see growing everywhere in this city, growing as they do only in Vermont and some highly favored countries, and thus have here one of the most beautiful spots on earth?

Mr. HUGGARD: In the last three years we have established three parks in the town of Whitby. The town lies back from the lake about two miles and it is not convenient for the people to get down to the lake for an hour's outing, so we have a four-acre park almost in the centre of the town just outside the business part. (Hear, hear.) A little further on, between two schools where the children want a place to play, we have an acre park; and last spring on the banks of the beautiful Lake Ontario—one of the finest on the world, and a bay that cannot be surpassed—we have twenty-five acres laid out. I hope the suggestions in the paper will be adopted by other towns more fully.

Mr. RACE: We have another American visitor who is the owner of one of the finest private parks in America, and knows how to make a private park; I think the audience would like to hear something from him.

Mr. WATKINS: I would add to the title of the paper so as to have it read: "Public and Private Parks." I believe that no expenditure of time and money is so valuable to the owner of a farm as a nice little park. (Hear, hear.) Every farm should have one, if it is only a quarter of an acre; it would become the loved spot of his life. My park was created from a natural instinct I had to go wild. I was always fond of anything that grew in nature, and I must have them about me. This instinct has led me to all parts of the world to see nature, and I planted my park so that I would be always in touch with nature. More than that, having a family of children I felt that if they were raised in close touch with nature, with the trees and flowers surrounding them, they would go right every time, and if I could have blocked out the course that my children have taken I could not have done any better. They have all gone right, and I believe the contact with my trees and flowers has largely contributed to their welfare. (Applause.) My park covers sixty-five acres, and it has been the work of spare moments during forty years of my life. I have planted almost everything that is indigenous to our country, and have also made it a geological field, gathering stones from all countries and places so that children coming there from schools and cities would have an opportunity to see the structure of the earth. The park is simply for the amusement of myself and family, but about thirty days in every year it is opened, and I furnish teams and ice and service and everything to entertain everybody that comes there. I have induced the Michigan Central Railroad Company to run their trains out, as they say at the price of oil and men, and say nothing about the wear and tear of trains, and bring out children from the cities; and when we get a great many peaches ripe we get a good many children that never ate a peach before, and fill them full—(laughter and applause)—and if you could see them eating a good peach and then another and another you would get your money's worth. (Laughter.) Nearly every field on my farm has a corner that is a little park—a lovely quarter of an acre that has been planted with deciduous trees or evergreen trees, and makes an evergreen spot. My roads are all decorated. At first I made a great error in planting straight roads with trees largely maples. Afterwards I thought better of it and planted alternate trees of different kinds, black walnuts and butternuts and all our deciduous trees, even oaks, and grouping them, and now they are beginning to look beautiful; it is a very great change for the better. (Applause.)

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Mr. SNELGROVE : Have you birds ?

Mr. WATKINS : I have them in fine numbers, and they never trouble the fruit at all except the sparrow ; and I believe I would rather have them than any if there were not any other birds. (Laughter.)

Mr. SMITH : Mr. Watkins did not state the size of his farm. It is two thousand acres in one block, with something besides, so there is a chance for making parks.

Mr. WATKINS : I don't wish to lead you astray ; I am a genuine farmer, and what I don't know about farming you can leave out. (Laughter.)

Mr. MCNEILL : It is a pleasant thing to hear this testimony of a good American friend coming over here and showing us how to do these things. (Hear, hear.) In some of the large English parks they do something of the same style, but I don't believe they do it with the overflowing generosity of our American cousins.

Mr. WATKINS : I have spent many a happy day in old England, and I have yet to meet a people that I was so at home with and who gave me so much pleasure as the people of merry England—(applause)—and I would say their hearty style of doing business hits me exactly. When I got tired of travelling about Europe I went to England to rest. (Hear, hear and applause.)

The SECRETARY : The Waterloo Society has been doing something in the way of a park in their town, and I am sure we would be glad to hear from Mr. Lockie, the President.

Mr. LOCKIE : I am afraid the Secretary gave our Society credit for more than it deserves. The park was originated four or five years ago. In pursuance of the Act that was passed by the Ontario Legislature allowing municipalities to borrow money for park purposes, our town very wisely bought a nice piece of land near the town with a very fine sheet of water on it, a beautiful spot with large trees about it, and laid it out for park purposes. It has been a great source of pleasure to the town, and even of profit, for people come from other municipalities to have picnics and excursions in order to enjoy our park. Last year our Society bought flowers and helped in this way to make the park beautiful and pleasant. We hope that it gave the park commissioners an idea that they will continually enlarge upon. (Hear, hear and applause.) I hope when the Fruit Growers' Association comes to Waterloo to hold their annual meeting they will see and enjoy our park. (Hear, hear and applause.)

Mr. CASTON : I think hunting is prohibited in the Algonquin Park, although Mr. Pattullo spoke of it as the huntsman's paradise ; and I trust that noblest and most graceful animal that ever ran the Canadian woods—the red deer—will be preserved from total extinction. (Hear, hear.)

THE CULTIVATION AND MANAGEMENT OF HOUSE PLANTS.

Mr. SCARFF read the following paper :

The cultivation of flowers is an occupation that improves alike the body, mind and heart. It is an almost certain indication of purity and refinement. We can afford to cultivate and study flowers, if for no other reason than their cheerful surrounding. Many do without flowers because they think they cost too much time and trouble, but all things worth having cost considerable and anything worth having is worth working for. Oftentimes the partial success, or, in many instances, total failure, in the cultivation of flowers is due to the fact that we try to do too much. No one should have more plants than one can fairly manage or take care of ; too often do we see many plants crowded together in a poorly lighted window, compelling each plant to take on a form never intended by nature, and foliage quite different from that desired by the owner. One of the chief requisites in the management of house plants is plenty of sunshine, next an atmosphere neither too dry nor close, and a uniform temperature, lower during the night than during the day. As the days become longer

and brighter, more room between the plants must be given; for nothing detracts more from the appearance of plants than standing too close when growing rapidly. More careful attention should also be given to proper ventilation on all suitable occasions. This is absolutely necessary to the health of plants.

The Soil. With regard to the soil best adapted for pot culture: Soil for pot plants should always be carefully prepared. For this there is no better foundation than well-decayed turf that is full of root fibres. Many plants would need nothing more; strong feeders should have manure added. Perhaps the soil that will best suit the majority is two parts decayed turf to one part of well rotted manure and one part sand, which will make a soil that will not bake.

Watering. Rain water is better than spring or well water. Hard water may be greatly improved by adding a drop or two of ammonia, or a little soda, a small piece about the size of a pea to every gallon of water used. Morning is the best time to give water, and evening next. Never water house plants when the sun is shining brightly on them. The supply of water must be regulated according to the demands of the plants. Apply when needed, but never in excess. The condition of plants and soil is the best guide. Never give water when the soil is moist to the touch. The leaves of all large-leaved plants should be thoroughly sponged off at least once a week with tepid water. This tends to keep the plants in health and free from dust. Nearly all plants require more water when in bloom than at any other time, more in a warm temperature than in a cold, and more when in a state of active growth than when at rest. Plants in open rooms usually require water once a day and some demand it twice. Drainage in the pots must always be attended to, as stagnant water at the roots will result in diseased plants and impoverished flowers.

Gas. Its use for illuminating is a drawback to plant culture in the same rooms. Plants are better off for being in rooms that are never lighted much artificially. If the plants can at night be cut off by partitions, or moved to unlighted rooms, it should be done. If not, harm may largely be prevented by covering them with paper covers while the gas is lighted.

General Management. Pay strict attention to airing, give air when opportunity offers; try to secure a uniform temperature without draught. All the light obtainable at this dark season is needed. Roll up the curtains clear to the top during the day. Give extra protection to plants during severe cold nights. Plants coming direct from the florist's often fail when set in a window at this time of the year, because the tender greenhouse plants are not used to the exposure in the much colder window. Be sure to get plants that are thoroughly hardened, and to warm the rooms where such plants are in the window sufficiently to carry them over this change in a gradual way. Be sure to give all plants in the window the space they require. Crowding is in no case desirable. For the better protection of plants near the window in severe cold nights, the plants may be taken from the window, placed upon the table in the centre of the room and covered with paper.

I have frequently been asked the cause of plants dropping the leaves. Whenever this occurs, we may be sure the health of the plant is impaired in some way. The plants may have been kept too warm or too cold, given too much water or not enough of it; they may have been injured by crowding or with strong stimulants, or allowed to become pot bound. The first thing to be done is to make a thorough examination. Knock the plant out of the pot and see if the soil is too dry or too wet, or whether the feeding roots are destroyed.

Injudicious watering or applications of strong liquid manure may result in the death of the plant. Re-potting in light and rich, rather dry soil, especially if a new or freshly cleaned pot is used, will give relief in most cases. The pot need not be larger than to give about an inch of soil around the ball of the roots, put it into a half-shady place, water enough to settle the soil around the roots, and give no more water until new, vigorous growth commences; the soil should be kept moist all through, but never wet for any length of time. Never use pots of a larger size than is absolutely necessary, and plunging them in cool ashes encourages root formation. One may readily enjoy a

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succession of flowers all winter long by forcing a few at a time and replenishing as the bloom fades away. Hardy plants of every description dislike strong heat, preferring a cool, moist atmosphere, with plenty of air in mild weather and free access to the sun's rays.

For window culture, the plants should be started either in a cool greenhouse or sunny window in the domestic apartments, whence they may be removed to the living room as the bloom begins to appear. Give plants as much light as possible during the day, and darkness, with a lower temperature, at night. A uniform temperature of sixty to seventy degrees in the day time and forty to forty-five degrees at night will give the best results. Turning the plants towards the light should not be done unless done regularly.

Besides light, house plants require a good supply of fresh air. Ventilation is absolutely necessary.

Mr. HALL: What is the necessity for draining in new pots, or washing the leaves, or taking them from the window?

Mr. SCARFF: A great many persons are in the habit of giving too much water and thus drowning the plant out, hence the need of proper drainage. Washing the leaves is a great protection to those plants that have been raised in ordinary houses, where a certain amount of dust will always accumulate on the plants. I find it makes them much more healthy, and improves them very much.

Mr. GROFF: Gasoline does not affect the plants injuriously; I light my window with it entirely. Pots over four inches in diameter should be drained. The question of water is a vexed one among amateurs. The experience of the late Peter Henderson was that there was no difference between using hard or soft water as far as its effect was concerned. My own greenhouses and beds are all watered with hard water all the year round, and I am satisfied with the result; I obtain it from springs, being furnished by hydraulic rams.

Mr. HALL: You must remember that Mr. Peter Henderson did not grow his plants in the house.

Mr. GROFF: Of course a great deal depends on the soil.

Mr. LOCKIE: Does Mr. Groff use perfectly cold water in the conservatory?

Mr. GROFF: In a small house with the thermometer ten degrees below zero I have broken the ice and taken it in with the ice rattling in the cans and watered the plants of the house all winter with it. The temperature of the water would never be under forty degrees while the temperature of the house would be sixty at the time of watering. For a short time a portion of the soil in the pot might be reduced to the mean temperature of about fifty degrees which could not be injurious, and that would only be for a short time. I practised that for some years without an injurious effect.

Mr. W. E. SAUNDERS: The presence of lime makes the difference between hard and soft water. Lime being added to many soils is a great advantage; yet I would not recommend hard water as preferable to soft. The Creator waters his plants with soft water. (Hear hear.) I don't know that we could do much worse than follow his example. Suppose I forget to water a plant, and at eleven o'clock I notice it wilting, does Mr. Scarff mean that we should not water that plant while the sun is shining? It has five or six hours of sun yet to resist without water. It seems to me that refraining from watering plants when the sun is on them is like refraining from drinking when you are thirsty. If you are thirsty then take a drink. (Laughter.)

Mr. GROFF: I think Mr. Scarff's idea was that it should not be left until it required watering when the sun was shining. (Laughter.) I think the water that is gathered at the roots of plants may be considered hard water. During the early part of the past season we had no rain; all the moisture plants received was from this cold spring bottom, spring water certainly, and the result was most satisfactory.

Prof. ORAIG: Each gardener at the Experimental Farm follows with very great advantage the plan of using nitrate of soda just about the time the plants are coming into flower.

Mr. HALL: You will get the ladies to kill the plants if you give them that secret; they will give them too much. (Laughter.)

Prof. CRAIG: Dissolve one ounce of nitrate of soda in three gallons of water and use it about twice a week, and you will very readily notice the increased vigor of the plant and the luxuriant foliage you will have on them. It is one of the best tonics for geranium, than which I don't know any house plant better suited for cultivation and that will stand more abuse and give more flowers; I don't think that the geranium is appreciated sufficiently by our flower-loving public and by the ladies.

Mr. GROFF: The whole question of watering may be summed up in this: The man who knows how to water knows it all, because on watering too much or too little the whole success of the plant depends. Over-watering will kill just as much as under-watering.

The SECRETARY: Mr. Saunders has a very large collection of house plants; I think we would like to hear something more from him.

Mr. SAUNDERS: I think it is better to use water in winter that does not produce a sudden change. I have been using city water in my conservatory; it comes to us at a temperature of about fifty-five, or fifty and I have attributed to the temperature of the water the fact that the plants have not come on as I thought they should, and I am about now to introduce a mixture of hot and cold until I get a medium temperature. I have been thinking that for spraying plants perhaps too warm water can hardly be used provided it is put on with a fine spray. Passing through the air it must lose almost if not quite all its superfluous heat, and reach the plants just in a gentle medium temperature which we might liken to that which the rain has on a warm spring morning.

Mr. DUNN, (Woodstock): Would it not be a good idea to take the flowers in the shed and water them there, if they suffer from the sun's rays.

Mr. GROFF: It has been claimed by the best experts that nothing is to be gained by warming the water, and that there is no necessity of doing it, or of watering with soft water, unless it is as convenient as hard.

Mr. LOCKIE: I erected a small greenhouse last fall, and put up a tank pretty well elevated, and leave the water in there until it becomes the same temperature as the house, and I think that succeeds very well.

GARDEN AND HOUSE PLANTS.

The PRESIDENT: Our next subject on the programme will give hints on growing garden and house plants by Mr. Fred Mitchell.

Mr. FRED MITCHELL of Innerkip, before reading his paper said: As an amateur and a professional I have had a life-long acquaintance with the subject under discussion, but I long ago discarded the custom of placing broken potsherds in the bottom of the pot for drainage, I found that if the earth was not of a fibrous nature there soon would be no drainage at all, that earth, when it is watered heavily will fill all the crevices in the pieces of pot which you place in the bottom. The drainage I use is the fibrous roots which I sift from my compost heap—a portion of the roots of the sod. These I place in the bottom of the pot, and I find it is the best drainage I can get. As it decays, if it does not become more open, it counteracts the washing down of the earth, and in pots with that drainage enough of the drainage remains till the plant is to be potted again no matter if that may be a year. I agree with Mr. Groff that one of the most important things in successful plant raising is correct watering. It is one thing which I have never had yet and I have as good men and boys in my employ as anyone has, but I have never been fortunate enough to secure one that fully understood watering plants. Anyone who has the knowledge naturally to define the amount of water that a plant needs will

generally be a water, the only low I was can perature is high was overly high have known p them. I have frost some portions of the cant and ran while the plan give you this a follows:

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generally be a successful plant grower in any part of this world. As to temperature of water, the only heed I have taken was that if the temperature of my house was already low I was careful not to use cold water and make the temperature still lower; if the temperature is high I have never been particular if the water was cold; if the temperature was overly high I considered it might even do good in a measure by counteracting it. I have known people when their plants would be frozen in the open air to put water on them. I have advised them constantly against this. This year, at the time of the severe frost some parties determined to prove whether I was correct or not, and they watered portions of their plants and left others unwatered; some sprinkled water even on black currant and raspberry bushes and they turned white as if a fire had passed over them, while the plants that had been left unwatered recovered their usual color. I shall just give you this advice, never water a frozen plant. Mr. Mitchell, then read his paper as follows:

As I noticed sometimes plants subjected to unnatural treatment, or placed in situations uncongenial to them, and where, perhaps, some other plant would give to the grower a far larger measure of satisfaction, I thought possibly such advice as I could give on these heads regarding some of our commoner plants might be more useful than the somewhat uncertain information I could give relating to newly introduced plants.

There are also general questions which I am frequently asked as to the reasons for failure, and the way to success in plant growing, answers to some of which I will endeavor to include.

I will commence with the GERANIUM, perhaps the best-known flowering plant of all. There is very little advice to give regarding it. A larger general measure of success is attained with it than with any other flowering plant. It is not exacting in situation or treatment. One of the very few mistakes made with it in open air planting is that some persons thoughtlessly use too many varieties. In prominent situations, where planted for display, this spoils the effect. One variety in a bed produces the most striking effect. For this purpose no other variety yet introduced equals the well-known *Heteranthe*, or, as it is often called, "*Double General Grant*." *Bruant* is a much recommended variety of the same type and of nearly the same color. I find it to be not of nearly so good a constitution. *S. A. Nutt* is the best very dark-flowered variety for the garden. White and light-flowered varieties are never a perfect success in the open air. *Mrs. E. G. Hill* is one of the best salmon-colored varieties for the garden. There are very many varieties equally useful for pot culture.

There is perhaps no other plant of which so many are yearly bought and with which so small a measure of success is attained as the large-flowered FUCHSIA. The fuchsia is not exacting in the matter of soil or even in the amount of water it receives, but it is imperative that the temperature should not vary excessively and particularly that it should not run extremely high. As a spring and summer flowering plant for a cool conservatory it is very useful. I have attained the highest degree of perfection with these large-flowered fuchsias by placing the plants when commencing to bloom far from the glass on a low bench or on the ground itself, where the temperature is moderately low and even. In such a situation these plants are very beautiful. The variety known as *Storm King* is the most easily managed of all the large-flowered fuchsias. The smaller-flowered varieties, which have been less improved from their original species, are many of them plants of easy management.

The large-flowered *Cannas*, of which so much was expected and promised when they came out a few years ago, have not been universally satisfactory. Failure, I notice, is generally due to planting in shaded situations or insufficiency of water during dry terms. *Cannas* require an open sunny situation and plenty of water artificially applied in the absence of rain.

The plant known as *Caladium esculentum* requires the same treatment and situation as the *Canna*.

A plant which used to be a common garden plant, and which, when I was a boy, I used to see a striking object in the garden plots of that day is *Monarda didyma*. It is

very showy when in flower, and remains in bloom a long time. It is an excellent plant for the background of a lawn or among trees skirting a driveway. It is one of the very few plants which will flourish under the shade of trees. It is a native plant and is generally found on cool moist banks in partial shade. It is becoming rather rare.

One of the very best summer conservatory plants, and perhaps the least understood, is the *Tuberous Begonia*. In its variety of form and color it is a brilliant display in itself throughout the whole summer. The greatest and brightest display can be secured by it alone if properly managed. Like the fuchsia, a rather low and even, summer temperature is necessary to the most perfect results.

The glass should be whitened or shaded in some way as soon as hot, bright weather may be expected. As for most fine rooted plants an open porous soil is the best, but success may be attained with it in soils quite different from this, if the temperature is kept right. The bulbs can easily and safely be kept through the dormant season in any cool cellar. Some would-be authorities tell us the temperature should never go below fifty in the place in which the bulbs are stored. There is nothing in this; a low temperature is in no way injurious, if it does not go below the freezing point.

Enquiries are often made of florists for plants which will withstand the effects of coal gas. I may say, as I have often said, that there is no plant to which coal gas is not, more or less, injurious. Plants with hard coriaceous leaves do not so quickly show the effects of it. Neither do plants, which remain inactive for a period, show immediate effects of it during the period of their inactivity. But to all plants coal gas is poison, slow or quick, according to their nature or to the condition in which they may be when subjected to it. Plants grown by florists when first removed and subjected to ordinary dwelling-house conditions, will often (even if no coal gas be present) be affected in appearance by the change to greater or less degree. The usual reason for this is that the air in the dwelling is drier than it is in the greenhouse. If the dryness is not extreme the plant will soon accommodate itself to its new conditions. But if the air be so dry as to be of a burnt or kiln-dried nature the plant will never flourish.

Enquires are often made as to the amount of water house plants should receive. A general rule is that water should be sufficiently withheld to allow admittance of air to the roots every two or three days at least. Saucers which are often used in dwelling-houses under the pots should only be used to catch such water as may drain from the pots when watering. The only common plants which will thrive with the saucers constantly filled with water are Sedges and Callas.

There are no hard and fast rules for the management of plants. He or she will be the most successful who makes a study of the general and individual nature and necessities of plant life.

Mr. GROFF: I would like to ask Mr. Mitchell if his reference to tuberous begonias referred to them as house plants, conservatory plants or bedding plants.

Mr. MITCHELL: I referred to them as conservatory plants, but I have experimented with them also as bedding plants, and I have not personally found them altogether successful. I have seen them growing to perfection in the open air with others but they have not done so with myself. They do the best in the open air or in places moderately sheltered, or where they do not receive much wind. It seems as if they cannot abide heavy winds.

Mr. J. CAMERON: Do you recommend putting pots in the sand for the purpose of keeping them damp?

Mr. MITCHELL: It certainly will do them no harm, and I think it might be some benefit. I believe that there is only a small portion of the people here who have seen the tuberous begonia at its best; it is most beautiful indeed, and makes a perfectly grand display. A summer conservatory with nothing in it but tuberous begonias can be made as bright and beautiful as it is possible to make it. (Hear, hear).

Mr. PARKER: Was not the injury that was done to these frozen plants with water done by watering at an improper time? If they were frozen during the night

and you all assist in extending too late of

Mr. MITCHELL: water was prevented spraying, that puts it frozen grass

The PRINCIPAL Horticultural Society

Mr. MITCHELL: their children treat and from inhabitants in cultural societies happy events privileged to know how to your work.

that the town ant streets and would you be men's homes, yards, and even and saw the year felt that we to us the reason busy in our country the reputation not raise the send that statement (Laughter). stock and value Winona, said come from Canada such a beautiful applause). It but don't do gan would be you would be spot would be as this portion you can manufacture much; don't sister. Well, (Laughter.)

Mr. WATSON: State of Illinois "No, I don't do that with that is a very difficult reason I came Agricultural Society men that I have Snells, and a such another person

and you allowed them to get the air too warm it seems to me the water might assist in extracting the frost from them, but if it was done a little too soon or a little too late of course it would be a serious injury.

Mr. MITCHELL: I think it would not possibly injure the plants so much if the water was put on in the way we have been told to-day was the proper way of spraying, that is, to fall in a light spray; but anything in contact with the plant that puts it in motion when it is frozen is sure to injure it. If any animal step on frozen grass it will leave a dead spot.

The PRESIDENT: We have with us two delegates representing the Michigan Horticultural Society, who will convey to us fraternal greetings from their Society.

Mr. RICE: Many people in Canada know of our state because it is the home of their children and friends. The State of Michigan would reach from Sarnia to Montreal and from Port Huron to Lake Ontario. We have more than one-half as many inhabitants in Michigan as you have in all Canada from ocean to ocean. It is the horticultural society of this grand state which sends you greetings to-night. Among the happy events of my life that I love to look back upon are the times when I have been privileged to meet with the bright men of this Association in the past. I think you know how to use people well, and you have such a studious disposition in studying all your work. Before I came to Woodstock I was told by a party who used to live here that the town was a long way behind the times; but when I looked around your pleasant streets and homes to-day and visited your active workshops I asked myself, where would you be if you were up to the times? (Laughter.) I looked around for poor men's homes, but found pleasant cottages surrounded apparently with comforts, pleasant yards, and everything looking neat and tasty. When we went over to your College and saw the young men there learning habits of industry as well as habits of thought, I felt that we would soon reap the advantage from this; and why? Because Canada is to us the reservoir from which we draw our young people. (Laughter.) We are too busy in our country to raise up large families of children, but here in Canada you have the reputation of raising the finest hogs, sheep, cattle and horses in the world; and why not raise the finest stock of the other animals? (Laughter.) Now if you are going to send that stock over to us, don't send scrub stuff; we have had enough of it. (Laughter.) My daughter after passing through this beautiful country around Woodstock and valleys around London and the Grand River, and those vineyards down about Winona, said to me: "Papa, I see now why it is that only the meaner class of people come from Canada to our country." I asked, "Why?" and she answered, "They have such a beautiful country that none but a mean man would leave it." (Laughter and applause.) It is often hinted that you would like to become part of the United States; but don't do it. (Hear, hear; and a voice, "Don't be afraid.") We know Michigan would be so eclipsed that we would have to sell right out and move down here, and you would become the greatest and grandest and most glorious spot on earth; no other spot would be so beautiful, so thickly inhabited, so filled with the industries of all sorts as this portion of God's footstool. No other portion is supplied with such water powers; you can manufacture for all the earth. Now just stay as you are; don't rival us too much; don't get too big. (Laughter.) Canada is often represented as our younger sister. Well, we are proud of her; she is a nice, spruce girl, and a pretty lassie. (Laughter.)

Mr. WATKINS: When our President at our last meeting asked me to go to the State of Illinois as a delegate I said no; then he said, "Go down to Indiana," I said, "No, I don't feel like it;" but when he asked me to come over to Ontario, I said I would do that with the greatest pleasure. (Applause.) Some of you might wonder why. It is a very difficult route—I have to come four or five railways to get here. But the reason I came was that three or four years ago I had the happiness to be a guest of your Agricultural Society, and if I ever had a happy time it was then. I met a great many men that I have been very glad to have known—Frederick Stone, of Guelph, and the Snells, and a lot of people that were a delight, and I knew that I should come to just such another place here, and I did. I am happy to be with you to hear your bold and

careful and crystallized way of talking of subjects that you take up. You know that you have the future horticulture in your hands. There has been an allusion to annexation. I don't believe the people of the United States entertain the least idea of it. Not that they would not get the best people on earth, but we have had a bitter experience in our civil war in trying to hold down an immense territory. It would be a poetic thing to see this continent all governed by one people, but I think in the nature of things it would be impossible for any one government to hold so many classifications and environments and soil and conditions in one people. People are jealous, and politicians are tricky, and it would make trouble, and it would cause wars and bloodshed, and injure all parties. The best thing for us is a genuine, square, honest, fair, fraternal reciprocity. (Hear, hear, and applause.)

The meeting, which had been enlivened by several musical selections, closed with the national anthem at 10.30 p.m.

THIRD DAY—MORNING SESSION.

The Convention resumed at 10 a.m.

On request of the President, Mr. McNeill read the report of the Nominating Committee.

THE OFFICERS FOR 1896.

President, M. Pettit, Winona, *Vice-President*, W. E. Wellington, Toronto; *Secretary, Treasurer and Editor*, Linus Woolverton, Grimsby; *Directors*: W. S. Turner, Cornwall; R. B. Whyte, Ottawa; George Nicol, Catarqui; Wellington Boulter, Picton; Thos. Beall, Lindsay; R. L. Huggard, Whitby; W. M. Orr, Fruitland; A. M. Smith, St. Catharines; J. S. Scarff, Woodstock; John Stewart, Benmiller; T. H. Race, Mitchell; Alexander McNeill, Windsor; G. C. Caston, Craighurst. *Auditors*: A. H. Pettit, Grimsby; George Fisher, Burlington. *Representatives* on the Board of Control of the Ontario Fruit Experiment Stations: Messrs. W. E. Wellington, A. H. Pettit and A. M. Smith.

The Report of the Nominating Committee was adopted as a whole.

The PRESIDENT: I thank you for the honor you have done me in electing me for a second term, and I only ask for a continuance of the kind assistance and consideration I have received at your hands during the past year. I assure you that I shall do all in my power to forward the great industry that we have here represented. (Applause).

REPORTS OF EXPERIMENT STATION BOARD.

The SECRETARY: The operations of the experimental stations are so extensive, and the report is so bulky and so much in detail, that it would exhaust all the patience of the members to hear it read.

Mr. A. H. PETTIT: As this report is so bulky and will be published in our annual report, I would suggest that we pass it over, as we have so much to be done at this session.

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TREASURER'S REPORT FOR THE YEAR 1894-5.

| RECEIPTS. | | EXPENDITURES. | |
|--|------------|--|------------|
| Balance on hand Dec. 1, 1894..... | \$ c. | <i>Canadian Horticulturist</i> | \$ c. |
| Members' fees | 140 87 | Salary Secretary-Editor and assistant..... | 1,666 95 |
| Government grant..... | 2,477 47 | Cromo lithographs | 1,200 00 |
| Advertisements..... | 1,800 00 | Plant distribution..... | 272 00 |
| Binding and bound volumes | 243 62 | Directors' expenses..... | 262 24 |
| Back numbers, etc | 34 47 | Commission..... | 238 98 |
| | 11 02 | Affiliated societies..... | 231 78 |
| | | Postage and telegrams..... | 191 52 |
| | | Express and duty | 152 23 |
| | | Printing and stationery | 113 14 |
| | | Stenographer | 105 91 |
| | | Illustrations | 80 00 |
| | | Committees | 57 20 |
| | | Binding of volumes | 54 85 |
| | | Advertising..... | 34 69 |
| | | Discount..... | 24 36 |
| | | Petty cash..... | 19 98 |
| Amount due Treasurer Dec. 1, 1895..... | 0 38 | | 2 00 |
| | \$4,707 83 | | \$4,707 83 |

We, your auditors, have carefully examined the books and vouchers of the Treasurer and find them to agree, and that they are most neatly and correctly kept.

A. H. PETTIT, }
GEO. E. FISHER, } Auditors.

REPORT OF FINANCE COMMITTEE.

Your Finance Committee, having examined the Treasurer's accounts, have pleasure in testifying that the payments made during the past year were justifiable in the best interests of the Association, and in accordance with the objects for which our Association exists. But, in consideration of the fact that we have overdrawn our account, we would recommend that in future all paid delegations and committees sent out be as small as is consistent with the best interests of our Association.

A. M. SMITH,
W. M. ORR.

On motion of Mr. Pettit, the Auditors' Report was adopted.

REPORT OF SECRETARY, 1895.

The membership of our Association during the past year has considerably increased. Last year the total number of paid members was 2,104, this year it is 2,472. As you will see from the Treasurer's report, the gross receipts from members' fees this year has been \$2,477.47, and the commission allowed on club lists amounted to \$231.78.

This increase has been in a large degree due to the praiseworthy efforts of our director for district No. 5, Mr. Thos. Beall, who, a year ago, laid before us his scheme for enlarging the work of our Association in a paper read at the last annual meeting, and probably no man could be better fitted to do this work than Mr. Beall. He is methodical in his work, and knows how to approach the prominent men in each locality in such

a way as to insure their confidence in his proposals. Through his efforts the following affiliated horticultural societies have been formed :

Niagara Falls South, 100 members ; Woodstock, 94 members ; Lindsay, 90 members ; Paris, 67 members ; Port Colborne, 61 members ; Brampton, 63 members ; Port Hope, 75 members ; Waterloo, 70 members ; Trenton, 60 members ; Napanee, 58 members ; Grimsby, 58 members.

I believe that it is the true way of enlarging the work of our Association, because it means a large number of local organizations in closest sympathy with our work.

You will be interested in knowing what was done in the spring of 1895 in the way of plant distribution. The following is a list of the plants distributed :

| | | |
|--|-------|---------|
| Pearl gooseberry | 1,164 | plants. |
| Green Mountain grape | 336 | " |
| Rosa rubifolia | 381 | " |
| Cotoneaster Vulgaris | 155 | " |
| Gabriel Luizet rose | 99 | " |
| Sarah raspberry | 88 | " |
| Douglas Fir | 65 | " |
| Pinus Ponderosa | 57 | " |
| Strawberries (sets of four plants) | 18 | " |
| Smith's Giant raspberry..... | 3 | " |

These were wrapped with more care than usual with damp moss in oiled paper and an outside wrapper of heavy paper. They were mailed as fast as ready, the last being mailed on the 11th of May. It would appear that this distribution has given more than usual satisfaction, nothing but words of appreciation and satisfaction being received from subscribers. I have taken unusual care to have everybody pleased, because in time past there has been a good deal of complaint. In cases where no plant has been chosen by the subscribers I have sent them such plants as I thought would be acceptable. Our special thanks are due to Professor Wm. Saunders, Director of the Central Experimental Farm, Ottawa, to whom we are indebted for a large proportion of the stock sent out.

It is a question for us to consider in the near future, if not at this meeting, in what manner we shall continue the plant distribution. It is experimental work of a slow kind. The reports are scantily made and the chief good of work consists in scattering far and wide valuable new varieties of fruits or flowering plants. I would suggest that the experimental part of this work be entirely given over to the Board of Control of the Ontario experiment stations, and that only such stock be distributed among our members as from time to time is proved to be of value, either by our own stations or by the Dominion experimental farms, or as may for other reasons be considered worthy of distribution.

The printing of the journal is still done by Messrs. Dudley & Burns, of Toronto, and the average expense, including engravings, has been \$125 per month, not including colored plates. The work is well and faithfully done, though occasionally behind in publication. Sometimes this is my fault, and sometimes it is the fault of the printers, but I assure you I am trying my best to have it issued as soon as possible after the first day of each month.

The colored plates have been continued in most issues of 1895. I find a certain class of subscribers highly appreciate them, and I think it would be a great mistake to wholly discontinue them ; still, with your approval, I propose in future to increase the number of engravings and lessen the number of colored plates, unless such lithographs can be secured as will more truly represent the actual size and coloring of our fruits than some of these which have appeared in the past. If our funds would permit, I would suggest the making of some original colored plates from nature, giving the true size and color of the fruits as grown in Canada. These would prove of value, and would add much to the high standing of our journal and of our reports in foreign countries. As an

example of the plates, true to published in

With all We need more The dairymen to it as they needs additional societies.

I would culture on this tioned.

This report

D. W. B. verbal report. this year has who had sent and I have re detailed in the

Letters w fruits which h in large measu forced vegetati with our requ

Notes we with presented

From Mr. seed of the Ra years. These chairman, whi without any t whether the fr shortly after le Craig and that this delay note dated Septemb

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example of the good work that might be done in this line, I would refer you to the fine plates, true to nature, which illustrate the "Bulletin of Agriculture and Floriculture," published in Gand, Belgium.

With all economy, I find it a great difficulty to keep the balance on the right side. We need more money for our work. Our industry is the most important one in Canada. The dairymen have received an addition to their grant, and we are quite as well entitled to it as they are. Our directors should have more than bare expenses; our journal needs additional expense put upon it, and lecturers should be sent out to affiliated societies.

I would suggest that a committee be appointed to interview the Minister of Agriculture on this subject, asking that our grant be increased for the purposes above mentioned.

This report was received and adopted.

REPORT OF NEW FRUIT COMMITTEE.

D. W. BEADLE: The New Fruit Committee are able at this meeting to give you a verbal report. Owing to the frosts the number of seedling fruits and new fruits received this year has been comparatively very few. I took some pains to communicate with all who had sent new fruits to this Association in years past, writing over a hundred letters, and I have received replies from some of them. Anything of any importance will be detailed in the report which I will prepare and send to the Secretary.

Letters were sent to all those who had, previous to 1894, sent samples of seedling fruits which had been favorably mentioned in the reports of this Association, but owing in large measure to the frosts of May subsequent to the very warm weather that had forced vegetation into unusually rapid development, comparatively few were able to comply with our request to be favored again with samples of these fruits.

Notes were carefully made of such as were received, a synopsis of which is herewith presented as follows:

From Mr. J. C. Bull, Weston, Ont., were received samples of apples grown from seed of the Rambo, the trees all of the same age, somewhere between thirty and forty years. These were sent to Mr. Craig, but the letter describing them was sent to the chairman, which stated that the fruit was also mailed to him. After waiting some days without any tidings of the fruit, and not having received any reply to his inquiry whether the fruit had been sent, the chairman sent Mr. Bull's letter to Mr. Craig, and shortly after learned from him and from Mr. Bull that the apples had been sent to Mr. Craig and that he had been waiting to learn whence they came. Owing, probably, to this delay notes were not taken by Mr. Craig of all of the numbers. Those taken are dated September, 1895.

No. 1. Size, medium; form, round, regular; skin, yellow, with faint blush, and interspersed with numerous black dots; stem, large, slender; cavity, broad and smooth; calyx open; basin shallow, wrinkled; flesh, yellowish, juicy, melting, pleasant sub-acid; rather promising. Mr. Bull says No. 1 is smaller than usual, the tree a good bearer, but rather delicate.

No. 2. Mr. Bull says the tree is very productive and hardy, the fruit usually larger than sample sent. No notes by Mr. Craig.

No. 3. Size large; form, roundish conical, regular; skin, greenish yellow with numerous dots; stem, moderately stout; cavity narrow and deep; calyx, open, basin shallow, roughly wrinkled; flesh, white flaky, juicy, quality good, sharp sub-acid; texture, rather tough; decidedly promising; more color wanted. Mr. Bull says fruit fairly represented by sample, tree hardy and productive.

No. 5. Mr. Craig notes it is not as valuable as Nos. 1 and 3; smaller, more conical, with stripes; quality medium. Mr. Bulls says, "a hardy tree, bears very well, but not so heavy as some of the others." He also says No. 4 is very hardy and productive; No. 6 a good bearer and hardy, fruit sweet. But no notes appear to have been taken by Mr. Craig of Nos. 2, 4 and 6.

Seedling apple from W. H. Leef, Orillia, Ont., October 4th, 1895. Description taken from Mr. Craig's notes. Size, medium; form, oblate, somewhat irregular; stem, not mentioned; cavity, broad, moderately deep, russeted; calyx, not noted; basin, shallow, somewhat irregular; flesh, yellow, juicy, mild sub-acid, pleasant, fair quality; season, October and November. Fairly promising. No mention of the tree.

Seedling apples from Watson Griffin, Montreal, October 5th, 1895.

No. 1. Shiawassee Beauty type. Size, large; form, oblate; skin dark crimson. Much overripe, October 10th.

No. 2. Probably Autumn Strawberry or foundling. Exact in taste and appearance. Now over-ripe, October 10th.

No. 3. Like Westfield Seek no Further. Size, medium; form, oblate; skin, dark green interspersed with crimson markings; flesh, juicy, brisk sub-acid; season, midwinter. Promising.

No. 4. Size, large, Alexander type; skin, greasy, overspread with purplish red; flesh, yellowish white, tender, juicy, melting, sub-acid; quality good, much better than Alexander. Worthy of further trial.

Such are Mr. Craig's notes on these apples from Mr. Griffin.

Seedling apples from C. H. Roberts, Paris, Ont.

Harold. Size, medium to small; form, oblate with conical tendency, regular; skin, smooth, glossy, with bloom, dark crimson, with greyish, russet patches near the cavity; stem, short and stout; cavity, broad and moderately deep; calyx, closed; basin, small; flesh, white, firm, somewhat pithy, juicy, but not strikingly so, sub-acid, quality, medium to poor. Season Christmas.

Percy. Small, resembling Longfield in size and appearance, but somewhat tough and woody in texture.

Charlie. A small, crab-like apple of bright, attractive appearance and good quality and a keeper, but too small. Such are Mr. Craig's notes of Mr. Robert's apples.

Seedling apples received from Mr. McD. Allan, Goderich, Ont.

Breckenridge. Mr. Allan says grown by John Breckenridge, Goderich, a great bearer, long keeper, and towards spring of excellent quality. Resembles Northern Spy. Size, medium to large; form, approaching oblong; ribbing, very obscure, sometimes wanting; skin, yellowish green, partly covered with stripes and splashes of red, thick and tough; stem, slender; cavity, deep and broad; calyx, open; basin, shallow, almost wanting; flesh, white, flaky, juicy, sub-acid, with Northern Spy flavor; said to keep all winter. Worth cultivating.

Jordan. Russet type. Size, eight and one-quarter inches in circumference, two and one-half inches long; form, regular, roundish oval; skin, greenish yellow, thinly covered with light russet, with russet more dense in numerous patches and sparsely sprinkled with grey dots; stem, three-quarters of an inch long, moderately stout; cavity varies from broad and shallow to deep, narrow and lipped; calyx, prominent and closed, occasionally open with broad segments; basin, shallow, smooth; flesh, a greenish yellow, fine grained, moderately juicy, breaking, mild sub-acid, rich, pleasant, quality, very good, resembles Pokeepsie Russet in flavor; season, late winter. Deserves attention. Mr. Allan says: This apple is grown by F. Jordan of this town. It is a long keeper and of fine quality when ripe. It will easily keep till June.

Seedling apple from Milton G. Bruner, Olinda, Ont., who suggests for it the name Ella. Size, medium; skin, yellow, striped with red and crimson; flesh, white, melting, moderately juicy, mild sub-acid, quality fair; season November to January.

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Two Seedling apples from Thos. Connolly, Lindsay, both yellow, fairly attractive in appearance, but not good enough to be commended for dissemination. Notes of Bruner's and Connolly's apples by Mr. Craig.

Seedling apples from J. Cuppage, Orillia.

Pioneer, No. 1. Size, medium to small; form, roundish conical; skin, yellowish green, with a ruddy check, and thickly covered with irregular russet dots; flesh, yellowish white, not juicy, mild sub-acid, quality poor; season, early winter.

No. 2. Size, about ten and one-half inches in circumference; form, oblate; skin, mostly covered with light red, abundantly streaked with deeper red and sparsely sprinkled with very minute specks; flesh, yellowish white, almost coarse, juicy, sub-acid, quality poor.

McLeod, No. 3. Size, medium to small; poor in quality; seeming'y a November apple not worth disseminating.

Diamond, No. 4. Size, medium to small; form, oblate; skin, greenish yellow, thinly mottled and splashed with red in the sun; flesh, white, slightly tinged with greenish yellow, coarse, moderately juicy, very mild, sub-acid, not rich but pleasant; quality not good enough to warrant its dissemination.

Kean's Seedling, grown by Rev. Thomas Williamson, Orillia, sent by Mr. G. H. Hale, Orillia. Size, medium, nine inches in circumference and two and one half inches high; form, conic oval, slightly oblique; skin, for most part a purplish red on yellow ground, mottled and splashed with a darker shade, thickly sprinkled with light grey specks, which appear almost white in contrast; stalk, three-quarter inches long; cavity, deep, nearly triangular, slightly lipped; calyx, open, segments long pointed, reflexed; basin, large, of moderate depth, slightly wrinkled; flesh, yellowish white, moderately juicy, flavor without character, quality poor.

Two apples from Franklin Crandall, Lindsay, Ont. Received December 6th.

Red Rock. Tree, a seedling, hardy; fruit, size medium; form, conic oblate; skin, light yellow, overspread with red, splashed with deeper red and sparsely sprinkled with small whitish dots; stalk, very short and stout; cavity, broad, deep, slightly russeted, and irregular in outline; calyx, small, segments short, open; basin, irregularly corrugated, broad, of medium depth; flesh, yellowish white, coarse, juicy, sub-acid, quality not quite good; a good keeper, but apt to rot at the core.

Empress. Tree came up on a spot where a Baldwin was once growing, it is now fifteen years old, has been in bearing ten years, bears every year. In 1894 the crop was three barrels, in 1895 was seven barrels. It is a free grower and extremely hardy. Fruit, above medium, ten inches to ten and one-half inches in circumference; form, oblate, flattened at both ends; skin, greenish yellow, with a solid carmine blush where exposed, splashed with deeper shade and thickly sprinkled with minute dark brown specks margined with green; stalk very short, and stout; cavity, broad; moderate depth, slightly russeted around the base of the stalk; outline irregular, with a slight lip; calyx, open; segments, broad and short; basin, broad and deep, not wrinkled but somewhat irregular and precipitate. Flesh, nearly white, almost fine grain, mild, sub-acid, juicy, pleasant flavor; quality very good; core, small. Mr. Crandall says the fruit is at its best about April when kept in a cool cellar. A very promising variety, worthy of further trial.

Apple from Mr. John Miller, Markham, Ont. December 14th, 1895. Tree forty years old, was growing on the farm when Mr. Miller took possession twenty-eight years ago; is healthy and a regular bearer. Fruit, of medium size; form, roundish oblate; skin, smooth, yellow, red on one side, and splashed all over with bright red; stem, very short, not very stout; cavity, deep, narrow, smooth, lightly russeted; calyx, closed, segments, broad and short; basin, shallow and uneven; flesh, yellowish white, fine grained, juicy, mild, sub-acid, pleasant flavor; quality good; core medium, seeds very plump; season, December and January. An attractive apple, no better than others of same season now in cultivation, but may prove valuable in some sections on account of the hardiness and productiveness of the tree.

The following descriptions are from notes taken by Mr. Craig. For varying reasons Mr. Craig was not able to forward samples of all of the fruits received by him to the other members of the committee, therefore in such cases the description given is credited to Mr. Craig, from whose notes they are taken.

Seedling apple from A. W. Forfar, Ellesmere, Ont., reported in 1869 by Fruit Growers' Association of Ontario. Fruit, of medium size; form, oblate conical; skin, a clear golden yellow, with a diffused pink blush; stalk, slender; cavity, broad, moderately deep and slightly russeted; calyx, open; basin, shallow and plaited; flesh, white, flaky, moderately juicy, firm, mild sub-acid, with sweetish after taste, flavor pleasant, good to very good, core small; season, September and October. In good eating condition September 24th, 1895.

Seedling apple from Mr. Seth C. Wilson, Whitby, Ont. Fruit, of medium size; form, roundish, ribbed; skin, greenish to yellow with dark dots; stalk, short, one-half to three-quarters of an inch; cavity, deep and smooth; calyx, open; basin, ribbed, small and deep; flesh, white, crisp, juicy, brisk sub-acid, breaking, flavor pleasant; season, August. Resembles in a general way Grimes Golden, with less regularity.

Seedling Plum, from Allen Bros, Winona, Ont., August 9th, 1895.

No. 8. Examined August 24th. Fruit of medium size, form egg-shape, skin green. Too badly shrivelled to gain an idea of the quality.

Seedling Peaches, from H. A. Bailey, Amherstburg, Ont. Both samples in poor condition. September 20th, 1895.

No. 1. Overripe when received; one of them quite decayed, but apparently of good quality.

No. 2. A clingstone, of fine appearance, but watery and of poor quality.

Scions of the most promising varieties, above noted, have been secured by Mr. Craig, and root-grafts will be available for distribution next spring to the experimental fruit stations.

Committee: { D. W. BEADLE, Toronto,
Chairman;
JOHN CRAIG, Ottawa, Ont.;
A. McD. ALLAN, Goderich.

REPORT OF COMMITTEE ON FRUIT EXHIBIT.

Your committee appointed to examine the fruit exhibit upon the table have to report that they find a very fine display of old and new fruits made by Mr. W. H. Dempsey, of Trenton. Among his new apples worthy of note we observe a medium sized roundish, dark red one, very handsome, somewhat resembling a Spy—a cross between that old variety and Golden Russet. Also another cross between those two varieties, named Walter, previously shown at Peterborough and described in the report of that meeting. In his exhibit are also seen very fine specimens of Hubbartson's Nonesuch, Westfield, Ontario, Newtown Pippin, Lord Burleigh, McIntosh Red, Stark, American Pippin, etc.

Mr. W. S. Turner, of Cornwall, shows a handsome plate of Gideons, and some very fine McIntosh Red, La Rue, Wealthy, Red Bietzheimer, Canada Baldwin, and specimens of a few other older varieties.

Mr. A. M. Smith, St. Catharines, shows the Princess Louise apple, six varieties of pears and well preserved samples of the Niagara and Vergennes grape.

Mr. L. Woolverton, of Grimsby exhibits a very fine sample of Cranberry Pippin, Blenheim Pippin and Princess Louise.

Mr. H. Jones, of Maitland makes an attractive display of ten varieties of apples, among them the Red McIntosh, an extra fine Fameuse, a fair sample of La Rue, Pewau-

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kee, Ben Davis, Wealthy, Longfield, Blue Pearmain, Scott's Winter, and a handsome seedling named Scarlet Pippin. The latter is a handsome, reddish, medium sized and very attractive apple of fair quality.

Another attractive exhibit is one by Prof. Craig, of Ottawa, brought from the Experimental Station in British Columbia. Among this exhibit are large-sized specimens of the Vaudevère, Stark, Mann, Ribston Pippin, Twenty Ounce Pippin, etc. Prof. Craig also shows a number of varieties grown at the Experimental Farm, Ottawa.

Mr. L. B. Rice, of Port Huron, shows a sample of Ben Davis grown in Missouri, which seems to be matured much in advance of the same variety grown here.

Mr. W. Newton, of Woodstock, exhibits some samples from a tree bought for the Newtown Pippin. The samples resemble, slightly, that variety in shape and color, but not at all in quality or season.

Mr. R. L. Huggard, of Whitby, shows a seedling which he claims to be a long keeper, and the tree a regular and heavy bearer. The apple is of medium size, of the Colvert form, but does not appear to have much quality.

T. H. RACE, }
G. NICOL, } Committee

The SECRETARY thought it would be well for Mr. Race to call attention to anything specially worthy, and let the details come in the printed report.

Mr. RACE: the only thing that the committee have to report specially are some of those seedlings shown by Mr. Dempsey. He has shown some very fine results from crosses between the Northern Spy and the Russet. The peculiarity of these apples is that they have the characteristics of the Spy partially; however, they are very fine samples. The next very nice exhibit is shown by Mr. Furner, and some very fine specimens shown from British Columbia. The specimens that were shown from the Experimental Farm at Ottawa we have said very little about. They don't come up at all to the apples produced of a similar variety farther west. Special mention should be made of the apples shown by Mr. Jones from the St. Lawrence district, called the Scarlet Pippin; it is a very handsome apple, medium size, of fair quality. Mr. Jones reports that it is a very salable apple down there, and one very much in demand. We cannot say that it would be an apple that should be very largely cultivated except for its appearance; and as Mr. Dryden represented to us here yesterday afternoon, it is quality that is going to tell in the long run in the British market and every apple market, and that has been my view for a great many years. A little flash and show may take for a time, but this apple has the qualities to recommend it for a long time.

Mr. HUGGARD: I would like to hear the committee's opinion of this seedling I brought from Whitby.

Mr. RACE: There were two or three seedlings placed on the table which we could not say anything about. They are only medium in size, and they are not very well up in quality. There is not one of the seedlings shown that would commend itself very much. We don't think it is advisable to recommend the introduction of any of these new seedlings unless they come quite up to or a little above the varieties now in cultivation. We have some splendid apples now, the old standard apples, and have such a variety of them that we don't care to recommend the increasing of the number of varieties unless we can get a seedling that really comes above them in quality and every other character.

Mr. HUGGARD: The qualities of that seedling does not show itself till March.

Mr. RACE: It is not better than the Mann.

Mr. McNEILL: Will it be more prolific than the Mann?

Mr. HUGGARD: It is a heavy bearer, and quite heavy enough for the tree to carry, and on account of its good keeping quality and its high flavor later on I thought perhaps it would be commended. It has a spreading habit, a very thrifty tree, free from roughness of any kind. I admire it very much in the orchard.

D. W. BEADLE: Would Mr. Huggard have the kindness to send about half a dozen of those apples about the time when they are in order and season for testing, and send a letter giving a full account of the tree, its hardiness, productiveness, and general habit of growth, and all the better if he can tell us something about the soil and average climate in which it is grown. He can send both the apples and letter to Prof. Craig at Ottawa, without charge, under a privilege granted us by the Government, and then Prof. Craig can send them to the other members of the committee and we will all get them without any cost to Mr. Huggard more than the trouble of putting them up and sending them, and the apple will get all the consideration that it deserves and a full report at some subsequent meeting of this Association.

METHODS OF ORIGINATING NEW VARIETIES OF STRAWBERRIES.

The SECRETARY referred to a letter from Rev. E. B. Stevenson of Freeman, who is a specialist in strawberries and who has spent his life in originating new varieties. From him in the future we will hear some interesting things that will be of great value to us in our experimental work. (The Secretary read the following extracts from the letter from Mr. Stevenson):

It seems to be there has been no systematic effort either in Canada or the United States by those who have had the time and means to improve the strawberry. I am very much limited in both respects; but I am in a small way and in a somewhat systematic manner seeking to improve on the varieties we have at the present time.

There are so many points to be looked to and guarded in what we all are looking for, viz., the "*Perfect Strawberry*." It has to be a perfect plant—strong and healthy. This is very important. The perfect plant must be free from rust. Some otherwise good varieties are spoiled by rust. A high system of cultivation, manuring heavily with nitrogen manures, serves to increase the tendency to rust; also certain conditions of the weather, situation of the beds, low lands, etc.

I have found very little rust when beds are situated on highest lands; whereas, beds on grounds seventy-five or one hundred feet below showed considerable rust. I have little confidence in a variety that is easily attacked by rust.

A seedling, a Wilson and Jersey Queen cross, that on elevated ground was quite free from rust, when it came to be removed to a lower situation, rusted so badly as to be of little value. On upland it was one of the most promising seedlings—productive, good size and quality, etc.; in fact, an improved Wilson. I have found that a large per cent. of seedlings of Wilson blood, or rather breeding—whether they are seedlings of the Wilson or seedlings of other varieties with Wilson crosses—are more or less severely affected by the rust. A lot of seedlings from Burr's New Pine, crossed with Wilson, nearly every seedling from this cross gave fruit of superior quality like Burr's N. P., but the plants fairly burned up with rust as soon as plants were through bearing.

Probably 1,000 seedlings grow the Wilson and Wilson crosses were undertaken with the hope to secure a Wilson jr., that should possess all the valuable qualities of the Wilson, (which for so many years caused it to stand at the head as a market berry) with the addition of increased size, improved quality and more vigorous growth. It is, perhaps, needless to say the result was failure. Perhaps the Wilson can be crossed on some pistillate variety and the result prove highly successful. I have decided not to make any more experiments, using the Wilson as a pollenizer.

I may never reach in the way of a seedling a variety which shall be my ideal of a strawberry, but I shall aim for it, and never cease to raise seedlings as long as I have the time and opportunity.

Had I time and opportunity I would cross named varieties with a view of ascertaining which kind and crosses gave the best results. Then I would select this stock, breed

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in and in—seek to develop an inbred strain that would produce its valuable qualities from seed. A staminate variety from such a breeding could be used to cross an outside named kind (pistillate sort,) and the seedlings would possess to an eminent degree the qualities of the male parentage. These seedlings (the pistillate sorts) could be bred back again to the staminate sire or to some other staminate variety of the above inbred strain. I am sure wonderful results would attend some such systematic method of breeding. I have been enough to satisfy me that there are great possibilities in this line of plant breeding.

A man must have means and leisure to carry out such a line of experiments. It is a most fascinating line of study; much more than the mere testing new varieties, most of which are only chance seedlings picked up in fence corners and taken from stumps and stone heaps.

After a few years of such systematic breeding I think we would give much more valuable results. The method I have used in the past is: I take up the plants, place them in six or eight-inch pots—I do this in the spring for seed bearing, in late fall for fruiting—crosses I make under glass so as to control their fertilization. When I have several staminate varieties that I wish to use pollen from, it is needful to keep these staminates in a separate chamber or in some place apart. In fertilizing a staminate with another staminate the stamens have to be removed a couple of days before the flower would naturally open. Then when open apply pollen. There is need to apply the pollen several times in order to ensure a thorough fertilization, and have smooth perfect-shaped berries.

There is pleasure in testing varieties of other men's growing, but there is far more pleasure, a perfect fascination, in raising and fruiting.

"*Pedigree seedlings*" of your own, not that we find a prize in every variety, but we do find such a wonderful variety, size, shape, color, texture, quality, etc., that we are lost in wonder at these new fruit creations.

I have often wished that I could give more time to this sort of experimental work, but I have other demands on my time, but I manage to do something in the line of sought-for improvement with what degree of final success remains to be seen.

REPORT FROM OTTAWA VICINITY.

The SECRETARY introduced a report by Mr. R. B. Whyte of Ottawa, Director for District No. 2 as follows:

As I cannot attend the meeting at Woodstock, I send on the following few brief notes of the condition of the fruit growing industry during the past season in this district.

The season opened very favorably, and if it had not been for the severe frosts in May which ruined the strawberry and gooseberry crops, and seriously injured the others, we would have had one of the greatest fruit yields on record. The previous winter was most favorable, not very cold, plenty of snow, and no thaws to uncover the plants and expose them to cold winds. The weather during the summer was a great contrast to that of Western Ontario. Hardly a week passed without copious rains, which, with abundant heat, induced a most luxuriant growth in every thing that escaped injury from frost.

The severe cold in the latter part of May, which was so disastrous all over the country, utterly ruined the strawberry crop in most sections in this district. In some localities there was a fair crop but my experience was that of the great majority of growers, all we got was a few quarts of nubbins, hardly a good berry in the whole plot.

Almost as disastrous was the effects of the low temperature on the gooseberry. For the first time in my twenty years' experience in gooseberry culture, such varieties as Downing, Houghton, etc., usually so prolific, failed to bear a good crop. Out of over

OUR EXPORT TRADE.

Mr. SHUTTLEWORTH: In dealing with the fruit I have always thought that the allied interests of the grower and the handler of the fruit could not be divested of mutual confidence. We cannot very satisfactorily take the place of both buyer and grower. We cannot here as growers act as sellers. Our interests as growers are such that they demand our personal attention; therefore there has to be some intermediary. There has to be a middleman; possibly he is a necessary evil. I probably represent one of those evils. I am here to define my position. I think, on the whole, we have enough honorable men in business who can be trusted to handle the interests of those who produce. I don't say that all men in business are honest, nor do I say that all growers are honest either. My experience extends over twenty years, since the time when, as a boy, I could look into the barrel, almost, I packed apples. I have handled them and watched them from beginning to end, and my experience many times has been bought very dear. I find that we have honest men and dishonest men in both departments. We ought to have mutual confidence if we are going to do business. I don't believe it is practical for our growers to be distributors of their products in the foreign markets, especially because they cannot be here to grow it and there to sell it at the same time; so we have to have an intermediary. The first thing we must understand is what is the consumer's demand. It is no use trying to force upon consumers, who are the buyers of apples, an article they don't want. It is pretty uphill work to give them a good article after they have been running in a rut, particularly the English consumer. He is not very apt to take on new varieties and say he likes them better than those he has had long experience with. If they ask for a Spy grow them a Spy; if they ask for a Ben Davis grow them a Ben Davis. We have made mistakes as growers in that we have tried to put upon the market an article that is not really required. You should understand the whole of the conditions that exist. I believe it has gone out in one of your reports that the Ben Davis is one of the best exporting apples. I say intrinsically the Ben Davis is nowhere, and as soon as the demand for that variety of apple is supplied then the surplus supply will have to be slaughtered. The Ben Davis is almost entirely used for show purposes. It is an apple that is not good enough to rot very easily. (Laughter). I won't say anything about the Missouri or Kansas Ben Davis—I believe that they are better than our Ben Davis; but to recommend the production of an apple which can only be used for show purposes would be a mistake—not that we will feel it so much as those that follow us will. The Spy is a superior apple intrinsically. It may not be so heavy in its yield, and it may not come into production so early, but it is an apple that will command a price and eventually drive all the other apples out of the market—the Pewaukee, for instance, which is not a good apple. We must take into account the fact that in European countries they are producing a better article every year. They are not asleep any more than we are. They are just as cute and just as shrewd and looking as far ahead as we are, and every year they are producing a better article and putting it up in a better shape. Last year we had twenty Frenchmen come over to examine the American packages to know how it was done and see the advantages of it; and they found that out. I believe, this year, they obtained our barrels, or barrels made in the same way, and put their apples upon the market exactly as we put ours upon the market. They are close to the market and they are also growing a good quality of fruit. I don't mean to say that their apples are as good as ours. I believe that we have some varieties of apples that are superior to anything grown in the world. I don't believe that they can produce the like of our Northern Spy anywhere—not in Denmark, where they produce good apples, or in Belgium or in Northern Germany. I have not seen any apples coming equal to our Northern Spys. As an illustration, I would ask if you had two barrels of apples, one a barrel of Ben Davis or Pewaukees and the other a barrel of Spys, and you had a family of boys and let them have free access to these barrels, how long do you suppose your boys would be in finding out which were the best apple? Now, if you think that the English consumer, who is willing to pay a good price for a good article, is not as capable of judging as your boy is, you make a grand mistake. I believe that we can produce the best varieties, and I don't think that we should look for immediate return. I believe we must look

for ultimate returns if we want to keep this trade, which is an important one. We produce more than we can consume ourselves, and our American friends don't want our apples except our Spys, and now and then when they have a failure in a crop of other apples, but they are always asking for Spys, no matter how large their crop is; we all know from experience that the American demand is large for our Spys, and they will pay a good price for them. The Spys are worthy of it, and will, I think, meet a growing demand both there and also in Europe. Spys have not been quoted and sold as high this year as Baldwins in Great Britain, for the reason that most of the Baldwins that have been going forward have been very highly colored. The Baldwin is a better known apple than the Spy amongst the general public there, but the Spy is working its way up to the top and will stand where it deserves to stand, at the top, its intrinsic value being away ahead. The Newton Pippin from the Hudson Valley is the only apple that can compete with it; it is crisp and juicy and holds its flavor longer than any apple that I have seen. I have seen Spys in May and June that were as crisp and juicy as at any other time of the year and when other apples had lost all their flavor. With regard to the grading of apples, I contend, and have all along contended with our exporters of apples, that the proper way to do was to grade them No. 1 and No. 2 and sell them as such, and if they are not No. 1 the man who puts them up should be punished if it is possible to punish him. (Hear, hear). I say we make a mistake in trying to defraud the consuming population of Great Britain; we are only hurting ourselves ultimately as well as doing a wrong. A man who systematically defrauds the consumer over there will find that it does not take him long to wreck himself. They will look with suspicion whenever that man's brand is on the barrel if they have once been cheated, and I don't blame them for doing it. Very often I have been ashamed myself to see a packer with a good reputation destroyed because he has bought indiscriminately, and possibly he may have allowed his own men to put up fruit fraudulently, that is, they are falsely packed. I don't say but what we have plenty of men in the trade that pack honestly, and are getting the best market prices for their fruit. I believe the majority of our exporters agree with me, and will be quite satisfied that the apples should be graded No. 1 and No. 2 and sold as such. There is no need of any other way of going about it at all. Let the apples be sold as No. 1 or No. 2 and they will bring their prices. We have people there who are buyers of No. 2 fruit. The vast consuming population throughout Lancashire and Yorkshire have not the money to spend that people have in other places, and they will take a No. 2 apple and pay what it is worth. If we produce only No. 2 fruit we should expect only No. 2 prices. Now as to packages. Barrels seem to be, as far as I have seen, the only package in which we can ship apples to advantage. Packages have been tried from all points—from Lisbon, from France, from Belgium, from Denmark, and even from Tasmania. I think you will find boxes as a rule too expensive; I don't know what Mr. Woolverton's boxes cost him.

Mr. WOOLVERTON: Twelve dollars a hundred.

Mr. SHUTTLEWORTH: They hold about a bushel, that is thirty-six cents for three bushels, the cost of the barrel; what is the cost of the paper?

Mr. WOOLVERTON: Seven or eight cents a box, perhaps ten.

Mr. SHUTTLEWORTH: That makes it expensive.

Mr. WOOLVERTON: Then there is the expense of wrapping, probably about four cents a box.

Mr. SHUTTLEWORTH: That adds very materially to the expense. I believe myself that if we could keep the quality of our fruit extra superior, that that expense would be compensated by the increase of the price that we might obtain for fruit on the other side. However, if they all go into it, it will have its levelling effect. The barrel seems to me to be the most convenient package to handle fruit in. We have not seen anything that would take its place, taking cost into account. As exporters of fruit we must try, if possible, to reduce the cost of the fruit laid down in consuming markets; that should be one of our principal aims. In packing apples we know that it is necessary to press those apples. A good many of our apples are partially, if not wholly, destroyed by the pressure necessary to keep them in their places, that is in holding them down. The barrel is rolled;

if it is not to be discolored packed tight in itself des pressed end from Nova S up through t this excelsior barrels and t nearly every ketable appe about a quar these put in shrunk or an the fruit in i the apples an I think is re edges, that have yet got the apples do much money, we will be ab heads on, sel when a man get sixpence ling by the tr to be handled ing that they that now, thr doing better gangway and were letting have seen th having a mee interests and could not des that the near him is to get anything that the last five o that they wil expect, becau the route stea expensive to r If anyone ha ask them un put our fruit gone out with than seven. had to go som In regard to would say at the requireme grape that the their food. T peculiar flavor have grapes th

if it is not tight and solid these apples will roll and bruise themselves until they come to be discolored with the rolling that they have had, therefore the barrels must necessarily be packed tightly so that they will hold without any movement at all of the fruit. That in itself destroys or disfigures a large number of apples, particularly adjoining the pressed end of the barrel. We have tried to overcome that. We have tried excelsior from Nova Scotia, and sometimes when the apple was decayed this excelsior got mixed up through the fruit, or sometimes when the fruit sweated, as it will sweat in barrels, this excelsior broke up first when it was dry and brittle and settled down through the barrels and this sweating made it adhere to the apples, and when they were turned out nearly every apple had to be rubbed off before it presented anything like a decent marketable appearance. We tried putting in paper heads, that is, I had some heads made about a quarter of an inch thick from paper pulp. These I got from Maine, and we had these put in barrels so as to prevent the necessity of too heavy pressure, and as the fruit shrunk or any of them decayed the paper itself would gradually press out again and hold the fruit in its place, thereby saving some of that loss which is necessarily entailed when the apples are pressed in without any heads. However, I have not found anything that I think is really practical. Paper boxes, that is, paper pulp boxes made with round edges, that is, pressed in squares, possibly will take the place, but I don't think we have yet got to that point where we can produce a paper box which will enable us to lay the apples down at the least possible expense in the Old Country—the box will cost too much money, something the same as our wooden boxes. We want to get a package which we will be able to sell there for some other purpose if we can. Second-hand barrels with the heads on, sell at about sixpence each, and that in a measure is taken into account when a man is buying the barrels—he knows when he turns out the barrel he can get sixpence for it. Then again, in the shipping of our apples there are faults in handling by the transportation companies. Apples are not handled very often as they ought to be handled. We have fought against them on this side and on the other side, claiming that they have not the right to handle the fruit in the way it was handled. I believe that now, through constant contention and striving with them, our steamship people are doing better than they have ever done before. I have myself stood on the bottom of a gangway and defied them to let the fruit down, so long as I stood there, in the way they were letting them down. They were letting a barrel slide down twenty-five feet, and I have seen them go down with a chuck that would burst the heads right out. After having a meeting of shipowners we have shown them that their interests as well as our interests and those of the producers on this side were intimately connected, and that they could not destroy the fruit in that way without injuring themselves; and we all know that the nearest way to get at a man's care of anything that we have to entrust to him is to get at him through his pocket. (Hear, hear.) He is more apt to respond to anything that is in his interest. I believe the steamship company now feel that, and in the last five or six years our trade has been handled better than ever before, and I believe that they will do anything in reason. That they will give us special space I cannot expect, because our export trade is of such short life that they cannot afford to put upon the route steamers fitted up for our trade. You could not ask them to do that; it is too expensive to run a steamer for three months and lay it up for the other part of the year. If anyone has an interest in steamers he will know how expensive it is and we cannot ask them unreasonable things. I would, however, ask and do ask that they would not put our fruit into a vessel which is unsuitable for carrying fruit. Many steamers have gone out with ten or fifteen thousand barrels of apples that have not capacity for more than seven. I have lost thousands of dollars for that reason, but the fruit was there and had to go some way, for we were afraid of frost at this end and our time was limited. In regard to the hope of putting on the English market our grapes, pears and plums, I would say at present I do not believe we can produce a grape that is going to meet with the requirements of the British public. They want a meaty grape, with less seed, and a grape that they can masticate. They bite their grapes and chew them; they masticate their food. They are not satisfied to swallow pits and pulp all in a lump. There are peculiar flavors about our grapes, so that it seems the taste has to be educated. We have grapes there that come from Lisbon and parts of France which meet the require-

ments of the consuming population there, and I don't think that we are doing right to expect to make a success of our exporting grapes until we can produce an article that they want. I have spent money in trying it. I was prejudiced in favor of our own grapes and wanted to see the trade developed. I didn't ask anyone or the Government to stand by me; I tried it in my own interests. I thought if we could only get them to use our grapes there was money in it; however, I didn't make a success of it. Pears are produced in France and some parts of Belgium and Germany equal to ours; they are close to the market, and except in years like this where the crop is a failure I hardly think that we can hope to open up a very large trade. In tomatoes the sources of supply are widening every year. You may think it is strange, but across from Liverpool, in Cheshire, they are producing as fine tomatoes possibly as we are producing in any part of Canada. I have seen them right there. I will not say that they will produce them every year as good. We do not produce as good tomatoes and peaches here every year. However, in the island of Jersey they are producing as fine tomatoes every year as can be grown under the sun, both in flavor and appearance, and they have been coming into England in large quantities and have sold heretofore as high as sixpence, eightpence and tenpence a pound readily. They are producing larger quantities because it pays them, and the price is receding every year. The tomatoes they are getting from Spain are not as good as those that we grow here, nor are they as good as those grown in France, but they are getting what they call an English seedling, which is a very bright red tomato, and the stem is green. I do not know the names of the different varieties of tomatoes, not being closely connected with the growth, but it is a smooth tomato and perfectly red, and in flavor equal to anything I have ever tasted. I do not want to throw a pail of cold water over any scheme we have for increasing our trade, but I do not think there is much use of spending money upon a business which is not likely to be lucrative. Of course I do not mean to say that you cannot produce grapes that will meet the demand there; I believe you will. I do not mean to say that all you intelligent fruit growers are going to sit down and say that you have accomplished what you have set out to do. I believe you will grow better fruit. I believe we will market and grade it in better shape, and I believe ultimately we may get better grapes there, and possibly will supply the market requirements there. In plums I don't know very much whether it would be possible to expect a large trade there. They are producing in Belgium and Germany large quantities of plums, and the peasantry, i.e., the small fruit farmers, are going more into it year after year. The same in Kent and Essex and Worcester, in England. They are producing larger quantities year after year, and the demand, which is increasing by leaps and bounds there in fruit, is being largely supplied by home production. I think they can grow very good plums there. I have seen just as good plums there as I have seen anywhere, that is where they are grown in the south in Essex and Kent and down through Worcester; they grow them to perfection, I think, there.

The SECRETARY: If they are a very low price here do you not think it might pay to send them over?

Mr. SHUTTLEWORTH: Most of our fruits of that kind are bought for preserving. I will give you an instance of the quantity of fruit that is put up by some of the large firms. We think nothing of selling forty and fifty and sixty tons at a time to Crosse & Blackwell. I have seen us when we have had sixty and eighty tons of plums—and I have sent the whole lot in one day to one man, W. H. Hartley, just outside of Liverpool. He has a capacity of putting up 112 tons of jam a day. He draws his supplies largely from the continent, that is for certain varieties, and the rest he gets in England. They are producing to meet that demand, and we think nothing of taking an order from him of possibly ten or fifteen thousand cases of Salonne oranges. He will bring in a ship to take care of them, and you can understand that they are not behind the times so much as we imagine. They are meeting this demand largely by home production; they are increasing the home products. Germany and the other countries finally, I believe, will be driven out of the British market in a measure, owing to these home productions. They are going into the lowering of freights, that is, discriminating freights. We have, and so have the continental countries, advantages granted by the railway companies of Great

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Britain which have not been granted to the home producers. It is an evil. They see this evil and they are going to remedy it; that means that they are going to send their fruit from the Midland counties to those different points in the same district much cheaper than they have ever done before. Much land that has been under cultivation for grain will go under cultivation for small fruits. I don't think we will ever see them compete with us in apples. France will compete with us in pears, plums and strawberries and berries of all sorts—I think we can do very little with them. Until we can produce a better article in pears I don't think it will be wise for us to spend too much money in our experiments. We have tried it, and it has been a failure. Peaches are grown in France and come over there in very good condition, put up in small packages of about twenty-four—some twelve and some twenty-four—flat boxes. However, I think there is something that we could possibly do something with if we could get our fruit on to the steamer in time. Delaware may drive us out of that; Delaware produces a good peach, and they are close to the seaboard, and can get them on the fast steamers.

The PRESIDENT: What about California shipments of fruit there?

Mr. SHUTTLEWORTH: California fruit comes in after our English is pretty well over, and it meets only a limited demand. I don't believe California fruit will make a success there. I believe they are producing fruit over there which is far superior to California fruit. I believe we produce here a better pear than any California pear I have ever tasted. (Hear, hear.) I believe they are producing to-day in Lisbon a better grape than they produce in California. I have tasted grapes in California; they may be better there than here; but when we put them on the English market in comparison with the Lisbon grape I prefer the latter. Then again they are opening trade with the Cape. My people wanted me to go there two or three years since to look after the English grapes that grow there. They produce an excellent grape, very much in flavor similar to some hothouse grapes of Hamburg particularly. This is a wide subject. I believe I will have your sympathy in the matter of my position so far as defending myself as a shipper. (Hear, hear.) I do not think and never have thought that our interests as shippers and growers are antagonistic. I believe it is necessary that we should have both the confidence of the growers and shippers, and that they should have our confidence. I believe by working in harmony with each other we can make a success of certain lines. I think it is false policy to endeavor to build up a trade which is not likely to assume any proportions.

Mr. PARKER: What about the shipping qualities of the Spy?

Mr. SHUTTLEWORTH: It is one of the best qualities. There is another apple that we do not give enough prominence to, and I think we ought, and that is the Greening. I think in time, when we get better shipping facilities, that we will get the Greening in better shape on the English market than ever before. The apples will not scald. Our Greenings from Canada keep very much better. You must remember that those quotations given by Mr. Woolverton are New York barrels, or pony barrels, as they are called. Our barrels are full barrels, and we try to get our American friends over there to use full barrels and have a uniformity of package. I think that ought to be striven for all through. It is not only better for the growers of apples, who know what they are selling, but for the buyer, who knows what he is buying. They are more easily tempted, I might say, to buy a package that they know something about than a package they don't know anything about. It seems a small thing, but when you come to sell it, it is a very important thing. It is a very difficult thing for me to explain to a man that a package is a square package, but it holds the same as a barrel.

The SECRETARY: Do you know what the legal capacity of a barrel is?

Mr. SHUTTLEWORTH: I think it is three bushels.

The SECRETARY: I don't think it is so much; it measures twenty-seven from chime to chime.

The SECRETARY: I want to introduce a little resolution which will, perhaps, shape the debate, or at least bring to a focus one point in the discussion. I am very glad to hear this admirable address from my friend, Mr. Shuttleworth. We had an idea, some of us, that there was a little friction of feeling between apple buyers and apple growers,

but I do not think that in anything we have heard this morning there is anything to cause friction at all. We find that to a great extent our interests are one. The point I wish to make is with regard to the amending of the Act that was passed by the Department of Agriculture last spring, which left out altogether the regulating of grades. Now Mr. Shuttleworth has told us this morning that he, as representing the buyer and shipper, would like to have these grades attended to and observed, and we as growers feel that it is a very important point also; so I would like to move:

"That this Association believe it to be desirable that an amendment be made to the Act for the Prevention of Fraud in the Sale of Fruit, providing for the definition of grade 1 and grade 2, in order to facilitate trade."

Mr. McNEILL: I will second the motion, and would like to make a remark in relation to this address we have just listened to—one of the most valuable we have had during the sessions here, and well worth staying another day to listen to. (Hear, hear). I would also ask that we qualify any remarks that may have been made—remarks that must receive great weight when they are within our line of business, but should not have the same weight when we touch lines with which we are not perfectly familiar. I wish to make one correction. After studying the matter for years I state as my deliberate opinion that if the fruit trade in this country were regulated in varieties by the opinion of fruit experts, the trade would be nothing. Take for instance the Concord grape. When I was about setting out my orchard I had the opinion of a director of this Institute, and when I mentioned the Concord he said, "Yes a few Concords might go in!" Why, if it were not for the Concord grape I would not be in the grape trade. The grape industry in this country would shrink seventy-five per cent if the Concord grape were taken out of it, and yet the expert would hardly recommend me to plant so poor a variety of grape. The same with plums. What is the mainstay of the plum trade in this country? The Lombard, one of the poorest plums. So with apples. If we were confined to the Northern Spy the people of this country would have no orchards at all for commercial purposes. We may as well recognise that; and do not let it go out among the people who have not too much money to spend that it is the opinion of this Association that they should plant the Northern Spy. I grant it is a fine apple, and if I had my family in the position in which I wanted them I would give them the Northern Spy and nothing else if they wanted it; but it is almost impossible to grow Northern Spy apples in sufficient quantity to make it a successful commercial venture. There are two elements: The quality and the commercial backing. Let us be particular that these varieties that we recommend are those that can be grown in a commercial orchard for commercial purposes and for a long series.

Mr. PETTIT: The Legislature has regulated that question, I think, to the satisfaction of the fruit growers of this country as nearly as can be done. What a first-class barrel shall contain is specified in the Dominion Act and that was passed with a view of shipments to foreign countries. In the local Act it is required that the face of an apple package shall fairly represent its contents. I do think that to go and hedge about the fruit growers in this country along the lines of specifying distinctly what they should do is putting simply a block in their way and hindering the good work that we want to encourage in this country. (Hear, hear). I believe that as far as our shipments to the Old Country go we should try and work strictly under the Act for that purpose, and if possible raise the standard of quality and packing and condition of the Canadian apples in the British market to the highest point that it is possible for us to do. I question whether it will ever pay us to ship second-class stuff to the British market. I want to reply to Mr. Shuttleworth; he has taken the stand as one representing the views of apple buyers and handlers of fruit in the British market. With his great knowledge of the situation of affairs in the British market he has given us from their standpoint his views. We remember he is a Canadian like ourselves, engaged in the same business, but he has got imbued with the sentiments, I believe, that are strong in the foreign countries. Now we had a little comic song the other night telling about the poor fellow who "Couldn't change it." This is one of the things that I do believe we can change. What is the position in which we find the fruit growers in this country to-day? I find them not acquainted with the shipment of apples to the British market. They are not posted as

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to what firms in Britain are reliable and good firms to ship to. They really don't know what they are going to do with their apple crop. It is too large to put in their cellars or to trust to their local market consumption; the time is short; the apple buyer comes around—I have been one—and he says, "I cannot give you more than so much for apples;" the farmer replies, "Well, you don't get out of this yard till you have them, because I don't want them to freeze or spoil on my hands," and he sells them at whatever price the buyer sees fit to give. Mr. Shuttleworth referred to the honesty of the commission men in the British market. Now, I have not a word to say about their honesty at all. I have shipped to them for years and years, and always come out very satisfactorily indeed—not, indeed, with a very large margin of profit, but without sinking any money. I believe they are just as honest as any other class of men, but I believe that their style of doing business is not in the interests of the fruit growers of this country. Now I will venture to say there is in this room many a man who has a brother, sister, father or mother who is living in England to-day and who has written about Canadian apples, and I will venture to say that you cannot show me one that has bought a good barrel of Canadian apples to put in his cellar or his house for use at very much less than six or seven dollars a barrel. I have had it from a dozen of them. Now, our apples are sold there at about twelve shillings on the average; that would represent in round numbers three dollars a barrel. Now, how in the world does the consumer pay so much and the producer get so little? The transportation company gets a dollar and a little more; I hope the buyer gets a little of it, he deserves it even if he is something in the road, as we call him. But the other part I don't know where it goes, unless to the fellow who rolls the barrel on the waggon, and another part for drawing it, and another for rolling it off again, and another for taking the empty barrel away and burning it and clearing up the rubbish. In the best interests of the grower I think we ought to get out of that rut if we can. I claim that the closer we come in touch with the consumer of any country the better off we are. The nearer our market is to our door the better it is for us, and when we get our growers to take hold of this matter and pack their apples, I hope by that time we will be able to ask the Government to fill the gap that is now vacant by an inspector and ask him to inspect at the point of shipment and brand them just as they are—not that we are going to make it compulsory for our growers to have their apples inspected, but to give those who want their apples inspected a brand that will introduce them into the British market. I hope our Government will do something on the line that they are going to do with the dead meat trade, that is, that they will have emporiums throughout the land where Canadian meat will be represented and sold as Canadian meat. And when the product gets directly in that way to the consumer we will get better results than we get to-day. In regard to the Englishman not liking our grapes I think Mr. Shuttleworth needs an answer. Grapes are a product that we are growing immense quantities of, and we are prepared to put them on any market at a low price and yet one that will be satisfactory to the producer in this country. When Englishmen come to this country—and I have met many of them—they do enjoy our grapes, and I venture to say that if there is a Canadian that can put away more of them than an Englishman does when he comes here, he is a pretty good specimen. (Laughter and applause). I say we will put them in the British market so cheap that the poor man and his family can indulge in that luxury which to-day he dare not touch. Take another point—our Canadian tomato—I don't believe there is a country in the world that can produce a tomato equal to that grown in the Province of Ontario.

Mr. BÖULTER: That is so.

Mr. PETTIT: What is the price of those in the British market—two, four, six and seven pence a pound. What do they run in Canada? One-half cent a pound.

Mr. McNEILL: One-quarter cent a pound.

Mr. PETTIT: Give them a half cent.

Mr. McNEILL: I will contract to sell anyone here for twenty cents a bushel, I don't care how many carloads you take.

Mr. PETTIT: Half a cent a pound for Canadian tomatoes in our market is about the average price they are bringing to-day, and I have quoted you the price in the British market

and I am satisfied we can land them in London, Liverpool or Glasgow at a cent a pound or a cent and a quarter at the very most, and if we can put them there we want to put them where the poor man can eat them, and we will make him and his family healthy and appreciate the luxuries that this fair land can produce. (Hear, hear.) That is the way we are going to claim that market. That is the way we are going to educate the Englishmen. We have been educating him along the line of that apple, the Ben Davis, and I am sorry to say our Secretary has been trying to educate him along another line with that Cranberry Pippin. (Laughter.) We are going to send him something better than that. A little while ago he said, "I don't want anything but a red apple." I often wondered why he wanted it red, but a fellow told me when he came from the Old Country, "that they can polish them up so nice on the street corners that they can sell a great many by that process." (Laughter.) They did nibble away at the Ben Davis a while. To-day the Englishman likes to get a Canadian Greening just as well as we do, and he finds it one of the most valuable for cooking, for dessert, or for any other use that he desires to put it to, and we are going to go on educating him along that line. Mr. Shuttleworth refers to certain other countries being able to raise products that will crowd us out. There is not one of those countries in ten that produces at the season we do, therefore we are going to come in at the opening and fill them up to the handle. (Laughter.) We have in this country the people, the energy, the "pluck and plod," as the Hon. Mr. Dryden said yesterday. We have gone into that market with our cheese and have stayed there, and to-day we are claiming the cheese market. (Hear, hear.) We have gone into that market with butter, and I believe the day is coming when the pluck of Canadian people will drive the Danish butter to one side and claim the market for us. I believe the same in regard to our Canadian apples and fruits, when we put ourselves in a position to force our way into those large centres of trade in the old country—not only in England but every country where we can drive the wedge in—for we know that when we do drive it in we are going to give them something that is good and wholesome and to their best interests. I say that is what we are going to do—to wedge our way in and educate the people and do as we are not doing to-day, send thousands and thousands of shipments to those markets in the near future. How are we going to prolong this market? I believe we are going to occupy that market from October almost to the following October by a system of cold storage, where we will send them forward in their season such apples as are ripe and in perfect condition for use, and place them on that market and sell them. We will begin October and send varieties in succession, until the Canadian Spy goes into the market, and with them we will feed them right up to the fresh apples again. Speaking of the Canadian Spy I say that if that apple is grown perfectly and in good condition we have a great market for it, not only in Great Britain but to the south of us to feed our neighbors when their apples are gone. (Hear, hear.) They live in a warmer climate than ours; their apples will not keep like ours; the farther north the better the quality and the longer the keeper; and instead of giving them our money for bananas or other fruits that our people like to feed on, we are going to give them our apples to the extent of millions of barrels.

Mr. J. W. SMITH, of Winona: I would like to ask Mr. Shuttleworth if he thinks the Kiefer pear will ever take in the English market? That is an important question because we can grow enormous quantities of that variety.

Mr. SHUTTLEWORTH: I don't know enough of the Kiefer pear in its keeping qualities as a shipper to satisfactorily answer that question. I have not seen it tried sufficiently. There are a great many fruits that we grow here that are all right for the home market that do not stand shipping. May I say in answer to Mr. Pettit that Canadian fruit comes into the English market at the same time that we get fruits from other countries; our Canadian pears and apples come in the same time as the French and German pears and apples; and when the bulk of our apples are consumed we are getting fresh apples from Tasmania and then from Lisbon and so on north, so that we have apples the year round.

Mr. CASTON: What time does the Tasmanian apple reach England?

Mr. SHUTTLEWORTH: In April.

Mr. SCOTT: I am very much interested in your report, and I do not think you have put the men into the orchard too early. They are both perfect, there is a slight difference to grade them the same as another year. No. 2.

The SECRETARY: I have grades 1 and 2.

Mr. OAS: I have first-class barrels.

Mr. SCOTT: I am getting fat and in they get thin.

Mr. RICHARDS: Michigan market, New York, where buyers to come or four years you just allow producers, and the one buyer come again, in every case, but found one barrel suspicion, and to work and his load, so heard of an in went back on storehouse and the packers accordingly a does not require Legislature made the poor common barrel trouble all the where, and any legislative world as your many noted people to plan "Will you put for advice who take one dollar would not receive because your is the experience

Mr. SCHELL (Woodstock): I shipped a good many Kings, and they did not bring us very much above the Spys, simply because the quantity of them was larger than in other years. In regard to the question of grading No. 1 and No. 2, I tried that and I do not think you could get a more difficult thing to handle than that. You send a gang of men into the orchard and tell them what you think are No. 1, and perhaps in that same orchard two trees are standing right side by side of the same kind and there is such a difference that some people would not believe they were the same kind, and yet they are perfect, there is nothing wrong with them. Now, how are you going to grade them? They are both perfect, and perhaps there is a little difference in the color or there may be a slight difference in the size. If you send out over a dozen gangs of men and tell them to grade them No. 1 and No. 2, there is hardly a gang that will grade those apples the same as another gang. What one gang will say are No. 1 apples the other gang will say are No. 2. If you ship No. 2 you will lose money every time.

The SECRETARY: According to your own statement you do not know what is meant by grades 1 and 2.

Mr. CASTON: Is there not a class of apples too good for culls and not fit to go into first-class barrels?

Mr. SCHELL: That is one of the difficulties of grading apples. That is the trouble of getting farmers to pack their apples. They give themselves the benefit of the doubt, and in they go. (Laughter.)

Mr. RICE: As to packing your own apples in your own orchard, I am not only a Michigan man, but I came from the great apple-growing region of Wayne county, New York, where we had to pack apples by the million barrels; and had we waited for the buyers to come into our orchard and pack our apples we would have been at least three or four years behind. (Laughter.) Now there are things that work themselves out if you just allow them to do so. In selling our apples the buyers knew that we were producers, and the buyers were always there in competition. There was not simply the one buyer, as Mr. Pettit said, to whom the farmer would sell at any price, but before one buyer got out of sight the other was in sight, and the first one that came was sure to come again, and so we had a chance to pick our buyers. We picked our own apples in every case, but when they were sent into the market the heads were taken off and if they found one barrel that was suspicious, very quickly the whole lot was considered as under suspicion, and very likely that man was required to put his barrels in one corner and go to work and re-sort them. He knew he would get caught the next time he came in with his load, so he brought in his apples in right shape, and in all our apples I never yet heard of an instance where a buyer had purchased apples and paid for them that he ever went back on the seller for damages. He examined the article when he came into the storehouse and there accepted it and paid for it, and the man went home. They knew the packers and the character of the packing from experience, and governed themselves accordingly as to watching them. In this way this matter often works itself out and does not require any paternalism by the Government. In regard to the pony barrel, our Legislature passed a law that one hundred quarts should represent a barrel, and that made the pony barrel, but most producers preferred to put in a peck more and have common barrels rather than have their apples go out in pony barrels. That gives us trouble all the time. The pony barrel is the snare to buyers in foreign markets everywhere, and we are sorry for it. That is working itself out, too. I do not think it needs any legislative action to prevent that. If you can grow the Northern Spy you have the world as your market. (Hear, hear.) At our last Horticultural Society meeting a great many noted men were present, and the question was asked, what will we advise our people to plant? Some said Northern Spy. President Morrill, of Benton Harbor, said: "Will you put that curse upon a young and inexperienced man who asks you innocently for advice what to do? Will you tell him to plant a thing that you know he will never take one dollar out of above his expenses?" (Hear, hear.) Professor Bailey said: "I would not recommend the planting of it, not because of the quality of the apple but because your expenses will count up far beyond what you will ever take out of it." That is the experience we have had in our country with it. Now, if you can make money out

of that apple, plant your whole country with Northern Spys and you cannot make any mistake. We cannot make any money out of it. I have no words in favor of the Ben Davis. It comes right into the market when it is met by your Fameuse, and if you can grow the Mackintosh Red as I have seen the samples here to-day—we cannot grow it without the scab—you meet the Ben Davis with the Fameuse and the Mackintosh Red, and we stand no sort of a show. You grow Ben Davis not to sell against the Fameuse and the Mackintosh Red; you grow it for next year's market, and the idea of putting it on the market when better apples are being sold is perfectly outrageous. (Hear, hear.) Don't send your Ben Davis off to be examined and sold at auction when good apples are being sold. Let people grow Ben Davis, selling them if they have a mind to; they won't hurt you as long as you can put in your Greenings. While Ben Davis are being sold at \$1.75 men are trying to find some Canadian Greenings and are willing to pay \$3.75 a barrel for them.

Mr. SHUTTLEWORTH: I think the best Ben Davis have come from Southern Illinois this year.

Mr. PETTIT: Nebraska will knock them out.

Mr. McNEILL: A very large dealer in Detroit said they got them from Missouri.

Mr. RICE: Mr. Augustine, in Illinois, has planted 40,000 Ben Davis apple trees and calculates to supply the world. They calculate they will build a special line of railway to the seaboard and have a special line of steamers to carry them into the foreign market. (Laughter.)

Mr. RACE: If you were planting trees for your children you would certainly recommend planting the Spy?

Mr. RICE: No, sir, I would not, because I want my children to have apples. (Laughter.)

Mr. BOULTER: If you were living in Canada would you advise planting Northern Spys?

Mr. RICE: Taking the Canadian evidence for it that it is bearing well.

Mr. BOULTER: Did I understand you to say that your locality has given up growing them?

Mr. RICE: No; I say they do not bear well there, and there has never been a dollar taken out over and above expenses. A man went down to Canada and bought a carload of Golden Russets, Northern Spys, Tolman Sweets and several other varieties—Baldwins, I think, a few; he sold them right out at \$3 a barrel without any difficulty whatever at the same time that the Ben Davis was being sold at \$1.75. As to the quality of those Tolman Sweets, we never saw anything grown in our vicinity that equalled them at all. I looked over the Greenings and there was not a worm-hole anywhere on them. The Greenings in western New York even have worm-holes. Now there are more varieties than simply the Northern Spy that will bring you good prices if you grow them. (Hear, hear.) It was stated at our Horticultural Society meeting that the Baldwin is no longer worth planting. The time was that it was said that if a man had a thousand trees to plant he should plant 999 Baldwins and then go and get a Baldwin to finish up with; and those same orchards have had to be cut down because they are not bearing, and the Baldwin is going out of bearing throughout our whole country. If you can grow them you can send them the world over.

Mr. McNEILL. It grows here well yet.

Mr. RICE: If the Baldwin grows well with you, go ahead with it; but, if you have an apple that does not bear, what is the use of planting out an orchard that has no profit in it? So we are not recommending the Baldwin in Michigan any more. The trees are so affected by scab that we have to drop it out.

Mr. CASTON: In our sections we have a large class of beautiful fall apples. They come to great excellence and perfection of size and beauty, and many are of very good quality. Now, if we could get a market for these apples, there is more money in them

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than in any kind we can grow, because they produce fruit almost as soon as they are put out. Take the Wealthy, for instance, there is more money in that apple than in our winter apples. We have a large number of Wealthys which are practically wasted because we cannot get them to the market. We owe a debt of gratitude to those gentlemen of the Niagara Peninsula who have contributed the fruit to this trial shipment. From what I can hear they are likely to lose that fruit entirely. They have made that sacrifice, and it was for the public interest, and I say it is nothing but right that we should recognize it as fruit growers. They are prepared to do further in that line, but I hope they will not be subjected to any loss in their worthy and laudable efforts to secure a market for our fruits in the Old Country or anywhere else in the world.

Mr. PETTIT: We will lose it again if necessary, but we intend to break the ice. (Hear, hear.)

The SECRETARY: It was simply to define what grade 1 and grade 2 means that I made that resolution. I do not wish to press it upon anybody unless they choose to use that mark. Even for the Toronto market, if I agree to buy a barrel of No. 1 apples and have a dispute about the quality, I should like to have some way of appealing to know what grade 1 means, and I think it should be defined in the Provincial Act. However, the time is now so far gone that we cannot debate the question longer, and, with the permission of Mr. McNeill, we will lay it over and take it up at some future time.

Mr. G. R. PATTULLO read the report of the Committee on Resolutions and moved its adoption. The motion was seconded by Mr. Smith and carried amid applause.

REPORT OF THE RESOLUTION COMMITTEE.

Your committee beg to report as follows:

That the thanks of this Association be cordially tendered to the Woodstock Horticultural Society for the ample and satisfactory arrangements made by them for the holding of this Convention, which has proved to be one of the most interesting and successful in the history of the Association.

To the mayor and corporation for the cordial welcome extended to us and the opportunities offered to see the manufacturing industries, the educational institutions, and the many comfortable homes of this beautiful and prosperous town.

To the Principal and faculty of Woodstock College for the pleasure of a visit to that Institution, and for the generous hospitality enjoyed there.

To the ladies and gentlemen who have so kindly contributed their musical efforts at the public meetings on Wednesday and Thursday evenings.

To Messrs. L. B. Rice and L. D. Watkins, our visiting comrades in the great work of horticultural development, who have been with us as representatives from the great State of Michigan, and Mr. T. Greiner.

To Professors Saunders and Craig, from the Ottawa Central Farm, and Dr. Mills, from the Ontario Farm at Guelph, all of whom have greatly contributed to the interest and profit of this Convention.

To the Hon. John Dryden, Minister of Agriculture for Ontario, for his presence, practical sympathy, and valuable addresses at the Convention.

To the Woodstock press, the Toronto press, and the Associated Press for the specially full and satisfactory reports that have been given of the proceedings of the Convention, and the interest that they have thus shown in the work of this Association.

All of which is respectfully submitted.

W. M. ORR,
A. M. SMITH,
GEO. R. PATTULLO, } Committee.

Mr. PARKER thanked the Association for the kind manner in which they had acknowledged the efforts of the local society, and expressed his disappointment that a larger number of people did not turn out to the evening meeting.

Mr. WATKINS thanked the Association for the gentlemanly manner in which the delegates had been treated, and hoped that his society would always be in close touch with this one, and that there would be reciprocity all the way round.

The meeting closed at twelve o'clock noon.

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APPENDIX.

REPORTS FROM AFFILIATED HORTICULTURAL SOCIETIES.

BURLINGTON.

At the annual meeting of the Society held December 17th, 1895, the following officers were selected for the year 1896 :

President.—Geo. E. FISHER, Freeman.

Vice-President.—J. S. FREEMAN, Freeman.

Secretary-Treasurer.—A. W. PEART, Freeman.

Assistant-Secretary.—Geo. N. PEER, Freeman.

Directors—Apples, EDWIN PEART; Grapes, D. JARDINE; Small Fruits, JOSEPH GARDINER; Pears, W. V. HOPKINS; Peaches, JOHN IRELAND; Plums, W. F. W. FISHER; Cherries, T. FOSTER; Vegetables, J. W. BRIDGEMAN; Shipping, JOSEPH LINDLEY, J. S. FREEMAN and O. T. SPRINGER.

Auditors.—FRED PARSONS and WILLIAM EMERSON.

Executive Committee.—Dr. HUSBAND, ALEX. RIACH and T. GLOVER.

Reports on the various departments of fruits were made by the following gentlemen :

Geo. E. Fisher on "Apples;" A. W. Peart, "Grapes;" J. W. Bridgeman and Joseph Gardiner, "Small Fruits;" W. V. Hopkins, "Pears;" Alex. Riach, "Peaches;" W. F. W. Fisher, "Plums;" J. S. Freeman, "Cherries and Shipping."

The Secretary-Treasurer presented his annual report which showed an increase of membership for the year, and a substantial balance on hand.

The President, Geo. E. Fisher, in his annual address referred to the steady growth of the Association, and the necessity for each member to work zealously for its good to the mutual profit of all. We should be ready at all times to modify our plans according to the changing conditions, adopt business-like methods, and be on the alert for the best markets. The fruit grower of to-day should be educated and understand the principles of botany, chemistry and pathology as applied to the production of fruits. He endorsed the scheme of local experimental fruit stations, as they would save both time and money. While fruit growing is one of the great industries of this province, we must pay strict attention to the quality of our fruit as outside competition is very keen. In closing an able address he said that a united effort should be made to try to retain all the old members of the Association, and secure as many new ones as possible for 1896.

The past year of our Society has been a successful one, both in the increase of membership and in the interest taken in our public meetings. We have held four regular meetings as well as the annual. At each of these, addresses or papers, on some subject relating to fruit were given by experienced fruit growers. The acreage of fruits, especially the smaller ones, has been very much increased, a good deal of attention being paid to currants, blackberries and raspberries. In common with many other sections of Ontario, the May frost did a good deal of damage, still, there was sufficient fruit left at remunerative prices, to give growers a fairly prosperous year. Apples were the best crops known for years, and the quality was prime, even the Snow Apple and Holland Pippin being spotless.

As usual, many members took advantage of the annual drive, and spent a pleasant and profitable day among the orchards of the Dundas and Waterdown districts. We also exhibited a collection of fruit at the Industrial Fair, Toronto, to which was awarded first prize.

The following gentleman contributed papers or addresses during the year :—Messrs. W. King on "Small Fruits;" A. W. Peart, "Fertilization of Fruit Blossoms;" J. W. Bridgeman, "Bees in Relation to Fruit Growing," and Geo. N. Peer on "Raspberry Culture."

BRAMPTON.

OFFICERS FOR 1896.

President.—DR. D. HEGGIE.

1st Vice-President.—HENRY DOLE.

2nd Vice-President.—DR. C. T. MORSE.

Secretary.—A. MORTON.

Directors.—C. M. FRENCH, H. ROBERTS, MISS J. IRVIN, MRS. A. W. WOODS, MRS. MARY GRAHAM, A. G. BUCKHAM, E. FALLIS, A. McKECHNIE, A. MORTON.

CHATHAM.

OFFICERS FOR 1896.

President.—HIS HONOR JUDGE BELL.

Vice-President.—J. A. WALKER, Esq.

2nd Vice-President.—MRS. D. S. PATERSON.

Directors.—G. K. ATKINSON, W. E. RISPIN, T. M. FRENCH, MRS. ELLIOTT and MISS EDITH COLTART.

Auditors.—W. F. MALCOLMSON and W. E. McKEOUGH.

At the meeting of the Directors subsequently held, W. E. RISPIN was appointed *Secretary-Treasurer* of the Society.

GRIMSBY.

OFFICERS FOR 1896 :

President.—JOHN H. GROUT.

Vice-President.—MRS. ADOLPHUS PETTIT.

2nd Vice-President.—L. WOOLVERTON.

Secy.-Treasurer.—C. W. VAN DUZER.

Directors.—MESDAMES E. J. PALMER, D. V. LUCAS, E. J. WOOLVERTON, AND J. G. NELLES, AND MESSRS. C. W. VAN DUZER, READ, ADOLPHUS PETTIT, A. TERRY-BERRY.

THE GLADIOLUS.

By MRS. E. J. PALMER, GRIMSBY.

I had but little idea of the value of Gladiolus when I began to prepare this paper, and I think we have been most fortunate in choosing it for our initial effort. It belongs to the order Iridaceæ. The roots are bulbous; the leaves linear or sword-shaped, from which it derives its name Gladiolus (Latin for a little sword). The Cape of Good Hope produces the greater number of known species. A few, however, are natives of other

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countries, and two or three are found in Central Europe; none are British. The original species have since been superseded by the very numerous and beautiful hybrids that are in cultivation, though many of the originals are retained, and are useful in the mixed border. The Hottentots eat the bulbs of some species which contain a considerable quantity of starch.

The bulbs should be planted in a rich, light, mellow soil, about 20th of May, if the ground is warm, and, for a succession of bloom, every two weeks till the 1st of July. A sunny situation, with ground well spaded and thoroughly pulverized, is the most suitable. If the soil is heavy, plant from one to two inches deep; if light, three to six inches. If bulbs are planted deep they attain a greater size, and are better able to stand a season of drought. They are moisture-loving plants, and, for that reason, they succeed well in England. I think the finest flowers and largest spikes are obtained by late planting, as they come into bloom about the 1st of October. If planted early, they should have a light mulching of newly-cut grass. It is one of the richest of our summer-flowering bulbs, and so refined and delicate in quality of color that it is never anything other than satisfactory. If you care for a soft, pale shade, you have it; if you prefer the brilliant scarlet, crimson or violet, they are before you in every shade. No garden should be without them, or their gorgeous display of bloom. As cut flowers, they are most satisfactory; and if cut when the first four flowers are in bloom, and placed in water, they will open bud after bud till the whole spike is in bloom. The bulbs should be taken from the ground before danger of frost, put in paper bags and kept in a dry cool place free from frost.

I am sure we will derive a great deal of pleasure from the cultivation of our *Gladiosi*. Horace Smith says: "The purest happiness our hearts can enjoy is that which is waited to us from the hearts we have made happy, even as the flowers which we ourselves have planted ever seem to breathe around us a sweeter and more acceptable fragrance."

HAGERSVILLE.

OFFICERS FOR 1896.

President.—WM. HARRISON.

First Vice-President.—ALBERT SNELL.

Second Vice-President.—THOS. HARRIS.

Secretary-Treasurer.—S. W. HOWARD.

Directors—J. H. HAGER, GEORGE HALL, S. B. HARRISON, J. W. HUSBAND, P. R. HOWARD, CAPT. STEWART, HENRY BYERS, GEORGE E. SMITH, THOS. BSWETHERICK.

Auditors.—S. B. HARRISON AND J. W. HUSBAND.

LEAMINGTON.

OFFICERS FOR 1896:

President.—W. W. HILBORN.

First Vice-President.—WM. SMITH.

Second Vice-President.—JOHN MITCHELL.

Directors.—M. T. BRUNER, C. CURTIS, F. W. DEADMAN, D. SINASAC, E. HAWKES, E. E. ADAMS, GEO. MILLS, J. C. ROSS, J. L. HILBORN.

Secretary-Treasurer.—J. E. JOHNSON.

LINDSAY.

OFFICERS FOR 1896.

President.—J. H. KNIGHT.

Vice-President.—ALEX. CATHRO.

2nd Vice-President.—T. BRYANT.

Secretary-Treasurer.—F. J. FRAMPTON.

Directors.—RICHARD HELSON, COL. JAMES DEACON, ROBERT SPEIR, JOS. BRICKABY, ROBT. CHAMBERS, W. H. STEVENS, W. KING, F. J. FRAMPTON, W. PEDLAR.

NAPANEE.

OFFICERS FOR 1896 :

President.—MRS. W. H. WILKISON.

Vice-President.—MR. T. M. HENRY.

Secy.-Treasurer.—J. E. HERRING.

Directors.—MRS. ROBERT MILL, MRS. R. G. WRIGHT, MRS. F. S. RICHARDSON, MRS. ARCHIBALD McNEILL, JAMES HARMER, JAMES BOWERMAN, W. S. HERINGTON, GEORGE LLOYD, G. C. T. WARD.

NIAGARA FALLS.

OFFICERS FOR 1896 :

President.—W. P. LYON.

Vice-President.—RODERICK CAMERON.

Second Vice-President.—THOS. BERRYMAN.

Secretary.—E. MORDEN.

Treasurer.—J. G. CADHAM.

Directors.—MRS. LAND, MRS. LOWELL, MISS L. McNALLY, REV. CANON BULL, H. G. A. COOK, GEO. A. PYPYER, J. G. CADHAM, E. MORDEN, GEO. LANE.

Auditors.—GEO. C. BIGGAR, WALTER KER.

Number of members, 1895, 100 ; members for 1896 already enrolled, 60. Will give to each member two lilies and three cannas, with perhaps some other bulbs or seeds. Each member will receive two monthly journals. A September exhibition will doubtless be held. Smaller informal shows are also spoken of. There has been an excellent staff of officers from the start. Twenty-three directors' meetings last year, and all of them harmonious. This is not often the case where prizes are given, and might not continue if we adopt that system. We find that our lady directors are very useful.

PARIS.

At the annual meeting of the Paris Horticultural Society the Treasurer's report was read, which showed the Society to be in a flourishing condition. He reported a balance on hand of \$119.55. This amount it is proposed to expend on the purchase of bulbs, plants, etc., for the members as they may deem best. It is requested that suggestions as

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to what may be the best shall be left with the Secretary-Treasurer by members when renewing their subscription for the next year. We understand that the Society purposes holding a number of meetings during the year; also, that a flower show will be held in the fall, which will be fully appreciated by all lovers of floral and horticulture. The following officers were elected for the ensuing year:

President.—F. WILEY.

Vice-President.—D. M. LEE.

Secy.-Treasurer.—C. H. ROBERTS.

Directors.—J. CARNIE, SEN., L. GERNDT, J. SKRA, A. W. ROUSELL, MRS. H. BICKLE AND MRS. A. MENNIE.

PORT COLBORNE.

OFFICERS FOR 1896.

President.—E. O. BOYLE.

1st Vice-President.—L. G. CARTER.

2nd " W. W. KNISLEY.

Secretary.—D. W. MCKAY.

Treasurer.—A. E. AUGUSTINE.

Directors.—W. HOPKINS, MRS. A. K. SCHOOLFIELD, MRS. D. W. CARTER, MRS. J. STEELE, J. H. SMITH, F. HOSCKKE, REV. J. M. SMITH, D. W. MCKAY, A. E. AUGUSTINE.

PORT HOPE.

OFFICERS FOR 1896.

President.—H. H. BURNHAM.

Vice-President.—WM. CRAIG.

Secretary-Treasurer.—A. W. PRINGLE.

Directors.—W. W. RENWICK, JOHN SMART, P. BROWN, S. WICKET, S. G. WATSON, T. J. TILLEY.

The first annual meeting of the Port Hope Horticultural Society was held in the Opera House, Port Hope, March 9th, 1896.

Owing to the absence of the President, Mr. H. H. Burnham, the chair was taken by Mr. William Craig.

DOCTOR PURSLOW, the first speaker of the evening, then read an interesting paper on "The Pillaging of our Gardens." The doctor said that if the Horticultural Society was to thrive, it must put this down. There were two kinds of depredations; the robbing of flowers, which was done mostly by young girls, and the robbing of fruit, by boys and young men. The remedies proposed were: Bringing it before the pupils in the schools; inserting articles against it in the local papers, and distributing leaflets against it. In case this did not succeed, the doctor thought the horticulturists should resort to the law. As this is seldom done individually, he suggested the horticulturists forming a committee called the "Garden Protective Association," to prosecute all offenders, and thus protect the members of the Society. If any difficulty was found in discovering the culprits, to engage the services of a professional detective, the expense to be borne by the Society. The doctor thought that if this were done, and a few examples made, the members would have no trouble in this direction.

INSECT LIFE.

Dr. BETHUNE then gave an address, of which the following is an abstract :

Mr. CHAIRMAN LADIES AND GENTLEMEN,—I have been very much pleased that a horticultural society has again been formed in this town. When it was proposed to me to take part in this, the first annual meeting of the Port Hope Horticultural Society, I was at a loss to know what to bring before you, unless it were my favorite subject, that of insects.

Every person knows that there is a great variety of insects. Probably you are not aware that the insects more than equal all the animals that inhabit the earth both in number and bulk. We must not, of course, include the fishes of the ocean, as we do not know their numbers, but confine ourselves to the inhabitants of the earth. The insects, then, more than equal all the other animals of creation. Just one instance of their numbers: A writer says that he observed a flight of locusts crossing the Red Sea and covering two thousand square miles. He calculated that the locusts would weigh about one-sixteenth of an ounce each, and computed that they would weigh altogether forty-thousand millions of tons. It seems incredible.

What I thought of doing to-night was not so much to entertain as to instruct. This is only the first meeting of the Port Hope Horticultural Society, and I may perhaps be called upon to give you further information at some future time so will confine myself to-night to some remarks upon insects.

The first question that rises in the mind is, what is an insect? I suppose everyone thinks they know what constitutes an insect. Some will tell you that a spider is an insect, but it is not. They are first cousins of insects, but they do not belong to that class themselves, though they are very near relatives. Take thousand legged worms; they are closely allied to insects, but they are not insects themselves.

Well, an answer to the question as to what constitutes an insect, is, of course, its structure. We find that these creatures are all built on a certain plan; there is a plan upon which the great Creator has chosen to work. In their formation we find the body divided into three distinct parts. The first division is the head, the second is the thorax, and the third the abdomen. The head contains the mouth; the thorax, the legs and wings, and the abdomen the breathing apparatus and other internal organs.

What may surprise some is that the breathing apparatus is contained in the abdomen, the third part of the body. Some people try to kill an insect by closing its mouth, but it does not affect it at all. They dip its head into oil, but, beyond inconveniencing it a little, it does it no harm. The reason is plain to be seen—they do not subject the right part of the insect to the oil.

You will notice on these diagrams (pointing to some on the wall) that there appear feelers on most of them, especially on the butterfly. These are called antennæ, and they are organs of sensation of the insect. You will notice that in an insect there will always be found a pair of antennæ.

In their perfect state insects always have at least one pair, but mostly two pairs of wings. Those that have only one pair, have rudiments of a second pair. The flies are the only ones that are destitute of two pairs.

Then the next distinction is that they all have six legs in the perfect state—I am speaking of the winged state. In this stage all insects have six legs—never more or less—except in the case of some butterflies, which have only four. If you find one with six legs, then you know that it is an insect.

I just said that I was referring to the perfect state, but there are others as well. You will see by these diagrams that there are different stages. All insects go through four stages to a greater or less extent.

The egg is the first state. Insects begin life, like all living creatures, as an egg. The egg is laid and from the egg is produced a little caterpillar, grub or maggot. The caterpillar grows very rapidly and goes on eating during its existence. It afterwards

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We will now thing on the foliage if applied to the foliage. How soap and water alone; it will form

assumes a dormant state ; some burrow in the ground while others wrap themselves up in a silken cocoon.

Grasshoppers, etc., do not go through such complete stages. The larva of a grasshopper is very much like the perfect insect when born, except that it has no wings. This, then, is an exception but, as a general rule, there are four stages of existence

In the caterpillar, this rule about the six legs does not hold. There are, however, a series of legs, called pro-legs, which help the insects to move along. The majority of the insects are all supplied with these appendages which answer the purpose of legs. There are some others, though, which do not. Taking it as a whole, then, this is the usual form in which these creatures are constructed ; but this is a very large subject and I will not have time to dwell on this any longer.

The next point is :

THE MODE IN WHICH INSECTS FEED.

There are two kinds of insects—those that feed by biting with their jaws and those that feed by suction. You can see that if you want to kill a biting insect you would have to adopt a different plan than you would to kill a sucking insect. Horticulturists have to understand these two systems and to base their actions accordingly.

I was intending to tell you something about the different families, but I think I will change my line and say a few words about dealing with noxious insects. Everyone knows what plagues they are. Personally I am indebted to them.

A number of years ago a number of us formed an entomological society, and had great difficulty in getting along, having to depend entirely upon ourselves. We started a magazine. By correspondence we found that there was a scourge affecting the potato in the Western States. I had occasion to visit Chicago and found it to be true. We immediately set to work to learn all we could about it. I wrote an article in the *Toronto Globe* and one in the *Canada Farmer*, calling upon the Government to make some effort to keep this troublesome pest out of Canada. Our idea was by not growing any potatoes for some distance from the border, we might check their progress. The long and short of it was that we started to work and formed a committee for experimenting. It was found that Paris green was the one effective remedy. After this the Government of Ontario gave us an annual grant, which they have continued for some years past, and gradually increased to a thousand dollars a year.

Speaking of Paris green reminds me that it has now become the greatest means of destroying insects that has ever been discovered. It is generally delivered by means of pumps which send a fine spray through the foliage.

Another insect that gives a great deal of trouble is the codling worm, which burrows into the heart of the apple. This codling worm has been a very difficult worm to get rid of. The moth lays its egg in the eye of the future apple. It generally destroys the apple and it falls to the ground.

With regard to the use of Paris green by spraying the trees just when the apple is formed. The Paris green is spread all over the tree by means of the spray-pump. When the caterpillar starts out of the egg to burrow into the apple, the first thing it does is to eat some of the Paris green and is consequently destroyed. The plum weevil will also be kept in check by spraying with Paris green. So far we have been dealing with biting insects.

We will now turn to those that live by sucking. It would be no use spraying anything on the foliage. You have to apply it to their bodies. The remedy is coal oil, but if applied to the foliage direct, the plants would be killed. By experiments it was found that if this coal oil was mixed with water it would destroy the insects and yet not damage the foliage. However, water is not the best thing to mix it with. If you take some soap and water and make strong soap suds, it will make a better mixture than water alone ; it will form an emulsion and you can then keep it for any length of time. Use a

spray pump in the usual manner and these insects can be destroyed in the same way. Those insects that trouble house plants can be destroyed also with the emulsion.

Now in regard to

SPRAYING TREES.

I know by personal experience that it is too much trouble. We either have not the time to spare, or we are too lazy, and let our trees be ravaged by insects year after year. I want to make a suggestion in regard to this. It is that our gardeners should do this work for us. Those that cultivate flowers and fruit, would be only too glad, I am sure, to pay a man if he would come around and spray our trees for us. I hope the gardeners of our town will take this matter up and act upon it. It would be a great blessing to those of us who are either too busy, or too lazy, to do it ourselves. However, if you do not come under this classification and do it yourself, be sure and put on an old suit of clothes.

I will now just refer to one or two other matters. There has been a very remarkable case of interest to ourselves in California. You all have heard of what a wonderful country California is for fruits. California fruit growers have been suffering from a scale insect that invaded the State a few years ago. In their trouble they sent for assistance to the department at Washington, and Professor Riley proceeded to investigate. (I have no hesitation in saying that Professor Riley has done more in making the habits of insects known than any other person in North America or even the world.) He knew it must have come from some other part of the world. He at once took up the study of this scale insect. He found that the Californians had been importing fruit trees from New Zealand and Australia, and came to the conclusion that the insect must have been imported with the trees. However, in Australia and New Zealand the scale was scarce, and the inference was that there must be something that kept it in check. He asked the authorities at Washington to send over a couple of men to Australia and New Zealand to investigate and find what was keeping it in check. The Department would not grant his request. However, he succeeded in another way. There was to be an international exhibition at Melbourne and the American Government were sending over representatives. He succeeded in getting two of his own men appointed, and when they got there I can assure you they did not spend much time at the exhibition but in searching for this insect. They found that a little beetle called a "lady bird" was keeping them in check. They sent some of these lady birds over to Mr. Riley by mail and he had them placed on some trees where the scale insects were at work, with the result that they soon cleared the trees of them. More were then sent from Australia. Now they are not troubled with the scale insect at all. This, I consider was a great triumph for entomology. But some things that are imported do harm instead of good, like the English sparrow for instance.

The same thing is now being done in Western Virginia. The forests were being invaded by some noxious insects. So they imported some insects they thought would destroy them from Germany. In a large forest you cannot watch the results as closely as in an orchard, but I believe the experiment there also will be successful. I only mention this as an example of what has been done by entomology.

Before I sit down, I want to speak about another matter. It is that every person should have a hobby of some kind. I have derived a great deal of pleasure from the study of entomology. I would like particularly to impress upon you the importance of having a hobby. You, who are confined all day, take up something that is entirely different from your regular occupation for your spare moments. What I would like you to do, and especially the young ladies of the town, is to study some branch of natural history.

Some time ago I had a talk with Lady Aberdeen on this subject. She is very much interested in the welfare of this country and its people. We were talking about this matter, and I was deploring the lack of this sort of study by our young ladies. In England it is quite common but not in this country. There are plenty of ladies in Port

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Hope who would find their life much more pleasant to them if they would take up something of this kind. I believe the Ladies' Club have lately had a scientific lecture, and I am glad of that.

One study they might take up is botany, or some like shells and fossils; others, again, collecting postage stamps. But take something, no matter what it is, and make that something the whole object of study for your spare moments. Many people go for a walk for exercise. If you are a student of botany you will find something interesting at every step; if you are making a collection, you will find something to add to your collection. I should be glad to see the ladies of this town take up botany and other natural history studies.

I might mention that the greatest entomologist in Great Britain is a lady, Miss Ormerod. These diagrams that you see here are the work of her sister and herself. She is the standard authority in England, and has been consulted by the Governments of Russia, India and others. A few days ago I received her eleventh annual report. She devotes her whole time to the pursuit, and without any encouragement whatever from the Government. Happily, she is a lady of means, and is able to do it. If you read the periodicals you will find mention made of her from time to time. I mention this as a bright example, but there are other ladies who have distinguished themselves in different directions. So you see what a lady can do.

In closing, let me say that every one cannot be famous, but you can derive great pleasure by studying some of the wonderful works of the Divine Creator.

Mr. T. H. RACE, of Mitchell, representing the Ontario Fruit Growers' Association, was then introduced by the chairman, and proceeded to give an address on "The Cultivation of Roses."

TRENTON.

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Following is the

DIRECTORS' REPORT.

Your Directors, in making their first Annual Report, have much pleasure in congratulating the members on the success of the Society. From its inception it has been well received and seems to be steadily growing in public favor.

We have had a membership of seventy, each of whom received *The Canadian Horticulturist* and bound report of the Ontario Fruit Growers' Association, and a share of the plant distribution connected, twenty Gladioli bulbs, one Canna and two tuberous rooted Begonias; besides, the Society made a gift to the town of a circular flower bed in the public park, containing 175 Dwarf Cannas with a border two feet wide of Phlox Drummondii, which was much appreciated by the public, and we trust the Park Commissioners will continue the work thus begun and cause several flower plots and ornamental trees and shrubs to be planted in the different parks in future.

The year 1895 was unfavorable for horticulture in many respects. The frosts of May almost completely destroyed the small fruit crop of this section and cut back early vegetables and flowers. The weather during the season was very irregular and uncertain, alternating from the extreme heat to cool, even cold, weather, with frost every month.

Your Society has held a number of meetings open to the public, where papers on horticultural subjects have been read and discussed with increasing interest, and we trust our successors will continue such meetings in future and that the attendance may increase, as apart from the benefits to be derived from an interchange of ideas on horticultural topics, they also cultivate the social qualities and make better neighbors and citizens.

The Fruit Growers' Association of Ontario, with which this Society is affiliated, hold their annual meetings in different places each year in order to increase the interest in fruit growing in different localities. Your Directors made an effort to get it here next winter, but having been held in the western section for some years it was decided to hold the next in Kingston, but we are promised it in the near future, and we trust our successors in office will succeed in getting this meeting at Waterloo in 1897.

The Secretary-Treasurer's and Auditors' reports are before you by which you will see the Society is in a good financial position, the funds having been husbanded with care, and by the circular just issued you will see the advantages to members for this year are much greater than last, so that we look with confidence to the increasing influence of this Society and expect it to be one of the most beneficial and permanent institutions of our thriving town.

By order of the Board.

JAS. LOCKIE,
President.

WOODSTOCK.

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Auditors.—JOHN PIKE and T. L. CLARKSON.

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