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NINTH AND TENTH ANNUAL REPORTS

—OF THE—

FRUIT GROWERS' ASSOCIATION

—AND—

HORTICULTURAL SOCIETY

—OF—

BRITISH COLUMBIA.

1899-1900.

PRINTED BY DIRECTION OF
THE HONOURABLE MINISTER OF AGRICULTURE.



VICTORIA, B. C.:
Printed by RICHARD WOLFRDEN, Printer to the King's Most Excellent Majesty.
1901.

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THE HORTICULTURAL SOCIETY AND FRUIT GROWERS'
ASSOCIATION OF BRITISH COLUMBIA.

NINTH ANNUAL MEETING.

MINUTES AND PROCEEDINGS.

VICTORIA, B. C., January 31st, 1899.

Pursuant to call, the Annual Meeting of the British Columbia Fruit Growers' and Horticultural Society was held in one of the rooms of the Agricultural Department at 2 p. m.

Present—G. H. Hadwen in the Chair; E. Hutcherson, Tom Wilson, W. H. Hayward, R. M. Palmer, A. R. Wilson, T. Cunningham, C. C. McDonald, J. R. Anderson, J. T. Corfield, T. G. Earl, some seven or eight others, and the Secretary.

Minutes of the last Annual Meeting were read and adopted.

The financial statement was read and referred to the Auditors.

T. Cunningham and J. R. Anderson were appointed Auditors.

Chairman's address was here given.

On motion this address was taken up and discussed.

Moved by R. M. Palmer, seconded by T. G. Earl:

Resolved—That the chief work of the B. C. Fruit Growers' Association for the ensuing year shall be the placing in Winnipeg a large representative exhibit of British Columbia fruit, and that all available funds, not required for necessary work in the Province, be devoted to this purpose.

Laid over until the evening session.

At this stage the election of Directors for the ensuing year was taken up, and resulted as follows:—

T. A. Sharpe, Agassiz,	A. R. Wilson, Duncans,
A. C. Wells, Chilliwack,	G. H. Hadwin, "
H. Kipp, "	G. T. Corfield, Corfield,
A. Evans, "	Price Ellison, Vernon,
Sam. Smith, Dewdney,	W. H. Norris, Midway,
T. McNeely, Ladner,	J. L. Pridham, Kelowna,
E. Hutcherson, "	T. W. Stirling, "
T. G. Earl, Lytton,	N. Butchart, Port Moody,
Thos. Kidd, Eburne,	W. J. Moggridge, Hazelmere,
Capt. Stewart, "	M. J. Henry, Vancouver,
Jas. Mellis, Terra Nova,	A. W. Smith, Lillooet,
P. E. Lazenby, Mission,	Geo. Mead, New Westminster,
W. L. Fortune, Kamloops,	W. J. Armstrong, "
R. M. Currie, "	T. R. Pearson, "
Alex. Campbell, Victoria,	J. Brethour, Saanich,
F. L. Sere, "	W. Thompson, "
A. Ohlsen, "	Donald Graham, Spallumcheen,
M. Baker, "	S. M. Robins, Nanaimo,
R. M. Palmer, "	Thos. Lewis, New Westminster,

J. R. Anderson, Victoria.	J. B. Kennedy, New Westminster.
R. Layritz, "	P. Latham, "
W. C. Grant, "	Hy. Ruckle, Salt Spring Island,
C. E. Renouf, "	J. T. Collins, Vesuvius Bay,
D. R. Ker, "	T. Cunningham, Vancouver.
H. O. Welburn "	

Meeting re-assembled at 8 p. m.

On motion the meeting adjourned, and a meeting of Directors was held, at which the following officers were appointed:—

President	Tom Wilson, Vancouver,
1st Vice-President	W. H. Hayward, Victoria,
2nd Vice-President	D. Graham, Spallumcheen,
Secretary-Treasurer	T. R. Pearson, New Westminster.

Annual meeting resumed.

Moved by W. H. Hayward, seconded by E. Hutcherson :

That whereas the local market for fruit is limited and easily glutted, and the fruit growers of this Province must in the future depend upon outside markets, principally those of Manitoba and the North-West :

And whereas the shipments made hitherto to these points have been unsatisfactory, owing to faulty methods and inexperience, causing great loss to the fruit growers of this Province ;

And whereas the aims and objects of this Association would be vitiated by enlarging the supply while diminishing the demand ;

Therefore it is Resolved, That the available funds of the Fruit Growers' Association be used for the sole purpose of creating these outside markets, and for ascertaining the best methods of shipping the fruit and putting these methods into practice—Carried.

Moved by G. H. Hadwen, seconded by J. R. Anderson :

That a sum of \$300 be appropriated to the use of the Transportation Committee—Carried.

Moved by W. H. Hayward, seconded by G. H. Hadwen :

That an Executive Committee of three be elected by ballot—Carried.

A ballot having been taken, the following were elected on this Committee:—G. H. Hadwen, W. H. Hayward and R. M. Palmer.

Meeting adjourned.

WEDNESDAY, FEBRUARY 1ST, 1899.

Meeting of Directors convened at 10.30 a. m.

The Executive Committee's Report was here handed in, and read as follows:—

1st. That the Secretary's salary be reduced to \$5 per month for the ensuing year.

2nd. That the Executive Committee be empowered by this general meeting to carry out the resolution moved by W. H. Hayward, and carried.

The Auditor's Report was here handed in.

Moved by G. H. Hadwen, seconded by R. M. Palmer :

That the Auditor's Report be adopted, with suggested recommendations, and that the Secretary be instructed to have the disputed items between the Association and the Bank settled at once.

Moved by R. M. Palmer, seconded by T. G. Earl :

That the Secretary's salary be \$5 per month, with the understanding that the work be as outlined in recommendation by Executive Committee—Carried.

Moved by J. R. Anderson, seconded by T. G. Earl :

That the Executive Committee be requested to formulate plans for the future work of the Association, and to report to a meeting of the Directors on the 24th February, 1899, at New Westminster, B. C.

Meeting adjourned to 2 p. m.

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Meeting called to order at 2.30 p. m. Some nine members present.

The report of the Committee on Adulteration of Jams was here read.

The report was adopted, and the Committee instructed to proceed with the prosecution of parties offering for sale adulterated jams and jellies, and to incur the necessary expense.

The report of the Committee on Varieties was received and adopted.

The following Committees were appointed:—

COMMITTEE ON ANNUAL REPORT.

Tom Wilson, Vancouver,	T. R. Pearson, New Westminster,
Thos. Cunningham, Vancouver,	G. H. Hadwen, Duncans,
	R. M. Palmer, Victoria.

EXHIBITION COMMITTEE.

M. Baker, Victoria,	T. R. Pearson, New Westminster,
A. Ohlsen, "	G. H. Hadwen, Duncans,
R. M. Palmer, "	E. Hutcherson, Ladner,
Price Ellison, Vernon,	T. G. Earl, Lytton,
Tom Wilson, Vancouver,	P. Latham, New Westminster,
	T. A. Sharp, Agassiz.

COMMITTEE ON VARIETIES.

D. Graham, Spallumcheen,	T. A. Sharpe, Agassiz,
M. Baker, Victoria,	Tom Wilson, Vancouver,
R. M. Palmer, Victoria,	T. G. Earl, Lytton,
Alex. Campbell, Victoria,	E. Hutcherson, Ladner.

COMMITTEE ON FINANCE.

Tom Wilson, Vancouver,	Thos. Cunningham, Vancouver.
	A. C. Wells, Chilliwack.

Moved by T. G. Earl, seconded by J. R. Anderson:

That the next Annual Meeting be held in Vancouver, at the call of the President.

Meeting adjourned.

NEW WESTMINSTER, February 24th, 1899.

Pursuant to call, the adjourned meeting of the British Columbia Fruit Growers' Association was held in Machinery Hall, New Westminster, this afternoon, at 2.30 o'clock.

Present—Tom Wilson, President, in the Chair; T. A. Sharpe, G. H. Hadwen, W. J. Moggridge, W. H. Hayward, R. M. Palmer, E. Hutcherson, J. C. Metcalf, J. R. Anderson, W. J. Brandrith, W. F. Stewart, M. J. Henry, H. Kipp, P. Latham, W. F. Hine, J. M. Johnstone, Geo. Mead, T. Lewis, R. L. Codd, and the Secretary.

Minutes of the last Directors' Meeting read and adopted.

Letter from Mr. Alex. Campbell read and discussed at some length, after which it was received and filed.

The report of the Executive Committee was read and ordered to be taken up clause by clause. The following is a copy of the report:—

The Committee appointed by the Fruit Growers' Association at their last meeting, beg to present their report as follows:—

1. That the Fruit Growers' Association should act only in an advisory manner in regard to the marketing of fruit in the North-West.

2. That the Association should send a competent man to the North-West, whose special business it should be to keep the fruit growers of the Province thoroughly posted as to the market conditions, prices, and best methods of transportation during the shipping season. That this information should be sent by wire or mail, as necessity demands, for publication and dissemination throughout the Province.

3. That the Association should secure an expert in fruit packing and shipping, who would give information as to the packing, condition of fruit for shipment, and loading of cars, etc., at points to be determined upon.

4. That the Association should itself undertake the shipping or inspection of a car-load of fruit to Winnipeg at the commencement of the season; an accurate account to be kept of the condition of the fruit when shipped, the temperature, icing and handling the car in transit, and all other particulars of moment concerning it. That the fruit should be displayed in Winnipeg to the best advantage, and well advertised, with a view of demonstrating the superior quality of British Columbia fruit.

5. That a committee, consisting of three members together with the Minister of Agriculture, be appointed to superintend the carrying out of these suggestions.

6. This committee also proposes to take up the question of freight rates, express shipments and transportation generally, but requests that an expression of opinion be given as to the needs of the fruit growers in this respect.

7. This committee would also suggest that the Fruit Growers' Association should request the Horticultural Board to aid in an active and material manner toward the carrying out the suggestions herein contained, with regard to the recommendation of a man being sent to the North-West.

(Signed) R. M. PALMER,
G. H. HADWEN,
W. H. HAYWARD, *Sec.*,
TOM WILSON, *Pres.*

The following were appointed upon this committee:—The Hon. the Minister of Agriculture, W. H. Hayward, Hy. Kipp, and C. B. Harris.

DISCUSSION ON REPORT OF EXECUTIVE COMMITTEE.

Clause 1.

Mr. E. Hutcherson—What is the meaning of this clause?

Mr. Palmer—It was thought that it would not be wise for the Association to take up the actual shipping of fruit; but that they might purchase a car-load at minimum price and keep track of this car on its way, and if necessary have hourly reports. This car would be placed in Winnipeg early in the season; and, if possible, on Main Street, and well advertised.

Mr. Moggridge—If a man is to be sent to the North-West at all, I do not see why he should not handle fruit, as it would not add to his expenses. He should be present to open all cars and make reports.

Mr. Wilson—I do not see how public money can be used for a private enterprise.

Mr. Palmer—The Minister of Agriculture expressed to me his wish that the \$1,000 voted to the Association should be expended in the interests of the Provincial fruit growers as a whole. He was not able to be on hand to-day, but would be pleased to meet the fruit growers as a whole at any time and discuss these matters with them.

Mr. Hutcherson—It seems to me the idea has got abroad that the Exchange is trying to corral this man. That is not our intention. Any fruit grower would be at liberty to make use of this man. What we really want is some one to adjust our claims. I do not mean the Fruit Exchange. The report practically carries out my suggestion of some weeks ago, that the Fruit Exchange should close down for the season, or arrange to ship in car-load lots and not by express, as that has proved impracticable, under existing charges, and successfully compete with car-load lots from the south. It seems rather strange that our fruit should have gone begging for a market, but nevertheless such was the fact; and so it was from Washington and Oregon. The housewives of the North-West have only so many sealers (*i. e.*, fruit jars), and these were chiefly supplied by the early fruit from California, at \$1.50 per crate; and, consequently, when our fruit arrived on the market their sealers were full and no more to be obtained. This could, in a measure, be prevented by the man appointed by the Association, going from store to store and arranging with them to wait for the British Columbia plums, which would be on later in the season, and at a much cheaper price. Of course retailers are anxious to get the fruit in as early as possible in order to be in a position to supply the trade. We have a gentleman with us to-day (Mr. Brandrith) who was in Winnipeg about the 17th of September, and will be able to corroborate my statements as to the condition of fruit markets at that date.

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Mr. Brandrith—Being a fruit-grower and naturally interested, on the date mentioned by Mr. Hutcherson, I took a stroll down Main Street, Winnipeg, to inquire for British Columbia apples. I found none of these, but plenty of California fruit. I also found the plums from Washington were selling at 50c. to 75c. a crate; these prices were obtainable in Vancouver. Crab apples were being sold for 35c., while we could get 5c. per lb. for them in Vancouver. So you can readily see there was nothing in sending fruit to that point. I called on the McPherson Fruit Company, who were very kind to me, and I gained the information that the best plums and pears they had ever had came from British Columbia. I found that the bulk of their pears were obtained from Ohio; apples from Ontario, and these latter were selling for \$3 per barrel. At the time I supposed that the chief difficulty in the way of shipping was the charges of the C. P. R., but I since found that the principal fault is in the manner of packing, as our growers will not do the work properly. I think the business of this Association should be to see that the growers pack their fruit properly and honestly. I am sorry that I have to bear out Mr. Hutcherson in his statement.

Mr. Kipp—These remarks apply to Manitoba; we have not heard anything of the markets of the North-West. It seems to me this is the point we should place our fruit.

Mr. Hutcherson—Mr. Kipp has brought up the question of the Western market. That is where we should place our fruit; but this season we simply spoiled it for ourselves. Early in the season we had contracts for fruit to be shipped regularly at fair rates, but later on telegrams kept coming in to us every day ordering us to discontinue shipping more, as fruit was obtainable from our own growers at much lower prices. As the situation became very serious, it was thought necessary for me to go to the North-West and look into this matter. I found that the Kelowna Shippers' Union were shipping their fruit to Station and Express Agents, to be sold at the best price it would bring, and thus were underselling us all along the line. We were getting from 50c. to 75c. before this transpired, whereas the Kelowna people only calculated to clean up 25c.

Mr. Kipp—Then, if that is the case, it is not market that we want, but union. I am of the opinion that the proper course would be to confine ourselves to shipping in carload lots.

Mr. Hutcherson—The Exchange is just in this position: that we have now got the information that will enable us to do good and satisfactory work, and now it would appear as if there was no use for the Exchange.

Mr. Mead—I would like to ask, what course was adopted with regard to good and bad fruit?

Mr. Hutcherson—In all cases, except the McPherson Fruit Co., each person got just what his fruit brought.

Mr. Mead—I do not think it fair that a grower should be asked to ship his good fruit to stand upon the same basis as bad fruit.

Mr. Hutcherson—Take the case of Mr. Campbell, who shipped direct. If no other fruit went to the McPherson Fruit Co. than his would stand alone, otherwise all fruit arriving would go in together.

Mr. Moggridge—I think this discussion is out of order.

Mr. Kipp—I am of the same opinion, and think these matters should be referred to the Exchange meeting. However, I think there is another point, the question of plum rot, to be considered.

Mr. Hine—Does this Association ship fruit or not? (Mr. Wilson—No.) Then fruit should not be discussed. I would like to ask Mr. Hutcherson if he considers bad fruit injures good fruit in a car?

Mr. Hutcherson—All kinds of fruit were affected because the car was too hot; but I do not know that diseased fruit would injure that which was sound in a car. This is just in line with our committee's report. Our man should be in the North-West to examine fruit and separate the good from the bad, and he should be given something to do. I have no doubt that if three or four individual shipments are sent on the same day they will all go in together and be treated in the same way, unless there is a man on hand to keep a report for the Association. It is one of the things we have to decide here this afternoon, as Mr. Moggridge says, whether this man is to be useful or not.

Mr. Palmer—How would it be possible for one man to cover the whole ground? Mr. Hutcherson has stated that when the McPherson Co. undertook to handle all our fruit they promised to put six men on the road. I think, possibly, the man could arrange to take out fruit at certain points, but this would not be just to others.

Mr. Hutcherson—Although the McPherson Fruit Co. promised, if it was found necessary, to put six men on the road, when the price got down to 50c. or 60c. a crate they could not afford this. It might be arranged, in the shipping of four cars to different points, for this man to meet the car, by shipping upon certain days: say, by shipping one day to Calgary, a day or two after to Regina, then to Brandon, and then to Winnipeg; so that man could be on hand at the opening of each car, and in this way anyone shipping poor fruit would get his deserts. If the growers will only hold together we can manage it; otherwise the thing must fail.

Mr. Palmer—Would it be possible to arrange for shipping cars three days apart?

Mr. Hutcherson—Not without the aid of refrigeration; with it we could manage to place them even a week apart. I have in my possession a letter from the Northern Pacific R.R. Co., which states that they have been able to handle the fruit successfully by this means, and even hold it for several weeks. For instance: suppose you ship a car to Calgary, and find that there is only sale for half, under the cold storage system you would then be able to leave it and go on to another point. After my experience of this season the matter is simple enough. I may say, for the benefit of those who have not been here before, that the difference between freight and express rates is in itself a fair profit. When we come to Winnipeg we have to meet with Washington growers, and this last season dealers could buy their fruit at 20c. a crate. I have been on my feet a great deal this afternoon, and I do not want to take too much of your time, but I would like to see a committee appointed to take the matter up in a business-like way.

Mr. Hadwen—The Committee considered that it could only act in an advisory manner, as the Government objects to making appropriations to be devoted to private enterprises. As Mr. Hutcherson has stated, no carload of our fruit has ever gone into Winnipeg in good condition, whereas it has been possible to get the fruit there by express. If we had a man there who could examine every lot, he could also advise the grower how his fruit is carrying through, and, as he would be an independent party, his word would carry considerable weight, and if the grower should continue to send poor fruit he might do so at his own cost. When the early plums, say peach plums, come in we could purchase them from suitable localities and have a carload sent east, and a man with the same, to examine the icing and see whether the fruit was handled roughly or not, and report the condition of the different growers' fruit. Of course we can only do so much with the funds on hand. Mr. Hutcherson has stated that if a carload of fruit arrives in bad condition it is simply thrown out, whereas if we had this man on the spot he could make the best of it.

Mr. Hutcherson—Do you think there would be anything in assisting the Fruit Exchange?
Mr. Hadwen—No; but I think it would be unwise, as it would cause feeling.

Mr. Moggridge—I think you would find considerable difficulty in selecting locality and whose fruit should be shipped.

Mr. Wilson—I think that point will come up in a later clause.

Mr. Hadwen—I had an idea that the Board of Horticulture would give us assistance.

Mr. Hutcherson—It is the Fruit Exchange that has been doing this work, and where else are you going to get your information? It seems strange that this work should be taken out of the hands of the Exchange, which must be in the best position to do the work.

A letter was here read, from the Cleeve Canning and Cold Storage Co., showing their facilities for handling fruit.

Mr. Hayward—The Committee does not propose to do anything; they simply make their report, and it is a matter for this meeting to decide whether it be adopted or not.

Mr. Metcalf—I am not a member of the Fruit Growers' Association, but have been sent down as a delegate from our locality, and I would suggest that all present be given the privileges of members.

It was then moved by R. M. Palmer, seconded by E. Hutcherson:

That all present have the same privileges as members for this meeting.—Carried.

Mr. Hadwen—Mr. Hutcherson has suggested that this Committee should be reduced to three. I would like to hear the matter discussed.

Mr. Kipp—I live at Chilliwack, and would like to say a word here. It does seem strange that whenever appointments are made on these committees, parties are always selected who never attend. I would like to see somebody appointed who would take an interest in the work.

Mr. Hutcherson—With all due respect to the Farmers' Institute, I think men should be appointed who will endeavour to be present.

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Clause 3.

Mr. Anderson—I would like to know who is to pay this expert.

Mr. Hayward—It is proposed to draw upon the Government grant as far as it will go.

Mr. Hutcherson—We would expect the Board of Horticulture to assist us in this.

Mr. Moggridge—I would suggest that the Committee approach the Exchange and learn whether they intend to ship in car-loads or not; if so, would they allow this man to follow their car. Then, if it was found that the Exchange was not shipping in a proper manner and continued to do so, we could then ship our own way. If this course were pursued, it would be a great saving in expense. I do not object to the Committee spending money, but it seems to me this is the course that should be adopted.

Mr. Kipp—I think we should recognise the work already done, and make our selection from both parties, so that all might profit by the mistakes already made; therefore, it would be foolish to employ entirely new material, as we would then have to go over the same ground and get information already in hand.

Mr. Brandrith—I think a great deal of this discussion is needless. I was one of the original organisers of this Association, and believe I know all about its incorporation, and am of the opinion that we cannot trade.

The President—It was this fact that caused the Exchange to come to light.

Mr. Hutcherson—It is impossible to inspect fruit at any central point; it would take two weeks to inspect a car-load. Fruit must be inspected where packed. We can tell pretty well by name whether the fruit should go or not.

Mr. Johnstone—Am I supposed to understand that fruit that comes in is not to be inspected to find out whether it is to go to the local market or to be exported? If so, I think it is altogether wrong, because some fruit that would be perfectly good for the local market would be utterly useless for shipping any distance.

Mr. Metcalf—We all seem to be proceeding upon the assumption that the Exchange is to be continued, of which I am very doubtful. It should not be difficult to determine the price for an expert for one car.

Mr. Hutcherson—I have not been asked my opinion as to how this packing is to be done, but I think the fruit should be sent in open boxes to the packing shed at the different points of shipment, and there carefully examined and properly packed. These points might be, say, Chilliwack, Ladner, Hammond, Mission, Victoria, New Westminster, and others.

Mr. Lewis—One of the great difficulties I think we have to contend with is the great distance the growers are apart, and the cost and damage to fruit in getting it to the centres.

Clause 4.

Mr. Sharpe—I think if the Committee were to advertise they would get plenty who would be willing to take their chances in sending their fruit in this experimental car, with the understanding that they would get what the fruit might bring.

Mr. Metcalf—Mr. Hutcherson has told us that about eighty per cent. of the fruit consumed in the North-West is supplied by the Americans; the question for us to consider is, how we may change this state of things. I am of the opinion that by advertising, personal canvassing, and the furnishing of full and complete information would accomplish this.

Mr. Sharpe—It is not a difficult matter to convince these people if we send the fruit through in good condition. Last season I sent fruit to a number of parties, with the request that they would report upon its condition, and in every instance the report was most favourable, and that next year they would place orders for my fruit.

Mr. Hutcherson—The course suggested by Mr. Metcalf is good; we should also have our man going from store to store and contract with parties to supply plums at a lower rate than the California plums. But if we do not enter into some definite bargain, there will be little use waiting, because they have been too often disappointed.

Mr. Hayward—I do not think this Association could take up the matter of making contracts with the country storekeepers, but the matter of advertising we could assume.

Mr. Hine—I think every member knows well enough how to pack his fruit if he will only do it.

Mr. Anderson—From what Mr. Gordon reported, he is of the opinion that British Columbia fruit is not packed as well as it should be.

Mr. Palmer—I have a report to present from Mr. Gordon on this very subject:

“WINNIPEG, February 13th, 1899.

“*Mr. B. Gordon, Victoria, B. C.*

“DEAR SIR,—ANSWERING your favour of the 8th instant, which we received this a.m., in which you have asked us to obtain, in the interest of the Fruit Growers of your Province, some information in connection with the Oregon and California fruit trade.

“As you suggest, we have had a personal interview with Mr. Scott, of the McPherson Fruit Co., and obtained from him a full and concise explanation regarding the experience of his firm in the past. We cannot do better, in giving the result of our interview with him, than a numerical answer in accordance with the numbers as per your letter.

- “1. Oregon Plums cost 78c. per crate of four small boxes.
- “2. California Plums cost \$1.00 per crate of four small boxes.
- “3. Oregon Pears, \$1.10, in 50-lb. box, this size being preferable to 25.
- “4. California Pears, \$1.50, 50-lb. box.
- “5. Cherries, \$1.00, in 10 boxes.
- “6. Strawberries, in crates of 24 quarts, average price per case, \$2.00.
- “7. Crab Apples, \$1.15 to \$1.40 per 50-lb. box.

“The style of box recommended for strawberries is that adopted by the Hood River Association of Oregon, the crates containing 24 each.

“The prices above given are all less 10 per cent. delivered here, and at which prices the fruit growers of Oregon have been perfectly satisfied with.

“In addition to the information as to cost and style of package herein given, we presume that we should give you exactly the opinion expressed with regard to British Columbia fruit by Mr. Scott, and the experience of his firm in the past years and which, we might add, is fully endorsed by others in the fruit trade, whom we have also had a personal interview with.

“British Columbia fruit, berries, etc., in the past have been most unsatisfactory, arriving in bad condition by express; most unprofitable for the wholesale trade, and equally unsatisfactory to the retailers. Evidently the fruit has been shipped in bad condition, and not such as will, on arrival here, hold over for a day. In which case the retailer has absolutely no chance or possibility of placing it in the hands of the consumer in condition fit for table use. Whereas, in the case of Oregon fruit, the shippers have been most careful to send it forward in such shape that it will hold with perfect safety after arrival here, in cold storage, for several days, thus enabling the wholesaler, in the first instance, to dispose of it at a profit, and also giving the retailer an opportunity of disposing of it to the consumer gradually and in perfect condition, affording him also a profit. We might also add that the opinion is pretty general here that the variety of strawberry grown in British Columbia is not of a description which can be safely expressed any distance. The trade, however, are unanimous that, for spot consumption, the flavour of British Columbia fruit cannot be surpassed; but that, if it is ever the intention of growers to secure a share of the trade of outside places at any distance, they will require to grow a variety different to those they are at present growing, which, as we have stated, is all that can be desired for home consumption, but totally unfit for shipment.

“We might also mention that upon asking the wholesale trade here if their remarks and opinions referred to the entire fruit-growing people of your Province, we were told it did; but that one of your growers had, after an opportunity had been given him to inspect the fruit after its arrival here, evidently taken in the situation, acknowledged the desirability of changing the crop, and has now, we understand, got several acres under way. The party referred to is Mr. Harris, of Salmon Arm, B. C. In corroboration of the facts of the case, as we have endeavoured to give them to you, *verbatim et literatim*, we might, in conclusion, just say that the general opinion here among the fruit trade, and as very plainly expressed by Mr. Scott, is, that if Mr. Cunningham, the Inspector of Fruit in your Province, were here on the arrival of the very best lot that was sent forward in the past, he would have dumped nine-tenths of it into the Red River.

“With regard to your inquiry as to whether, in the event of your securing this business, we could handle it through our office here, what our opinion is as to the commission we should be paid, you yourself would be a better judge as to that; and upon your arriving at a decision as to the amount that in your opinion we should have, you will, we are sure, bear in mind that it is a business which will require a great deal more attention, labour, etc., from its perishable character, than almost any other commodity in the mercantile list.

“Yours truly,

(Signed) “BUCHANAN & GORDON.”

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Moved by W. J. Moggridge, seconded by E. Hutcherson:
That clause 4 be amended by the insertion of the words "or inspection," after the words
"undertake the shipping."—Carried.

Mr. Anderson—It is our intention to prove that we can ship our fruit in good condition.

Clause 5.

Moved by W. J. Moggridge, seconded by G. H. Hadwen:
That in the opinion of this meeting, seven is too large a number, and that the Committee
be reduced to three members, with the addition of the Minister of Agriculture. Carried.

Clauses 6 and 7.

Moved by G. H. Hadwen, seconded by E. Hutcherson:
That clauses 6 and 7 be adopted. Carried.
Moved by E. Hutcherson, seconded by H. Kipp:
That the report of the Executive Committee be received as amended, and the Committee
discharged. Carried.

Moved by E. Hutcherson, seconded by W. J. Moggridge:
That C. B. Harris be appointed a member of this Committee for the Interior. Carried.
Moved by E. Hutcherson, seconded by J. R. Anderson:
That H. Kipp be appointed a member of this Committee for the Lower Mainland.
Carried.

Moved by T. A. Sharpe, seconded by T. Lewis:
That W. H. Hayward be appointed a member of this Committee for Vancouver Island.
Carried.

Moved by J. R. Anderson, seconded by T. Lewis:
That the appointment of a man for the North-West be left in the hands of the Executive
Committee. Carried.

On motion the meeting adjourned.

TOM WILSON, *Pres.*
T. R. PEARSON, *Sec.*

In accordance with clause 3 of the Executive Committee's report, the services of Mr. A.
T. Bassford, of Vacaville, California, were secured to give practical lessons in fruit packing,
shipping, icing of cars, etc.

The following is Mr. Bassford's report:—

"VICTORIA, September 19th, 1899.

*"To the Executive Committee of
The Fruit Growers' Association of British Columbia:*

"I beg to report that I have, under your directions, held public meetings, for the purpose
of giving practical demonstration in packing fruit, in many districts of the Province.

"The fruit that has been packed has consisted of apples, pears, plums and cherries.

"I would like to point out, not only is there great need of better packing, but that the
sorting and grading of all kinds of fruit, both for the home market and for eastern shipment,
is a subject worthy of more consideration and attention than has hitherto been given; and,
above all things, the shipper's name should be upon the boxes.

"Owing to the extremely wet season, fruit in anything like good shipping condition was
hard to obtain, and at more than one meeting wet fruit had to be used.

"I was requested by your Committee to handle and see to the icing and loading of a
carload of plums; but I am sorry that I have not been able to carry out this part of the
programme, owing to the wet season, and I certainly believe that the plums, even if a carload
could have been obtained, would not carry in carload lots by freight trains.

"If I might be permitted, I would like to point out the necessity of keeping the orchard
clear of all grass, grain crops and weeds. In wet seasons these undoubtedly tend to rot the
fruit, while in dry seasons they absorb the moisture that the trees should have, and prevent
the ground being well stirred on the surface, thus allowing the capillary attraction to have
full sway.

"My attention has been called more than once to the fact that many fruit growers packed fruit in a wet and over ripe condition. These conditions are very bad to the profitable shipment of fruit, even if it were to be shipped merely to your local market. The fruit should always be picked uniform in ripeness; and by all means you must have the cleats for the packages.

"Another suggestion: In many districts plum trees of a poor shipping variety have been planted, such as the Greengage. It would be greatly in the interest of such fruit growers if they would top graft better shipping varieties on to these. In some varieties a profitable crop of plums of the better varieties would be obtained the second year, while in no case should it require more than three years for them to yield a fair crop.

"In regard to loading and icing cars of fruit. I understand that in the past cars of plums, after having been iced, have been run with ventilators wide open. This is a mistake; all ventilators should be closed, and kept closed, except when being iced, to the end of the journey. The new refrigerator cars shown me by the C. P. R. authorities have icing capacity large enough for all shipments to the North-West, but it would be well to mention that the ice tanks must be refilled at every icing station from point of shipment to destination.

"I saw plum-rot in many places, the particular kinds affected being Peach, Bradshaw and Lombard plums. In no case should fruit from orchards infected by plum-rot be shipped to distant points.

"I would point out that it is altogether impossible to make satisfactory shipments of fruit, unless some person is given the authority, by those making the shipment, to throw out fruit destined for the car when improperly packed and graded.

"Yours truly,

"A. T. BASSFORD."

About the 17th August Mr. Tom Wilson, Pest Inspector, Vancouver, was sent to Manitoba and the North-West to carry out the work as recommended in clause I of the Executive Committee's report.

The following letters from Mr. Wilson constitute his report:—

"W. H. Hayward, Esq.:

"WINNIPEG, Man., August 28th, 1899.

"MY DEAR HAYWARD.—I have been expecting to hear from you for some time. I am entirely in the dark as to what you are doing. I heard from my wife last week that there had been a good deal of rain since I left, and I am sorry to say that I have seen what I take to be partly the effects of it on some British Columbia plums which arrived here this morning, consigned to the McPherson Fruit Co. I think, by the look of them, they were from——, of——, and although, I suppose, they would only be shipped by Saturday's express, they were in bad shape—more or less brown rot in almost every one of the ten cases.

"The fruit dealers here have everything to say in favour of Okanagan fruit, but up to date their experience with fruit from the Lower Mainland has not been happy. Then again, to refer to the packing of that particular ten cases which I saw this morning. It was simply beastly—the plums appeared to have been shoveled into the boxes. Now this will not do. If our product is to take its place on this market it has got to be put up in a shape that will attract attention. And certainly this stuff I saw this morning would have attracted attention, but it was because of its bad quality. Some of the plums had been very good, but no attempt had been made to grade them as to size; big and small had been slap-banged into the boxes indiscriminately, and the result is they are on the market for what they will bring. The shipper may get 25c. per case, but I don't think he will get any more.

"Yours truly,

"TOM WILSON."

"W. H. Hayward, Esq.

"VICTORIA, September 19th, 1899.

"MY DEAR HAYWARD,—I turned up this morning expecting to see you, but was disappointed. I called at Chilliwack, on my way down from the North-West, and saw Kipp. He was busy packing plums, and I advised him to make a shipment by express to Winnipeg, which he did on Saturday.

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"I was very sorry indeed to have to come back without having put our car on the market, as there never was a better opportunity for getting a foothold. I saw some plums which came in from ——, of ——, consigned to the McPherson Fruit Co., a lot of eighty cases. (I wrote you about the first lot of ten cases). These were in very fair condition, but were slaughtered at 70c. per case, to make room for a consignment of Washington fruit that came in at the same time.

"Now one conclusion that I have arrived at is this: our fruit from the Lower Mainland, although far more luscious and really superior in every way for immediate use, has not got the keeping qualities of fruit from California, Eastern Oregon and Washington. The plums from the interior of British Columbia partake more of the character of the American fruit, consequently it will keep better during transportation. Then, again, the quantity raised in the countries to the south of us gives them a great advantage over us here. We have no district closely contingent to the railway, where they could pluck, pack and cool a carload and have it dispatched the same day. Over there they can dispatch a trainload. Then these trains are to all intents and purposes express trains. They are dispatched consigned to Chicago; but are liable to be switched off anywhere. It may be a Winnipeg merchant wants a couple of cars; may be a man in Butte, Montana, wants the same, and several others want fruit; so that the cars are all distributed in this way; if any should happen to be left they are taken on to Chicago and the fruit sold by auction. Supposing, then, a couple of cars are ordered by a Winnipeg merchant, they are brought to St. Paul on the fruit train and then attached to the regular express and brought up to Winnipeg.

"You must remember also that the fruit cars are not owned by the railway companies, nor are they iced by them. The fruit shippers own their cars and have their own men along the road to attend to the icing of the cars.

"There has been a good deal of dissatisfaction with the way the C. P. R. has been doing in connection with this matter, and also with the way that cars are handled on their arrival in Winnipeg. The N. P. R. seems to have got things down finer, so that perishable freight, like fruit, is handled with a good deal more expedition.

"During my stay I went down the South Western as far as Morden, and visited different points between that and Winnipeg. Fruit is in big demand, but it must be good, because it has got to be distributed from Winnipeg, and this is done without ice.

"The same also applies to the North Western. I went up from Portage la Prairie as far as Minnedosa. In Neepawa I saw some Chilliwack fruit, in fair condition, and I am glad to say that everyone that I spoke to about the condition of our fruit said that it had arrived in better shape than ever before.

"I have seen some fruit on the local market, and the people seem to have taken their lessons in packing very much to heart. Several people have spoken to me about the very excellent manner that McNeely's plums are coming on the market this year compared with other years; and I have seen Kipp's fruit and also Melhuish's, and they compare very favourably with anything from the South.

"While in Winnipeg, I had some cases of British Columbia plums put on the scales. They weighed 29 to 30 lbs. gross, while cases from Washington went 23 to 24 lbs.

"Yours truly,
"TOM WILSON."

UNSATISFACTORY PACKING AND GRADING OF FRUIT.

"VANCOUVER, B. C., Jan. 25th, 1899.

"Mr. Thos. Wilson,
"Fruit Inspector, City.

"DEAR SIR,—We take this opportunity of bringing to your notice the very unsatisfactory way in which fruit which we received from B. C. shippers is graded and packed. In very few cases does there seem to be the least care or thought exercised as to putting up the apples in an attractive state for the market. All in the boxes are seldom bad, but there is usually a sufficient portion of poor fruit to take the box out of the first rank, and to make it impossible to sell it for the highest price.

"There seems to be an impression among the packers that a few bad ones to the box will not matter as long as the rest are good. So far as we can observe, there is no systematic attempt made to grade the fruit, it being usual to put small apples in the bottom and middle and large ones on top. All this serves to disappoint dealers and to keep prices down, and destroy the reputation of B. C. products.

"The same thing applies in a different way to plums. In our opinion, growers allow these to ripen too much before picking, so that when they have been in the market for a day or two they are apt to show signs of decay. They also very often pack ripe and unripe fruit together, so that it is impossible to ship boxes which might otherwise be sold and give good satisfaction by their keeping qualities.

"We would suggest that all shippers be requested to have their names stamped legibly on each box; this would insure a good packer always getting credit for good fruit, and he would reap corresponding benefit. If there are any regulations that can be enforced as to the quality of the fruit shipped to the open market, we think it would be advisable to have them put into force.

"The style of the California fruit is the best object lesson which anyone can conceive, and it would afford us pleasure at any time to exhibit the style and packing of such California fruit as we might happen to have in our warehouse, to anyone looking for pointers in this direction.

"Yours truly,
"F. R. STEWART & Co."

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TENTH ANNUAL MEETING.

MINUTES AND PROCEEDINGS.

VANCOUVER, B. C., January 9th, 1900.

Pursuant to call, the Annual Meeting of the B. C. Fruit Growers' and Horticultural Association was held in the Court House, Vancouver, at 10.30 a. m.

There were present—Tom Wilson, President, J. R. Anderson, W. H. Hayward, H. Kipp, W. J. Brandrith, R. M. Palmer, T. A. Sharpe, and the Secretary, T. R. Pearson. F. T. Shutt, Esq., Chemist, Experimental Farm, Ottawa, and C. Marker, Esq., Dominion Dairy Commissioner in the North-West, were also present.

Minutes of the previous meetings were read and adopted.

Mr. Sharpe brought up the subject of holding a summer show. A discussion followed, taken part in by R. M. Palmer, W. J. Brandrith, H. Kipp, J. R. Anderson and W. H. Hayward.

A Committee, consisting of Messrs. Sharpe, Palmer, Pearson and Hayward, was appointed to report on the subject.

Meeting adjourned at 12.30 p. m.

Meeting re-assembled at 2.45 p. m. Tom Wilson, President, in the Chair.

Report of Committee on Adulteration of Jams and Jellies was presented.

REPORT OF THE COMMITTEE OF THE FRUIT GROWERS' ASSOCIATION OF BRITISH COLUMBIA, APPOINTED TO INVESTIGATE THE QUESTION OF ADULTERATION OF JAMS AND PRESERVES.

Your Committee have the honour to report as follows:—

In pursuance of instructions, a further sample of jam was procured and transmitted to Mr. H. Carmichael, Provincial Analyst, with a request that a thorough analysis be made of it by himself, in conjunction with Dr. Fagan, Dominion Analyst.

A letter was also addressed to Dr. Fagan, a copy of which is appended with his reply, by which it will be seen that the matter has been referred to the Chief Analyst at Ottawa by Dr. Fagan.

Your Committee therefore deem it inexpedient, pending a reply from that official, to expend any more of the funds of the Association; and, in view of the probability of the matter being taken up in a comprehensive manner by the Dominion authorities, recommend that further time be granted.

All of which is duly submitted.

J. R. ANDERSON, }
R. M. PALMER, } Committee.

Victoria, January 3rd, 1899.

"DEPARTMENT OF MINES,
"VICTORIA, January 26th, 1899.

"J. R. Anderson, Esq.,

"Deputy Minister of Agriculture, Victoria, B. C.

"DEAR SIR,—I have examined the sample of jam, marked Strawberry, submitted to me by you.

"A microscopic examination would appear to show that it contained very little strawberry, and that the bulk is made up of some other substances, a portion of which is probably apple.

"I have strong reason for believing that the mixture is coloured with an aniline dye, which is deleterious to health.

"The cane sugar and glucose were roughly determined, showing 23 per cent. of the former and 33 per cent. of the latter. I am doubtful if glucose would be considered an adulterant, as it harmless and generally used; there would be a percentage of glucose in jam made from pure fruit and cane sugar, as a portion of the cane sugar would be converted into glucose by the acids of the fruit; if starchy matter were added they would also be partly converted into glucose by the fruit acids.

"The sample may also contain gelatine, or some gelatinous matter.

"The above examination was only roughly made, as I was instructed that this was all that was necessary in the present case.

"Yours truly,
(Signed) "HERBERT CARMICHAEL,
"Provincial Analyst."

"DEPARTMENT OF AGRICULTURE,
"VICTORIA, Dec. 19th, 1899.

"SIR,—I was some time ago placed on a committee of the Fruit Growers' Association, to ascertain whether the jams and preserves which are sold in this market are adulterated, and if so with what substances and to what extent.

"Acting on this, I obtained a pail of raspberry jam, bearing the name of T. A. Lyttle & Co., Toronto, and placed it in the hands of Mr. H. Carmichael, Provincial Analyst, and asked him to make an examination of it. The results leads me to believe that the jams sold in the Province are largely adulterated with foreign, and probably often with deleterious, matter.

"In view of the result of the investigations as far as they have been carried, I am desirous of obtaining your advice as to further proceedings.

"As the Annual Meeting of the Fruit Growers' Association takes place on the 9th January, I would like to make a report at that time, and would therefore ask for an early reply.

"I have the honour to be,

"Sir,
"Your obedient servant,
(Signed) "J. R. ANDERSON,
"Deputy Minister of Agriculture.

"Dr. C. J. Fagan,
"Dominion Analyst, Victoria, B. C."

"PROVINCIAL BOARD OF HEALTH,
"VICTORIA, Dec. 22nd, 1899.

"DEAR SIR,—I am in receipt of your letter of the 19th regarding the sale of jams and preserves suspected to be adulterated.

"I have forwarded a copy of your letter to the Chief Analyst of the Dominion at Ottawa, and it is more than probable he will order a collection of these articles throughout the Province for the purpose of analysis. I will let you know when action is taken.

"In the meantime I will be pleased to analyse any samples you may send to me.

"J. R. Anderson, Esq.,
"Deputy Minister of Agriculture,
"Victoria, B. C."
(Signed) "C. J. FAGAN.

Mr. Shutt, being asked to speak upon this subject, said that the question was a very interesting one, but did not come under his department, but under that of Inland Revenue. It would greatly depend upon how the package was labelled. Probably if the attention of that Department were called to the matter steps would be taken to find out from the different Provinces what proportion of gelatinous matter was commonly used.

Mr. Palmer thought that the packages in question were simply labelled "Strawberry Jam."

It was moved by Mr. Authier, seconded by H. Kipp:

That the Committee be given further time to take action in the matter. Carried.

Mr. Palmer presented the Auditor's report, which was adopted.

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The Executive Committee's report was next presented and read by the Secretary of the Committee, Mr. Hayward.

EXECUTIVE COMMITTEE'S REPORT.

*To the Members of the
Fruit Growers' Association of B. C.:*

Your Committee beg leave to hand in their report of the work done, the reasons that called forth that work, and a survey of the prospects of a continuance of such work.

Taking first of all the reasons for the Committee's existence. At the annual meeting, held in Victoria in the beginning of last year, an excellent address was delivered by Mr. E. Hutcherson on work done by him in the North-West during the preceding year. During this address he emphasised the necessity of doing our best, as an Association, to open the North-West market to the fruit growers of British Columbia, drawing the attention of the meeting particularly to two facts, that stood out prominently as factors which greatly retarded such wished-for success, as placed the efforts of the British Columbia fruit growers at a very great disadvantage when compared with those of the growers of Oregon and California. These two drawbacks were—

- 1st. Our inability to pack our fruit.
- 2nd. Our inability to load and handle fruit in carload lots, so as to reach their destination in prime condition.

A lengthy discussion took place, and in the end the meeting decided to appoint a Committee, which was to report to an adjourned meeting, to be held in New Westminster in February. The Committee reported, and the report was adopted with but little change. The report, as adopted, read as follows:—

1. That the Fruit Growers' Association should act only in an advisory manner in regard to the marketing of fruit in the North-West.

2. That the Association should send a competent man to the North-West, whose special business it should be to keep the fruit growers of the Province thoroughly posted as to the market conditions, prices and best methods of transportation during the shipping season. That this information should be sent by wire or mail, as necessity demands, for publication and dissemination throughout the Province.

3. That the Association should secure an expert in fruit packing and shipping, who would give information as to the packing, condition of fruit for shipment, and loading of cars, etc., at points to be determined upon.

4. That the Association should itself undertake the shipment or inspection of a carload of fruit to Winnipeg at the commencement of the season; an accurate account to be kept of the condition of the fruit when shipped; the temperature, icing and handling of the car in transit, and all other particulars of moment concerning it. That the fruit should be displayed in Winnipeg to the best advantage and well advertised, with a view of demonstrating the superior quality of British Columbia fruit.

5. That a Committee, consisting of three members, together with the Minister of Agriculture, be appointed to superintend the carrying out of these suggestions.

6. This Committee also proposes to take up the question of freight rates, express shipments and transportation generally, but requests that an expression of opinion be given as to the needs of the fruit growers in these respects.

7. This Committee would also suggest that the Fruit Growers' Association should request the Horticultural Board to aid in an active and material manner toward the carrying out the suggestions herein contained with regard to the recommendation of a man being sent to the North-West.

The Hon. the Minister of Agriculture, and Messrs. Kipp, Hayward and Harris were elected as the Committee to carry this work out.

Meetings of this Committee were held on March 14th, July 17th and July 18th, at which most of the members were present, the Hon. the Minister of Agriculture being chairman and Mr. W. H. Hayward secretary.

The Board of Horticulture was interviewed and at once took an active interest in the work in hand, and agreed to the request for "active and material" aid by nominating Mr. Tom Wilson, Fruit Inspector at Vancouver, and agreed to pay for his services while in the North-West.

Your Committee also set itself the task of finding an expert packer, but here there were many difficulties in the way. First, I may say, that first-class packers are hard to procure, their services being required in the South, and well paid for. Then, after negotiations were commenced, the reports of the probable plum crop were by no means assuring as to quantity, and the Committee had to make many inquiries in the different districts as to the prospects of the crop. After, however, getting replies from many growers, and seeing for ourselves, we decided that the crop would certainly warrant the services of the expert packer, and we also hoped that we would be able to send to Winnipeg the experimental car.

Accordingly, we obtained the services of Mr. A. T. Bassford, of Vacaville, California, who had excellent credentials from the Earl Fruit Packing Company, J. W. Lelover & Co., as well as Pinkham & McKeivitt.

He arrived in Victoria on August 12th, and at once went to work, holding meetings at the following points in the Province:—

PORT HAMMOND.—Small attendance, it being wet and fruit scarce.

HATZIC.—Poor attendance. Rain fell all day, and the fruit was in consequence in no state to pack.

CHILLIWACK.—There was a good attendance here and much interest taken; apples, pears, plums and cherries were packed. The meeting accorded a hearty vote of thanks to the Fruit Growers' Association for the work they were carrying on.

NEW WESTMINSTER.—Owing to the river boat being late, the meeting had to be postponed until the evening. A few attended and showed much interest, while one or two joined in an animated discussion on the conditions surrounding the shipments of California plums in comparison with those here.

LADNER'S LANDING.—Very small attendance. Two of the largest growers were, unfortunately, out of the district.

EBURNE.—The local people seemed to have made no arrangement for their meetings, consequently there was no one present.

AGASSIZ.—Very fair meeting, but comparatively little fruit.

ABBOTSFORD.—Very small meeting, probably partly owing to the rain.

FORT LANGLEY.—The same may be said of this meeting.

SALMON ARM.—Poor attendance and practically no fruit.

KELOWNA.—Only fair attendance, but great interest taken by those present.

VERNON.—Only fair attendance, owing to the rain.

ARMSTRONG.—The same may be said of this meeting.

CHILLIWACK.—The expert packer again visited this district, with two of your Committee, and answered many inquiries regarding the packing of fruit and loading of cars; interest being thoroughly aroused, the growers of this district evidently meant to make the most of Mr. Bassford's presence. It was still wet. Messrs. Webb and Peers gave valuable assistance as a local committee.

SAANICH.—A very fair attendance. Fruit packed.

METCHOSIN.—Good attendance and great interest taken, apples, pears and plums being packed.

DUNCANS.—Very good attendance; apples, pears and plums packed.

NANAIMO.—Small meeting.

SALT SPRING ISLAND.—A small attendance, caused by the many attractions of the local fair.

During the time these meetings were being held the weather was exceeding wet but warm, and at more than one point Brown Rot was found to be prevalent.

Your Committee took the utmost pains to thoroughly sift the *pros* and *cons* connected with the sending of the experimental car to Winnipeg. For this purpose Chilliwack, as being the point from which the bulk of the car of fruit would have to come from, was visited twice. After consultation with many of the largest growers there, and after receiving a report from the expert, your Committee decided not to go behind their advice and determined not to send out a car of plums on the Association's initiative. Accordingly, on the 7th of September, the following circular was sent to all interested:—

"I am in receipt of communication from Mr. T. Wilson, from Winnipeg, who reports that the demand for plums is active at that point, and prices running as high as \$1.40 per case, wholesale, for plums well packed and arriving in good condition. If these prices are maintained, it will permit of the shipping of plums by express and should yield good returns to the grower. This is an important point, as, owing to the wet weather, the Californian

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expert is of opinion that our plums will not carry in carload lots. If, however, it is decided to make up a carload lot, the services of Mr. Bassford, Californian expert, are at your command by wiring me. Of course you will understand that, after Mr. Bassford's decision *re* condition of fruit on account of weather, this committee is not prepared to guarantee a minimum price, as originally proposed.

"W. H. HAYWARD,
"Sec. Ex. Com., F. G. A."

To this circular we had no answer, accepting the services of Mr. Bassford. I might, perhaps, conclude this part of the subject by saying that your Committee were unanimous in their decision not to send the car. It was a great disappointment to us, and I believe a disappointment to the fruit growers generally, but such a wet season has not been experienced for years; for not only did the fruit industry suffer, but the grain crops were in many localities greatly injured; and even supposing that we had decided to send the car, we should, I believe, have found an insuperable difficulty in the fact that the grain and the fruit would have required attention at the same time and during the first spell of fine weather.

Before taking a survey of the future, I would like to thank several gentlemen who have particularly helped us in our work, and have shown such a kindly spirit towards the interests of the fruit growers generally that I think they may well be counted on as helpers for the future, if so be that the Association should consider it wise to keep on and not turn back. They are—

Hon. Mr. Cotton, who has throughout taken a deep interest in the work in hand.

Mr. Allan Cameron, traffic manager of the C. P. R., who did all in his power to make the work a success, by granting free passes to the expert and to Mr. Wilson.

Mr. J. J. Mulhall, manager of Cold Storage, at New Westminster, who, in our interview with him prior to the beginning of the fruit season, promised us his aid in the icing and storage of the fruit while waiting for shipment.

And last, but by no means the least, our friend Mr. R. M. Palmer, who from first to last has taken an active interest in the work, and without whose aid I fear what has been done would have been greatly lessened.

We owe these gentlemen, one and all, a hearty vote of thanks, and for myself I take this opportunity of personally thanking Mr. Palmer for his ever-ready aid.

Now, taking a survey of the past and looking out for the future of the plum industry of our Province, we find—

1. That the art of fruit packing, as it is understood in California, is not practised generally in British Columbia.
2. That the shipping of fruit in carload lots, including the refrigerating of the cars, is and has been quite imperfect.
3. That the methods of distribution of fruit in distant markets require more consideration.
4. That the methods regarding the above three points have been adopted in California only after long and costly experience, and to-day represent the utmost of knowledge existent in regard to shipping fruit.
5. That as in all probability there will be heavy crops of soft fruits, especially plums, this season, and that while we may reckon on good home demand, yet, if the bulk of the fruit is thrown on the home market there will be a demoralization of prices.
6. That in that case, express shipments cannot be relied on altogether, as prices may go to a figure which would leave nothing to the grower.
7. That in that case the conclusion is forced upon us, that car-lot shipments, through regular trade channels, must come to afford relief.
8. That the efforts of growers should be concentrated on the making up of car-lots of fruit, thoroughly good and well-packed, to compete with California and Oregon fruit on equal terms.
9. That the efforts of the Fruit Growers' Association might with advantage be continued along the same lines.

This survey must in no sense be taken as an arbitrary statement of affairs of the fruit growers, but is put forward to invite criticism and suggestions as to the problems to be dealt with, and with the certain knowledge that no system, however good, can succeed without the earnest support and confidence of the fruit growers generally.

W. H. HAYWARD, *Sec. of Committee.*

Mr. Authier commended the report. He considered the Committee had done the best possible under the circumstances, and suggested that the work be continued. He also commended the economical way in which the work had been carried out.

Mr. Sharpe here reported, on behalf of the Auditors, that they had examined the accounts of the Executive Committee and found them correct. The report was adopted.

Mr. Metcalf considered the work done well worth the labour and expense. It was very unfortunate that the weather had been so unfavourable.

Mr. Palmer considered that a great deal of the success of the Committee's work had been due to the faithful services rendered by the Secretary.

Mr. Kipp stated, although perhaps the work had not pleased everybody, they had done the best they could.

Mr. Brandrith said that he had seen a box of apples supposed to have been packed after the instructions of Mr. Bassford, the packing expert. He did not consider the packing good, as placed upon their sides they were sure to be bruised.

Mr. Palmer said he had seen apples, packed in the way mentioned, which had arrived in excellent order from Wolf River. One thing alone was quite certain with regard to packing apples or anything else, namely, that it paid to be honest.

Mr. Anderson stated that he had attended the different shows and found that no boxes were the same size. They ought to agree upon this matter.

Mr. Hayward read a letter from Calgary, stating that the difference between Bassford's packing and that ordinarily pertaining was 25 cents a crate of plums. He also mentioned that Mr. Miller, of the Horticultural Board, Oregon, agreed with Mr. Bassford's method of packing apples. He would like to suggest that the services of an expert be again used for another year, when, in all probability, there would be a large crop of fruit. He would also suggest that the members of the Committee be selected having regard to nearness of residence for the sake of economy. He wished to thank both Mr. Palmer and Mr. Kipp for their hearty support. He incidentally mentioned that votes of thanks were received from Chilliwack, Salmon Arm, Vernon, Metchosin, Duncans, etc.

Mr. Brandrith here mentioned that he had not wished to criticise the work of the Committee, as he was more than pleased with the work done, and trusted that the same Committee would again be nominated.

Moved by Mr. Brandrith, seconded by Mr. Layritz:

That a vote of thanks be tendered to the Committee.—Carried.

Mr. Wilson had seen good results of the expert's work in the North-West. The fruit was good, but the packing might still be improved upon.

Mr. Anderson moved, seconded by Mr. W. H. Hayward:

That a Committee, consisting of Messrs. Palmer, Wilson, Brandrith and Kipp, be appointed to recommend size of crates, boxes, etc., and report to-morrow.—Carried.

Moved by Mr. Sharpe, seconded by Mr. Metcalf:

That the Executive Committee be discharged.—Carried.

Moved by Mr. Authier, seconded by Mr. Brandrith:

That an Executive Committee be appointed to carry on the work on the same lines as last year; that the Committee consist of Messrs. Hayward and Kipp, together with the Minister of Agriculture, with power to select another member; and that all the available funds, not required for the necessary work of the Association in the Province, be devoted to the work of the Committee.—Carried.

Mr. Anderson read a letter *re* the shipping of prunes to England, in which he had replied that they could not be produced at the figures.—Filed.

Meeting adjourned to 8 p. m.

Meeting re-assembled at 8 p. m. Chair was taken by the President, Mr. Palmer acting as Secretary *pro tem*.

Mr. Anderson introduced Mr. Shutt, chemist, Dominion Experimental Farm, to the meeting. Mr. Shutt addressed the meeting at length, a report of which is appended.

ADDRESS BY FRANK T. SHUTT, M. A., F. C. S., CHEMIST, OF THE DOMINION EXPERIMENTAL FARM, OTTAWA.

Mr. President and Gentlemen of the Association.—There are two thoughts uppermost in my mind, as for the first time to-day I meet you, the Fruit Growers of British Columbia, in Convention, and the first is this; that I may be able to say something of real value to you,

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something of assistance and help in your future work. Twenty-nine hundred miles and a week of travel is no small undertaking, especially at such a busy season, but I shall not feel that my time has been lost if I can leave behind me some information which may be of assistance to you in your occupation as fruit growers.

You must not think, however, because this is my first visit that my interest is only now awakening in the fruit industry of British Columbia. You are doubtless aware that the Experimental Farm system was inaugurated some thirteen years ago, and that I was then appointed to the position I now hold in that institution. Ever since that time I have had in mind, and, as I might say, in my daily work, the agricultural problems which affect you in British Columbia. During the past ten years we have received a large number of samples of soil from the Provinces, and these have, as far as time allowed, received our careful attention. I regret exceedingly that, owing to the increase of chemical work, it has not been possible during the last few years, although we have increased the analytical staff, to keep up with the demands made upon us by the various Provinces of the Dominion.

You will readily recognize that ours being a Dominion institution takes a practical interest in agriculture as carried on in all the Provinces, and consequently we cannot devote the whole of our time or the whole of our attention to any particular part of the Dominion, nor can we give more than a certain quota of time to any particular problem, though that may be of very great importance to a certain locality. I say this because some have said lately that British Columbia is being neglected by our chemical division.

I have been looking forward to this visit for several years. My work necessarily keeps me very much in Ottawa, and the great distance to the West and the time involved in travelling have hitherto been against me visiting British Columbia, consequently I was very much pleased to receive the authority of the Hon. Minister of Agriculture to come and meet you. I very much regret it was not a summer convention, for then I could have seen more of your country and seen it to better advantage.

And that brings me to the second thought I would give you; and that is, that, while I may be of help to you, I may learn something myself of the conditions under which fruit growing and farming are carried on. I am not altogether selfish in this wish. Although I take a great interest in the whole question of British Columbia agriculture, from a scientific standpoint, it is above all things my hope that I may go back better informed as to your possibilities and difficulties here, so that I can in the future help those in the Province with whom I may be in correspondence.

Doubtless most of you know that our central institution has become, together with the branch farms, what I may term a bureau of information. Numbers of letters, regarding soils and various other matters relating to agriculture, are received. The number of communications of this kind is yearly increasing, and we are very glad to note that this branch of work is receiving so much appreciation from our farmers. It is that I may be in a better position to give advice, information and help that I am now keeping my eyes open. As I said to the Hon. Minister before I came away, "Well, if I cannot do very much practical good there—and I certainly do not expect to do as much good there as I shall the second time I go to British Columbia, for the simple reason that I am not personally conversant with conditions prevailing there,—I shall certainly come back with a better idea of farming possibilities in that Province, and better able to carry out work in the future on behalf of the British Columbia farmers and fruit growers."

This explains my attitude toward you on this visit, and I trust you will help me all in your power, during my stay, towards mastering your conditions. At the same time I really want you to make use of me. When I do not know anything I will confess my ignorance, but you must remember that during this meeting and the future meetings of this convention, I shall not deem it an interruption to have you ask questions, and the more questions you will ask the better I shall like it. This I say that I may have ample opportunity to learn your successes and failures, and not with a view of showing off what little I know, but that I may find out what are your real wants and difficulties. When I know these I shall be in a better position to decide as to the problems that should first receive attention.

It was remarked to me just a moment ago that there is nothing new under the sun, and I am very much inclined to endorse that proposition, but there is sometimes a new way of putting an old truth. Old truths by a new voice very often strike home in a more emphatic way from the mere fact that they are uttered by a fresh voice. Frequently there is something

suggestive and helpful in what I might term the manner or style of a speaker, a new way of putting things, and that is probably the way in which I may be of some little assistance to you, for most of what I shall say may be but putting the old truths in a new light.

At this point it is well to remember that, willing as we are to render assistance, we cannot undertake to run a man's farm for him, much less do it satisfactorily. I frequently have letters from correspondents somewhat as follows: "Dear Sir,—How much manure or fertilizer shall I put upon half an acre of land in order to get fifteen more bushels of oats to the acre?" We could not give a definite and exact answer to such a question. Every man, having acquired the first principles, must depend upon his own intelligence and industry, and, to a certain extent, upon experimental work, to make his own farming a success. This is true of all occupations or professions. A man is qualified and equipped by the school, or office, or university; but you know perfectly well that the man's future success depends upon his industry, his skill, his intelligence. And it is just the same in fruit growing and farming. It will really depend upon the man more than upon the farm. I have noticed time and again, going through Ontario and throughout our Eastern Provinces, farms side by side, the one in excellent condition—the buildings well constructed and in excellent repair, everything having a prosperous appearance; whereas the farm adjoining would be in an entirely different condition—the fields full of weeds, and broken-down buildings, etc. So that with all the assistance Government can furnish, success depends very largely upon personal effort.

It is extremely difficult for anyone coming to a new place to know what subjects to speak upon so that the greatest good may result. I have been accosting everybody I have met in connection with this Association to find out what would be best for me to consider to-night so that I might say something which, when you came to sift it and think over it, after I had finished you would find something left behind to take home with you. I did not come all this way to make a speech, but that both you and I might be better equipped for our work in the future. The point is that we have a mission. We must be in earnest about our work; we want our hearers to be in earnest. If you are really in earnest I fully believe that you will have success and prosperity, and that you will build up your country.

In the course of my address I shall probably repeat what you may have heard in other words, a few foundation truths, and draw some illustrations, possibly from my own observation in other parts of the country. I trust this may lead to a discussion, because, really, it is far better in such a meeting as this that we should have a lively discussion, than that I should make a formal address. I have been of the opinion that it is a mistake in our agricultural conventions to draw any hard and fast line between the platform and the audience, and I was very glad when the President invited you all in here (inside the railing in the Court room), so that we could have this little informal talk. Let us first go over a few first principles. You may possibly say you know all about them. Well, I don't know if it will do any of us any harm if we hear them again. The remarks will, of course, be in relation to orcharding, fruit growing, the relation of the soil and of the atmosphere to the production of fruit.

In the first place, what is a plant? It is a living thing, because it can increase in size, and can reproduce itself. The next proposition is if it can do that, if it is a living thing, it must feed. Now you must remember that neither plants nor animals create anything. The sum total of matter is the same to-day as yesterday, and will be the same to-morrow; but there is always going on in Nature a certain conversion of material: the mineral into vegetable; the vegetable into animal. Plants are living things. In order to be able to increase and reproduce their kind they must take in food. They themselves do not, can not, create anything. There is nothing new in this statement, but there is a great deal to us as practical men in the realization of that fact. If this had been thoroughly realized in the past we should not see, as we do in this country, this one-sided system of farming, this everlasting, continuous cropping, without return of plant food to the soil—a practice which has resulted in many districts in impoverished, exhausted lands.

The next step is to enquire, where do they take their food from? Of course, by plants I refer to trees as well as to all farm crops, and to the weeds that grow in the fields, for they are all under the same law in respect to feeding. Where do they obtain their food? From two sources—the atmosphere and the soil. It may astonish you to learn that 60 per cent. at least, speaking approximately or in round numbers, of the food taken in by plants comes from the atmosphere; this is a free gift from Nature. In this atmosphere we breathe there is a gas known as carbonic acid gas. Although in comparatively small proportion (four parts in 10,000 of air), there is always an abundant supply for plants, and this they can appropriate and as-

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simulate under the influence of sunshine. As a result of this there is stored up within the tissues of the leaf, starch, sugar, oil and other vegetable substances, all of which go to constitute the plant. So much for what they take from the atmosphere. There is a portion of their food also which they take from the soil, and which, although a very small percentage of the soil (four, five or six per cent.), is nevertheless essential to the well-being of the plant. Unless furnished by nature or by man, plants cannot normally take their quota of food from the atmosphere. Let us take a rough chemical analysis: Supposing we wished to find out what there was in a piece of Indian corn, an apple, or any other vegetable substance. Supposing we took a piece of apple. We weigh it. We let it dry out in the oven. Then we weigh it again. It has lost in weight. If we had had chemical apparatus we should have seen that which had gone was water. All green vegetable matter possesses a very large percentage of water. If it had been a piece of green corn stalk, 75 to 85 per cent. of water would have passed off by this treatment. With turnips as much as 95 per cent.; apples about 75 per cent. Very well, then, we have ascertained by this rough method of analysis that one of the constituents of vegetable matter is water. We will now take this piece of apple or corn stalk, which is quite dry and which weighs so much less than it did at first, and we will put that on a red hot stove-plate; it chars, turns black, and finally burns away until only a small quantity of ashen material is left. What has gone? Chiefly that carbonaceous material, the starch and the sugar and the oil, which I told you had been formed in the tissues of the plant by the aid of sunlight from the carbonic acid of the atmosphere. Then we have this little quantity of ash, or mineral material, which I say may be only present to the extent of three to five per cent.; this has been taken from the soil by the roots. What have we now found in our plant? We have water, a certain amount of carbonaceous material, and mineral matter or ash.

We said the plants took their food from two sources, from the air and from the soil. From the air they take it in the form of a gas through their leaves; from the soil through their roots in the form of a solution.

If we put a lump of sugar or a little bit of salt in water we should have a solution of sugar or salt, as the case might be.

Plant food, to be of value, must be present in the soil in an immediately available form; there is a great agricultural difference between soluble and insoluble soil plant food.

We must recollect that substances may be present in a soil, but of no value to the plant if that food is not soluble, either in water or in the acid fluid which is exuded from the rootlets of the plants. So you see that plant food, in order to be available for the growth and building up of the tissues, has to be either in the form of a gas or a solution.

I will now show you the difference between soluble and insoluble plant food. You know that phosphoric acid is one of the mineral constituents, and is found in the ashy or mineral material. Now in Eastern Canada there is a mineral known as apatite, or phosphate of lime. For many years, in England and also this country, that material has been mined, and converted by sulphuric acid into what we know as superphosphate. It was held by many that it would be sufficient if this apatite were ground fine and spread upon the soil, or, at all events, if first fermented with manure. We made a careful examination of the matter at Ottawa, putting it on the land in ample supply, but we found no response. Nor did we find any response from composting it. It was not soluble in water or appreciably in dilute acid solution, and for that reason it was of no use as plant food. But if that mineral phosphate had been first treated with sulphuric acid then a chemical change would have taken place and the phosphoric acid would have been rendered soluble.

The chemical elements which enter into plant construction are comparatively few, and of these few it is only necessary for the practical agriculturalist to know something about three or four of them. As we have already seen, some of them are furnished by the air; of these we need not concern ourselves for they will be supplied in abundance. Of those which are taken by the plant from the soil some are present in such large quantities or appropriated by the plant in such small quantities, that we do not find it generally necessary to replace them. As a matter of fact it is only necessary for us to concern ourselves with some three or four of them, namely: nitrogen, potash, and phosphoric acid—though occasionally it is necessary to consider the advisability of applying lime.

These are called the essential elements of fertility, because we have to be continually replenishing them, continually putting them back in the soil, in order to maintain the productiveness of our fields.

By the bye, do you think that you can exhaust the soil—when I say exhaust, I mean totally exhaust the soil—by a continuous cropping and one-sided system of farming? No, not at all. Nature will see to that. No matter how profligate your use of the soil is, there will always be some material for plant food there, though locked up. We can ruin the soil for our successors down to the fourth generation, but it will come back again to fertility some time. How is this? It is because there is a wise provision of Nature that the greater part (90 per cent.) of the plant food in the soil is locked up, or insoluble, available for plant use only by the judicious culture of the field and by intelligent farming. It is thus that plant food may be rendered assimilable. We cannot entirely exhaust the soil, because it is no longer profitable to grow crops after they reach a certain minimum yield. If we do not get, say, 15 bushels of wheat, we abandon wheat growing. What we have done has been to use up the store of available plant food.

The continuous one-sided method of farming, taking all off and putting nothing back, is like a man drawing on his account and never making a deposit. Our soil may be regarded as our bank, and the plant food in it our capital. If we are to keep on making withdrawals we must make deposits.

We must return to the soil, especially, three constituents, namely: nitrogen, phosphoric acid and potash. It is essential that we should know something of these.

First of all let us consider nitrogen. Four-fifths of the atmosphere consists of nitrogen. It is present there as a gas, colourless, odorless and tasteless. You might say that if it is there in such abundant supply, what necessity is there for us to see to its application to our fields? Well, simply because our crops cannot utilize this free nitrogen as food. It is not as a gas available plant food.

Nitrogen must be converted into a certain compound, or class of compounds, known as nitrates, before it is utilizable by plants. The process whereby nitrogen contained in the vegetable matter of the soil is converted into nitrates is known as nitrification. It is the result of germ life in the soil. There must be certain favourable conditions, such as warmth, moisture, an open mellow soil or this useful work cannot proceed. We are to consider, therefore, the humus or vegetable matter of the soil as holding nitrogen required by our crops, but that before such nitrogen is available to them it must be converted into nitrates. In a few moments I shall tell you of a class of plants that can, by certain aids, avail themselves of the nitrogen of the air (exceptions to the general rule); but in the meantime we will consider briefly the source and supply of the mineral elements, phosphoric acid and potash. These are always present in the mineral matter or ash of plants, which may contain five to fifty per cent. potash and two to twenty per cent. phosphoric acid. Where have the potash, the phosphoric acid and the lime come from that are now in the soil? A knowledge of the origin or source of things is frequently very useful. That leads us to think of the origin of the soil.

We need not go into any learned argument as to the origin of this earth, but we may assume the theory as correct that this globe was once a mass of molten rock, and that this rock matter consisted of various elements, such as we find make up our rocks to-day. The molten matter gradually cooled off and solidified, and subsequently, by a series of atmospheric changes and weatherings, a very interesting set of phenomena, the surface of this rock was gradually disintegrated and broken down and partially decomposed, the result being the formation of sand, clay and gravel. After a time these particles became so reduced that the humblest forms of plant life could find a foothold. They, as it were, ate into this rock matter and made it part of their tissues or substance. As successive generations of plants grew and died, their remains, mixed with the result of the disintegration of the rock, formed what we know as soil. Consequently a soil is a mixture of rock material and organic matter, the latter consisting of plant remains.

We see, therefore, there are two classes of constituents which must be present in due proportions in order to obtain an arable or fertile soil. We must have the mineral food there, the source of which originally was rock, which covered and formed the crust of the earth, and also the remains of former plant life, which we call vegetable or organic matter, in the soil.

With regard to this question of nitrogen. I have told you that our ordinary farm crops cannot in the least avail themselves of atmospheric nitrogen, which is quite true; but there has been a discovery made recently, and which will be handed down as the greatest discovery of the century in connection with agricultural science, that there is a class of plants, all of which belong to one botanical family, which has the ability to utilize this free nitrogen gas of the atmosphere.

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You must not think, because I say that these plants, which are known as the legumes, and to which belong clover, peas, beans, etc., can utilize the free nitrogen of the atmosphere, that they take in this nitrogen through their leaves. No; they cannot absorb free nitrogen any more than any other class of plants. If you take a clover plant from a field which is growing clover luxuriantly and examine its roots, you will probably see upon them a number of nodules or tubercles, varying from the size of a pin-head to that of a pea. If you were to break such a nodule open and examine the contents under a microscope you would see that the liquid contents contained a whole swarm of what we call now-a-days bacteria or germs, names meaning the same thing and meaning microscopic plants. These are altogether too small to be seen by the naked eye. It has been clearly proven that it is through the agency of these bacteria that the clover, peas, beans and other legumes can take free nitrogen from the atmosphere. Not from the atmosphere above the soil, but from the air in the soil. If our soil is in a proper condition of culture there will be air between the particles that make up the soil, and it is from the air which is enclosed in the soil that these clover germs take their supply of nitrogen. For every other class of plants we have to furnish nitrogen, whether it be in our orchards, our cornfields, or our cereals; every time we grow a crop we take so much nitrogen out of the soil. This must be put back in some form or other. We can do this by growing clover.

We have done a great deal of experimental work in Ottawa in this matter of clover for the recuperation of soils, and the results we have obtained are really astonishing. There is no doubt in my mind that it is the most economical method we can employ for keeping up the store of nitrogen and humus, which is decayed vegetable matter. Humus, though in itself not a direct form of plant food, is the storehouse which not only holds and prepares food for the plant, but prevents this plant food from undue waste by leaching. There are very many functions humus performs and we have not in the past recognised the great value of its presence in the soil.

I have a word to say in connection with the relative cost of these three elements of fertility: phosphoric acid, potash, and nitrogen. If we have to purchase them in the form of a commercial fertilizer, nitrogen is the most costly; it is worth about 10 cents a pound; potash about 4½ cents; and available phosphoric acid in the neighbourhood of 6 cents. You can see, therefore, that any system of farming or fruit growing which conserves and adds to the store of humus and nitrogen cheaply is one to be looked into. Nitrogen is essential to plants and they cannot grow without it, and our plants, with the exception of the legumes, must take their supply from the combined nitrogen of the soil.

Let us make a few practical applications of these principles—which you may have heard before in some form or other—with regard to fruit growing. It has been only quite recently that anything has been done in a systematic and rational way towards finding out what are the best forms in which to furnish these essential elements of fertility and the most economical quantities in which they should be applied. That comes about, of course, from the fact that it is only quite within recent times that fruit growing has developed into the industry we now find it; we consequently have not many data on hand to help us. We have a large amount of data with regard to the effect of phosphoric acid on wheat, etc., but it is an exceedingly difficult thing to put your hand on any data with regard to the economical fertilization of orchards. It would be very well if orchardists would keep a record of the results obtained from their work, because it is only in the amassing of data of that kind that we can draw safe conclusions for future work.

Another thing which has retarded progress in this work, and made it exceptionally difficult, is that orchard trees are not annuals. If we fertilize a field and put it in with wheat and oats, we can tell the same season what the result of that fertilization will be; but with an orchard it is different. We are storing up in the tree for a number of years a certain amount of material before we shall get any returns in fruit from the fertilizer. It requires a shrewd head to see how best to treat a tree to get full results from it when it comes to maturity. There are, therefore, difficulties in fruit growing that the ordinary farmer does not have to contend with. There has also been the very mistaken impression—I have often heard it stated—that orchards do not exhaust the soil in the same way that our ordinary crops do. There never was a greater mistake. They say again, "Why, look at our forests: did you ever hear of putting a fertilizer on our forests?" But you must remember forest conditions are not orchard conditions. Not at all. With forest trees all their leaves drop and are returned to the soil. The vegetable matter which they contain is gradually, but nevertheless constantly,

being converted into new material, into humus, and is adding to the available plant food in the soil. The available plant food is thus being constantly increased. It is quite a different thing with our orchards. You do not allow those apples or other fruit to rot on the ground, neither are the leaves, as a rule, returned to the orchard soil. Every time we sell a barrel of apples we are selling so much plant food. It is quite right to sell it. No man gets a profit unless he parts with something. The farmer is the skilled agent using Nature's instruments, taking the crude, raw material of low price and turning it into produce of greater value. It is the farmer's business to convert this plant food of the soil into material which he can send off and obtain money to buy the other necessaries and luxuries of life. But the point I wish to emphasise is this: that every time he does that he is lowering the amount of plant food, and more particularly the amount of available plant food. Now, then, if he is going to keep up his soil bank account, if he wishes to reserve a margin for future crop growth, he has got to put that back in some form or other. He cannot go on drawing for ever unless he does so. And I only hope he may not live to see the time when it is too late to recover that soil economically. We must wake up to a realisation of this fact before it is too late. I use that word economically in its broadest sense; I do not mean sparingly, I mean with profit. A man does not act economically if he refuses to buy five dollars worth of fertilizers when he can get ten dollars of product from the application.

I want, then, to impress upon you that it is altogether an erroneous idea that the conditions which prevail in a forest are the same which prevail in an orchard; and, further, that every time you sell a barrel of apples you are selling so much of your plant food. By all means sell your apples, as it is the man who employs his capital and keeps it busy all the time that is going to make the most profit; but replace, in some form, the plant food so parted with.

Let me make a comparison with regard to the amount of plant food which is taken out and parted with in growing apples as compared, say, with wheat. We have always known there were certain amounts of potash, phosphoric acid, and nitrogen in apples; but we wished to determine what those amounts were. We made the necessary analyses. We also made a similar estimation of the plant food in the leaves of our orchard trees. Let me give you some figures to show you the extent of the exhaustion that takes place in orchard soils as compared with soil cropped with wheat.

Supposing we take thirty-five apple trees to the acre, and the orchard is in full crop. In twenty crops, say fifteen bushels to the tree, there will be—in the fruit and leaves of the twenty crops—extracted from that acre of soil over 1,300 lbs. of nitrogen, somewhat more than 300 lbs. of phosphoric acid, and nearly 1,900 lbs. of potash. There is very little plant food in a single apple, but when we come to measure the fertilizing ingredients in fifteen bushels to the tree over twenty years, together with that in the leaves over that period, you will see the amount is quite large. That has been a draft upon the total plant food in that soil, but, more than that, it has been more particularly an exhaustion of the portion of it which is immediately available. For the sake of comparison, let us take twenty years of wheat growing over the same area, one acre. During twenty years of continuous cropping of wheat, in the grain and straw of those twenty crops, reckoning fifteen bushels to the acre and the straw that accompanies it, we would withdraw from the soil: nitrogen, 660 lbs.; phosphoric acid, 210 lbs.; and potash, 325 lbs. This comparison furnishes startling figures. It means, by orcharding, we have taken out twice as much nitrogen as we should have done by the continuous cropping of wheat, half as much again in phosphoric acid, and three times as much potash. Besides these quantities, there are the amounts stored up in the branches and stems of trees, for there is a continual storing up there. This will show you better than any argument I can put forward the absolute necessity of attending to the fertilization of orchards.

I should like to say something, leaving out the consideration of the special application of commercial fertilizers, regarding the economic improvement of soils which have been badly treated in the past, or which are by nature pure in character. We are constantly receiving in our laboratories samples of soil more or less exhausted, soils partially exhausted or worn, for examination. From their examination I have gained a considerable amount of experience. These soils come from all parts of the Dominion.

We may say that they fall into two great classes, not that there is any strong line of demarcation between them: they are the heavy clay loams and the light sandy loams. They are, perhaps, accompanied by a letter, in which the man says the yield has been gradually lessening year by year, and he no longer thinks it profitable to till that soil—say, to sow wheat upon it. I look at a sample and do not wonder. It is hard, it is in clots or lumps, it is

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refractory, it probably shows the absence or a deficiency of humus, shows bad tillage and altogether poor farming. Such a soil as that would require drainage in the first place. Lack of drainage has tended to the puddling of the soil. Its fertility is exceedingly low. It needs, above all things, humus.

Now, what does fertility consist in? By the word fertility I mean crop-producing powers. Does it always depend upon the amount of plant food in the soil? If you look into this question of fertility you will see there are really three factors to consider:—

Firstly, that which is of paramount importance, the percentages of available plant food in the soil.

Secondly, the physical conditions of the soil.

Thirdly, The climatic influences—rainfall, temperature, sunshine, etc.—which you have to take into consideration.

I have been talking so far upon the first of these factors, but will now say a word or two on the other factors, from a practical standpoint, in connection with the renovation or improvement of impoverished soils.

Plants need a loose, mellow, moist, warm soil in order that the seeds in the first place may find a comfortable bed in which to germinate, and afterwards for the roots to penetrate and forage for their food. We know that the large amount of water that is utilized by plants is taken from the soil. A soil must be in good tilth or mechanical condition or it will not hold this soil moisture. Hard, cloddy soil, such as I have described, may be renovated and improved. An analysis of such a soil, I say, shows that it is deficient in humus, that is, deficient in vegetable matter. This is the constituent which gives to soils their black colour; you can always get a very good idea as to the amount of that constituent from the colour or appearance of the soil. Very well; I am supposing this is a heavy clay, plastic when wet, cloddy and hard when dry, and which is deficient in humus. Why should we supply humus? Humus, though of no value in itself, is a storehouse for plant food; it is the great holder of nitrogen; it is the great absorbent of moisture; it is the one constituent which regulates the temperature of the soil, guarding it from extremes of heat and cold; by its decomposition it sets free plant food. The keeping up of the humus of the soil is one of the questions which we have not, until quite recent times, given the consideration it merits. We find that the continuous cropping of the soil, be it clay or be it sand, tends to the reduction year by year of the amount of humus in the soil, and, consequently, it is of the first importance to replace this constituent.

What are the sources of vegetable matter that go to form humus in the soil? When we return vegetable matter to the soil we are returning nitrogen also; the one is the concomitant of the other. The first of these sources available to the farmer is barnyard manure; but the probabilities are that, if you are not keeping very much stock, you will not have a sufficient supply. Suppose you have not; what other sources are available that are not too expensive? I answer, the legumes—the beans, the peas and the clover, which are not only themselves rich in nitrogen, obtained, as we have seen, as a gift from the air, but which, when turned down, will supply a large amount of organic matter that will undergo a gradual decay, furnishing the soil with humus. For several years we have been making experiments in the matter of clover. In the practice of sowing some eight or ten pounds of clover seed with all our grain crops, we find we are adding to that soil as much humus and nitrogen by the turning down of the clover as we should be if we were to supply eight or ten tons of barnyard manure. You can see the value of this for your orchard work. I am not advocating keeping your orchards necessarily covered with a crop all the year round. I am speaking as one having immediate and personal experience in the matter. It is well admitted now, I think, by the majority of good orchardists that the best results are obtained by keeping the surface of the soil cultivated during the dry months of summer, so as to prevent excessive evaporation of the moisture. The keeping of the orchard under continuous crop is a very different thing to the growing of clover during the months of autumn and turning it under in May, a practice which we follow at Ottawa. In this way we have been enabled to build up very poor soil in a few years. I advise you all to try this method in your orchards.

There are other sources of nitrogen available to some of you; there are large deposits of what we call swamp muck, peaty material, which has resulted from the decay of thousands of generations of aquatic plants, preserved there by water. Now that material itself does not contain any nitrogen which is immediately available; it does, however, contain a very large amount of nitrogen which, by the process of fermentation, may be converted into most

valuable forms. Composting air-dried or weathered muck with barnyard manure will make its nitrogen as valuable as that which we might buy in the form of nitrate of soda. I am often asked, "Do you think it would be of any value to me if I were to take this swamp muck as it is dug and put it upon the ground?" I answer, from our experience in the majority of instances, I do not think there would be any adequate return for the same. But dig and pile it and let it dry out, and when you have it in that condition you will find it an excellent absorbent. You can use it in the pig-pen or wherever there is liquid manure to absorb. It thus serves two purposes: it will prevent from going to waste the most valuable part of the manure, for the liquid portion is worth a great deal more than the solid; it is worth more by three times at least, weight for weight, than the solid portion of the manure. It not only contains a larger percentage of nitrogen and potash, but these are in an immediately soluble condition.

You will remember that I have emphasized the fact that plant food must be soluble before plants can utilize it. For this reason we place a very high value upon the liquid manure. We want to prevent its waste on the farm. It is something sinful to see the waste of good manurial elements from many barnyards in Ontario and in the East. After this muck is air dried it acts just like a sponge. When you subsequently compost or ferment it there will be a setting free of the inert nitrogen of the muck. This is the third source of nitrogen. There are other sources.

In many places you can get fish offal. That contains a large amount of nitrogen, more or less readily convertible into material valuable as plant food, more especially nitrogen and phosphoric acid. The same is true as regards sea weed, which contains a certain amount of nitrogen but potash particularly. It is specially a potash fertilizer. Reverting for a moment to fish offal we may say, if it is largely made up of the back bones and the heads of the fishes it will probably be richer in phosphoric acid than in nitrogen; if made up of the entrails of the fishes there will be more nitrogen than phosphoric acid, so that the composition of it will be determined by the nature of the materials.

As the fertility of the soil so will the product be, not only in quantity but in quality. Not only can you increase the crop of fruit of your trees but you can improve the quality by having an abundance of the right kind of plant food in the soil.

Then there are mechanical methods which it is necessary for us to consider, one of which is the matter of drainage. This is a question which should receive your very careful attention in British Columbia. Light, gravelly soils on the slopes will not require drainage; but it does seem to me, from what I saw—of course I speak subject to correction—that certain of the bottom lands will only do their best when subjected to proper drainage. For heavy soils, whether you have a dry season or a wet one, drainage will be of advantage. In a dry season the drained soils will be more moist and in a wet season the soils will be drier. You cannot get the best results from a heavy soil unless it is drained. We did not work that out yesterday. We have the experience of generations of good farming back to support this statement. I spoke of the plants taking their food from the atmosphere through their leaves; but do you know the roots also require air? We must have air in our soils if our trees are to thrive. If a soil is water-logged, water-clogged, there is no air in it and the trees are not in a normal condition and they will surely die. They must have a moist but also an aerated soil. Drainage leaves the right amount of moisture in a soil.

Let me illustrate that point: suppose I take a glass and half fill it with marbles, cover them with water, and then pour the water off; you could not see any water, still every marble there would be covered with a thin film of water. Break these marbles up into a thousand pieces and you have, as it were, the particles of a soil. Each particle is moist all over. You cannot wring any water from them, but they are nevertheless moist.

This is the kind of moisture we want for our tree roots, and it is obtained by drainage. Film moisture, not free water, is what we must aim at, if we wish our crops to thrive. What I say is, that film moisture is obtained by drainage, and that the same method lowers the water table, or, in other words, gets rid of free water. You cannot find any plants, except swamp plants, that will grow and thrive in water; for all farm crops the water level or table must be at some distance from the surface of the soil. Further, as I have said, a soil should be well ventilated. Air is not present in a soil unless the water that has fallen upon it is passing through and into the subsoil.

But I must not omit one point. You all know what is meant by the term sourness or acidity. Were we to test it we would find that nearly all peat or muck as it came from the

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swamp was acid or sour. Sourness in our farm or orchard soils is a most injurious quality. For farm crops to thrive our soils must be neutral or alkaline, the opposite to acidity. It is by reason of its acidity that the application of the crude muck is of very little use and frequently injurious to the soil. When once the muck has been weathered and decomposed the acidity is corrected and its decomposition proceeds. A lack of proper drainage often tends to the production within our soils of certain organic acids; this acidity must be corrected if we expect to get the best results. How can we correct it? By drainage and by applying alkali in some form or other—say lime or wood ashes. That sourness may be due to a deficiency in lime, or to the fact that the water table has been too high; drainage, of course, will correct it in the latter case. If due to a deficiency in lime, you must apply that element in some form.

Perhaps you would like to know how you might get an approximate idea as to whether your soils are deficient in lime or not, whether they are acid or sour. Blue litmus paper will turn red in the presence of an acid; red litmus will turn blue in the presence of an alkali. Put a lump of soil in a tumbler; pour on water, stir, let it settle; put in a little bit of blue litmus paper, leaving it a minute or two partly submerged. If the part which has been under the water has turned red that soil is acid.

Now in reference to the lime in the soil. Free or caustic lime does not exist as such in a soil; but, owing to its strong affinity for carbonic acid (which, you will remember, is always present in the air), it will be found as carbonates. Carbonates in the presence of an acid effervesce. When we have tested for acidity and the soil is quite settled down, let us pour in carefully a teaspoonful of strong vinegar, or a small quantity of any other acid, and watch closely for any effervescence. If there is an effervescence that soil is all right and does not need the application of lime. If there is no effervescence, and the soil has already been proved by the litmus paper to be acid, then you may rest assured that it stands in need of lime and will give a profitable return for the application of lime in some form or other. These are trials with soils which you can all make.

It is really astonishing to find how many soils there are deficient in available lime. A good deal of work in this connection has been done at Rhode Island, and the large number of even upland soils which they have in that State deficient in lime is surprising. These soils are not absolutely lacking in lime, but it is not there in sufficient quantities for the best returns. When the element is not present in sufficient quantity to give the best returns then I call it deficient in lime, and it then becomes economic to supply it.

The useful functions of lime in the soil are many. It acts both chemically and mechanically. On heavy, plastic, cloddy clay it renders the soil mellow, so that it does not bind or puddle when wet. On the other hand it helps to bind and cement the loose, friable, sandy soils. It helps to liberate or push out, from locked-up combinations, potash and, possibly, other mineral food; so that while in itself it is an element of plant food it is indirectly the source of others. It is for this reason known as an indirect fertilizer. Then again, it corrects acidity, a matter already referred to. It favours the nitrification of the humus. Nitrates are not formed in acid soils; the germs which form these compounds only flourish in soils that are slightly alkaline, as when lime is present.

There is an old saying that lime, while it makes the father rich it makes the son poor. Now, there is truth in that; because the excessive use of lime, unaccompanied by nitrogen and potash and phosphoric acid, tends to exhaust the soil. The exclusive use of lime tends to render available, as fast as possible, such resources as the soil contains. The constant and sole use of lime, therefore, is wrong. The use of lime must be accompanied with the application of organic manure, such as I have spoken of, barnyard manure, clover turned under, sea weed, etc., then you will obtain good results and improve the soil.

On conclusion of the foregoing, a number of those present in the audience asked questions of the speaker and discussed the address. Among those who did so were Mr. Sharpe, of the Experimental Farm at Agassiz, and Mr. H. E. Hutcherson, Ladners.

One member asked for a formula for a fertilizer useful to an orchard soil. Mr. Shutt suggested the following:—

100 lbs. bone meal; 100 lbs. superphosphate; 100 lbs. muriate of potash,
per acre.

Or the following mixture:—

150 lbs. bone meal; 100 lbs. muriate of potash per acre.

These quantities had been advised on general principles by an excellent authority in the States, and had been found to give good results.

At the conclusion of Mr. Shutt's address the meeting adjourned till 10:30 a.m., January 10th.

VANCOUVER, January 10th, 1900.

Meeting re-assembled at 10:30 a.m. Tom Wilson, President, in the chair.

Mr. Wilson said he had little to say beyond what had already appeared in the report of the Executive Committee. He might say, however, that he did not have the same experience as Mr. Hutcherson, that the women of Manitoba and the North-west would put up so much fruit and no more. The whole cry had been, "More fruit." Although the packing of British Columbia fruit had been bad, that of Ontario was worse. Last season only five carloads of Washington fruit had been shipped to Winnipeg, whereas the year before thirty-two carloads had been sent. Our great trouble seemed to be the time necessary to collect a carload of fruit from Chilliwack or elsewhere. He also stated that the large establishments were interested in California.

Mr. Marker, Dairy Expert in the North-West, was introduced by the President.

Mr. Marker said that we were in the same position, with regard to the markets of the North-West, as the North-West was with regard to the markets of British Columbia, in the matter of surplus butter, beef and grain. We should remember that the people of the North-West believe in having everything of the best, therefore the fruit should be of A-1 quality and well packed. Whoever sends a superior article of fruit to the North-West will gain the market. Having been asked to say something on the subject of Cold Storage, he said he thought that if much fruit was to be handled arrangements should be made for cold storage at central points—say Calgary. He congratulated the different committeemen on the vim and interest taken in their several reports and work. Co-operation was the thing most needed.

Mr. Hayward said that Mr. Marker's remarks emphasized the importance of continuing the work as begun last year. He understood that the people of Ontario are regretting that they had not initiated a similar work.

Mr. Sharpe said that the difficulty of overcoming the objections taken by firms in the cities of the North-West, to the way in which fruit was sold to everybody, irrespective of whether they were in the trade or not, was that we can sell fruit direct to the consumer mutually satisfactory. The large houses charge double and treble what they should as commissions and profit.

Moved by Mr. Hayward, seconded by Mr. Kipp:

That all the present members be Directors.—Carried.

It was found that there were fifteen Directors.

Meeting adjourned.

Meeting of Directors convened; Mr. Anderson being voted to the chair.

The following officers were unanimously elected:—

President	Mr. Tom Wilson (re-elected)
1st Vice-President	Mr. H. Kipp.
2nd Vice-President	Mr. W. J. Brandrith.
Secretary-Treasurer	Mr. W. H. Hayward.

The President made a few remarks on his election for another year, thanking those present, and suggested that members one and all try and induce new members to join. He suggested that a percentage be given to canvassers.

Mr. Anderson thought that sufficient had not been paid to the Secretary.

Mr. Kipp thanked the members and said he would do his best to foster the Association.

Mr. Palmer thought it much better to have one Secretary, instead of two, as in reality they had last year.

Mr. Anderson again brought up the subject of the Secretary's salary, and suggested that a bonus be given to Mr. Pearson.

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Mr. Pearson thanked Mr. Anderson for his remarks, but when he took the position he understood that he was to be Secretary of both the Association and the B. C. Fruit Exchange. While speaking of bonus, he considered that the Secretary of the Executive Committee had certainly earned one; but that he considered himself well enough paid for the work done.

A hearty vote of thanks was given to Mr. Pearson for his past services.

Moved by Mr. Authier, seconded by Mr. Anderson:

That the Secretary be paid \$20.00 per month.

Mr. Hayward said that he considered \$150.00 would cover all his out-of-pocket expenses, and he would prefer that that amount be fixed upon.

The motion, however, was carried unanimously.

A discussion followed on the question of the size of apple boxes, Mr. Hutcherson being asked to make a report to the Association after his visit to the N.-W. Fruit Growers' meeting in Tacoma.

Mr. Hutcherson, however, thought that the Association was taking too much upon itself to attempt to fix the size of apple boxes.

The Secretary was requested to place himself in communication with up-country growers to find out their feelings in this matter.

It was moved and seconded, That the Committee on packages be given a longer time to report.—Carried.

The report of the Committee on Summer Show was read by the Secretary.

Moved by Mr. Brandrith, seconded by Mr. Kipp:

That the report be adopted and the Committee discharged.—Carried.

Moved and seconded that the following Committee be appointed to carry out suggestion as outlined in the report:—Messrs. Brandrith, Hayward, Wilson and Pearson.—Carried.

It was decided that the next Quarterly Meeting be held at New Westminster in April.

It was moved and seconded that the next Annual Meeting be held at New Westminster.—Carried on division.

It was moved by Mr. Palmer, seconded by Mr. Kipp:

That twenty-five per cent. be given to Mr. Brandrith, as canvasser for membership to the Association, and that the Secretary be empowered to extend this system.—Carried.

Mr. Brandrith moved, Mr. Authier seconded:

That Mr. Green (janitor) be given membership in the Association for one year, in return for his kindness to the members.—Carried.

Mover by Mr. Palmer, seconded by Mr. Anderson:

That the meeting adjourn *sine die*.—Carried.

Meeting broke up at 1:10 a.m.

TOM WILSON, *Pres.*,
W. H. HAYWARD, *Sec.*

NEW WESTMINSTER, B. C., April 25th, 1900.

Pursuant to notice, the following Directors of the British Columbia Fruit Growers' Association assembled at the Hotel Guichon:—Tom Wilson, President; H. Kipp, 1st Vice-President; W. J. Brandrith, 2nd Vice-President; W. H. Hayward, Secretary; J. C. Metcalfe and T. A. Sharpe.

Under the impression (erroneous, however,) that there was not a quorum, no meeting was held.

The members of the Executive Committee being present, the Secretary, W. H. Hayward, asked to be relieved of his duties for two months. His request was acceded to, and W. J. Brandrith was appointed Secretary *pro tem*.

Mr. Brandrith, for the Exhibition Committee, reported that the City Council of Vancouver had voted the sum of \$250 towards the Exhibition; and that he had been fairly successful in his canvass of the merchants and others for donations to the prize list.

It was decided that Messrs. Wilson and Brandrith should get the Exhibition matters in shape before calling the Executive Committee to pass the final arrangements.

W. J. BRANDRITH,
Secretary (pro tem).

VANCOUVER, B. C., June 19th, 1900.

Pursuant to notices sent out by the President, the Executive Committee met in the office of the Pest Inspector. Present—Tom Wilson, President; W. H. Hayward, J. C. Metcalfe and W. J. Brandrith, Secretary *pro tem*.

The prize list was revised and finally passed.

It was decided to hold the Exhibition on the 8th and 9th of August, Messrs. Brandrith and Wilson to arrange for building.

Messrs. Wilson and Brandrith were appointed to arrange for the necessary printing; also to interview transportation companies, *re* excursion rates.

The Secretary-Treasurer, W. H. Hayward, M.P.P., handed in his resignation, which was accepted.

On motion, W. J. Brandrith was appointed to that position for the balance of the year.

W. J. BRANDRITH.

Sec.-Treas.

VANCOUVER, B. C., August 9th, 1900.

A meeting of the Executive Committee was held in the Alhambra Theatre at the call of the President.

Present—Tom Wilson, President; H. Kipp, J. C. Metcalfe and the Secretary; also the following members: M. J. Henry, J. R. Anderson, A. H. Bush, T. A. Fennell, Jesse Love, W. A. Dashwood-Jones, A. D. Gothard, W. E. Norris, J. de C. Wetherell, Chas. Nelson, Rev. Fr. Fay and others.

It was moved by H. Kipp, of Chilliwack, seconded by M. J. Henry, of Vancouver:

That the British Columbia Fruit Growers, in meeting assembled, desire to place on record that in their opinion the Association should be continued, and that they continue the work begun last year, only in a more practical manner. Carried.

A number of bills in connection with the Exhibition was ordered to be paid.

The following is an account of the Exhibition, from the "Daily Columbian," New Westminster, of August 9th:—

"The British Columbia Fruit Growers' Exhibition was opened in the Alhambra Theatre, Vancouver, at 2:30 o'clock yesterday afternoon by the Lieutenant-Governor Sir Henry Joly de Lotbinière. His Honour expressed his pleasure at being present, and, in referring to the large display of fruits and flowers, thought the collection of flowers and small fruits especially good.

"The management were greatly favoured by being provided with perfect weather, and it certainly must have been very gratifying to see the splendid way in which the exhibits came in. It is doubtful if a nicer display of flowers, in particular, has ever been seen in Vancouver on any previous occasion. There was good cause for disappointment, however, in the small attendance. The exhibition is of an excellent character, and fully merits a much larger crowd than was present yesterday. To the admirer of lovely flowers and beautiful fruit this is a treat that very seldom is provided for the people of Vancouver or New Westminster and district.

"The attractive display in the Alhambra is the result of hard work, unusual care and good taste in not only making the selection, but in choosing the display. Four long tables are arranged and well loaded with exceptionally pretty cut flowers, foliage plants, luscious fruit of various kinds, and a nice collection of vegetables.

"The foliage plants and cut flowers provided by Mr. Percy W. Evans, of Vancouver, not for competition, are a beautiful collection, and win admiration from every side. Mr. Nelson and others from that city also have handsome displays in this particular. Nor is New Westminster at all behind in this respect. Among both flowers and fruits are many red cards with names of residents of this city. Burnaby is also well represented. Between the two, it may justly be said the success of the show is due, so far as the exhibits are concerned. In fact, one gentleman went so far as to say 'It was a New Westminster and Burnaby show.'

"Undoubtedly the finest display from an amateur exhibitor was provided by Mr. Dashwood-Jones, consisting of plants, cut flowers and vegetables. That gentleman is deserving of not a little credit for such an excellent production. Messrs. Sprott & Schou had a fine display of fruit that is worthy of special mention. Mr. H. A. Wilson also sent a lovely assortment of

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A meeting of August, to

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peaches, but, by all appearances, he has seen the last of them, as parties threaten not to permit such a fine assortment to return to the owner. Mr. W. G. Walker, another of our citizens, has the finest exhibit of tomatoes in the building. They are beauties. Other prizes were won by him for vegetables.

"Burnaby is being well and favourably advertised as a splendid flower and fruit-producing district. Most prominent are the names of Eber Stride, who has a magnificent collection of cut flowers. Mr. Jesse Love, fruit and vegetables; and Mr. Tom Davies looms up largely as a prize-winner in fruits and flowers. Mr. W. H. Lewis won first prize for honey and comb, while Mrs. Lewis was similarly rewarded for her exhibit of bottled fruit. Mr. J. de C. Wetherell sent a plate of crabs and another of apples, which, while not for competition, were specially commended.

"A very fine attraction, which wins much favourable comment, is a display of packed apples and pears from Mr. Kipp, of Chilliwack. They were carefully packed, and would no doubt suggest valuable lessons to all visitors who deal in fruit.

"Taking it on the whole, the exhibits are of an exceptionally fine character, particularly the cut flowers, of which sweet peas are most prominent, and foliage plants; while in the fruits, the large, beautiful apples are much in evidence, as well as plums and berries. There is a fair assortment of other fruits, though not in such abundance, a great many, of course, being out of season. Vegetables are shown in nice quantities and in good condition.

"The exhibition will be closed at ten o'clock to-night. Any who have not already attended would be well repaid by endeavouring to go to-day.

"A good orchestra plays throughout the day and also in the evening, thus making it doubly attractive.

"No one is deserving of greater credit for the outcome of the exhibition than the energetic secretary, Mr. Brandrith. He has laboured earnestly and incessantly for some time in his efforts to make the event a success. Other gentlemen who have taken an active part are Messrs. T. Wilson, the President; H. Kipp, 1st Vice-President; J. C. Metcalfe, R. M. Palmer and J. R. Anderson, Directors."

A meeting of the Executive Committee was also held at New Westminster on the 23rd of August, to appoint judges for such of the local exhibitions as made application for them.

The following members of the Association assisted, by request, at the places following their names:—

Tom Wilson	Nanaimo and Comox.
J. C. Metcalfe and J. J. Wilson	Langley.
M. J. Henry	Chilliwack.
J. C. Metcalfe and H. Kipp	Delta.
W. J. Brandrith	Vernon.
Tom. Wilson and W. J. Brandrith	Richmond.

It is pleasing to note that the placing of the awards by these gentlemen gave universal satisfaction.

VANCOUVER, B. C., October 30th, 1900.

The regular Quarterly Meeting of the British Columbia Fruit Growers' Association convened in the Court House, Vancouver, at 2:30 p.m. President Wilson in the chair.

The following members were present:—H. Kipp, Chilliwack; J. C. Metcalfe, Hammond; Thos. Cunningham and A. W. Ogilvie, Vancouver; H. Davey, South Vancouver; L. R. Authier, Abbotsford; Col. Falk Warren, Vancouver; and the Secretary.

The Secretary read a circular letter from the Secretary of the Oriental Commission. After considerable discussion it was decided to take no action in the matter.

It was moved by L. R. Authier, seconded by H. Kipp:

That the Secretary be instructed to write the Hon. Minister of Finance, asking that the Government grant be placed to the credit of the Association in the Bank of Montreal, New Westminster.—Carried.

The Secretary read a circular requesting particulars relating to the plum rot.

On motion of H. Kipp, seconded by A. W. Ogilvie, the Secretary was instructed to have one thousand copies printed and addressed to fruit growers in the Province.

Moved by J. C. Metcalfe, seconded by H. Kipp:

That the Annual Meeting be held on the fourth Tuesday in January, 1901, at 2:00 p.m. Secretary to arrange for building.—Carried.

After considerable discussion it was decided to publish a Report of the Proceedings for the years 1899 and 1900.

Moved by H. Kipp, seconded by J. C. Metcalfe:

That we have three hundred and fifty copies of the Annual Reports printed.—Carried.

Moved by J. C. Metcalfe, seconded by H. Kipp:

That Messrs. Thos. Lewis and the President be appointed to assist the Secretary in compiling the Annual Report.

The following programme for the Annual Meeting was then arranged:—

President's Address.

Report of Secretary-Treasurer.

Paper by Thos. Cunningham.

Varieties of Apples and Pears to plant—H. Kipp.

Management of the Kitchen Garden—W. J. Brandrith.

Transportation—J. C. Metcalfe.

Bees—W. H. Lewis.

Moved by L. R. Authier, seconded by A. W. Ogilvie:

That we adjourn.—Carried.

TOM WILSON, *President.*

W. J. BRANDRITH, *Sec.-Treas.*

CORRESPONDENCE RELATIVE TO PLUM ROT.

COPY OF CIRCULAR SENT OUT.

"DEAR SIR,—The B. C. Fruit Growers' Association, wishing to obtain all the information possible relating to the Plum Rot, unfortunately so prevalent, take the liberty of asking you to kindly fill in the answers to the questions below, and to furnish any other information in your possession on the same subject.

"Enclosed is addressed and stamped envelope for reply, which kindly mail before 20th inst., and oblige,

"W. J. BRANDRITH,

"*Sec. B. C. F. G. Assoc'n.*

"*New Westminster, October 29th, 1900.*

"1st. Have you Plum Rot in your orchard? 2nd. When did you first observe it? 3rd. Have you tried anything to prevent it? 4th. If so, what? 5th. And with what result? 6th. How many plum trees have you in bearing? 7th. Is your orchard seeded down or in hoed crops? 8th. If seeded down, what with, clover or grass? 9th. Are you in favour of stringent measures being taken to get rid of the disease?"

From the answers received it appears that about twenty per cent. of the fruit growers tried various remedies; some with no apparent effect, others partially successful; one of the most successful being Mr. T. Bosomworth, of Port Haney, who gives his treatment as follows: 4 lbs. bluestone, 5 lbs. lye, and 60 gallons of water, sprayed once in the fall and once in the spring.

It is apparent from the replies received that the disease has been in the Province during the past fifteen or twenty years, and is increasing in destructiveness each year.

It seems to be an established fact that it is equally as bad in cultivated as in uncultivated land, or land seeded with clover or any of the grasses.

Further, it is made apparent that those who have been most successful in contending against Plum Rot have been those who have sprayed thoroughly, systematically and persistently, and who have kept the heads of their trees well thinned out; burning all infected fruit, dead wood and rubbish.

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The following letter, from Mr. Henry E. Dosch, Secretary of the State Board of Horticulture, Oregon, confirms this view:—

“OREGON STATE BOARD OF HORTICULTURE,
“PORTLAND, OREGON, November 28th, 1900.

“*Mr. W. J. Brandrith, Sec.,*
“*New Westminster, B. C.*

“DEAR SIR,—Your letter of the 24th inst. to hand. In reply beg to say that we have the same trouble in Oregon, known as Brown Rot (*Monilia fructigena*). When it first appeared in Oregon I sounded a warning note, which, however, was not heeded until severe loss was sustained.

“In my own orchard I eradicated it completely by spraying; first spraying in the fall, with 10 pounds lime, 6 pounds blue vitrol, and 40 gallons water, covering the entire tree from tips of branches to the ground, so they looked as if whitewashed; the same spray in spring, just as the buds began to swell; then with regular Bordeaux mixture, after the blossom had fallen and the embryo prune or plum was the size of a grain of wheat; again with modified Bordeaux mixture when the prune was the size of a large bean.

“If you follow these instructions I think you will have clean fruit. Please bear in mind that this fungus growth is from within to the surface, and not from the surface to the inside. If once established in the plum or prune, all external sprayings are of no avail.

“Yours truly,
(Signed) “HENRY E. DOSCH.”

Mr. J. E. Baker, Commissioner of Horticulture, State of Washington, says over 3,000 acres of prunes are in bearing at Vancouver, Washington, and that they are kept fairly immune by three applications of Bordeaux: the first when buds begin to swell; the second when fruit has set; the third about July 1st, according to season.

A number of correspondents have suggested that some orchards should be selected by the Association and experiments carried on therein, to give practical proof that the rot can be prevented.

The following is a statement of the replies to questions 1 and 9 in the Circular:—

No. 1—13 did not answer; 77 answered Yes; 58 answered No.
No. 9—32 did not answer; 7 answered No; 109 answered Yes.

FINANCIAL STATEMENT,

FOR THE YEAR ENDING DECEMBER 31ST, 1899.

RECEIPTS.	EXPENDITURE.
Feb. 1, 1899.	Feb. 1, 1899.
To Cash in bank \$694 69	By Minute Book \$ 1 50
To Cash on hand 15 45	E. Hutcherson, Trans. Com. 300 00
Feb. 8.	E. Hutcherson and T. R. Pearson, ex-
To 15 Members' Tickets 15 00	penses to Victoria 30 00
	H. Carmichael, Analysing Jam 10 50
	The "Times," advertising Annual Meet-
	ing 3 00
	Thos. R. Cusack, printing 3 75
	Weiler Bros., rent of chairs 2 25
	R. M. Palmer, jam 50
	R. M. Palmer, express on jars 1 00
	W. H. Hayward, account Executive
	Committee 150 00
	R. Layritz, judging shows 12 00
	Thos. G. Earl, " " 27 80
	T. R. Pearson, salary 60 00
	Telegram 25
	Balance in Bank of Montreal 93 89
	Cash in hand 28 70
\$725 14	\$725 14
Jan. 9th, 1900—Balance in Bank of Montreal \$93 89	
Cash in hand 28 70	

Certified correct,
R. M. PALMER, }
THOS. A. SHARPE, } *Auditors.*

heap, either with manure or with lime or wood ashes; or the air-dried muck may be first applied as an absorbent in the cow stable, pig pen, etc., to absorb the liquid manure. In this way a double purpose is served; the valuable liquid portion of the manure which might otherwise be lost is retained, and the fertilizing elements in the muck set free. Good samples of air-dried muck will contain from 65 to 85 per cent. organic matter, and from 1.25 to 2.5 per cent. nitrogen.

Possibly the only feasible plan of furnishing humus and nitrogen over large areas is by the turning under of a growing crop of clover or some other legume. This is termed green manuring, and is certainly to be regarded as the most economical and one of the quickest methods of replenishing the soil's humus. The benefits to be derived from green manuring, especially when a legume is used, have been so repeatedly set forth in our past reports that it may not be necessary to speak at any length on that subject. It is well to emphasize, however, in this connection three points: firstly, if the soil is too poor to grow clover, buckwheat or rye may be ploughed under for a year or two and the land made suitable for clover; secondly, that a dressing of wood ashes or a fertilizer containing potash and phosphoric acid will very much help the clover; and, thirdly, there will be no practical enrichment of the soil with nitrogen unless a legume is used, since the legumes only have the ability (by means of certain germs that reside in the nodules on their roots) to appropriate and store up the free nitrogen of the air.

LIME.

The analytical data show that this soil is by no means rich in lime, and its well-marked acidity accentuates this fact. The land evidently stands in need of lime, not only as a source of plant food, but to correct the sourness which is injurious to most farm crops. Since it is not wise to make heavy applications of lime, and since this element has the tendency to work or wash down into the subsoil out of the reach of the roots, the application of, say, 20 to 30 bushels per acre every second or third year might prove better practice than a larger dressing at greater intervals. If phosphoric acid is applied in the form of basic slag, much less lime than that indicated will be necessary, since that fertilizer contains a considerable proportion (usually 12 to 15 per cent.) of free lime.

Shallow culture, *i. e.*, shallow ploughing, with an occasional loosening, but not bringing to the surface, of the subsoil is to be advised for this and similar soils. It seems desirable, owing to its light and hungry character, to keep the humus, lime and other fertilizers as far as possible in the first four or five inches of soil. A deep tilth is undoubtedly a feature of great value, but it can scarcely be economically produced and retained in very light and sandy soils. For further details as to the economical improvement of poor and exhausted soils, the reader is referred to the Report of this Division for 1899, page 133, *et seq.*

COMMERCIAL FERTILIZERS.

In the question of commercial fertilizers, it will only be possible to indicate the general principles to be followed, since the nature of the crop to be grown and the past history of the field must necessarily be taken into consideration before definite formulæ for any specific purpose can be suggested. The following remarks, however, may be useful:—

NITROGEN.

Of the commercial forms of organic nitrogen in British Columbia, fish waste, prepared from the offal of the canning factories, sometimes known as fish meal, or fish pomace, holds a high place. Its composition will vary according to the parts of the fish that predominate in its preparation; thus, some samples may contain between 2 and 3 per cent. nitrogen and 10 to 15 per cent. phosphoric acid, while others possess 5 to 7 per cent. nitrogen and 2 to 3 per cent. phosphoric acid. This fertilizer, it is obvious, may be used to supply two of the three elements generally necessary, but should be supplemented by a potash manure, such as kainit, muriate of potash or wood ashes.

We may regard it as a concentrated and quick-acting manure, best used as a top dressing or applied to the ploughed land and lightly harrowed in before seeding. It has been applied with success to grain crops and grass lands especially, and gives the greatest returns on light, warm, well-drained loams. For an ordinary dressing, a mixture of 500 lbs. of fish meal and 100 lbs. of muriate of potash per acre is suggested.

Nitrate of soda and sulphate of ammonia furnish large amounts of readily assimilable nitrogen. Undoubtedly the former, considering the character of the soil, will be the better. On acid soils and soils deficient in lime, sulphate of ammonia may do positive harm. From 100 lbs. to 200 lbs. per acre, applied in several applications, at intervals of a few weeks, as a top dressing during the earlier months of growth. The greater solubility of nitrate points to the advisability of never applying it save when there are growing plants to make use of it, and the economy of several small dressings, rather than one large one at the opening of the season.

PHOSPHORIC ACID.

Bone meal, superphosphate and basic slag are the chief phosphatic fertilizers obtainable leaving out of consideration fish pomace, already referred to. Bone meal is also a source of nitrogen, containing from 2.5 to 4 per cent. of this element. Its phosphoric acid is not immediately assimilable, but becomes so gradually in a soil that is warm, moist, and well drained. It is probably better suited for grass lands and orchards than for crops with a short season of growth. The usual application lies between 300 and 500 lbs per acre.

Owing to the sourness of the soil of this tract and its deficiency in lime, the writer is of the opinion that basic slag, finely ground, would be found a very useful source of phosphoric acid. It contains in the neighbourhood of 17 per cent. phosphoric acid and 15 per cent. free lime. Its application may be 300 to 500 lbs. per acre. Such excellent results have been obtained from this fertilizer in England and Germany that it would appear to be well worth trial, especially on such soils as we are now considering. Further information regarding basic slag will be found in the Report of this Division for 1898.

POTASH.

Unfortunately, it appears that wood ashes, a most valuable source of this element, are not obtainable in quantities in British Columbia.

To those in proximity to the Coast, sea weed will prove a cheap and valuable manure. A sample of fresh sea weed, examined by us in 1894, contained about 2 per cent. potash and 5 per cent. nitrogen. Unless well dried, it would scarcely pay to freight sea weed any great distance inland, and in any case it is advisable to allow the sea weed to well dry on the shore before hauling to the farm.

Kainit, muriate of potash and sulphate of potash are potassic manures imported from Germany. Kainit contains about 12 per cent actual potash; muriate and sulphate about 50 per cent. actual potash. These fertilizers should always be bought on guaranteed analysis.

The average application of muriate and sulphate is 100 lbs. per acre; of the kainit, about 400 lbs. per acre. As the winter season in this district is always more or less open and rainy, the writer is of the opinion that spring application of these fertilizers would prove the most profitable.

Most poor and exhausted soils usually respond to a complete fertilizer; that is, one that contains all three of the elements of plant food—nitrogen, phosphoric acid and potash. The proportion of each of these most economical to use must, however, be largely determined by the character of the crop to be grown, the nature of the past manuring, and the results of careful experimenting on the soil and with the crop under consideration. The amounts we have given in this report are those commonly employed; more specific instructions require a knowledge of the circumstance, and those desiring such are invited to place themselves in correspondence with this Division.

FRANK T. SHUTT,
Chemist, Dominion Experimental Farm.

December 28th, 1900.

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ANALYSIS OF SOILS (WATER FREE), 1900.

MUNICIPALITY OF BURNABY, B. C.

No.	Soil	Organic and volatile matter.	Clay and sand.	Oxide of iron and alumina.	Lime.	Magnesia.	Potash.	Phosphoric acid.	Soluble silica.	Carbonic acid, etc., undetermined.	Total.	Nitrogen.	AVAILABLE.		
													Potash.	Phos. Acid.	Lime.
1	Surface	9.00	77.89	11.65	.35	1.26	.12	.13	.12	.....	100.61	.148	.0088	.0049	.0039
3	Hardpan, 2 feet from surface...	4.07	82.14	11.56	.70	1.18	.15	.13	.09	.....	100.02	.041	.0002	.0173	.0490
2	Hardpan, 5 feet from surface...	3.60	82.75	11.22	.36	.65	.16	.13	.08	1.05	100.00	.028	.....	.....	.....

VICTORIA, B.C.:

Printed by RICHARD WOODSHEAD, Printer to the King's Most Excellent Majesty.

1901.