SEVENTH REPORT

OF THE

SUPERINTENDENT OF FARMERS' INSTITUTES,

INCLUDING PROCEEDINGS OF THE

EIGHTH ANNUAL CONVENTION

OF THE

CENTRAL FARMERS' INSTITUTE, B. C.

1905.

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

VICTORIA, B. C.
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1906.

Department of Agriculture,
Victoria, 19th July, 1906.

The Hon. R. G. Tatlow,
Minister of Agriculture,
Victoria, B. C.

Sir,—

I have the honour to transmit herewith the Seventh Report of Farmers' Institutes of British Columbia for the year 1905, embodying the proceedings of the Eighth Annual Convention of the Central Farmers' Institute.

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

J. R. ANDERSON,
Deputy Minister of Agriculture, Superintendent of Institutes.

SEVENTH REPORT

OF THE

SUPERINTENDENT OF FARMERS' INSTITUTES

OF

BRITISH COLUMBIA.

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The remarks made in my address before the Central Farmers' Institute, which are to be found in the proceedings of that body further on in this publication, cover the ground as to the progress of Institute work and other matters of that kind, and I, therefore, direct the attention of the reader to the part alluded to for those matters and statistics of Institutes.

Local speakers have been so difficult to obtain that the tentative promise made last year has not been possible to carry out in its entirety, viz., that at all regular meetings to which speakers are sent one local address should be given. It certainly has been acted upon, but not to the extent I could have wished.

The conditional promise made to the Bella Coola Institute that my visit would be repeated, or that, if possible, some one else should do so, was, I regret to say, not carried out. This is the more regretable as these visits are most heartily appreciated by the people of that valley. Personally, the lack of time to undertake the journey is the reason I have to offer for my apparent neglect; as for other speakers, it has been quite out of the question to obtain the services of any competent person. The interest manifested by this Institute is worthy of all encouragement, and I sincerely trust that another season will be productive of better results as regards speakers. As regards the most favourable time of the year to hold the regular meetings, experience has shown that in a country like British Columbia, with its varied climatic conditions and consequent difference in time of performing the necessary farm work, no season will suit the whole Province, and the meetings are therefore arranged to suit the greatest number. The supplementary meetings which the Superintendent arranges for other seasons, when men from the Dominion Department of Agriculture and from the Agricultural Colleges of the adjoining States are employed, however, somewhat compensate for this unavoidable mischance.

Following is a list of speakers who gave addresses during the last year, and their subjects:—

C. M. Macrae, Ottawa—"Breeding for Beef Production"; "Bacon Hog and Export Trade"; "Necessity of Live Stock on Wheat Farm."

Dr. S. F. Tolmie, V.S., Victoria—"Glanders"; "Hog Cholera"; "Other Diseases of Swine"; "Milk Fever"; "Other Contagious Diseases of Animals"; "The Horse, Points of Selection"; "Care of the Horse from Colthood to Market."

Thos. Cunningham, Inspector of Fruit Pests, Vancouver—"Horticulture"; "Fruit Growing"; "Inspection of Fruit and Nursery Stock."

Miss Agnes Deans Cameron, Victoria—"Kipling"; "Training for Citizenship."

J. A. Grant, Victoria—"Fruit Growing."

A. Ohlson, Victoria—"Rose Growing"; "Apple Culture."

A. W. B. Joyner, Metchosin—"Chickens."

Dr. C. J. Fagan, Secretary Board of Health, Victoria—"Tuberculosis."

Miss Turner, Victoria—"Poultry."

John T. Collins, Ganges Harbour—"Milk Testing"; "Demonstration with Babcock Test"; "Feeding Cows and Sheep"; "Institute Work."

Thos. A. Wiancko, Sardis—"Economical Production of Milk"; "Creamery Management"; "Proper Care of Milk and Cream"; "Creaming of Milk."

A. de R. Taylor, V. S., Ladner—"Piggie and his Troubles."

W. J. Brandrith, Ladner—"Pruning and Spraying."

C. H. Weicht, Northfield, Minn.—"Hemp Growing."

F. M. Logan, Dominion Live Stock Department, Victoria—"Judging Live Stock"; "Ploughing"; "Conformation of Beef Animal"; "Good and Bad Points of Dairy Cow"; "Dairying in Relation to Agriculture"; "Conservation of Soil Moisture"; "Cultivation of the Soil;" "Feeding and Management of Dairy Herd"; "Possibilities of Canadian Agriculture."

Mr. J. H. Smart, Secretary of the Metchosin Farmers' Institute, reports as follows:—"This is the best meeting held in this district for some time, more questions asked and more general talk among the members. The meeting was enlivened by recitations and songs."

C. Carlson, Bella Coola—"Ensilage."

The Secretary of the Bella Coola Institute says of this paper—"Mr. Carlson's method of making ensilage is without a silo. It has been tried successfully in Bella Coola. Mr. Carlson showed some of it at the Institute meeting. I think we have done a great deal towards getting people started on practical ways of farming. Our local exhibition was discussed at our last meeting; a committee was appointed to take charge of the programme. I rather think it will prove successful. We would very much like to have you present. The date has been set for September 15th."

J. R. Anderson, Deputy Minister of Agriculture, Victoria—"Care and Location of the Orchard"; "Apple Culture"; "Fruit Culture"; "Fertilisers"; "Demonstrations in Pruning and Grafting."

Dr. J. Pybus, Alberni—"Chemistry of the Soil."

Wm. Leeson, Alberni—"Care of Manure."

H. L. Blanchard, Port Hadlock, Wash.—"Egg Production"; "Care and Management of Poultry for Money Making"; "Dairying."

Report by Mr. W. F. Hine, Secretary, Langley Farmers' Institute. "Mr. Blanchard is a good all-round speaker; his address on egg production was very instructive; he also gave a description of his new poultry house."

"Mr. Blanchard's address on raising the production of a dairy herd from 200 lbs. per annum to 450 lbs. caused much comment, and after Mr. King's address a good discussion on silos and ensilage followed."

Major James Sheppard, Queenston, Ont.—"Impurities in Grass and Clover Seeds"; "The Newer Forage Plants, Lucerne Clover, Rape, etc."; "The Planting and Care of Fruit Trees and Plants"; "Individuality of Fruit Trees and Plants"; "The Utility Breeds of Poultry"; "The Importance of Soil Moisture and How to Maintain It"; "The Spray Pump and When to Use It"; "What can be Done to Improve the Common Breeds of Cattle"; "Tomatoes for Home and Market"; "Good Roads."

Report by one of the Secretaries:—"The very practical addresses delivered by Major Sheppard and Mr. Earl were highly appreciated by all who heard them, and we hope to have the pleasure of hearing these gentlemen on many future occasions."

T. T. Gadd, Vancouver—"Care and Improvement of Dairy Herd"; "Raising Dairy Stock"; "Care of Cream for Creamery"; "Creamery Management and Organization"; Farm Dairying."

Rev. W. E. Dunham, New Westminster—"Buildings, Fixtures and Poultry Yard Methods, with Model Illustration"; "Incubators and Brooders, with Demonstrations"; "Care of Young Stock, Housing, Feeding, etc."; "Raising Stock for Market, Illustrated Type, and Practical Demonstrations in Killing, Trussing and Dressing"; "Fattening Stock for Market, with detailed comparison of methods, *e. g.*, crates, pens and loose"; "Raising Stock for Layers and Breeding, showing types and giving an excursus on the Obtaining of Eggs"; "Best kinds of Fowls and the Climatic Conditions Necessary for Raising of Same"; "Diseases and How to Handle Them."

W. C. McKillican, Dominion Seed Department, Calgary—"Pure Seed"; "Weeds in Their Relation to Agriculture"; "Clover and Alfalfa"; "Influence of Seed Selection."

James Murray, Western Superintendent Seed Division, Winnipeg—"Pure Seed."

W. A. Wilson, Dominion Superintendent of Creameries, N. W. T.—"Dairying"; "Travelling Dairy."

J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa—"Soil Cultivation"; "Beef Production"; "Building up the Dairy Herd"; "Feeding Pigs for Bacon Production"; and demonstrations in "Judging the Bacon Hog"; "How to know Mutton Sheep"; "The Good and Bad Points of the Dairy Cow"; "The Conformation of the Beef Animal"; "Practical Illustrations with the Horse."

Maxwell Smith, Vancouver, Dominion Inspector of Fruit Marks Act—"Fruit Marks Act"; "Commercial Aspect of the Fruit Industry"; "Co-operation."

R. B. King, Victoria—"Winter Dairying"; "Care and Management of Cream."

Dr. Hopkins, V. S., Winnipeg—"Contagious Diseases of Animals."

J. A. Morrow, Agassiz—"Onion Culture."

N. T. Baker, Agassiz—"Prospects of a Beginner at Agassiz."

T. West, Agassiz—"Clearing Land."

E. P. Venables, Vernon—"Insect Pests."

Donald Graham, Armstrong—"Local Conditions in Fruit Growing."

F. H. Hassard, Enderby—"Local Conditions in Clover Growing."

Thos. G. Earl, Lytton—"Board of Horticulture Work"; "Co-operation" "Suitable Varieties of Fruit."

Andrew Noble, Kamloops—"Change of Seed."

Thos. A. Noble, Kamloops—"Size of Seed Potato."

A. R. Goodwin, Fish Lake—"Alfalfa as Feed."

D. W. Elder, North Vancouver—"Floriculture."

Alex. Philip, North Vancouver—"Co-operation."

J. E. Annable, Nelson—"Fruit Lands of Kootenay."

O. J. Wigen, Creston—"Spraying."

A. Okell, Creston—"Irrigation Scheme to irrigate high lands at Creston."

Thos. A. Sharpe, Superintendent, Dominion Experimental Farm, Agassiz—"General Farming Subjects."

Report by J. H. Smart, Secretary, Metchosin Farmers' Institute:—"Such meetings would be of great benefit if the members would only bestir themselves and ask more questions; would suggest that more of such meetings be held."

I have been unable to attend the meetings of the American Association of Farmers' Institute Workers, which are held annually at Washington, D. C. These meetings are of the greatest interest and benefit to Superintendents of Institutes in the conduct of their work, and it is therefore regrettable that I have not been able so far to attend them. The following copy of communication speaks for itself:—

"WASHINGTON, D. C., January 16th, 1906.

"*Director J. R. Anderson,*

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

"MY DEAR SIR,—At the request of the President of the American Association of Farmers' Institute Workers, I send you herewith copy of resolutions passed at the recent meeting of the Association held in the City of Washington, relating to the method of computing attendance at the Farmers' Institutes.

"The new officers of the Association are: President, G. C. Creelman, Guelph, Ontario; Vice-President, W. W. Miller, Department of Agriculture, Columbus, Ohio; and Secretary, John Hamilton, Department of Agriculture, Washington, D. C.

"Very truly yours,

(Signed) "JOHN HAMILTON,

"*Farmers' Institute Specialist.*

"In view of the inaccuracy and misleading character of the method now in use by this Association for computing Institute attendance, therefore,

"*Resolved*, First.—That hereafter the number in attendance at each session of each Institute shall be ascertained by actual count and recorded, and the aggregate of all the sessions shall be reported as the total attendance for the year. This aggregate, divided by the number of sessions, shall be regarded as the average attendance at each session.

"Second.—That attendance at the annual round-up of Institute workers, out-door picnics, harvest home meetings, and similar assemblages of farmers addressed by Institute speakers, shall be reported separately from the regular Institutes, the total attendance for the entire meeting to be given instead of the number present at each session."

SUGGESTIONS TO OFFICERS OF FARMERS' INSTITUTES.

(From the Ontario Department of Agriculture.)

There is no general system regarding the payment of secretaries and other officers. Some Institutes are paying an ample sum for services rendered; others are paying too little. This is a matter that must be left entirely in the control of the local officers; yet it is desirable that, if possible, a uniform system be adopted throughout the Province, and the following plan is respectfully suggested:—

If the Institute has a membership of 50, that the secretary receive $10 annually and all legitimate expenses while attending meetings, whether of the Institute, the directors or the executive officers. In addition to this, he may receive $5 for each additional 50 persons who join the Institute. By this plan, an Institute with a membership of 200 will pay its secretary $25 net for his services. As a rule, the success or failure of an Institute depends on the secretary. If an Institute has a good secretary, it will flourish; if the secretary is not up to the mark, the Institute will sooner or later go to the wall; therefore, the best available man should be chosen for this position and he should be liberally dealt with.

REPORTS, ADDRESSES, PAPERS, ETC.

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Spallumcheen Farmers' Institute.

Gentlemen,—I beg to submit to you the report of the Institute for the year 1905.

The membership exceeds that of the previous year by 21, being 71 for this year. For a well-populated district like Spallumcheen, this figure is a small one and ought to be more than doubled.

During the past year 14 meetings were held, 24 addresses given, and a total attendance at these meetings of 288. Of the meetings held, five were supplementary, three being held in Enderby and two in Armstrong. The spring regular meetings were held in Enderby, Armstrong and Mara. The dairy school, under Mr. W. A. Wilson, took the place of the fall regular meeting and was held in Armstrong. It is a source of great pleasure to me that, among the supplementary meetings, we have been able to include one which was addressed by local speakers, Mr. F. H. Hassard giving an interesting address on "Clover Growing," and Mr. Donald Graham reading an excellent paper on "Local Conditions of Fruit-growing." The financial report is satisfactory, showing a balance in hand of $34.46.

D. Matheson, *President.*

Surrey Farmers' Institute.

Mr. President and Gentlemen,—In making my report for the year 1905 of the Surrey Farmers' Institute, I am pleased to say that the Institute continues to flourish. During 1905 we had a membership of 65; on the 31st December we had a cash balance of $85. During the year we held 10 meetings at different points in our district, attendance being 170, and the number of papers and addresses given 18. I am sorry to state that the plowing match arranged for October 16th did not materialise, a good many turning out to witness the same but not to plow. I trust that this will be discussed at this meeting and a set of rules framed so that we could try again next fall. On the 12th and 13th December we held two meetings to meet C. H. Weicht, the Superintendent of the Minnesota Hemp Co., to discuss the question of hemp growing, with the result that no less than 16 farmers in our district have agreed to sow half an acre so as to test the suitability of our soils and climate for this crop.

H. Bose, *Secretary.*

Bella Coola Farmers' Institute.

President's Report.

Bella Coola, 20th January, 1906.

Gentlemen,—I regret to say that the Institute work during the past year has not been very prosperous, owing to the fact that circumstances made it necessary to postpone meetings last autumn, on account of contagious disease discovered among some children in the settlement. Nevertheless the members seem much interested in practising the good advice brought to them through the literature from the Department.

The orchards have been sprayed and the fruit, especially apples, was fine and of good quality. Improvements have also been made in cultivating and fertilising the soil for garden and field crops.

We appreciate very much the literature supplied by the Department and I consider it a main factor for the defence of our Institute.

During the year supplementary meetings were held as follows:—

On March 17th, when the delegate gave an address on the subject of proceedings at the annual convention of the Central Farmers' Institute, Victoria, B. C.

On April 8th Mr. Carlson gave an address on "Ensilage."

Directors' meeting was held on March 25th, when it was arranged for an exhibition of farm products on September 15th and prizes offered. This exhibition was postponed for the reason that quite a number of people at the time had not returned from their work at different places on the Coast. The Board then decided to have the exhibition on October 30th, being the date of the eleventh anniversary of landing of the colony at this place. The meeting was largely attended and I am pleased to say that the exhibition proved to be a success. Addresses were delivered by Mr. C. Carlson and Mr. H. B. Christensen. The Secretary will report in detail of the proceedings at all the meetings and also of prizes awarded at the exhibition.

Supplementary meetings were announced to be held on December 9th and December 30th, but were countermanded for the reason before mentioned.

I will ask the next Board of Directors to set aside part the of the Institute money for prizes for the best farm products at an exhibition in Bella Coola next autumn, and, if possible, send some specimens to the exhibition at New Westminster.

Forest fires being very destructive here last season, precaution should be taken for prevention and protection against same.

A feed mill is needed, and steps should be taken in the near future to get one put in the settlement.

The poultry question should be of much importance to us, as this industry will no doubt prove to be a paying proposition if properly conducted. The same might be said about fruit culture.

The demand for Government assistance to obtain cheaper stumping powder for clearing of land and bounty on bears in settled districts should be reiterated at the convention of the Central Farmers' Institute.

I will take this opportunity to say that our Institute is a live Institute. This is due to the indefatigable way in which our Secretary works for the benefit of the Institute, and I would close by asking you to elect new directors who will take an interest in this work, giving all the help they can to our Secretary, who has brought the Institute to what it is.

I remain, etc.,

E. NORDSCHOW, *President.*

SECRETARY'S REPORT.

As Secretary-Treasurer of the Bella Coola Farmers' Institute, I have the honour to present my third annual report for the year 1905. During the year 52 members were enrolled, each having paid a fee of 50 cents, amounting to $26. The balance in treasury from previous year was $49. Legislative grant, $25, and cash for selling lime, 50 cents. Total, $100.50. We expended $26.75 by awarding prizes at local exhibition; paid $3 for hauling produce to exhibition; 50 cents for prize ribbon; 50 cents for postage and paper, and $2 for barrel of lime. Total expenditure, $32.75; balance, $67.75.

The interest manifested in our Farmers' Institute does not seem to be on a decline, from the fact that all members are desirous of renewing their membership fees for the coming year. During the past year ten members have left the valley, so there may be a slight decrease in members the ensuing year, although we may add a few new ones to the list.

In regard to Institute work, we cannot boast of having accomplished very much, yet I think we are all of the opinion that, considering Institute work during the time since organisation, good results have and will be felt. According to our somewhat peculiar situation, it is very difficult to accomplish anything very great in a hurry. The many drawbacks, losses and discouragements we constantly meet with, especially during the past year, is very disheartening; indeed, we are often deterred from our duty by trivial difficulties. Compared with the other Institutes of the Province we are labouring under very different circumstances, as we can hardly call Bella Coola a farming community. Owing to the great difficulty met with in clearing land, the farms are still very small and farming comparatively in a primitive condition. The isolated location of the place does not afford a ready market, and there can be no great encouragement towards progress without an easy market. Still, with intelligent efforts and patient struggles, with hopeful anticipations for a thriving and prosperous future, we can in the meantime do much to cheer each other and hasten better times. Fruit-growing will, no doubt, prove the leading industry among us in the future. There are at present about 800 apple trees planted in the valley, besides other varieties, such as pears, plums, prunes and peaches, about 100 of each variety. All these trees are selected from varieties recommended for our

conditions. It means a great deal to get a right start, and especially so in planting trees, as it takes years before we can realise any profit from them, and we know a great deal of time and money have been lost in planting varieties which were not adapted to existing conditions.

As members of the Institute, we derive much benefit from the literature sent out by the Department. In the different Bulletins and Reports we can obtain almost any kind of information wished for in any branch of farming. We know that every crop grown by the farmer is liable to be attacked and reduced in value by various insect enemies, and the losses due to this cause are enormous every year; so a certain amount of knowledge regarding the eradication of these enemies may prove very useful. If we should obtain this knowledge through our own experiments, no doubt this would often require much time and expense.

In our Institute meetings, clover has often been recommended as one of the most valuable crops we could grow, both as a cattle food and soil fertiliser, and I think we all agree upon this point, as, apparently, clover is fast taking the place of timothy. The problem which remains to be solved is, which is the best method to preserve clover in a fresh state? We know in drying it as hay a large portion is apt to be wasted in the leaves dropping off. The process of preserving it in the form of ensilage has been fully described in our Institute meetings, in Bulletins and different reports sent to us by the Agricultural Department, by the use of silos and without silos. Several of our members have tried the open air experiments with small quantities, with fair success. I consider this ensilage question a very important one among us, and would suggest that the Institute in some way encourge these experiments in the different methods.

In conclusion, I would say, good results of Institute work will be felt just in proportion as we take part in Institute work and put practical methods of farming into practical use. The Farmers' Institute can then be made a happy medium through which we can advance physically, morally and intellectually.

A. Hammer,
Secretary-Treasurer.

Minutes of the Third Annual Meeting of Bella Coola Farmers' Institute.

Bella Coola, January 22nd, 1906.

On January 20th was held the third annual meeting of the Bella Coola Farmers' Institute. The meeting took place in the school-house at Hagensborg and proved one of the most successful and interesting meetings held since the organisation of the Institute. The weather was beautiful, real, genuine Bella Coola weather. We have no bad weather here, but several kinds of good. To make everything complete, several feet of snow had fallen. As a result, the sleighing was grand, and about the hour of twelve, at Hagensborg, began the jingle of many sleigh bells, and sleighs of every description could be seen bearing members from every direction, some coming a distance of 12 miles to attend.

About two o'clock the meeting was called to order by Mr. E. Nordschow, President of the Institute, with an attendance of 65 persons, including many ladies. We can boast of having enrolled seven members of the fair sex, and it is very encouraging to see the ladies take a keen interest in Institute affairs; we appreciate their efforts at our meetings immensely, knowing that farming without women's assistance always proves disastrous. In his opening remarks the President expressed great pleasure in seeing so many of the people present; in fact, the largest attendance of any other meeting held by the Institute, showing an increasing interest.

The musical part of the programme was rendered by Mr. G. Sangstad, who entertained us with numerous gramophone selections during intervals between business and discussions.

After the minutes of the last supplementary meeting and of the last Directors' meeting were read by the Secretary and were adopted, the President read his annual report. On motion of Mr. C. Carlson, a committee of three members was elected to consider the President's report and report later on the important suggestions as to Institute work for the ensuing year. The committee elected was C. Carlson, J. P. Sangstad and Filip Jacobson.

The auditors, B. Brynildsen and H. B. Christensen, reported having carefully looked over the Treasurer's financial statement and books and found everything correct.

The holding of regular meetings was left with the Board of Directors.

Secretary-Treasurer A. Hammer presented his annual report, showing a cash balance of $67.75 in the treasury. The Secretary's report also reviewed Institute work for the past year and a few suggestions of work that the Institute could take up during the coming year.

The election of officers for the ensuing year then took place, after which Mr. P. Lauritson delivered an interesting address on the subject of "Co-operation."

The afternoon session adjourned until 7 o'clock in the evening.

EVENING SESSION.

A goodly number of the people again gathered in the evening. Mr. C. Carlson took the chair and in his opening remarks thanked the members for the confidence shown him in electing him both as their chairman and delegate; in return, as he had always felt a strong interest in the Farmers' Institute, it would be his aim to put forth every effort to make the Institute a success. He suggested that it would be well to establish a Farmers' Institute club-room for the benefit of its members, where a library could be kept of good books and a few farm journals, etc., where Directors could hold meetings and where collections of noxious weeds and seeds could be kept. He believed it would greatly increase the enthusiasm among the members.

The committee elected to form resolutions and suggestions based on the report of the President reported as follows:—

"1. With reference to the paragraph on forest fires, the committee recommended the adoption of a resolution as follows:

"*Resolved*, That to successfully cope with bush fires after they have started, we recommend that the Government appoint in settled districts a person with authority to compel people to help fight the fire, and that it set aside a fund for the purpose of paying the men for such service."

This resolution was adopted by the meeting and our delegates instructed to lay it before the convention.

"2. That the Executive Board be instructed to investigate into the details necessary for the erection and successful operation of a feed mill. It is suggested by this Institute that such investigation comprise the need, cost, capacity and location of such mill, and how it may best be operated, whether by individual or by co-operation.

"3. That poultry farming be one of the subjects taken up for discussion by the Institute the ensuing year.

"4. That the Institute's delegates to the Central Farmers' Institute be instructed to take up the resolutions regarding stumping powder and bounty on bears, passed by the Central Farmers' Institute last year, and work for their passage at the next session."

These resolutions were adopted by the meeting.

The Secretary read copy of communication from H. H. Miller regarding collections of noxious weeds mounted on paper. It was decided that the Bella Coola Institute purchase a collection of thirty.

A paper was read by the Secretary on the subject of "Co-operation in Denmark," and after a musical programme the meeting adjourned.

A. HAMMER, *Secretary*.

Central Farmers' Institute Criticised.

Regarding certain criticisms which had come to the notice of the officers of the Institutes regarding the legitimate work of the Central Farmers' Institute, and Institute work generally, the following resolutions, etc., were sent in:—

SPALLUMCHEEN FARMERS' INSTITUTE.

"The opinion of the Institute is that the Central Institute was for the purpose of laying their wishes before the Government, and not to discuss methods of agriculture."

WEST KOOTENAY FARMERS' INSTITUTE.

"That this meeting of the Kootenay Farmers' Institute desires to place itself on record by showing its appreciation of the efforts made by the Department of Agriculture of this Province in their endeavours to promote the best interests of farmers and fruit-growers; and,

further, that this branch of the Institute can speak with knowledge of the valuable and practical assistance derived from the visits of the different experts who have been provided by the Department, and we also wish to thank the Deputy Minister of Agriculture for the prompt and courteous treatment which the Kootenay Farmers' Institute has always received at his hands."

Metchosin Farmers' Institute.

"The matter of the criticisms regarding the progress of the farmers through Institute work having been discussed, I am requested to make the following statement:—

"Membership 1898— 36.
" 1904—141.
"Meetings held 1899— 9.
" 1904— 18.

"The farmers have had their attention called to the better care of the orchard by the speakers, so that at the present time the trees are in better shape, the trees cleaner, and the fruit packed in better shape. This alone is sufficient that the Institute is doing good."

Islands Farmers' Institute.

During the past year the demonstrations have been better attended and appreciated, particularly so at Mayne and Pender Islands.

It is hoped to hold another supplementary meeting this year, at both Mayne and Pender Islands, in connection with an apple-packing competition, which proved such a success on Pender Island last year.

"*Resolved*, That farm or poultry papers be purchased for members who wished for them, not to exceed 25c. each member.

"*Resolved*, That twenty-five dollars be devoted to the purchase of books relating to agriculture or kindred subjects, for the Islands Farmers' Institute Library."

Salmon Arm Farmers' Institute.

In the Institute year ended 31st December, 1905, we held 11 meetings, with a total attendance of 151, or on an average of about 14 for each meeting. Whilst our attendance has been small and not up to our expectation, yet, on the whole, we have accomplished wonders. A large number of settlers have come in here recently, and we expect the year 1906 to be a record breaker in Institute work.

Maple Ridge Farmers' Institute.

"*Resolved*, That part of surplus funds due Coquitlam District be devoted toward paying an organiser to work Port Hammond, Port Haney, Wharnock and Coquitlam in the interests of Maple Ridge and Coquitlam Farmers' Institutes, each district to pay *pro rata*, provided the organiser chosen is acceptable to all parties; otherwise each district will choose and pay their own organiser. Balance of funds due Coquitlam to be handed over to Coquitlam Agricultural Society.

"*Resolved*, That this meeting is in favour of requesting the Provincial Government, Victoria, to co-operate with Councils of different municipalities in establishing powder magazines in each district for storage of powder, to be afterwards delivered to farmers in quantities as desired; payment to be made on delivery; and that Government appoint one or more Justices of the Peace in each district as guardians of powder magazine without salary."

East Kootenay Farmers' Institute.

(Excerpt from Minute of Meeting held at Creston on 11th January, 1906.)

On motion by Arthur Okell, seconded by Philip Hobden, it was unanimously resolved,—

"That an adequate supply of water, ready for use, will render the farmer, fruit-grower or the gardener to a very large extent independent of the vicissitudes of the season, and secure beyond accident a full reward for his labour :

"Therefore, we, the East Kootenay Farmers' Institute, having heard a full explanation of the proposed irrigation scheme to bring the benefits of irrigation on to a large portion of the land in the Creston District from Arrow Creek, do heartily approve of the same and join in the request to the Provincial Government to grant aid to the said scheme, by having the surveys made by that Government of the main canals.

"Further, that a copy of this resolution be forwarded to our Member of the Legislature, Mr. Harry Wright."

Chilliwack Farmers' Institute.

Mr. James Murray, the Western Superintendent of the Seed Division, Dominion Department of Agriculture, addressed a supplementary meeting of the Chilliwack Farmers' Institute at the Court House on the evening of April 25th. The weather being very disagreeable, only a few attended, but absent ones missed a treat. Mr. Murray spoke on the pure seed question. The speaker was introduced by Mr. H. Webb, President of the Institute, who favoured the selecting of pure seed. Mr. Murray said, in part, that "whatsoever a man soweth that will he also reap," and suggested that questions be asked, as it would lead up to a general discussion as he proceeded with his address and would facilitate matters. Perfect seed will grow a perfect plant, and to be able to produce strong plants the seed must be large, with a strong developing germ. Tests have been carried on in the seed department by sowing large and healthy seeds of wheat and oats, and from the selected seed a large increase in the yield and quality is the invariable result. The Department experimented by sowing heavy oats under similar conditions, with the result that the best seed produced 76.9 bushels to an acre, and the light seed 57.7. Brine is not as good as bluestone. The following is a good treatment for oats to prevent smut :—One pound formalin for 45 bushels seed oats. Dilute the formalin in 15 gallons of water ; put the oats on the floor and sprinkle the mixture on the oats and cover up with sacks to keep the gases in. It pays to have your seed grain in the best possible condition. There is no remedy to prevent rust, although a strong, healthy plant survives better than the weak ones. A mistake is often made in covering seeds too deep, especially small seeds. If a seed is covered with four times as much earth as the diameter of the seed it is quite sufficient.

A hearty vote of thanks was tendered the speaker.

G. W. CHADSEY,
Secretary-Treasurer.

Report on Farmers' Institutes.

BY MR. R. B. KING.

J. R. Anderson,
Deputy Minister of Agriculture, Victoria, B. C.:

SIR,—I have the honour of submitting the following brief report of the series of Farmers Institute meetings addressed by Mr. H. L. Blanchard on the subject of "Poultry," and by myself on the subject of "Dairying" :—

This series of meetings was started at Langley on April 6th. Two sessions were held in the hall, one in the afternoon and one in the evening. There was a fair attendance at both meetings and good interest was taken in the discussions that followed the addresses. The following day an afternoon session was held in the school-house at Glen Valley ; this session was poorly attended. In this district the farmers are giving their attention to dairying and sending their milk or cream to New Westminster.

The following morning, April 8th, we left Langley for Mount Lehman. Here, on the same day, two sessions were held, one in the afternoon in the school-house, near the wharf; this was fairly well attended and good interest shown. The evening session, held in the Municipal Hall, was the banner meeting of the series; a large audience assembled and a lively discussion followed the addresses. We found this Institute in a flourishing condition and working co-operatively for the benefit of the members. Here the farmers are giving their attention to mixed farming, but they are greatly handicapped, owing to the bad condition of the roads and the need of better transportation facilities.

From here we went to Chilliwack. Two days were spent with this Institute and four sessions were held. Monday afternoon, April 10th, a session was held in the hall at Rosedale. The same day an evening session was held in the Court House at Chilliwack. The second day an afternoon session was held in a school-house about four miles, in a south-westerly direction, from Chilliwack, and an evening session in the Institute building at Sardis. These four sessions were poorly attended for such a prosperous farming section. Here we found the farmers chiefly interested in dairying, supporting two creameries successfully, the Chilliwack Creamery, situated at Chilliwack, and the Eden Bank Creamery, situated at Sardis.

Our next meeting was held in the hall at Agassiz on April 12th. This was an evening session and there was a fair-sized audience, but from the conversation we had with different individuals, we came away with the impression that there was a lack of interest taken in the Institute work. Here the farmers are giving their attention to mixed farming.

Thursday, April 13th, we returned to Mission Junction, but no meeting was held till Friday, when two sessions were held, afternoon and evening. These sessions were well attended and it was quite pleasing to see the number of women present and the interest they took in the poultry address. Here the farmers are giving their attention to the growing of small fruit, which is shipped into the North-West, where they find a ready market.

The next meeting should have been held on Saturday evening, April 15th, at Whonnock, but for some reason the conductor of the C. P. R. train forgot to stop and we were carried past before we realised where we were, being unfamilar with the surrounding country, and were unable to return that evening in time for the meeting. So we sent a telegram to the secretary, Mr. J. C. McFarlane, stating our predicament and asking him to arrange for another meeting at a subsequent date, but for some reason unknown to us the telegram didn't reach him and no meeting was arranged for.

Monday, April 17th, two sessions were called, an afternoon session at Haney and an evening session at Hammond. The afternnon session was cancelled with the consent of the audience, three in number, and these were invited to attend the evening session held at Hammond.

The evening session held at Hammond had a good attendanee and a good interest was taken in the addresses. Here the farmers are giving their attention to dairying and fruit-growing. A co-operative creamery company has been established, under the name of "The Maple Ridge Creamery and Fruit Canning Company." A building has been erected and equipped with up-to-date apparatus, including a cold storage plant. The following day we held an evening session in the Hall at Coquitlam. This was the last session in this series of Institute meetings. It was well attended and particular interest was shown towards the address on poultry, as a number of the farmers in this district are entering into this branch of farming.

At several of the meetings quite a number of ladies were present and took part in the discussion on poultry, this being the subject most interesting to them.

The portion of the Province passed through on this trip is well adapted to general farming and contains some of the best agricultural land in this part of the Province, and a large portion of it can be purchased at a low rate; the principal drawback is the want of good roads.

Many of the Institutes complained about the time these meetings were held, thinking they could have a better attendance if the meetings were held in the fall or earlier in the spring, for as soon as the spring work begins it is almost impossible to get the farmers to attend these meetings.

Report on Institute Work.

By THEO. A. F. WIANCKO.

SARDIS, B. C., April 17th, 1905.

SIR,—I beg to report as follows on my work at Farmers' Institutes, having been out from the 2nd to 15th inst., inclusive. On Sunday, April 2nd, I proceeded to Victoria, and on the following morning I took passage for Ganges Harbour, where I gave a talk on "Creamery Management" in the evening. The meeting was held in the school-house and 20 persons were present. In my talk I emphasised the importance of a first quality of milk and cream, frequent delivery, and the use of pure, wholesome water, and first quality of supplies, such as colouring, salt, packages, etc., in its manufacture. I also spoke of the importance of branding and marketing none other than a strictly first quality of butter under the regular creamery label, and of the importance of engaging a thoroughly competent butter-maker, to pay him a good salary, and expect from him first-class service; that the president of the creamery should make it his business to thoroughly look into the affairs of the creamery regularly, and that the secretary should be a strictly honourable, reliable accountant, and make it his business to visit the creamery each day, if possible, attend to all correspondence, and see that all patrons are paid regularly on a fixed date once per month. I also emphasised the importance of harmony and co-operation. A discussion on the relative merits of the oil test and Babcock test followed, and on various other questions relating to creamery management and the production of a first-class quality of milk and cream.

I visited the Salt Spring Island creamery on the following day. This creamery has been in operation about two years. I found the business badly managed and in a very serious condition. They have a fine building and first-class plant. The butter-maker is a man totally incompetent to look after the business, and I found the creamery rather slovenly and dirty. There is great lack of harmony between the shareholders and officers of the company. Some of the largest shareholders are not practical dairymen, and others with large herds of dairy cows have found it more profitable to ship their cream to Victoria. I am satisfied that if they were to engage a first-class creameryman much could be done towards setting the business once more on a sound and profitable basis. The secretary of this creamery very rarely visits the creamery, and knows little or nothing of creamery work.

On Tuesday, April 4th, a meeting was held in the school-house at Fulford Harbour, with 33 persons present. I spoke on the "Proper Care of Milk and Cream," after which we had a good, lively discussion. It was what I can truthfully call an interesting meeting. The farmers in this community are alive to the importance of scientific agriculture, and all around could be seen evidences of thrift and prosperity.

On Wednesday evening, April 5th, I gave a talk on the "Economical Production of Milk," on Pender Island. At this meeting 51 were present. A very interesting discussion followed, on rations for dairy cows, making clover silage, testing milk and cream, etc. I consider that this was one of the best meetings of my whole trip. The majority of those present came for information and took part in the discussion. I may say, just here, that it was my aim at each meeting to draw out a lively discussion, as I believe fully as much, and often more, can be learned from the discussion than from the lecture. In fact, I would say that a meeting is not a success unless the remarks of the speaker are thoroughly criticised and discussed. The farmers in this community seem to be prosperous and contented. A saw-mill has been started and a store is in process of construction.

Thursday, April 6th, I spoke at Mayne Island on the care of milk and cream, and also on the production of milk, testing milk and cream, construction of dairy stables, and silos and silage. Only eight persons were present, but we had an interesting and profitable meeting. Everyone seemed anxious for information.

It was not possible to get a meeting at Galiano Island for the afternoon. The farmers at this season of the year are very busy with their spring work and do not care to attend afternoon meetings. It seems to me that meetings would be more largely attended if held just before or after the usual spring work. The class of farmers that we are most desirous of reaching are the ones whom the least excuse will keep from attending such meetings. I think that when possible, on these islands, meetings should be held at the farms of the most successful dairymen, and practical demonstrations might be given in judging dairy animals, and in operating cream separators, churning, and testing milk and cream by the Babcock tester.

Mr. J. F. Collins, secretary, and Mr. Edward Walter, President of this Institute, were very kind and considerate to me, and did all in their power to make the meetings a success.

Friday, April 7th, I took passage per steamer "Otter" from Mayne Island to Steveston. It was 12 o'clock, noon, when we arrived at the latter place, so, after a hasty lunch, I was driven overland to Vancouver in time to take train to the Okanagan. I met Major Sheppard at Sicamous Junction Saturday, 8th inst., and proceeded with him to Enderby. Upon arrival at Enderby we proceeded to Mr. Fortune's orchard, where Major Sheppard gave practical demonstrations in pruning and grafting and a talk on fruit-growing. We next visited the farm of Mr. Hazzard, where we had a discussion on growing clover and alfalfa. We saw some very fine alfalfa fields in the neighbourhood. Alfalfa seems to do well here and quite a number of farmers are growing it successfully. Next, we visited the Stephney ranch and were shown around by the general manager, Mr. Heggie. We next proceeded to the Town Hall, Enderby, where a very interesting meeting was held, 22 present. I gave a talk on the production of milk, selection of dairy cows, stables, feeds and feeding stuffs, milking, etc. A good discussion followed. Major Sheppard gave a very interesting talk on the "Conservation of Soil Moisture," which was followed by an interesting and instructive talk on "Insects and their relation to Fruit-growing," by Mr. E. P. Venables. Very little dairying is done in this section, but the time is not far distant when the farmers will have to turn to this branch of agriculture, as their soils have become exhaused by continuous cropping of hay and grain. As yet they do not seem to realise the importance of dairying in maintaining and increasing soil fertility, rotation of crops, etc.

On Monday morning, April 10th, we proceeded to Armstrong, where we found a carriage awaiting us. We went at once to the farm of Mr. Burnett, where Major Sheppard gave instruction in pruning, grafting, etc. Twelve persons were present. In the afternoon we went to the Crane Bros.' fruit and dairy farm. We held a meeting in the house. Mr. Venables gave his talk on "Insects," and I spoke for a short time on "The Production of Milk" and "Butter-making in the Farm Dairy." We afterwards held an open-air meeting in the orchard, at which Major Sheppard gave valuable information. In the evening we held a meeting in the I. O. F. Hall, at which 29 persons were present. I spoke on "The Production of Milk," and also touched on some of the most important points in creamery management. Mr. Venables spoke on "Insects," and Major Sheppard on "Fruits." On the whole, it was an interesting meeting and lasted till almost 11 o'clock.

Next morning, Tuesday, April 11th, I visited the Okanagan creamery while on our way to Mara. The creamery building and plant are up to date, but here again I must report lack of cleanliness and careful management. The output of butter from this creamery is small, so small, in fact, that the cost of manufacturing is very high; consequently, the prices realised by the patrons is rather unsatisfactory. I am convinced that if the farmers would stand by the creamery and patronise it in the same spirit as they do their Farmer's Exchange and flour mill, that they could have one of the most successful creameries in the Province. They have good farming lands, pure water, a sufficient number of cows, and all the conditions necessary to success, if they would only see the importance of co-operation in this matter.

We reached Mara in time for an open air meeting at Mr. Massey's at 3:30 p. m. Only nine persons were present. Major Sheppard gave his usual talk on fruit trees and orchard cultivation, and afterwards gave us a practical lesson in judging dairy cows. I also gave a little talk on dairying, breeding and feeding dairy animals and care of cream, etc. In the evening we held a meeting in the boarding-house at the lumber mill, twenty-one persons being present. I gave a talk on dairying, with particular reference to the growing of clover and roots, and farm butter-making. Most farmers in this section make butter at home. I believe this section is admirably suited to dairying, as the deep-bottom lands will produce abundant crops of clover and roots.

The accommodation for delegates at this place is anything but good, and I think that the Institute should make provision to have the speakers conveyed to Enderby for the night. Major Sheppard was forced to walk a mile and a half to the depôt, through wet grass and peat bogs, to catch the early morning train. He was well-nigh exhausted as a result.

We arrived in Vernon at noon on Wednesday, April 12th. In the afternoon we had a meeting in Mr. French's orchard. On account of a heavy rainfall the meeting was considerably shortened. There were 14 persons present, including one lady. In the evening a meeting was held in the Court House, at which 21 persons were present. I spoke at some length on

dairying, but as there were only a few present who were interested in dairying, it was rather difficult to get much of a discussion. The majority were interested in fruit-growing, and all seemed much interested in Major Sheppard's address.

On Thursday, April 13th, we were driven down to Lumby, but owing to a mistake made by Secretary Venables, no meeting was held. There was a mistake made in the hour appointed for the meeting. We sent out two gentlemen to get a crowd together for a meeting at 3 o'clock, but they failed to get anyone to come. It being a very cold, raw day, we dreaded the long night drive back to Vernon and decided not to wait for an evening meeting. Had the secretary properly attended to his duty we might have had an interesting meeting. The farmers in this section are much interested in dairying. They have formed an association and have erected a fine creamery. As yet they have not commenced operations, the plant not yet being installed. I meant to give them a talk on creamery management, and am sure it would have been appreciated under their present circumstances. This section may yet prove to be an important dairy centre.

And just here I may say, since you requested me to particularly note the several creameries in the sections I visited, that the creameries at Salt Spring Island, Armstrong and Lumby are in great need of assistance at the present time. A competent dairyman to give instruction could do a great deal to start them along the right track, and it seems to me that if no such assistance is given they will sooner or later come to grief, and probably be forced to close their doors. There is a lack of harmony caused by mismanagement and lack of interest in dairying. These creameries have been very unfortunate in their selection of managers and the patrons have lost confidence. A competent instructor could do a great deal towards restoring the confidence of the patrons, and thus once more put the business on a paying basis.

I left Vernon on Friday, April 14th, and arrived at home on the following day, having been out 14 days in all. I enclose herewith a statement of my travelling expenses, which I trust will meet with your kind approval.

Am also sending you papers on "Care of Milk and Cream" and "The Creaming of Milk," for publication in your annual report. You already have my paper on "The Economical Production of Milk."

In conclusion, I beg to say that I enjoyed my work very much, and if it has been satisfactory to you I would be much pleased to go out again at a future time.

Poultry Keeping and Dairying.

By H. L. BLANCHARD, PORT HADLOCK, WASH.

(Reported by Mr. John Ball, Secretary of the Matsqui Farmers' Institute.)

The regular spring meeting of the above Institute was held on Saturday, April 8th, 1905, in the school-house, Mt. Lehman, at 2:30, and at the Municipal Hall at 7:30 P.M.

The speakers announced for the occasion were Mr. H. L. Blanchard, of Washington, poultry and dairy expert, and Mr. King, of Victoria. Both meetings were presided over by the President, Mr. H. R. Phillips, who, on opening the meetings, spoke of the good practical results attending the efforts of the Institute this year. There was a very good attendance at the hall in the evening, over 60 persons being present. The President, after some routine business had been gone through, introduced Mr. Blanchard, who was no stranger, to speak on the subjects of poultry and dairying, in part as follows:—

MR. PRESIDENT, LADIES AND GENTLEMEN,—The subject of poultry keeping and dairying has for some years been engaging my earnest attention, and if poultry can be made a success by me I think it can with you. It is now 18 years since I first bought and entered upon my land, a farm now of 80 acres, then in the wilderness, a forest, and as heavy and as hard to clear as any I have seen in your district to-day; and to-day that forest is all cleared and, I think, in the best of cultivation, with a dairy herd of 35 head, 15 heifers, 6 horses, 25 hogs, and over 700 head of poultry in possession. Now, my presence here to-day is not to dictate to you what you should do, but rather to tell you my experience. In the first place, I am here to say there is money in the poultry business or I would not be in it; in fact, as much

and more than in a good many pursuits. I have made mistakes, and lost money thereby, as a new beginner; that is only natural. I deal in poultry chiefly for egg production, and the money I have lost was because I did not start right. What do we find in keeping poultry? Why, some hens don't lay 100 eggs a year; some will lay 200 a year; and doubtless you have proved it costs as much to keep a poor laying flock as a good one. I am sure you will find it quite a job to buy a good laying flock; people won't sell them any more than they will their best dairy stock, and some of the poorest hens we have might be the highest thoroughbreds. It is not a good plan to take eggs for your sittings from your flock promiscuously, unless known to be good layers. This matter of selection of hens for egg production is found out only by study. A hen that won't lay in the fall after moulting is not, as a rule, worth much. The same way with the families of dairy herds in the matter of handling and feeding.

I have hens that are netting us over $3 per hen a year, and a hen that won't yield more than $1 a year is not worth her keep; and my observations here in British Columbia is to the effect that poultry is more profitable than with us; every farmer should have at least 100 hens; I can see nothing to hinder it; and this amount at $2 profit a hen a year is quite a nice little thing. The same attention in detail is needed in poultry as in dairying or anything else, to get the best results. Poultry must have good quarters, not necessarily expensive ones. I built a new house last year, at a cost of $240, for as many hens. This cost covers all fencing, and a running faucet conveying fresh water clean through. There are eight rooms, with a runway for each room of 30 feet wide and 100 feet long. The largest cost was that of labour. Now, if I had to build this in the East, according to climatic conditions, why the cost would have been very great.

It is a bad plan to crowd too many hens together. A cow cannot give milk without feed, nor can a flock of fowls give eggs and not much egg-producing food given. I never allow more than 25 hens in a properly constructed house of 10 by 15 feet. The house I use, and what I find the most convenient, is the continuous one, as against the Cullander plan. I have also experimented several times and find that fowls kept within a moderately limited range has done the best, but they must be supplied with egg-producing food, good scratching places under cover, with plenty of gravel and straw litter, as exercise is indispensable to secure best results.

A question was here asked, "What would people do with their eggs if all were as successful as you?" Mr. Blanchard replied, there was no fear of over-production in this line of business, for the next fifteen years at least. The importation of eggs last year was in the neighbourhood of $300,000. Egg production in Washington is five times higher than ever before, and the price was never better than last year, and I can safely say that persons embarking in this branch can figure on a good trade for the period I have named, and this may not be said of some other callings in this age of competition. There is no section of the country so favoured in this respect as is this North-West country. I also find that many of the best and most up-to-date farmers are those most eager for knowledge, and you will find them usually attending the Farmers' Institutes.

Mr. Blanchard here depicted on the blackboard what plans he adopted in building poultry houses, both for cleanliness and accommodation. Wide perches of 2 by 3 inches laid flat-ways, is productive of good chest expansion. Now, a few words on vermin. These never, or very seldom, trouble my poultry yards. I wash underneath and both edges of all perches with carbolinium, as well as using a little in the whitewash, and I know this will prove effective for two years, and may be for a good many more, if a good dust bath is as well provided. I adopt the plan of hanging everything from the rafters. The continuous house just built is one, I say, of eight rooms, and the inner doors are hung to open each way, with two windows, 3 feet by 6 feet, in each compartment, hung inside to swing back to the wall; and for glass I now use muslin inside, and the outside frames are covered with wire netting. I have observed that these muslin-made windows are fully as warm as glass ones. I have tested this by placing buckets of water in various houses, and I had more thickness of ice where glass was used than where muslin ones existed.

Mr. Blanchard here stated that his daughter looked after 600 hens, with an average of three hours' work a day. Now, with my years of experience and profit, I have not bought more than 300 pounds of beef scraps. This is with me quite superfluous, though I have nothing whatever to say against beef scraps; they are good if you have to buy anything. A good balanced ration is all that is needed. I grow a good crop of wheat, oats, barley and corn; in fact, sufficient for my purpose; and I feed a mixture of half wheat and barley, and quarter oats and corn, all mixed together in these quantities, and all the green food necessary.

And with this ration, and the houses kept clean and a pure running supply of fresh water, it is rare to have any disease; and if we discover a fowl suffering from any ailment it is isolated, and if no response is made for the better, after a couple of days, by a change of diet, its head is chopped off and buried, hen, head and all.

Now, a few words as to sitting and hatching. I find that it is not everybody that even knows how best to set a hen. Very little depression is needed in the centre of the nest, for the hen's feet must rest on the ground, and this cannot well be done if the eggs are crowded down in the middle, and a hen getting off and on her nest some 21 times cannot miss but break some if this is not observed, and foul nests and hens are the result, with loss of chickens. When the old hen is left to make her own nest by straying off in the woods, she often surprises her owner by returning with a good full hatch of chickens; she works to nature's plan. I have a house wherein there were, previous to securing incubators, from 60 to 80 sitting hens at one time, and I always had good results. I find the hen still equal to the incubator, and often a little better, in hatching cent. per cent. of chickens. I have tested eggs 90 per cent. fertile, and could only secure some 70 per cent. of a hatching in the incubators.

Now, poultry keeping presents a very healthy and life-giving occupation to the woman who is too much confined with indoor work. I have known a good many instances where this light, out-door exercise was very beneficial, when everything else had failed. One woman in particular, now uppermost in my mind, who was weakly and sick indoors, was never in such a robust state of health as at present, and on enquiry I found that one of her year's of poultry profits amounted to $1,200, and this is only one instance out of many. Now, as I have remarked, what others have done, and are doing, you can do, for you have exceedingly good soil around Mt. Lehman, and your markets are good and prices rule high.

The speaker then turned his attention at some length at the evening meeting to the dairying industry, touching upon the injudicious and indiscriminate way of breeding, as well as poor feed and poor care, and of the general purpose cow with them being wholly abandoned, as butter and milk in any paying quantity could not best be got from a beef animal, and especially recommended the use of a silo. It frequently happened that when the first crop of clover was ready to cut in early part of June it came a wet spell, and by force it was allowed to get too ripe and old, and in this manner it lost no less than 60 per cent. of its feeding qualities, and this necessarily throwed the cutting of the second crop so late that the fall rains came before it could be housed. Now with a silo, this can be obviated, and nothing makes better ensilage than clover; fern and everything is readily eaten in this manner, and no up-to-date farmer or dairyman can long afford to do without one.

Local Conditions in Fruit Growing.

By Mr. Donald Graham, Armstrong.

(*A paper read before the Spallumcheen Farmers' Institute at Enderby, B. C., June 15th, 1905.*)

Any information which I may be able to convey in this paper will be more of a negative than of a positive character, and since I intend to speak chiefly of my own experience, I may as well begin with the selection and preparation of the land. With regard to selection, provided that the land to be planted is well drained, I believe that any of our soils in this valley will make good fruit land. However, I can not emphasise too strongly the necessity of the soil being put into a thorough state of cultivation before the trees are planted. I think also, if the land selected is very level, as a good deal of our land is, it would be well to ridge it up, in such a manner that in every instance the rows of trees would be planted upon the ridge. My own experience with the first lot of trees planted, as I desired to keep them out of the way as much as possible, I planted them in the corners of the garden fence, first-class soil in every respect, but it is needless to say that the trees have kept out of my way, and will keep out of the way of any one pursuing a similar course. With my second lot of trees, still keeping the same object in view, I ploughed up a piece of new land at the end of the garden, which could easily be ploughed lengthwise, but was very difficult to plough crosswise, being so narrow, containing only two rows of trees, I cultivated the land thoroughly and planted my trees, thinking that I had done them justice. The following year, however, I found the grass growing up nearly

as strongly as ever in the rows, which, on account of the difficulty of cross-ploughing, I had to delve with a spade. This I found to be altogether too much labour, so that eventually I moved the trees into what was really a thoroughly well cultivated piece of land, of course losing a few years' growth, but I have had no further difficulty with them. My advice then, gained by experience, is, have your land in a thorough state of preparation. If it is new land, plough it the second season, at any rate before planting your trees; the more thoroughly the work is done the better will be the results therefrom. As to planting, first measure your ground, driving stakes where your trees are to stand; twenty-five feet apart I think is sufficient; the stakes must be all carefully lined. Then get a piece of board about six feet in length; saw a two-inch piece out of one side in middle of board; bore two small holes, one at each end; this board then to be placed so that one of the stakes comes into the notch. A peg must be driven into each hole, when the board can be taken away, the stake removed, and the hole dug, being sure that it is made large enough to accommodate the roots of the tree easily. The board can then be replaced upon the pegs, where the centre gap stands, of course where the stake stood and where the tree must be planted; the roots of the tree should be spread carefully, the finest and best soil being pressed down firmly around them. As to the varieties to be planted, nearly every one wishes to have more or less variety for home use or show purposes. That, of course, is a matter entirely for their own consideration; but if one is looking forward to having a commercial orchard, then it should be devoted to a few of the very best varieties only. In selecting those varieties, one should, as much as possible, choose those that are perfectly hardy, are good and early bearers, and are known to do well in the section chosen. In this valley, Wealthy, Gravenstein and McIntosh Reds for fall apples, Snows and Kings for early winter, Jonathan, Wagner, Spies, Baldwin and Ontario for late winter, are all of the very best, and I believe in this District our orchards should be almost confined to those varieties. Crab-apples pay well, and at present sell readily; Transcendent and Hyslop are of the best and do well here.

Cherries, apparently, do fairly well in the upper and lighter soils, but on the clay loam they are a failure; at least, that is my experience. They grow very well for a few years, and may bear heavily, but all that I have tried, and I have tried them a half-dozen times, begin by cracking and exuding gum and finally dying. I think it would be money saved to leave them alone.

Pears I will say but little about. I myself, as well as numerous other people in this valley, raise more or less pears every year, and they are very desirable for home use, but it seems to me that it would not be advisable to try them as a commercial venture.

Plums do very well in all of our various soils; in fact, over-bearing is their greatest fault. Bradshaw, Pond's Seedling, Lombard, Coe's Golden, Yellow Egg and numbers of other plums, all do well. Prunes, as a natural consequence, also do well.

Still, it seems to me, that for commercial ventures we should confine ourselves chiefly to winter apples. They keep better and can be shipped farther without damage, the greatest advantage, however, being that you can consult your own convenience as to time of selling, which can not be done with either plums, summer apples or pears.

I made a point of calling at a number of our orchards, and finding out at first hand which of the first-class apples were doing best. With regard to this, I asked Mr. Maxwell Smith what varieties of apples, if any, do better in this end of the valley than in the southern end. He stated that the Wealthy, in particular, does much better in the northern end; he also mentioned several other varieties, of which I think the Jonathan was one. In Mr. Fortune's orchard I found the Jonathan doing very well, the tree being a good grower and a constant and heavy bearer. I tried some of his Jonathans, firm and juicy, on the 15th June.

Mr. Thompson had both Spies and Wagners doing well; he claimed, however, that the Wagner was decidedly the best apple, and does best with him; it was also an early and heavy bearer, and his Wagners, in my opinion, were the thriftiest and healthiest looking trees in his orchard. The general opinion here is that Spies are too long in coming into bearing.

In our valley a great many undesirable varieties of apple trees have been planted in the past, so that it is difficult or impossible now to make a shipment of the best varieties alone. The Secretary of the Farmers' Exchange at Armstrong informed me that orders for apples are invariably confined to a few of the best varieties, and in order to make out a shipment he is compelled to almost force a quantity of poorer quality apples upon customers. It is getting more difficult to get rid of the poorer varieties every year, and it is safe to say it is only a question of time when they will be left entirely upon our hands. As this condition became known, and farmers began to find out the class of apples they were growing, some of them

took the somewhat radical but effective course of digging the trees out entirely and replacing them with choice varieties. I believe it is a mistake to root out trees that have already come into bearing; top-grafting is a much preferable course and recommended by officials of the Central Experimental Farm. I planted over 200 Ben Davis trees seven years ago. This spring I top-grafted between 30 and 40 trees to Spies. A large proportion of the grafts have taken, and I now propose going over the whole of the Bens and other undesirable varieties in this way; and I think it would be well if all of the undesirable apple trees in this valley were top grafted, or budded, which Mr. Sharpe, of the Experimental Farm at Agassiz, claims to be the best way, as it does not necessitate the cutting off of the limb immediately; in fact, if the buds failed to catch the limb soon healed and was very little, if any, the worse for the operation; besides this a number of buds could be grafted on to large limbs. He advised that this should be done well on in August. Trees come into bearing several years earlier this way than by making a new start.

I do not intend to say much with regard to pruning, as I am not an expert at the business; still, there are a couple of points I will mention. Trees coming from Eastern nurseries, in particular, are already topped, often in such a manner that the limbs nearly all start from the one point. This should be altered if possible, as when the trees come into bearing there is a tendency in some of the limbs to separate or break off at this junction. A much stronger tree is formed if the limbs are made to leave the trunk, at any rate, a few inches apart. Another point in pruning, where at the junction two limbs stand very upright, as do, for instance, the fingers of an open but upright hand, one of the limbs should always be cut away, a much better and stronger junction being formed by limbs which leave the trunk in much the same shape as the thumb leaves the hand. I have had a great many limbs break off my trees since they came into bearing, and nine out of every ten are upright limbs such as I describe. They do not seem to form as good a junction. Hardly one of those upright limbs which do not have more or less rot in the crotch, a thing that is hardly ever seen in limbs which leave the trunk at a greater angle. However, in limbs which do break down, even if flat upon the ground, so long as considerable wood adheres to the trunk they can be raised into position and bolted firmly into place, when they will grow together again and become often a stronger tree than before. In fact some limbs which had broken down with the load of fruit, in my own orchard, and were so heavy that they gave two men all they could do to raise them into position again, on being bolted, in the course of a few years grew so firmly together again that no one unaware of the fact could possibly see that it had ever occurred. However, as some of you have, no doubt, limbs such as I describe in your orchards, it may be well to mention ways of strengthening them besides the bolting. I have recently been upon a trip down Okanagan Lake and noticed in one orchard a system that should prove very effective. A hole was bored with a small bit through one limb and a small strong branch from an opposite limb passed through the hole; in a short time the hole closed up, the small living limb growing with the growth of the tree, so that it formed a strong, living, natural brace. Or, if preferred, take two small branches from opposite limbs, winding them together, being careful to see that the outer bark is removed wherever the two limbs come into contact; bind firmly into place and cover with grafting wax, when they will grow together. The Coldstream people adopt another method; they bore holes into opposite limbs, pass a strong wire through, which is twisted around a nail on outside of limbs. This makes a very effective brace.

In conclusion, if we are to compete with other parts of the Okanagan in the production of fruit, and I see no reason why we should not do so, there are five things which must be done. We must cultivate the land, prune, spray the trees thoroughly, and thin the fruit. With regard to the last, I visited the Coldstream orchard for the express purpose of seeing what was being done. The manager of the orchard stated that the thinning should be done when the apples were somewhat larger than marbles and broke easily from the stem; that you could then see, just as well as when the apples were grown, which were going to be defective and which were to be the small apples. Those must all be removed and as many more as might be necessary to keep the apples from touching. He stated that by doing this a greater weight of fruit would be obtained than if not thinned. It seems to be rather a remarkable statement, but does not seem so much so when we consider that 95 per cent. of the apple is water and that the greatest strain upon the tree is in producing the seed. Fifthly, our apples must be packed carefully and neatly, even if we have to get experts to do it for us. No matter how good the fruit, a slovenly-looking package won't sell as well as a neat one.

The Care of Cream.

By Thos. A. Wiancko, Eden Bank Creamery, Sardis.

The losses suffered by dairy farmers because of carelessness and improper methods of handling milk or cream amount to a vast sum yearly. Milk is in ideal condition when first secreted in the udder of the healthy, well-kept cow, but if it is not properly cared for it will lose a part, or all, of its market value soon after it is taken from the udder. The changes of milk are due to bacteria, and if the dairyman understands somewhat the nature of these tiny creatures, he is greatly aided in protecting himself against their harmful influences.

The souring of cream is caused by bacteria, which enter the milk with dirt from the cow's udder or the milkman's hands, from pails and strainers, and cans, and from the dust of the air. Under favourable conditions, these bacteria double in number every twenty minutes, and a single germ in a pail of warm milk increases to eight germs in an hour, sixty-four in two hours, and 4,096 in four hours; and if at the end of twelve hours the growth was unchecked, it would require eleven figures to write the number of bacteria springing from a single germ. With careless milking and the use of unclean utensils and separator, 500,000 germs have been found in a single cubic centimeter of milk.

The first step in keeping cream sweet is to keep it as clean as possible, reducing the bacteria contained therein to the smallest number. Clean cream cannot be produced by filthy methods of milking, nor by handling the milk or cream in unclean utensils. Milk cans, stirring rods and pails should be thoroughly washed in lukewarm water, then thoroughly scalded in hot water and exposed to the sunlight and pure air. All separator tinware and interior parts of the bowl should be treated in the same way. With these points carefully observed and carried out, the cream, after separating, will be clean and can with proper care be kept sweet for a long time. The next step, after separating, is to remove the animal heat from the cream as soon as possible. The cream should run from the separator into a convenient utensil for cooling. A three or five-gallon shotgun can is most convenient. This should next be thoroughly cooled in cold water by frequent stirring, testing the temperature with a thermometer until the cream is as cold as the water. This is imperative if success is to be attained. As with the wiping of the cows' udders, this is a matter of a few extra minutes, but it will be a factor in deciding success or failure. The stirring rod and the thermometer should be considered as indispensable as the crank of the separator, and yet hardly one in a hundred farmers has a thermometer that can be used for this purpose. If the can of cream is set in a tank of water and left without stirring, it will be hours before it becomes thoroughly cool. In the meantime the bacteria which have gotten into it, in spite of the greatest of care, have been muntiplying at a tremendous rate, and the cream goes to the creamery spoiled. At the temperature of ordinary spring water the development of the bacteria is very slow, and for this reason no time should be lost in cooling the cream to this temperature. The thermometer is absolutely the only means by which one can tell whether the cream is fully cooled or not. By stirring and testing with the thermometer, the task of cooling will be found to be short, and one will finish with the satisfaction of knowing that the cream is cool and sweet. It ought to be cooled down to from 55° to 60° Fahr. at least, and if the water is cold enough to carry the cream lower so much the better.

Aside from the souring of cream, there are other things which enter into its proper care, and which should be observed to insure cream of first quality. Cream rapidly takes up odors, and for this reason should be kept in a pure atmosphere. A great deal of cream leaves the farm in good condition, but on the road to the creamery is exposed to the sun, when the development of souring germs rapidly begins. Care should, therefore, be taken to protect the cream can from the sun while it is in transit. This can best be done by throwing a wet blanket over the can, then a dry one over the wet one. The dry blanket prevents the evaporation from the wet one.

To sum up: the principle of keeping cream in good condition is to produce as clean cream as possible, by having clean milk, by having all utensils with which the cream comes in contact thoroughly cleaned, and by the proper cooling of the cream as soon as possible after separation, and the holding of it at as low a temperature as cold spring water will make it, and the delivering of the cream at the creamery protected as much as possible from the heat in summer, and from cold and freezing in severe winter weather.

Commercial Fruit Growing.

A SYNOPSIS OF ADDRESSES MADE AT MEETINGS OF FARMERS' INSTITUTES BY J. R. ANDERSON, DEPUTY MINISTER OF AGRICULTURE.

The object of this address is principally in the direction of the production of fruit from a commercial standpoint, and I will, therefore, endeavour to treat the question in such a manner that any of you who are growing fruit, or contemplate entering into the business of fruit-growing, may derive some benefit from the experience that has been attained in other parts.

Naturally, the first thing to be considered is a proper location, for it must be remembered that unless the proper facilities exist for shipping fruit to the markets after the fruit is grown, it is absolutely useless growing it. This remark applies, of course, more particularly to soft and early fruits; hard winter apples can obviously be transported greater distances and handled more roughly without material injury. Since, however, every grower, I take it, contemplates growing fruit of all descriptions, and other perishable products, especially during the first few years, before he can hope for a return from his tree fruits, a location with easy access to rail-road communication is necessary.

The site of an orchard is one which should be, when possible, carefully considered. This remark applies more particularly to the Coast, west of the Cascades, than to interior points, for in that portion of the Province the period of plant rest is not so clearly defined, and it is, therefore, of prime importance that a site which will retard growth during the winter months and in the early spring should be selected, say one having a westerly, north-westerly or northerly aspect. In the Interior this matter is not of so much consequence, inasmuch as the period of dormancy is more clearly defined, and, furthermore, artificial means of controlling early growth are available in most parts. This can be done by mulching the ground about the trees when it is frozen hard, and keeping the mulch on until danger is passed. Mulch should not be placed close to the trunk for two reasons; one is that it is likely to harbour mice and other vermin, and the other is that the feeding roots of the tree are a distance away, say ten to fifteen feet, according to the size of a tree.

Eastern and southern aspects are not recommended, for the reasons stated, especially the former, the early morning sun on frosted trees leaving a most deleterious effect, generally causing such injury to the blossoms as to endanger the prospects of the season's crop, and often endangering the very existence of the tree. Low, damp locations, alder bottoms, and so on, are to be avoided, even if drained, as the liability to frost is much greater in such localities than on good slopes with warm subsoils. Air drainage, however, caused by the proximity of large bodies of water, such as lakes and rivers, in a great measure neutralises the effects of the cold, damp locations just alluded to.

Soil is, as a matter of course, another question which should receive the greatest attention at the hands of intending orchardists. The apple seldom thrives on very dry sands, or soils saturated with moisture; peaty, mucky, damp, cold, spongy soils are bad. A strong loam of a calcareous or limestone nature is a favourite soil. A deep, strong, gravelly, marly or clayey loam, or a strong, sandy loam on a gravelly subsoil, produces the greatest crops and the highest flavoured fruit. Such a soil is moist rather than dry, the most favourable condition for apples. Pears will thrive in much lower and moister locations, but in no case should fruit be attempted to be produced on low, undrained land, however good the quality of the land.

The preparation of the land is another important proceeding too often neglected or slurred over. Unless the circumstances are exceptional or the land is of such a nature that its preparation is not of much consequence, a condition which I can hardly imagine exists, it is, in probably the majority of cases, better to get the land properly prepared by draining and cultivation, even at the expense of a season's delay, than to plant trees in unprepared land in poor tilth. A crop of clover is an excellent thing to put down for the purpose of ploughing in the next season. This has the effect of adding humus and nitrogen to the soil, by which most soils are greately improved. After the land is thoroughly cultivated, the places—not the holes, as they are generally termed and too often followed out in practice, as if digging a post hole—may be prepared, removing a sufficient quantity of the soil for the proper reception of the roots.

Planting the tree is a matter of considerable importance for the health of the tree in after life. It is unreasonable to expect a tree whose roots are crammed into a small hole to be a thrifty one. As I mentioned before, the place should be prepared in such a manner that the centre is somewhat higher than the surrounding parts, and so the roots can be spread out in as natural

a manner as possible, the ends being lower than where they start from the trunk. Prune the roots carefully before planting, leaving no ragged ends for disease to assail. When the tree is in place and the roots properly arranged, begin filling in by first carefully placing some of the best of the top soil in and about the roots, moving the tree gently up and down occasionally so as to give the tree a good firm hold, and so avoiding the necessity of staking. The head of the tree, if more than one year old, should be pruned to correspond with the loss of roots in transplanting, and it is well, when setting out a tree, to incline it towards the quarter of the prevailing winds. Many mistakes are made by planting trees too deep or not deep enough; I do not know which is the worst. This can be said of shallow planting—that earth can be placed over the roots, and so partially remedy the evil, but if planted too deep there is no remedy. The proper depth to plant a tree is about the same as it was in the nursery, a little deeper but not shallower.

The best time to plant is greatly a matter of conditions. On the Coast I certainly recommend autumn or winter planting, but in that portion of the Province to the eastward of the Coast Range, I do not think that course is practicable, owing to climatic conditions. In all cases I consider it imperative that stock should be ordered beforehand, and, if possible, transported to destination before the winter sets in, and planted, or as circumstances admit. Otherwise, have the trees ready for transportation as soon as practicable in the spring. Procrastination in the matter of placing orders often results in disappointment, both as regards quality and variety.

The question of the best age at which to transplant a tree is one that sorely troubles the tyro. A beginner naturally wants to obtain returns from his orchards at as early a date as possible, and he therefore argues that if he can get a tree three or four years old to grow, he will be so much nearer his goal than if he planted a younger one. Then the tree agent comes along and confirms his opinion by advising him exactly as he wished. In the majority of cases, the advice given by the tree vendor is obvious. In the first place, his principals have old stock on hand which is deteriorating every year they hold it, and unless it can be got rid of by the time it is four years old, it is practically dead stock and has to be destroyed. The stock of a nurseryman is like the stock of any other merchant, it deteriorates with age, and must be sacrificed if kept too long. Then the agent, by selling old trees at advanced prices, not only does his principals a service, but increases his commission proportionately. Experience has shown that the best age at which to transplant almost all trees is one year from the graft; cherries, plums and peaches may be risked at two years. The root system is less injured when a tree is young, and being a mere whip, it can be brought up in the way it should go, not according to the fancy or requirements of the nurseryman.

Varieties to Grow.—Of course, if a person is growing fruit for his own use or fancy I have nothing to say, except if my advice is asked, to mention some which I know to be good for household use; but for commercial purposes, I say, by all means, seek the advice of those whose occupation naturally enables them to acquire the knowledge that experience has taught to be profitable. The Board of Horticulture is in such a position, and as such has collected facts from the various sections of the country, which enable the members to say authoritatively what particular varieties succeed best in the Upper Mainland, Lower Mainland and Islands. Therefore, before proceeding to buy, I advise, by all means, to seek the advice I speak of, and I assure you it will be most cheerfully given and costs nothing. It need not be followed if the intending orchardist has better authority, and it is, of course, quite possible that some better varieties than those recommended may suit the particular locality; but I do say most emphatically, do not heed the advice of the tree agent; it is more than probable that he knows nothing of the subject and will try to beguile you with gaudily-coloured plates of impossible looking fruit. And furthermore, do not take the advice often so generously given in the public press by persons who cannot possibly know what they are writing about. I do not say anything against experimenting; I think it is a highly laudable practice, and I would advise all those who have time and space to plant one or two trees of varieties which may considered suitable, and so ascertain their real qualities.

Laying out an orchard, including distances to plant, is a part of orchard work which should be attended to with care. As a rule, in this Province, apples and pears should be planted 30 feet apart each way; this will give about 48 trees to the acre. Planted in a quincune form, that is, a tree in the centre, between four, gives a half more, or 72 trees to the acre, but I do not think the plan expedient. I do not advise planting fillers, as experience has shown that when the time arrives to cut them out the moral courage of the grower often

fails him, and the consequence is that the orchard becomes overcrowded. Cherries and plums may be planted closer together, say 24 feet, which gives 75 trees to the acre; and peaches, say 20 feet, which gives 109 trees to the acre. Whatever plan is adopted, care should be taken to have the trees in proper line; this to facilitate cultivation afterwards.

Pruning and shaping is a subject on which my opinion has considerably changed since I first undertook orchard work, over 50 years ago. Then the idea was to have trees pruned up to about six feet, in order that horse cultivation could be performed with ease. The modern method, which is followed by all commercial orchardists in the adjoining States—and since they are eminently practical people, I think we may safely follow their example—is to head low; the first branch from nine inches to a foot from the ground; the next the same distance higher up, and about a third of the way round, and so on. By this means crotches, so frequently injuring a tree by splitting down, either by weight of fruit or effects of weather, are avoided; the effects of winds are lessened; the fruit can be picked without the use of ladders, and when obtainable the service of girls can be utilised. Cultivation can be performed by the use of cultivators, disc harrows, etc., with a long arm on one side, if necessary, so as to allow the implement to go as near the tree as desirable. Pruning should be done when the trees are young, almost altogether in winter, during mild, open weather, but not when it is frosty; as the tree nears the bearing stage summer pruning should be practised, as by that method the production of fruit buds is superinduced. Summer pruning is done simply by pinching off the young ends, where desirable, between the thumb and forefinger. Heavy pruning at any age is undesirable, as the cutting off of large limbs is apt to produce a thick, broom-like growth, very difficult to control. Constant care and attention in the matter of bringing up a tree will obviate all necessity of heavy pruning. The argument in favour of one year old trees is here exemplified, as at that age a tree is a mere whip, having buds all the way to the ground, unless the nurseryman has been foolish enough to take them off. These buds should be allowed to grow for at least the first year, so as to strengthen the trunk for its future work; after that, begin the process of pruning as I have described, and gradually get rid of the lower limbs, as they are not required. In nature this is all done without the aid of artificial means, and we may safely follow her methods and assist them.

Irrigation and cultivation are subjects so closely connected that, in speaking of one, the other necessarily comes in. Now, as to irrigation, it is a fact that in some parts of the dry belt where old records have been obtained for water, often far in excess of the needs of the recorder, much more is used than the needs of the crop demand. As a matter of fact, many crops can be produced with a modicum of water, if the land is properly cultivated, to the great advantage in the quality of the product. This remark is most applicable to fruit, and also to root crops. Such crops as hay and grain, we know, cannot be cultivated, and, therefore, water should be supplied in sufficient quantities for their wants; but there is no earthly necessity of submerging the land to the depth of several feet, as I have seen done when water was to be had in abundance, nor for putting it on potatoes which were nearly ripe, as I have also seen. As regards fruit, it is, of course, necessary to keep the land sufficiently moist during the months the fruit is growing, to bring it to its greatest perfection; after that period water should be absolutely stopped and cultivation relied on altogether. As a matter of fact, in some seasons, even in the most arid portions of the country, fruit, when the trees have attained the bearing age and have a good root system, can be produced by cultivation alone. By cultivation, I take it that you understand the principle of capillary attraction, and it is by keeping a dust mulch on the surface that water is kept from evaporating. Cultivation of the land has a tendency, for that reason, to induce the roots to go downwards in search of moisture, whereas surface water has the opposite effect; this is true also of heavy mulching. Another good effect of the cultivation of the land is the keeping in check of weeds, which rob the trees of their legitimate plant food and moisture. This brings me to the subject of attempting to grow two crops on the same land for that purpose alone; do not attempt to raise a hay crop at the same time, or, depend upon it, your fruit crop will come to naught. A cover crop of clover is sometimes of advantage when humus is wanting, and for the addition of nitrogen. This crop should be ploughed in after the first season. If the trees are very healthy and making good growth of wood and leaves, however, do not follow this plan, as the probability is that your land is already rich enough in nitrogen, and any addition may only result in non-production of fruit buds.

I cannot close my remarks without an allusion to our inspection system. It is often brought to the notice of the Department over which I preside that the system of inspection of

fruit trees is burdensome to those points far removed from the fumigation station, and that other stations should be established in order to facilitate the work, and to save the extra expense of sending stock to Vancouver and back to destination. I may explain that the reason of the selection of Vancouver as the point of inspection was because, under the San Jose Scale Act, the Dominion Government constituted that port as the one at which all nursery stock coming from those countries affected by the Act named should be delivered and fumigated by their officers. This placed us under the necessity of erecting suitable buildings and appliances at that point for the proper inspection, and, if necessary, for the treatment of such nursery stock; and, therefore, it became evident that it would be less expensive, and the risk of loss reduced to a minimum, if all nursery stock were inspected at the same point. If the inspection of nursery stock at other points were conceded, it would necessitate the construction of proper buildings and appliances and the employment of efficient persons to supervise the operation of inspection. This, you will perceive, would result in a heavy expenditure, certainly much more than the purchasers of nursery stock would care to pay; and, lastly, and by all means, the greatest difficulty would be obtaining the services of a competent man to do the work. This is a matter which we well know is most difficult, if not unattainable, at the present time. Our efficient Inspector, Mr. Thos. Cunningham's time is altogether taken up at Vancouver, and if stock had to wait his convenience at other points it would probably be detained much longer than it is at present. I will conclude with a tribute to the gentleman I have just named. Since Mr. Cunningham has occupied the position of Inspector of Fruit Pests he has been most assiduous in his work; he does not consider his comfort when duty demands his services, and he is to be found at his post in season and out of season, and I have no hesitation in saying that had Mr. Cunningham been entrusted with the work of carrying out the provisions of the Horticultural Board Act from its inception, our orchards would not to-day be infested with some of the diseases and pests which are common.

There are many other points, such as pollination, spraying, grafting, budding, etc., which must be left for another occasion.

Selection and Improvement of Seeds.

By James Murray, Department of Agriculture, Ottawa.

The question of obtaining a seed supply of the best quality is one which is taken into consideration by good farmers every year. It is one which is always before us, and since every one growing crops must handle more or less seed, it might appear that it is one with which we were all familiar, and about which nothing new or interesting could be said. But this is not the case; while we have recognised certain general facts about the quality of seed, that a man may expect to reap whatever he sows, they have been too frequently regarded as passing statements of facts with which we had no particular concern. But I would like to demonstrate that it is a matter of very great moment to each one of us, as farmers, just what quality of seed we each year put into the ground and from which we expect a good crop. We have too frequently minimised or overlooked the importance of the quality of the seed with reference to the yield and the quality of the crop we harvest. When I speak of seed, and confine my remarks to this subject, I do not wish anyone to infer that I consider the seed of any greater importance than many of the other factors involved in successful crop production; it is only one of the important factors, one which is too frequently too little considered, and one over which we have control.

Since we are inclined to think only of the smaller seeds, those of clovers and grasses, when seeds are spoken of, I shall first deal briefly with the larger seeds, the cereals, etc., and later come to the clover and grass seeds, about which we have recently heard so much complaint.

A perfect sample of seed is one in which every seed is true to name and capable of producing a strong, healthy plant. We scarcely ever get samples of this sort, but the value of a sample depends upon how nearly it approaches this standard. The common troubles are that they frequently contain many foreign seeds, weed seeds and others, and a proportion are either dead or produce weakly plants that never make a satisfactory growth. Probably the presence of weed seeds is the one cause of greater dissatisfaction than any other. Certainly, weed seeds are very commonly found in seed grain, and to such an extent that there is no doubt that more weeds are introduced through the medium of seed than any other one way. This is partly due to carelessness in buying dirty seed, a lack of knowledge of the appearance of

the common weed seeds, and to failure properly to clean seed before sowing it. A thorough screening of grain will remove all the small weed seeds and many of the larger ones. If it were for no other reason than this, a fanning mill would soon repay its cost in keeping out of the land many foul weeds. A better means than this to ensure clean seed is to get it from land which is known to be free from noxious weeds.

But the advantage in screening carefully, that I have mentioned, is not the only one, nor in many cases is it the most important. By carefully screening we get rid of all the small immature kernels and have nothing left for sowing but large, plump, perfect seed. This is a very great advantage as has been proved over and over again. To illustrate, let me give the results of an experiment conducted by Prof. Zavitz to determine the relative value, for seeding purposes, of different selections of seed. With oats three different sizes of seed were taken, large, medium and small, an equal number of seeds of each size, and all from the one bin of seed. All were sown on equal sized plots, on the same soil, and all given the same care. The crops at harvest time were kept separate and the yield determined. This experiment was conducted every year for ten years, starting each year with the seed from the one crop, The average results for the ten years' experiments show that the

Large seed	yielded	62	bushels per acre.
Medium	"	54	" "
Small	"	46.5	" "

or a difference in yield of 15½ bushels between the crop from the large seed and the small.

With wheat the experiment was conducted similarly and the results were :—

Large, plump seed,		21.7	bushels per acre.
Small	"	18	" "
Shrunken	"	16.7	" "

A difference in this case of 5 bushels per acre between the large, plump seed and the shrunken seed. It does not need very much argument, after looking at these figures, to show that there is a great advantage in thoroughly cleaning seed grain. And when I say "thoroughly cleaning" I do not mean taking out only the very smallest seed and sowing everything else, but putting it through the fanning mill two or three times, sufficient to take out one-third or one-half. That would permit the sowing of only the very best seed.

An experiment that will show even more clearly than this the advantage there is in continuous close selection was also conducted by Prof. Zavitz. In this experiment, conducted with oats only, two selections were made of heavy, plump seed and light seed, equal quantities of each from the one variety and sown on equal-sized plots under identical conditions. The second year the heavy plump seed is selected from the crop grown from the heavy plump seed the year previous, and the light seed from the crop grown from light seed. For twelve years in succession this was carried on, and at the end of that time the oats grown continuously from heavy plump seed yielded 94 bushels per acre, that from light seed 67 bushels. Here is a difference of 27 bushels in yield per acre, and a difference in weight per measured bushel of 9½ lbs. These differences, it must be borne in mind, are not due to variety, or season, or soil—these the crops have in common—but entirely to the different system of selection that was followed.

It may be interesting to consider why there is such a great difference in these cases, and to do so we must look into the nature of the seed and see of what it is composed and why it acts as we know it does. Any seed that grows consists of two essential parts, the embryo or germ and a store of food to feed the young plant as soon as it starts to grow. For the first few days of its growth, while the roots are young and tender and getting a hold of the soil, the young plant depends entirely for its support upon the supply of food that is stored up in the seed. In a large, plump seed we have a large food supply, sufficient to keep the young plant growing strong and healthy until it is able to take nourishment through its roots from the soil. In the large, plump seed, also, we usually find a stronger germ. In the case of the small seed there is a smaller supply of food material, often only about one-half the amount in a plump seed, and not enough properly to nourish the little plant. So that the difference is in the early growth of the plants; in the one case there is an uninterrupted growth; in the other, conditions are less favourable. It is only when conditions are entirely favourable that we can afford to risk sowing anything but the very best seed.

Another point that it is important to bear in mind is that seed should be treated to kill any smut that may be on it before sowing. The smut that is on our crops is a fungous disease that grows up inside the plant and makes its appearance when the plant is in head. It is transmitted from one crop to the next by the little black spores or seeds that attach themselves to the seeds. In order to get rid of the disease, therefore, we must kill the spores before the seed is sown. For oats, the formalin treatment has been found to be the most satisfactory. One pound of the formalin should be diluted in about 20 gallons of water and this solution sprinkled over the seed, and the heap then covered over with sacks or a sheet for 30 minutes to prevent the fumes escaping. One pound of formalin is sufficient to treat about 50 bushels of seed. This treatment will also work satisfactorily with wheat, or bluestone may be used. Ten pounds of bluestone (copper sulphate) should be dissolved in about 40 gallons of water, and the seed either dipped in the solution or thoroughly wet by being sprinkled. It is important that the bluestone be fresh and that the seed be thoroughly wet. After being treated it should be spread out to dry, and may be stored any length of time before sowing. Avoid leaving the grain where it may receive fresh infection, or using smutty bags in handling the seed.

The results got by sowing continually only the poor seed in one of the experiments already quoted may suggest a question with regard to "running out," and the advantage or disadvantage of changing seed. The seed oats, at the end of eleven years' continuous selection of the poor ones, were really oats badly run out; in fact, little better than wild oats. The others, grown under the same conditions of soil and season for the same number of years, were a first-class sample in every respect. The two lots were grown under identical conditions; one had improved by a certain system of selection, the other had degenerated under a different system. Any crop will degenerate when it is propagated year after year from the poorer seed produced; and the fact that the practice has been so common, of sowing good and poor together indiscriminately, largely accounts for the complaint that they run out readily and require continual changing to keep up their vigour. If nothing were sown year after year but good, plump mature seed from a vigourous productive crop, the prevalence of "run out" seed and the practice of continually changing seed would largely be done away with.

In order to keep up the standard of a crop and to effect improvement, a good plan is to devote some special care to the crop from which we are going to take the seed for next year. Set apart a few acres of the best and cleanest land available, sufficient to produce the seed for your acreage, and sow this with the best seed available and when the land is in good condition. Allow it to ripen thoroughly—all grain for seeding purposes should be allowed to become thoroughly ripe—thresh and store separately, and before seeding next year clean it thoroughly. That sort of treatment will improve the quality and increase the yield of any of our crops. It involves no extra expense and very little extra trouble and should be adopted by everyone growing grain to any extent.

Another system of selection which involves rather more trouble, but which brings very much greater increase, is one which takes into account not only the size of the seed but the vigour and productiveness of the plant producing the large seed. Very often a poor plant will produce a few good big seeds, and while these seeds are to be preferred to small seeds from the same plants, they are not nearly so valuable as the same sized seeds from a vigorous, heavy-producing plant. When we want to get the best returns, therefore, we must take into account the plant as well as the seed, and do some selection while the crop is growing. Start by selecting enough large heads from thrifty, heavy yielding plants to sow a quarter acre, and the next year again select from the quarter-acre and sow the product of the quarter-acre separately, for the production of seed. Careful experiments have shown that by following out this system for three or four years, we can get an increase in yield of from 15 to 25 per cent.

We have at present in Canada an Association called the Canadian Seed Growers' Association, formed in 1904, for the purpose of encouraging and extending this system of seed selection. After three years' selection the Association gives certificates or pedigrees to seed that has been improved in this way by selection. For the time being the Association is under the direction of the Department of Agriculture, Ottawa, who send out all publications of the Association. The Association has a big field of useful work ahead of it, and wishes to enlist the aid of a few good farmers in every locality in forwarding its work.

It is with the small seeds, clovers and grasses, that we have most frequent complaint with regard to quality, and it is probably a fact that they have been the cause of more dissatisfaction than the cereals and other large seeds. This is due largely to the fact that these seeds,

being small, are more difficult to get acquainted with, and having more usually to be bought, there has been a greater tendency to purchase cheap seeds, and cheap seeds are usually of poor quality. Again, the clover and grass seeds are nearly all grown outside of the Province, and seed thus brought in is often the bearer of new and dangerous weed pests.

With these, as with the larger seeds, we want every seed to be what it purports to be, and capable of growing. Purity is of much greater importance here, only because it is very uncommon and difficult to determine. Many of the weed seeds that occur resemble the seeds with which they are found, very closely in size and colour, and are thus difficult of detection. Impurities other than weed seeds are not important, for even although there may be present ten per cent. of sand or chaff, the only effect is that the cost is increased so much more; there is no permanent loss. Where weed seeds are unwillingly introduced, the plants frequently get a good foothold before their presence is noticed or any attempt is made to eradicate them. Dead seed, when present in small proportions, makes no vital difference, but when any larger amount of the seed fails to grow, it frequently results in a crop failure, or at least in only a partial catch. It thus is important that in buying clover and grass seeds whose value it is difficult to judge from a casual examination, that we know regarding their purity and vitality.

For a number of years it has been known that the quality of our grass and clover seeds was not as good as it should be, but until comparatively recently no definite information was at hand with regard to the exact condition of the trade. In 1902 the seed branch of the Dominion Department of Agriculture undertook to investigate the quality of the seed offered for sale on the markets, and in that year, and again in 1903, collected several hundred samples from all parts of Canada. These were carefully analyzed, the percentage of pure seed, living seed, and the number and kinds of weed seeds determined.

The results have already been given wide publicity and need be referred to here only briefly. The average quality of the seed was found to be very much poorer than expected; a few samples were found to be of poor vitality, but a very high proportion of them were badly mixed with the worst weed seeds. The price was usually little indication of the actual quality of the seed. Very frequently seed that was offered for sale as of the best quality, and bought as such, was very inferior and contained a large assortment of weed seeds. The chief causes for this condition of affairs was a great demand for cheap seed by a large proportion of those buying, and a tendency for the trade in seeds to drift from the hands of responsible seed firms to irresponsible men who handled seeds as a side issue, and whose main business was of an entirely different nature. Such men were necessarily not competent to handle seeds and had no knowledge of the quality of the goods in which they were dealing.

The real question to be considered and still before us is, how can the quality of these seeds best be improved? There were three main ways that presented themselves. By acquainting those who purchased seeds with the actual conditions of the trade, showing the folly of buying cheap seeds and of taking anything but the best obtainable, which in the end was the cheapest, a demand was created for a better quality of seed, and a greater proportion of the best seed was therefore sold. By showing the folly of growing these small seeds on dirty farms where they were sure to be polluted with an assortment of the worst weeds, some improvement was created in the supply of seed for the market, in those provinces where seed is extensively grown. Where it is now grown only in a limited way or not at all, the more extensive growing of seed for home use has been urged. No new weeds would then be introduced into such localities. The third means was by enacting legislation to prohibit the selling of some of the classes of seed on the market, and to establish a standard for the higher grades of seed. Precaution had to be taken in framing such legislation not to hamper the trade in seeds in such a way as to raise the price of good seed abnormally, nor to render unprofitable a legitimate business. In several countries laws have been enacted to govern the trade in seeds, and have mainly resulted beneficially in improving the quailty of seed sold and in protecting those who purchased seed. In this country, laws governing the quality and packing of fruit, butter and other food products indicate a concession that the farmer has a right to know what he is buying, and it is no more difficult to determine the value of a sample of seed than some of these other products.

The legislation which has been framed and which will become law on September 1st, 1905, aims at improvement in two respects. Clause 3 prohibits the selling of grains, grasses, clovers or forage crops which contain the seeds of:—

Wild Mustard or Charlock (*Brassica sinapistrum*, Boiss),

Tumbling Mustard (*Sisymbrium sinapistrum*, Crantz),

Hare's ear Mustard (*Conringia orientalis*, Dumort),
Ball Mustard (*Nestia Paniculata*, L. Desr.),
Field Pennycress or Stinkweed (*Thlaspi arvense*, L.),
Wild Oats (*Arena fatua*, L., and *Arena Strigosa*, Schreb.),
Bindweed (*Convolvulus arvensis*, L.),
Perennial Sow Thistle (*Sonchus arvensis*, L.),
Ragweed (*Ambrosia artemisiæfolia*, L.),
Great Ragweed (*Ambrosia trifida*, L.),
Purple Cockle (*Lychnis githago*, Lam.),
Cow Cockle (*Vaccaria vaccaria*, L.),
Orange Hawkweed or Paint Brush (*Hieracium aurantiacum*, L., and *Hieracium prœaltum*, Vil.),
Ergot of Rye (*Claviceps purpurea*, Tul.),
unless the sample is marked stating the names of the weed seeds that it contains, also the name and address of the seller.

Clause 4 sets a standard for seed of red clover, alsike or timothy that is marked and sold as first quality. Such seed must be free from weeds named above and also be free from :—
White Cockle (*Lychnis vespertina*, Sibth.),
Night Flowering Catchfly (*Silene noctiflora*, L.),
False Flax (*Camelina sativa*, Crantz.),
Canada Thistle (*Cnicus arvensis*, Hoffm.),
Ox-eye Daisy (*Chrysanthemum leucanthemum*, L.),
Curled Dock (*Rumex crispus*, L.),
Blue Weed (*Echium vulgare*, L.),
Ribgrass (*Plantago lanceolata*, L.),
Chicory (*Cichorium intyhus*, L.),
and germinate at least ninety per cent.

This Act does not, therefore, prohibit absolutely the selling of poor samples of seed, so that there will still be poor seed offered for sale. It will be of very little use to the man who buys poor seed, but is aimed to assist those who wish to secure first-class samples of seed. If he thinks it is not what it purports to be, action under this law may be taken after the purchaser of the seed has taken a sample and had it analyzed by an official seed analyst and having his report on it. Samples must be taken within seven days of the date of purchase, and must be taken before witnesses.

There are several exemptions that are worthy of note. A farmer growing seed and selling it from his premises is not subject to the provisions of the Act unless the purchaser obtains a certificate stating that the seed is supplied to him subject to the provisions of the Act. Any persons selling seeds direct to merchants to be cleaned or graded before being offered for sale, for the purpose of seeding, does not come under the provisions of the Act. Neither does the Act apply to seed that is held in storage for the purpose of being recleaned, but has not been offered for sale for seeding purposes.

Even with such an Act as this in force, a person cannot expect to get only good seed, unless he uses his own judgment and purchases the best seed offered. A great deal of improvement may be effected by creating a demand for only the best quality. On the market this is frequently the highest priced, but in the end is much the cheapest and most profitable seed to use.

Cultivation of the Soil and Conservation of Moisture.

By F. M. Logan, B. S. A.

(Extracts from an address delivered at several Institute meetings.)

Mr. Chairman, Ladies and Gentlemen,—The subject chosen for my address to-day is one of vital importance to every man who tills the soil. The success or failure in farming often depends upon the farmer's knowledge of treating soils at the right time and in the right way. Proper treatment means profits ; bad treatment means a loss.

Perhaps it would be well to first consider for a few moments the formation of soils. Geologists tell us at one time this earth was all molten rock, and by the breaking down of this

rock, through the action of frost, rain, wind, etc., soils have been formed. Chemists tells us that the average soil contains at least nine chemical elements, all of which are necessary for plant growth. Along with these nine elements we must have humus, that is, decayed vegetable matter of some sort, in the soil, or we cannot successfully grow crops. They tell us also that this plant food must be in solution before plants can make use of it; therefore, one of the most important features for any farmer to consider is how to treat his soil to render it soluble, and to have a sufficient supply of moisture on hand when it is most needed by the plants.

We are told, upon good authority, that for every ton of dry matter grown on a farm from 300 to 500 tons of water are necessary for its production. In a large part of Canada there is a sufficient rainfall to provide this amount, but the difficulty lies in having this water available just when it is needed. Water used by growing plants is held in the soil, very largely, by capillary attraction; therefore, the soil having the greatest capillary attraction or water holding power, other conditions being equal, is the best soil.

How can we improve this feature in a soil? They tell us that this capillary water adheres to the outside of each soil grain; therefore, the more outside surface we have the more water will our soil hold. For instance, a cubic foot of soil as coarse as ordinary marbles would contain about 27 square feet of water-holding surface, while a cubic foot of fine soil would contain over 30,000 square feet of water-holding surface, capable of holding about 1,000 times as much water. This shows the importance of pulverising most soils, in order to increase their water-holding power. Perhaps there is no more effective way of doing this than by fall ploughing. By stirring the soil with the plough we increase the space between the particles of soil, as well as pulverise it by the mechanical action of the mouldboard. This increased space holds more water to be acted upon by the frost; therefore, much more pulverising takes place than if the soil had been left unstirred.

Another effective way of increasing the water-holding capacity of a soil is by harrowing. Less than half of the farmers realise the importance of harrowing; therefore, it often happens that crops are planted before the ground is half prepared. There is little danger of harrowing ground too much, but it frequently happens that it is not harrowed enough.

Another method of improving the physical condition of a soil, as well as its fertility, is by the addition of humus. A majority of soils lack this element more than any other. The application of barnyard manure, swamp mud, clover sward or any other decayed vegetable matter not only improves its physical condition, but increases its water-holding power as well.

After you have your soil in a condition to hold all the water that falls on it, the question to consider is how to treat it to prevent this water from being carried away by evaporation. Experimenters tells us that 200 tons of water will escape from an acre of land in seven days, if conditions are favourable for its evaporation; therefore, every farmer who is wise will take steps to prevent this loss, for if allowed it will very often cause the failure of his crop.

We find that the winter frost and spring rains leave the land in the most favourable condition possible for evaporation to take place. Therefore it very often happens that where a man has an extensive farm to operate, a large amount of the water has escaped from the soil before he gets his crop in the ground. This loss may be avoided by harrowing the ground as soon as it is fit to work, thus forming a mulch on the surface, which prevents, to a large extent, this evaporation of moisture. This dust mulch should be maintained all through the summer, wherever crops will allow it, such as between the rows of potatoes, roots, vegetables, etc.

A mistake very often made in the growing of potatoes, especially in dry districts, is that of ploughing earth up around the potatoes as soon as they are a few inches above the surface. This has two harmful effects. First, it exposes a larger surface to the rays of the sun, therefore causing much greater evaporation. In the second place, it is found that potatoes will form about four inches below the surface of the ground; so by ploughing up around the potatoes we elevate the surface, causing them to grow higher in the drill and, consequently, growing a great many more sunburnt potatoes than would be grown if the drills were kept level.

A better method is to leave the drills as nearly level as possible until the tops are large enough to shade the rows and till the potatoes have begun to form, then by ploughing up the earth you bury them sufficiently deep to avoid having any sunburnt potatoes.

A feature in connection with the growing of grain which is very seldom practised in this Province, is that of harrowing grain after it is from three to six inches in height. It frequently happens that a heavy shower occurs after grain has been sown, and if the soil is clayey a crust is formed on the surface which prevents a sufficient supply of air from getting to the roots, as well as causing the largest possible amount of evaporation. By harrowing this ground with a

light spike-tooth harrow, when in this condition, the crust is broken, air is admitted to the roots, evaporation is checked, and your grain immediately starts to grow, far surpassing that which you have not harrowed. I have known of grain being harrowed three times by mistake when about four inches in height, and instead of ruining the crop, caused it to be one of the best ever grown in that district; therefore, a man need not fear any bad results from once harrowing.

The roller is probably used with more harmful effects than any other implement employed on the farm. By using it on clayey soil, or when soil is damp, it leaves the surface packed down and in the most favourable condition for evaporation to take place. It is true that the roller may be used with beneficial results in sprouting grain in a dry soil. By harrowing the ground when preparing it for seeding, a dust mulch is formed, so that when the seed is sown there is not sufficient moisture present to sprout the grain. By rolling at this stage evaporation is increased, by pressing the particles of soil together, so that the moisture, in coming to the surface, comes in contact with the grain and causes it to sprout much more quickly than it otherwise would. After the grain is sprouted, however, it should be harrowed as described above, for unless this is done the water needed to grow the crop will be carried away by evaporation. There is such a variety of soils in every district that no stated rules can be given for their cultivation. There are certain principles which will guide a farmer to some extent, but he must use his best judgment, experiment with different methods and carefully note results. It is only in this way that he can ever hope to be a successful farmer.

The Creaming of Milk.

By T. A. F. Wiancko, Manager Eden Bank Creamery, Sardis, B. C.

In considering the various methods of separating cream from milk, it is well to bear in mind the composition of normal milk. We speak of it as being composed of water, fat, and solids not fat. Cream consists of the fat globules mechanically mixed with more or less milk. Skim milk, if the separation has been complete, consists of the water of the milk and the solids not fat. Butter fat is lighter than the solids not fat of milk, and this explains why there is a more or less complete separation of the fat from the milk in the form of cream, when milk is allowed to stand for any length of time, while the heavier portion, or skim-milk, settles to the bottom. Butter fat exists in the milk in the form of tiny fat globules, varying in size from one thirty-thousandth to one ten-thousandth of an inch in diameter. The smaller the fat globules, the larger the relative amount of surface when compared with the volume, and the greater the resistance offered by the milk in comparison with their buoyancy. Other things being equal, the heavier the liquid in which these fat gloubles float, the more rapidly and more completely will the separation take place. In the case of milk, however, those conditions which make the skim-milk heavier, make it at the same time a thicker and more viscous fluid, so that with the increase of specific gravity, tending to aid separation, there seems to be an increased thickness of the fluid, tending to retard it. And thus we see how the composition of milk comes to have such a practical bearing upon the problems of creaming.

The method of creaming milk which is still most practised is probably the old "shallow pan" system, where milk is set in shallow pans or earthen vessels, and allowed to stand at the temperature of the room, until, by the action of gravity, the lighter portions of the milk find their way to the top of the vessel in the form of cream, and the heavier parts, or skim milk, sink towards the bottom. True it is that very good butter can be made from this system of creaming, but it has its serious disadvantages. On account of the large space required for setting the milk, it is difficult to find a place where suitable conditions may be maintained. In any case it is clear that the milk should be set in a room where the atmosphere can be kept perfectly pure and the temperature under control. See to it that no direct currents of air or draught be allowed to strike the surface of the milk, as it will cause evaporation and leave the cream in a thick, leathery, lumpy condition, and if not broken up well, by pouring through a fine strainer, will cause white specks in the butter, from the fact that the lumps of hard cream will not take colouring matter as readily as the rest of the cream.

On many farms we find that too often the milk is set in a part of the kitchen, pantry or cellar, for lack of a suitable milk room, and the use of these rooms for the cooking of food, or

the storage of food, fruit and vegetables, renders them wholly unfit for the keeping of milk. A clean, sweet, well ventilated cellar makes an excellent place for setting milk, but care should be taken not to allow contamination from food that may be stored there. The temperature of such milk rooms should be maintained at about 58° to 60° F., if possible, as it has been found by experiment that this is the temperature at which the most efficient skimming is obtained. Shallow pans should be allowed to stand twenty-four hours in summer and thirty-six hours in winter before skimming. Even with the most favourable conditions for the shallow pan method, the loss of fat in the skim milk is excessive, especially in the fall of the year, when many of the cows in the herd are "strippers." The average per cent. of butter fat in the skim-milk from shallow pans was found by the Michigan State Agricultural College to be a trifle under one per cent. (.98 %). In a test from seventeen farms, in seven cases it was above this figure, averaging 1.5 %, while in the ten cases where the loss was less than 1 %, the average was .63 %.

By the cool, deep-setting method, we mean the system now very commonly used where milk is allowed to stand in some form of deep can of small diameter, set or submerged in cold water. This system takes up less room, less surface exposed to the atmosphere, less liable to contamination from foul odours, and gives a sweet cream, but if not very carefully carried out and well managed, the loss in the skim-milk is excessive.

The difference between the specific gravity of the cream and that of the milk is made greater by cooling. The lower the temperature to which the milk is cooled, and the more rapidly it is cooled to that temperature, the more readily does the separation of the milk and the cream take place. Where a low temperature has been maintained, it is not necessary for the milk to stand longer than twenty-four hours, and both cream and milk may easily be kept sweet until time of skimming. The ripening of the cream can then be controlled and the skim-milk fed to calves or pigs while still sweet. If properly handled, there is less loss of fat in the skim-milk than with the shallow pans. It is essential to have the milk set at a temperature of at least 45° Fahr., and preferably 40° Fahr. If not kept at this low temperature, the loss of fat may be very great. A case came to the writer's notice recently, when a farmer brought a sample of skim-milk to be tested which showed 2.4 % of fat, according to the Babcock test. This is about two-thirds of the total fat contents of average quality milk. When asked where he set the milk, he explained that he set it in shot-gun cans in cold water, and changed the water once or twice during the twenty-four hours. The weather being quite hot, the water soon became warm and lost its effect, with the above result; whereas if he had maintained a temperature of 40° to 45° Fahr., the loss would probably not have exceeded two-tenths of 1 %.

The apparatus used in the deep-setting method need not be expensive, and may consist simply of shot-gun cans set in a coal oil barrel, sawed off to the proper depth. The water should always be kept cold, at a temperature below 45°. If water at this temperature cannot be had, ice must be used. It is important that the milk should be cooled as rapidly as possible; therefore, the colder the water surrounding the cans the better.

Recently made trials at the Michigan State Agricultural College, in which the milk of a herd, divided into separate lots and set in deep cans with the water at different temperatures, gave the following results:—

	Temper. degrees Fahr.	Average % fat in skim milk.
Milk set in water at	32-36	.19
Milk set in water at	40	.36
Milk set in water at	50	.84
Milk set in water at	58-60	.84
Milk set in running water at	58-60	.84
Milk set in open air at	62	1.40

These results go to prove the statement above, the colder the water the better. From this, too, it seems to be safe to conclude that unless the water used be cold, the shallow pans furnish a more efficient method of creaming than the deep setting. Furthermore, best results are obtained by setting milk as soon after milking as possible, but the loss due to a slight delay in setting is not excessive if the water is at a low temperature when the milk is set. A certain amount of milk was divided at the Agricultural College mentioned above into three equal lots, one of which was set immediately, one a half hour later, and the third half an hour later still, the water in all cases being at the same temperature, and the milk never above 36° Fahr. The following are the results:—

	Average % fat in skim milk.
Milk set immediately after milking	.216
Setting delayed half an hour	.25
Setting delayed one hour	.26

Setting the milk in water above 50° Fahr., and afterwards cooling the water down to 40° or below, will not prevent the loss. It is absolutely necessary that the water be cold at the beginning.

For any farmer who has a herd of from six to eight cows and upwards, the cream separator furnishes the most satisfactory method of getting cream from milk. The machine consists of a very rapidly revolving bowl, into which a continuous stream of whole milk runs, and out of which continuous streams of cream and skim milk come. The centrifugal force generated by the rapid whirling of the bowl causes the skim milk, or heavier part of the milk, to travel outwards, or away from the centre, and the cream being lighter is forced or travels toward the centre of the bowl, each being delivered into its respective receiver placed over the top of the bowl. The operation is purely mechanical. The main objection to the separator is its first cost, but it is evident to all that the increased yield of butter will soon pay for the machine. Some of the advantages of the separator over the shallow pan and cold deep-setting methods of creaming are:—(1) loss of fat in skim milk is reduced to a minimum (usually from .05 to .1 per cent.); (2) produces a better and more uniform quality of cream; (3) insures purity of product; (4) removes disease germs and enhances the keeping quality of the butter; (5) saves the cost of utensils and the space required for their accommodation; (6) saves the cost and handling of ice needed to keep the milk sweet; (7) skim milk in good condition for feeding purposes.

In the use of the separator, three points should be carefully watched and regulated, viz.: the speed of the bowl, temperature of the milk, and feed of milk to the machine. With the same machine, and all other conditions the same, a greater loss of butter fat must be expected when the separator is not run up to speed, when the milk is below a certain temperature, or when more than a certain amount of milk is run through in a given length of time.

In conclusion, a few hints about setting up and operating a cream separator may not be out of place. To give a separator the necessary stability it should be fastened to a solid floor. The top of the machine should stand level in all directions, and the frame should be screwed or bolted firmly to the floor. Before starting the separator all parts should be thoroughly clean, and all bearings well oiled, and oil-cups free and in working condition. Special attention should be given to the oil that is used. With each machine that is sent out by the makers is sent a can of oil of a quality that has been found by experience to best answer the purpose. Such can be obtained from the selling agents of the machine. No other should be used. After separating is completed, flush out the bowl with a small quantity of pure warm water or a little skim milk, remove power and allow speed to run down of its own accord. Never attempt to stop the bowl by applying any kind of brake, as it soon injures the bearings. Wash all parts of the separator thoroughly first in luke warm water, and afterwards scald in boiling water or with steam, and place in a clean, dry atmosphere.

Home-Grown Trees.

By J. R. Anderson, Deputy Minister of Agriculture.

President and Members of the North-West Fruit-Growers' Association:—When the Secretary wrote me asking on what subject I would give a paper, without much consideration of the responsibility I was undertaking in attempting to give instruction to the representative fruit-growers of these great States, I replied according to the caption of this paper. It has since occurred to me that, important as I know the question to be, I believe it is fully recognised by most up-to-date orchardists, and I know it has been dilated upon by many of your eminent public men, and therefore it seems almost a work of supererogation to repeat at this time and before this audience the reasons why home-grown trees are to be preferred to those grown under different conditions. Nevertheless, having been placed on the programme, I feel it my duty to say something, however hackneyed, in the hope that some benighted

person may perchance profit by it, and I will, with your permission, Mr. President, add a few general remarks of a discursive nature on errors in fruit-growing as they appear in the Province from which I come, and other matters of general interest.

It is a fact beyond peradventure, whether in animal or plant life, that climatic influences and other concomitant conditions influence, in a very large degree, the wellbeing of the subject. Animals, whether man or beast, inhabitants of the torrid zones, will languish and eventually perish if transported to the colder regions of the poles, if existence is attempted in the accustomed conditions, and *vice versa;* animals of the Arctic regions, accustomed to extremes of cold and being compelled in their natural conditions, in order to supply the caloric which is so rapidly exhausted, to consume large quantities of fat, soon succumb to the enervating influences of the tropics. It is true that some animals may and do live under altered conditions in a modified degree, and the progeny of such animals may possibly, after a period, acquire habits and constitutions which may enable them to support existence under the changed conditions, but even then they cannot hope ever to thrive under circumstances the reverse of their own. When, however, conditions resemble those in which they have been bred there is a chance of acclimatisation and, in course of time, probably perfect acclimatisation, but it takes time and it is the progeny which really accustoms itself to its new home. This is especially true of plants, so much so, that in order to successfully grow some kinds of trees or plants in the colder regions it is necessary to obtain seed from regions whose climatic and other conditions approach those of the intended new home; plants from seed taken from localities whose conditions are altogether different do not succeed well in establishing themseves. As an instance, in introducing the Douglas Fir, a tree most common throughout these States and British Columbia, growing at all altitudes and under all conditions, into the colder climates of Russia and parts of Germany, the seed of trees on the higher altitudes or in the more northerly portions is selected, as experience has taught that those only will produce plants capable of acclimatisation.

Now as regards fruit trees, probably most fruit-growers have long ascertained by personal experience that some individual trees, even of those grown under the same and best of conditions, thrive better than others. Why is this? The probability is that they are constitutionally stronger and better able to fight the battle of life. It is true there may be other causes, such as neglect or attacks of enemies, which cause some to lag behind, but the probability is that they started in a constitutionally weaker state. Now, if this condition prevails amongst plants which have had the advantage of being reared under favourable enviroments, to how much greater a degree must it exist when trees are obtained from localities altogether dissimilar in climate and conditions? The Pacific North-West, in climate and topography, is altogether different from the East and South, and, therefore, it is unreasonable to expect that nursery stock grown in the latter regions can be as well adapted to the needs of the orchardist in these States and British Columbia as that which is produced locally. Again, the further factor of the much greater probability of injury and consequent loss occurring through climatic changes, longer periods between the nursery and orchard, heated cars and other causes, when nursery stock is conveyed from a distance, cannot be ignored, nor can the greater risk of infection by insect pests and diseases be overlooked when the opportunity of making a personal examination and selection is wanting. The commercial orchardist cannot afford to run the risk of loss through stock unsuited to his wants; he cannot afford to wait until stock gets acclimatised; he cannot afford to experiment; he cannot afford to take the risk of loss through possibilities of injury through frost and detention during lengthened periods of transportation. On the other hand, firstly, home grown stock is certainly acclimatised, therefore, no time is lost on that score. Secondly, it can be taken up from the nursery and immediately or with little delay planted in its permanent home, reducing the risk of loss through the agencies named to a minimum. Thirdly, the principals being on the ground and having reputation to sustain, it is naturally to their interest to avoid, in as far as possible, unfair dealing, such as substitution of other varieties than ordered and of trees of unsuitable ages. Fourthly, local nurserymen, it is but reasonable to suppose, must be better acquainted with the local requirements, and are therefore in a better position to give reliable advice to orchardists as to varieties and procedure. Fifthly, intending purchasers can, in most cases, inspect the stock before buying and make selections to suit themselves.

On all these grounds therefore, grounds which experience has taught us in British Columbia are incontrovertible, I say patronise home-grown nursery stock, purchase from local nurserymen if you possibly can, or better still, grow your own trees and use scions of varieties of

well-known commercial value and from individuals which have proved themselves to be superior to their fellows; for I need scarcely repeat, experience has proved that individuality is as potent a factor in plant as in animal life, selection, and the survival of the fittest, being a well recognised and indisputable axiom. By all means, if you are going into fruit-growing as a commercial venture, seek the advice of those whose duty it is to ascertain the facts and plant only those varieties of well-known commercial value which have been proved to be suitable to your locality. Above all, avoid the advice of the tree vendor, whose business is to sell trees, good, bad, or indifferent, and who will, in most cases, give the advice which suits him in order to accomplish his purpose; bear in mind that the chances are he knows less than you do about the fruit trees. You will find also that he will probably recommend you to buy old trees. The reason of this is obvious; his principals have stock which is deteriorating through age, just as the merchant's goods on his shelves, so he must sell or he will ultimately lose; and in spite of the fact that trees after a certain age are less valuable than younger stock, the drummer will try and make you believe that a two-year-old tree is more valuable than a one-year-old, a three-year-old still more so. Where he would stop if he could only find purchasers gullible enough, I cannot say; certain it is, that if he can dispose of unsaleable stock at high figures he will do so. Now, I beg that you will understand by these remarks that I do not condemn all tree vendors; there are honest men amongst them, as there are in any other line; but whether they are honest or not, I say, take the advice of your agricultural and horticultural experts, men whose duty it is to ascertain facts, and who will make known to you the results of their investigations free if you take the trouble of applying for it. Do not go in for many varieties; two or three, that suit your locality and are of good commercial standing, are sufficient, and will in the long run prove more remunerative than if you had a dozen or twenty varieties and possibly not a carload of any one kind. Remember, then, that the loss inflicted by an error committed in setting out an orchard is not so much in the actual cost of the trees, planting and cultivation, as it is on the ulterior effect, when after years of waiting and a profitable return for your labours is due, you find that you are in a worse position than when you began.

And now I think I have said enough, and I will therefore conclude, just saying that at the Dominion Exhibition held at New Westminster the exhibit of fruit was of such an extent and of such a character that Professor Van Deman, whose qualifications as a foremost pomologist are so well known, gave it as his opinion that nowhere in the East could it be excelled or even approached. There were bunches of Tokay grapes grown in the dry, hot valleys of the interior which weighed nearly four pounds; peaches, nectarines and apricots of the best dercription, and, of course, apples, which I do not think even Mr. E. L. Smith could excel, in Hood River. It is also most gratifying to us of British Columbia that during two succeding years, we have won the gold and silver medals at the annual shows of the Royal Horticultural Society of England, held in London; and when it is considered that the highest awards made by that Society have been won by the Pacific North-West, against all comers, you will, I am sure, agree with me that we have good cause to congratulate ourselves that fruit of such excellence can be and is produced in British Columbia and these States.

Accept my apologies, Mr. President, ladies and gentlemen, for inflicting this paper upon you; my only hope is that the subject may prove of interest, if only to a few, and furnish food for thought on what I am sure is all-important for successful fruit-growing.

Prevention and Treatment of Contagious Abortion.

By Dr. S. F. Tolmie, V. S.

Aborting cows should be isolated from all others and from all other breeding female farm animals. Separate stable utensils should be used and, if possible, separate attendants should care for these animals. All stalls where aborting cows have stood should be thoroughly scraped and cleaned and washed with a solution of bluestone, five ounces to one gallon of water. The cowhouse gutters should be dressed this way about once a week. The whole of the interior of the stable should be sprayed with a solution consisting of 1 part crude carbolic acid to 30 parts of lime-wash.

Spraying stall and floors twice a week with a 1-30 solution of crude carbolic and water is reported to have a very beneficial effect by some breeders, some claiming that the inhaled fumes act as a preventative in pregnant cows.

The vagina of aborted cows should be syringed out daily for about a week, or until discharge ceases, with a mixture of alcohol, 1 ounce; corrosive sublimate, 1 dram; and glycerine, 1 ounce, dissolved in 1 gallon of water. The vulva, anus, back of the hips and root of the tail should be sponged with this liquid. This external washing may be applied to the whole herd. A 1 % solution of carbolic acid may be used instead of the corrosive sublimate.

When a cow aborts, the foetal membranes must be removed as soon as possible and burned or deeply buried with lime, and the stall should be at once cleaned and disinfected as above, and the vagina and external parts treated as described.

Aborting cows should not be bred for two or three months, and care should be used in selecting a healthy bull for the purpose. The bull should have his sheath injected and belly washed before and after service with a 1 % solution of carbolic acid.

When the disease exists in a district no outside cows should be received for service. Newly purchased cows should be kept isolated and treated as above before bringing them in contact with the others of the herd.

Cows usually abort from the third to the seventh month of gestation. Some very good reports are given of the use of carbolic acid internally in suspected cows, administered at the rate of half a dram daily with feed. It is prepared by diluting freely with water and then mixing with food. Fattening and disposing of aborting cows will help to rid the herd of the disease.

Thorough disinfection of stable utensils, milk stools, clothes of attendants, etc., is absolutely necessary, and over a year or more will elapse before you can safely say that you have succeeded. Any half-way measures will prove disappointing.

The following article, taken from the "Agricultural Gazette" of New South Wales of 2nd December, 1905, I consider of such interest that I venture to reproduce it:—

Fruit Pulp on the Farm.

G. R. HARRISON, TENTERFIELD.

The season for summer fruits is fast approaching, and once again we will have to face the problem of caring for the various fruits, that we may enjoy them all the year round till another fruit season comes in.

The man with a few trees, producing more than the family can consume immediately, but not enough to market; and the man near the market, who can buy cheaply during the gluts; and the market grower, who has much that the market will not take, all want a method of keeping fruit on a larger scale than the ordinary preserving bottles permit of. All such will be glad to hear how I have, on three separate occasions, put down fruit in 4-gallon packages, at a cost in cash which was trifling, and at a cost of time, skill and labour which even very busy people could afford.

I will describe how I put down both peaches and quinces at the "Orange Grove," while the guest of Mr. James Metherell, orange-grower and bee-keeper on the Colo River, some eight or nine years ago. Seeing that much fruit was likely to be wasted, though Mrs. Metherell had filled all available receptacles with fruit and jam, I got all the available empty kerosene cans, carefully melted off the circular cap, and soldered up all other holes. To remove all trace of kerosene, a few pints of dry dust (ashes or garden soil) were poured in and shaken up so that it reached all corners, and they were left in the sun, getting an occasional shake now and then. In a couple of days this was poured out, and the tins were washed with cold water just to wash out the dust; they were then ready. My first batch was peaches; these were picked over, stalks pulled off, but were neither peeled nor stoned (they would probably have been better peeled, but all stone fruits improve in flavour if preserved with the stones in them). They were placed in a boiler, and as little water added as they could be boiled with, and as soon as cooked they were lifted with a dipper and poured through an improvised funnel—simply a

piece of tinned sheet about the size of the head of a kerosene tin (which probably it was), rolled in a cone and cut off so that it would just about fit the holes in the cans. The cans were stood on a sloping board, so that the corner with the hole in would be the highest point. This allowed the cans to be well filled, and yet the fruit was clear of the edge of the opening. The edge of the opening was then wiped clean and dry, and the caps which had been taken off were securely soldered on again, and the whole process was then complete. The cans were then removed to a cool place—underneath the house is where I have stored them mostly—and there left till wanted. As the fruit cools, the sides of the cans are drawn in, and this assures you that the tin is air-tight; if the sides bulge out much at any time, you may be sure that there is a leak, and that the fruit is fermenting. I have put down some thirty cans of different fruits in different years and places, but have not had a tin go bad, and many were kept for two years.

When a tin is opened, it may be made into jam or may be heated up and poured into ordinary preserving bottles and kept till wanted.

I have found that it takes about one and a half times the full of a kerosene tin of the fresh fruit, before boiling, to fill a can with the pulp—say, a kerosene case three parts full.

Some people may be afraid they cannot use the soldering tools, but they need not fear, it is exceedingly simple. The tools and materials required are a proper soldering bolt (will cost about 2*s.* 6*d.* in Sydney), about 3*d.* worth of "spirits of salts" (hydrochloric acid), and about 6*d* worth of tinman's solder, a few bits of clean tin sheet for covering holes knocked into the cans for the purpose of emptying them. A small pair of tinman's shears, say, 8 or 9 inches, are very handy.

How to Solder.—First clean the parts of the copper bit of the soldering bolt with an old file, and heat it in the fire till it just begins to change colour. Have a vessel, an empty jam tin will do, half filled with water, and drop into it six or eight drops of the raw spirits of salts, also have a glass or delf vessel and pour into it about a table-spoonful of the spirit and twice as much water, and into this drop small pieces of zinc, the liquid will commence to boil furiously, giving off pure hydrogen gas, and will eat up the zinc; keep putting in the zinc till it will eat no more when, instead of having hydrochloric acid, you will have a solution of the chloride of zinc. This is your soldering liquid, and may be laid on the parts you wish to solder with a brush or feather, or even a bit of cane or stick with the end bruised. When the bit is hot enough to begin to colour, put a little piece of solder on to a piece of clean tin, and put a little of the soldering liquid on it. Dip the point of the bit into the acid water in the tin for a moment—this cleans it—and put it on the little piece of solder on the piece of tin. This should melt and spread over the cleaned point of the bit and over the tin; this is "tinning the bit." You may now put it into the fire and make it a little hotter, but do not make it too hot or you will burn it, that is, you will fuse the copper and the tin of the solder together and make bronze, and this will not work well and must be ground off, and the operation of tinning gone over again. Cut little bits of tin and lay them over any holes to be closed. Apply the soldering liquid, put a bit of solder on top and lay the tinned point of the bit on it, and keep it on till the solder is melted and has run down around and under the little patch of tin. Always keep the bit on till the solder is adhered well to the tin. It is well to run plenty of solder into the groove around the opening of the can, when it will be much easier to solder on the cap when the fruit is in.

I trust that during the coming year many farms and orchards will have some dozen of cans of pulp of various fruits, besides the usual amount in bottles and in jam.

Tins for the purpose can be obtained at several manufacturers in Sydney, and the cans with "slip in" lids, used by bee-keepers for honey, can be made quite air-tight if the lids are pressed well down and wax or mineral wax (paraffine) run in while the tin is hot.

To recapitulate, the steps in the process are:—First, procure and prepare cans; second, procure and prepare fruit; third, boil fruit with as little water as convenient. It will take about 6 gallons of the uncooked fruit to fill, when cooked, a 4-gallon can; but if you have cooked fruit enough over to partly fill a can, it is all right to keep that partly-filled can hot till more fruit is cooked to fill it; fourth, fill into cans while boiling hot, and solder down at once; fifth, store in a cool place.

(Care should be taken when buying solder to obtain a suitable grade; this material is made of varying quantities of lead and tin and sometimes bismuth. At the Wagga Experimental Farm the solder used in the cannery is made of equal parts lead and tin; this flows freely and does not take a great heat. A solder used for canning that is very good for many

purposes, because it melts at a low temperature, is made as follows:—Lead, 1¼ lb.; tin, 2 lb.; bismuth, 2 oz. The lead is melted first, the tin is added next, and finally the bismuth stirred in well just before pouring. With a low melting point such as this, viz., 340° F., caps of pulp fruit-cans can be removed without having recourse to tin-openers or worse, thus damaging the can.)

Fruit Growing in British Columbia.

Excerpt from the evidence of Mr. A. McNeill, Chief of Fruit Division, Department of Agriculture, before the Standing Committee of the House of Commons, on Agriculture and Colonization:—

Mr. McNeill:

I drew attention a few moments ago to the fact that Eastern Canadians are somewhat behind the people of British Columbia in fruit-growing. They are behind them with reference to methods of culture, varieties, packages and grading. The average conditions are better in Eastern Canada.

By Mr. Wilson (Lennox):

Q.—The qualities of both classes are about the same? A.—Yes. Do not mistake me. The best fruit farm I have seen in Canada is in Ontario. I am speaking of the averages, and the average fruit-grower of Eastern Canada has much to learn from the people of the West, and while the people of British Columbia are most excellent in their methods, yet the people of the North-West complain that often they are behind the people of Washington and Oregon in the matter of grading. They can go to Hood River and get solid carload lots, all of one variety. That is one of the things that assists the American trade.

By Mr. Wright (Renfrew):

Q.—Is that not because the Americans go into it in a wholesale way? A.—Yes. And just as soon as we can get carload lots the better our trade will be. I would also like to draw your attention to this fact: that in a neighbourhood it is much better for the farmers to confine themselves to one or two varieties than to grow half a dozen. Then buyers would be able to get carload lots, the product, it may be, of several different growers. When there is co-operation among the farmers they can get wholesale methods much sooner than by working independently. In Hood River this has been obtained by individual growers and shippers, who, as a business speculation, take up fruit-growing and shipping, and do it without co-operation. But we can obtain the same results much more easily with co-operation.

How Best to Pack Apples in Boxes.

Referring to the details of the methods used in packing a box of apples, permit me to say that few Eastern growers appreciate the value of the devices used in the West. To impress this, the Minister of Agriculture has secured the services of a skilled packer with experience in California, Oregon and Washington Territory, and, later, at the Aberdeen Ranch, Vernon, B. C. These skilled men claim that there are at least sixty devices or different combinations of the position of the fruit that can be used to fill a box with any size of apple so as to require no filling of paper, shavings or excelsior to make a tight package. The methods he will illustrate enable the people of Oregon to get $2 and $2.50 a box for their Newton Pippins. They are getting this large price, not because the fruit is at all better than many of the varieties that we have, but because they are graded and packed according to better methods.

CENTRAL FARMERS' INSTITUTE.

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EIGHTH ANNUAL CONVENTION.

The Eighth Annual Convention of the Central Farmers' Institute of British Columbia was convened on the 27th day of February, 1906, at 11 A. M., in the rooms of the Department of Agriculture, the following delegates being present:—

J. R. Anderson, Deputy Minister of Agriculture, Superintendent.

Leeson, Wm	Alberni	Farmers' Institute.
Carlson, C	Bella Coola	"
Brandrith, W. J	Burrard	"
Webb, Horatio	Chilliwack	"
Evans, J. N., M.P.P	Cowichan	"
Robb, W. R	Comox	"
Vasey, H. M.	Delta	"
Dow, J. W	East Kootenay	"
Collins, John T	Islands	"
Whelpton, Joseph	Kent	"
Redman, John	Kamloops	"
Cleasby, H. S	Lillooet	"
Harris, Henry	Langley	"
Peatt, A. H	Metchosin	"
Metcalfe, J. C	Maple Ridge and Coquitlam	"
Abbott, W. T	Mission	"
Phillips, H. R	Matsqui	"
Randle, Joseph	Nanaimo-Cedar	"
DeHart, F. R. E	Osoyoos	"
Quesnel, Cleophas	Okanagan	"
Dixon, A. B	Richmond	"
Heggie, George	Spallumcheen	"
Wickersham, N. V	Surrey	"
Evans, James	Salmon Arm	"
Carmichael, J. R	Victoria	"
McHardy, Charles F	West Kootenay	"

On the meeting being called to order, Mr. J. R. Anderson, Superintendent, was unanimously moved to the Chair.

Mr. Anderson: I thank you for putting me in the Chair, and I hope I will be able to do my duty, but it always remains with the meeting to support the Chairman in any decision of a proper character. I do not pretend to be an experienced parliamentarian, and I shall always be glad to be put right. Will you appoint a Secretary?

Moved by Mr. Harris, seconded by Mr. Carmichael, "That Mr. J. T. Collins act as Secretary." Carried unanimously.

The Chairman announced that Mr. Logan, of the Dominion Department of Agriculture, Mr. Wells, of Chilliwack, and Professor Waugh, were in the city, and that in the evening Mr. McKillican, of the Dominion Seeds Department, and Dr. Tolmie would be present.

Moved by Mr. Harris, seconded by Mr. Collins, "That the gentlemen named be invited to attend." Carried.

Moved by Mr. Brandrith, seconded by Mr. Carmichael, "That a committee be appointed on resolutions." Carried.

Moved by Mr. Metcalfe, seconded by Mr. DeHart, "That all resolutions be handed in immediately." Carried.

A recess was then taken.

On re-assembling, Professor Waugh was introduced by the Chairman, and immediately afterwards His Honour Sir Henri G. Joly de Lotbinière and the Hon. Mr. Tatlow, Minister of Agriculture, entered the room and were introduced.

His Honour: I am very happy to meet you again to-day, and I think I will ask to be allowed to remain until I have heard a little more of your work and deliberations before I shall be in a position to congratulate you on the result. So, for the moment, all I can say is that I am very happy to meet you, and I hope that when we have the result of this year's work it will be found of an encouraging nature. (Applause.)

Chairman: The Minister of Agriculture is present and will be glad to speak to you.

ADDRESS BY THE HON. THE MINISTER OF AGRICULTURE.

Mr. CHAIRMAN AND GENTLEMEN,—In meeting you once more, it gives me the greatest pleasure to be here in this capacity and to join you in the deliberations you are going to have. I think I can congratulate you upon the termination of a successful year, successful for the country at large. In many ways it is the most important we have had in the history of the Province. We have seen the commencement of a large immigration into the Province, particularly from the other side of the mountains, and of people who are going to be very beneficial to us. A great many are residents of Manitoba and the North-West. Attracted by the prosperity promised by the better climatic conditions of British Columbia, these people have come amongst us. Some want to go into fruit farming, and others into different kinds of agriculture, on account of the larger profits to be made in every department of that industry in this Province.

Poultry-raising, hog-raising and such like have received a considerable share of attention during the past year, but I think that the greatest attention has been given to horticulture.

Some statistics relating to the consumption of agricultural products in British Columbia during the past year will be interesting. As far as we have been able to gather, the agricultural products handled in the Province during 1905 have been as follows:—

From the best data procurable, we find that we have imported during the last year, altogether, including duty, agricultural products to the extent of $7,003,646. Of this, we imported from foreign countries $1,838,568, and from the other Provinces $4,821,170, the duty amounting to $343,908. Comparing this with 1904, there is a falling off of imports from foreign countries to the extent of nearly half a million. In 1905 we imported from foreign countries $662,249 more than in 1904, and the duty last year was $343,908, against $291,126 in 1904. I think we can congratulate ourselves that the difference is made up by the increased production of this Province. It is satisfactory to note that our sister Provinces receive the greater portion of what we send out.

As pointed out last year, the value of agricultural products handled in the Province, including what we raised, amounted to some $12,000,000. It is practically the same this year, and I suppose that the fact indicates that our own production, which is five to five and a half million dollars, is as yet barely one-half of the amount needed in the Province, pointing out the tremendous opportunity for farmers in British Columbia.

During the past year the principal demand has been for horticultural investments. I may say that it has been a great satisfaction to us to observe the results which have been obtained from the exhibition of fruits this year. We purchased a car-load of fruit, gathered from wherever we thought best throughout the Province, selected it carefully, and had it transported in special cars, and placed Mr. Palmer in charge of it. Consequently, the actual expense of the exhibition was small; probably $1,200 will cover it. By these means we are able to accomplish considerable for the industry, and we can now sell fruit in the Old Country and realise a very good price. This is a matter you should look into, as the prices show a very good profit. It was never in our mind to sell fruit by the means of this exhibition, but it was more for an object lesson to the outside world what we could do, and to give them some idea of our climatic conditions. It was certainly not with the idea of securing a market for the fruit.

The result from the English exhibition is the tremendous amount of advertising, worth thousands of dollars. After the exhibition the matter was written up in the papers in Glasgow, Manchester, Liverpool and other towns, and the amount, therefore, that it cost for the exhibition was a mere bagatelle compared with the amount of advertising received.

In taking our fruit shipments into comparison with 1905, we find we shipped last year 4,237 tons; 3,010 tons in 1904, and 2,544 tons in 1903. In other words, 33 per cent. more than in any previous year. In 1905 we shipped 1,176 tons by express, but from the way the express records were kept we cannot tell what kinds made up the total, but they were principally small fruits. We shipped 2,531 tons of apples and 530 tons of other fruits, by freight. Out of the 2,531 tons of apples, 1,176 tons were sent to Manitoba; British Columbia took 1,669 tons, and Manitoba and the North-West Territories between them took 1,392 tons. During the year about 800,000 trees were planted and an additional 200 acres put under strawberries alone, and a large amount of other small fruits.

All this shows that the fruit industry is in a satisfactory condition and likely to grow to large proportions in the near future.

We have been the recipients of a great deal of admiration and favourable comment concerning our fruit laws. The inspection laws are very rigid, but though these may cause some temporary inconvenience, it is to the interest of the Province that they should be enforced. In this connection I must speak of Mr. Cunningham, who is always ready and willing to do his duty and is always found hard at work.

The dairying industry is in a condition that we can congratulate ourselves upon. A considerable change has taken place; the old-time methods are giving way before the co-operative system, found so advantageous elsewhere, and last year's production showed marked increase over 1904. Our creameries produced last year 1,398,788 lbs. of butter, valued at $377,670, and paid their patrons $314,000. The following table shows just what was done:—

Last year there were 16 creameries in operation, which is a little more than double those in operation in 1902. The production of butter in 1905 was 1,400,000 lbs., and for 1902, 700,000 lbs. The amount of butter used in the Province was last year 2,133,000 lbs., and our production was 1,400,000 lbs.; the dairy production was 700,000 lbs. The value of butter was $477,670. The production of butter, altogether, between creamery and dairy, was 1,800,000 lbs., which is 300,000 lbs. more than in 1904.

Butter—1905.

Imported	2,000,133 lbs.	value	$490,641
Home Creamery	1,398,778 "	"	377,670
" Dairy	400,000 "	"	100,000
	3,798,911 "	"	$968,311
Increase	258,772 "	"	54,631
Total local production, 1905			1,800,000 lbs.
" " 1904			1,500,000 "
An increase of			300,000 "

The value of this butter was $968,311. The increase was 258,772 lbs., valued at $54,631; the importations were 2,000,000 lbs.; but while these are less than formerly, the difference cannot be accounted for by an increased production alone, as, although our returns are not fully complete, the decrease may be accounted for by a falling off in the Yukon purchases. However, there is not nearly so much brought into the Province now as before, but the local production is larger.

I may call your attention to some remarks which were made by Mr. W. A. Wilson, judge of the dairying exhibits at the New Westminster exhibition. I think they are worthy of being repeated (reads):—

"At the Dominion Exhibition I was assigned the work of judging the dairy products and carrying on demonstrations in milk-testing, separating and butter making. Space was allotted in one end of the dairy building for this work and for the accommodation of interested parties. The fitting up of a model dairy was placed under my supervision, and a complete equipment, up-to-date in every respect, showing everything required for making first-class butter on the

farm, was displayed. Demonstrations were given every morning from ten to twelve and details explained as the work proceeded. The space provided for an audience was limited and each morning was crowded, the average attendance being over sixty. The most pleasing part of the feature was the keen interest manifested by those attending.

"Since acting in the capacity of judge of the dairy products at the Dominion Exhibition at New Westminster, I feel that I cannot permit the opportunity to pass without complimenting you and the people of British Columbia on the quality and uniformity of such a large and splendid exhibit. Out of 114 entries, only a few of them scored under 90 points, out of a total for perfection of 100. The dairy, as well as the creamery, stood high in point of excellence, and the entire exhibit showed marks of ability on the part of the makers. The flavour too, which is chief among the points on which butter is scored, was good throughout. I can safely say that the exhibit was the best I have ever judged, and I am convinced that its high and uniform quality is largely, if not almost wholly, due to education along dairy lines in the course the Provincial Government has been pursuing. I feel that I cannot too strongly mention such a commendable dairy exhibit, and to me it is evidence that the people of British Columbia are anxious to improve and take advantage of the assistance the Local Government is so generously extending."

It is most gratifying to us that such an accomplished gentleman should commend our efforts as a Government and also commend our dairy products so highly.

Speaking on this subject, we purpose to make some changes in what we have done for the Live Stock Association. It is proposed to be split up into two branches, viz., the Live Stock Association and the Dairyman's Association. The Dominion Government has come to our aid in this connection, having sent Mr. Logan out here to be attached to the Department of Agriculture. That gentleman has done considerable to bring buyers and sellers together, and he will be able to render us most efficient service. We hope to attend a little more to the dairying and to be able to make arrangements to appoint an instructor to give assistance in dairying where it may be required. At any rate, this is the line, it seems to me, we should pay attention to.

I have heard your motions passed at last year's meetings. I am sorry to say that we have not been able to carry out all your views. We have certainly dealt with what we could, and Mr. Anderson will tell you all that we have done.

I hope before you go to have an opportunity of seeing you again for a few moments, and see what you have done. My colleagues and I are only too happy to do all we can to forward your interests to the best of our ability. (Applause.)

Mayor Morley was then introduced by the Chairman.

MAYOR MORLEY'S ADDRESS.

MR. CHAIRMAN AND GENTLEMEN,—I have been given the privilege of saying a few words of welcome to you this morning. I esteem this privilege very highly, both as regards the interest the City of Victoria has always taken in the fruit and agriculture question generally, particularly the fruit question; and, secondly, because I have in past years experienced the difficulties you are dealing with now. Some years previous to my coming here I spent about ten years in California, when the industry was there the same as it is here to-day, and I was ranching during these ten years. I had to meet the same difficulties of packing and shipping and so on which you are meeting to-day so ably. I think Victoria should claim a still deeper interest than ordinarily in fruit-raising, as I believe the first shipment to the middle west was made from Saanich. F. R. Stewart & Co. gave us the first proof of the practicability of shipping fruit to the East in paying quantities. Apart from that, I believe proof of our ability to raise fruit is shown by our climate, which is equal to any in the world. Victoria is no longer able to take the lead, owing to the developments on the Mainland, but this will always be a very good section. It is likely, of course, that the main centre of the fruit country will be in the irrigation section of the Okanagan District. As one who has had practical experience in irrigation fruit-raising, I may say you have far greater chances of success there, because you are independent of climatic conditions.

Since you have matters of great moment to deal with, I will not say anything more, except that I am here to say that the business men of Victoria have a great interest in this industry. You can always depend upon them aiding you in every possible way, both for

making the Victoria meeting pleasant and in making you heartily welcome citizens of the Province, and also aiding you in any other possible way in regard to collecting information. I am sure you can always depend upon the citizens of Victoria. They have always shown themselves ready to do their duty in money matters.

I am sure it gives me much pleasure to bid you welcome. I trust you will give us every opportunity of making your stay pleasant, and remember you are at home in Victoria and act accordingly. (Applause.)

Mr. Jas. Evans, Salmon Arm: At the close of our last year's meeting there was a resolution passed asking that immediate steps be taken by the Government to provide the farmers with cheap powder. I would ask Mr. Tatlow to state what has been done in the matter.

Hon. Mr. Tatlow: It was arranged that if the Government received the assurance that at least a carload of powder would be taken, the Government would buy a car and purchasers could get any quantity they pleased at the carload price, they to make their own arrangements as to transportation. A carload contains some 400 cases, and we arranged with the powder companies that they were to deliver a carload as we wanted it. The powder was to be kept at the magazine, but we were to be responsible for loss of powder; it deteriorates very rapidly through being kept. Having made these arrangements, we went to the transportation companies and negotiated for better rates, and also sent word to the different Institutes to send in orders for what they wanted from time to time, stating that we would act as bankers and distribute the powder at carload rates as required. The transportation rates were not as satisfactory as we could wish, but we hope to yet be able to make better arrangements. I will ask Mr. Anderson to place all the correspondence before you and you will see what we have done in the matter. We are only too happy to enable you to see and judge for yourselves. We hope the Institutes will take advantage of this arrangement, and we will do our part.

Mr. Collins: We will bring this subject before you later on, I think we can get a little better terms on this powder. The committees went last year to the powder companies and they promised that if the Government guaranteed the cost of a carload, the farmers could get it as they wanted it. The manager told us there was no question of deterioration, as they would not keep a special lot for us, but would supply the amount we required from stock. All they wanted was the Government guarantee of a cost of one carload. I think we can promise you to take that carload. We are taking now over that, and if we can get it at a cheaper rate, we shall be taking more; and if we can get the same terms as last year, that you will be responsible for the cost of a carload, we shall be able to secure small lots out of stock as required. I would suggest that we let the matter stand over till a bit later on.

Moved by Mr. Metcalfe, seconded by Mr. Wickersham—
"That the Superintendent's address be given immediately after lunch." Carried.

Adjourned till 2 p. m.

Afternoon Session.

Report of Committee on Resolutions.

1. Powder—	Mr. Carmichael,	seconded by	Mr. Collins.
2. Institute Work—	Mr. Phillips,	"	Mr. Peatt.
3. Dairy Instruction—	Mr. Webb,	"	Mr. Redman.
4. Glanders—	Mr. Vasey,	"	Mr. Carmichael.
"	Mr. Redman,	"	Mr. Cleasby.
5. Merchandise Marks Act—	Mr. Redman,	"	Mr. Metcalfe.
6. Forestry—	Mr. Redman,	"	Mr. Cleasby.
7. Irrigation—	Mr. DeHart,	"	Mr. Redman.
8. Fruit Pest Inspector for Kootenay—	Mr. McHardy,	"	Mr. Dow.
9. Change of Name of Lillooet Institute—	Mr. Cleasby,	"	Mr. Redman.

SUPERINTENDENT'S REPORT.

The Chairman: I have now to present to you the report of the Institutes during the past year, since we last met. It is always an invidious task to make comparisons, but nevertheless it seems incumbent upon myself as Superintendent to do so, and to lay before you matters exactly as they have happened, so that you may be in a position to know and to report to your respective Institutes the exact state of affairs.

I regret to say that there has been some laxity on the part of some of the secretaries of Institutes in making returns. That is not as it should be. They have not kept to the rules and the instructions from the Department as to what their duties are. To keep the Superintendent waiting until the last moment for returns, and then not to put him in possession of them, seems altogether out of reason. I am to-day without returns which should have been in my hands immediately after the annual meetings. The consequence is, the figures I have to-day are not exact, some returns being wanting. During the last year some secretaries have not thought it necessary to make the reports required immediately after meetings, and I have repeatedly reminded them of this matter. As early as December I wrote a circular letter reminding them that it was their duty to give me, as soon as possible, the names of the delegates and the subjects they were going to bring up, and to make their annual returns, so that I should be in a position to place before you exactly the state of affairs, and also to be in a position to send to all Institutes a memo. of the names of the delegates and the subjects to be brought up. Until to-day, however, I was ignorant even of some of the names of the delegates. Under such conditions, you will see I am not in a position to put things exactly before you. Some of the secretaries have certainly been derelict in their duties. I think it is best to state this openly, so that when you go back you will be able to tell your respective Institutes what I said to-day. A great many of the Farmers' Institutes are up-to-date and I have no reason in the world to complain of them; but a few are not. I do not say which are and which are not, but in a general way it is well to remind secretaries of their duty towards their own Institutes, in order that they may live up to the requirements of the Act. The figures given below, whilst showing a slight increase in the number of meetings and membership, show a decided decrease in attendance and number of addresses given.

Year.	No. of Meetings.	Attendance.	No. of Addresses.	Membership.	Funds on Hand.
1904	225	7,171	327	2,062	$1,411 64
1905	230	5,892	300	2,183	1,630 00
Increase	5	.....	....	121	.....
Decrease	....	1,279	27	.....	.....

This statement cannot be considered satisfactory.

An analysis of membership shows that Metchosin this year heads the list with 226, against 141 last year; Victoria follows with 213, as against 203 last year; Nanaimo, 149, against 144; Okanagan, 143, against 157; Osoyoos, 136, against 125; Cowichan, 135, the same as last year; North Vancouver, 109, against 100. These are all the Institutes whose memberships run over a hundred. With the exception of Okanagan, which shews a falling off, and Cowichan, which remains stationary, all those mentioned above show an increase.

The funds on hand amounted to $1,411.64 in 1904, and $1,630 in 1905—an increase of about $200.

The number of organised Institutes at the end of the year was 27, divided as follows:—

	1905. No. of Institutes.	1904. No. of Institutes.	1905. Membership.	1904. Membership.
Islands	7	7	900	770
Lower Mainland	11	11	623	760
Upper Mainland	8	6	601	482
North	1	1	59	50
	27	25	2,183	2,062

These figures show an increase of membership in the Islands, Upper Mainland and northern Institutes, and a falling off in the Lower Mainland. So with all these Institutes, with the exception of the Lower Mainland, there is a decided increase, but the Lower Mainland, for some reason, shows a falling off in attendance. It is a matter of regret that a section, which is as large and populous an one as we have, should not furnish a better attendance. I cannot help thinking that, with some extra effort on the part of the secretaries, the Lower Mainland would make a much better showing. Of course, the Upper Mainland, having a larger membership, has two more Institutes, which reduces the average. The number of meetings held were in the neighbourhood of 230, against 225 the year previous, divided as follows:—Morning, 8; afternoon, 76; and evening, 146.

These figures show a slight tendency towards holding morning and afternoon sessions, a consummation much to be desired, inasmuch as it is only at daylight meetings that demonstrations can be given, and it is found by experience that the addresses, valuable as they may be in themselves, are greatly enhanced in value and interest when supplemented by demonstrations in the field.

There is another matter: The transcript of addresses of lecturers or speakers. The Act prescribes that at least two transcripts shall be made by the secretaries of addresses given during the year. There is a very great laxity in this respect and I do not think that I have had any sent to me. It is very true the addresses are mostly *viva voce*, and, therefore, as stenographers are not always available, are not taken down. Nevertheless, addresses can always be taken down if well listened to, and if speakers are asked for a copy of their addresses they would be very glad to give it in many cases. Addresses are very important when given by prominent men well up in their lines, but they should be printed in order to be available afterwards. This year there will be a considerable lack of Institute reports. I myself have got two or three from speakers I have been able to prevail upon, but I am without copies of some of the most valuable which have been given, and cannot therefore publish them in the annual repert.

There was a resolution adopted last year regarding securing local speakers as much as possible, people familiar with local conditions, and better able to speak on subjects interesting to the inhabitants of the various sections. I quite agree with this idea and believe in getting men who know the conditions better than the people from a distance; but in order to get a good idea of who can give these addresses, it is necessary that they should be brought out, and in that respect I might say there has been a great want of supplementary meetings during the year; there has been too much dependence placed on the Superintendent's ability to provide speakers. Some of the secretaries think it is the end of their duty when they call the meeting. It is a fact that the Institutes are required by the Act, besides the regular meetings provided by the Government, to have at least two supplementaries, and at these meetings the young and other people should be called upon to make addresses, and by that means we would develop local talent which is not now available, and is unknown and unavailable simply because it is not brought out. It is an injustice to the young and growing generation, as well as to those who are devoting their time to the subjects of interest to the farmer, not to give them a chance to make addresses in public.

We have one or two good local men. One of our best men is Dr. Tolmie, being considered so not only in British Columbia but in Canada. He is home-grown, and one of whom we should feel proud. I have emphasised this point of local talent in the past, and on every possible occasion urged the secretaries to hold such meetings and utilise local speakers.

My remarks may seem to be in the main of a captious nature, but I take it that it is my duty, in the first place, to lay before you the exact state of affairs in reference to Farmers' Institutes, and to point out the sins of commission and of omission before taking the opportunity, as I now do, of congratulating you, as representing the farming interest of the Province, on the decided advancement in methods since the inauguration of the Farmers' Institute system. Everywhere throughout the Province I find that instruction is eagerly sought after, and old methods are giving way to those which, by experience, have been found to be in the best interests of agriculture. The evidences of improvement are not wanting; we have only to look at our dairying and fruit-raising interests, two of the principal sources of our agricultural prosperity, to realise the fact that great strides have been made in those branches of agriculture. Other branches, some of them of less importance, have also received their quota of success.

The live stock interests, I am pleased to say, are receiving that attention which their importance demands. Mr. F. M. Logan, who is here to-day at your invitation, is a Dominion officer, who is attached to this Department, and who is particularly deputed to oversee the live stock interests. By natural evolution, it has come about that the live stock interests have been found to be of such magnitude and special interest that a segregation from the dairying interests has been deemed expedient. In view of this fact, a Live Stock Breeders' Association has recently been formed, and at the conclusion of this meeting a meeting of the old Dairymen's and Live Stock Association is called, with the object of winding up its affairs and organising a Dairymen's Association pure and simple, which I hope as many of you as possible will attend. A sale of live stock under the auspices of the first-mentioned Association is to take place at New Westminster on the 21st and 22nd of March, which will afford a fine opportunity for those desirous of obtaining pure-bred animals. I will ask you to give Mr. Logan an opportunity of addressing you during the Convention, and he will, I am sure, be pleased to enlarge on this subject. Professor Waugh is also here, and will be glad to say a few words when it is your wish to hear him.

In regard to the resolutions of the Convention passed last year, I have prepared the following memorandum :—

Adulteration of Food or Foodstuffs, page 483.—This was duly transmitted to the proper authorities, and answers have been received that the matter was being considered.

Additional Assistance to the Inspector of Fruit Pests, page 49.—In response to this, Mr. Cunningham was authorised to employ the required assistance. Mr. Cunningham has had a great deal of work to do at Vancouver and has proved a most efficient and zealous officer, and notwithstanding the fact that he has been deemed, as we all have at times, too zealous, there is no question about it but that the work done by him has been of a most beneficial character.

Releasing Dominion Timber Lands.—I brought this matter to the attention of the Dominion authorities and I have their answer as follows :—

"OTTAWA, July 7th, 1905.

"I am directed to acknowledge the receipt of your letter of the 16th ultimo, transmitting a resolution which was adopted by the Central Farmers' Institute of the Province of British Columbia at its last session, asking that clause 2 of section 10 of the regulations governing the granting of yearly licences and permits to cut timber on Dominion lands in the Province of British Columbia be repealed, and that the clause quoted in your letter be substituted. In reply, I am to say that this Department cannot see its way clear at present to meet the wishes of the Central Farmers' Institute.

"Your obedient servant,
"P. G. KEYES, *Secretary.*"

Indian Reserves, page 64.—This also was referred to Ottawa in the usual manner, an answer being received as follows :—

"OTTAWA, 15th July, 1905.

"Regarding Indian Reserves : It is not the custom of the Government to purchase from the Indians and then offer to the public. Acting as trustees for the Indians, the Government offers for sale to the public such part of the Indian Reserves as may not be needed by the Indians, and the funds thereby secured go for the benefit of the Indians.

"This, however, only applies within the railway belt of British Columbia. In the rest of the Province the Provincial Government claims final ownership of the lands in the Indian Reserves, should the Indians not require them.

"Yours very truly,
"FRANK OLIVER."

Conservation of Water, page 54.—This was referred to the Chief Commissioner of Lands and Works in the usual manner, but it is a matter that has not yet been taken up ; I think that during this present session there will be something brought in about it. It is a subject I feel very strongly on. The conservation of water should be taken up, but it is a matter that requires very close looking into. The Government is fully aware of the importance of the subject, and are quite prepared to deal with it whenever they see their way clear. It is going to be a big question.

Roads and Construction.—Referred to the Chief Commissioner and the Department at Ottawa. I never quite really understood why this was brought in in the way it was, but I did what was required.

Speed of Motor Vehicles.—Referred to the Minister of Agriculture and, I believe, was referred to the Attorney-General for his opinion, but whether any legislation is going to be intoduced this session I am unable to say.

Pork Packing, page 58.—Referred to the Minister of Agriculture, but was not considered advisable. It was intended for the purpose of amending the Farmers' Institute Act, so that the principle in force of lending sums of money could be extended to pork-packing establishments. However, the Government did not think well of it.

Bounty on Bears.—This was not considered advisable. Some people go so far as to say that bears are one of the assets of the country and should be preserved. At any rate, it was not considered desirable to place a bounty on them.

Fruit and Produce Exhibited for Sale, page 61.—The abuse, as far as possible, has been stopped; it cannot be entirely prevented, but it has been very carefully looked after by Mr. Cunningham, Inspector of Fruit Pests, and officers of the Board of Horticulture.

Entire Horses, page 65.—Referred to the Minister of Agriculture. I have spoken favourably on this resolution, and I think the matter may be taken up by the amendment of the Stock Breeders' Protection Act, which can be made to cover the point.

Use of School Buildings for Institute Meetings, page 66.—The assurance was given by the Minister of Education that in every instance where it was possible to be done, schools would certainly be placed at the disposal of Institute meetings.

Copies of Acts for Distribution.—This was referred to the Minister of Agriculture and has been carried out as far as practicable, but the printing is expensive. The hands of the printers have been pretty full during the last year. Which, therefore, to select and which to leave out is a matter of some difficulty. Some have been printed, and, so far as I know, these are the ones most wanted; but if there are any other Acts that suggest themselves to the members now, I would like to be reminded of them and I will bring it before the Minister and have them also printed, if possible.

One Bull to be provided for every thirty Cows or less, page 68.—The Government declined to interfere with a subject of that description.

Forest Reserves, page 68.—I took the matter up with the Minister of the Interior, who answered as follows:—

"OTTAWA, 15th July, 1905.

"Regarding the forest reserves, I beg to say that it is the policy of the Government to take such means as may be possible to prevent destruction of forests, either by fire or by wasteful methods of lumbering. As to setting apart forest reserves, I take it that the intent of the Farmers' Institute could only be served by such a reservation of coast timber, over which the Dominion has no control.

"Yours very truly,

"FRANK OLIVER."

This is a subject which will be brought up, so far as I know, at this session. It is one upon which I will be glad to give information. It is a matter which should receive very close looking into, and it is highly desirable that a reserve should be made of a large extent simply as a matter of endowment of an agricultural college, if nothing else. It has been found in the State of Washington that, with a reservation made some years ago, a college has been very largely endowed without any further expenditure by the Government.

Prohibition af Sale of Grouse.—Referred to the Attorney-General. Effected by legislation last year.

A Gun Licence.—Referred to the Attorney-General. It seems that this matter is generally thought very favourably of by people throughout the country, but our legislators did not seem to look at it in the same light. It is very difficult to bring in legislation on this point. It was attempted last year, but was not thought very favourably of in the House and so was not enacted.

Trespass.—Referred to the Attorney-General.

Noxious Weeds.—A number of recommendations were made and were largely discussed last year, which I took the opportunity of bringing before the Agricultural Committee of the House last Session, with a view of having the Act amended so as to make it workable. They did not recommend it to the House, however, and it was consequently not brought forward. I do not know their reasons.

The Noxious Weeds Act and Thistle Act.—The former is valueless; the latter is good enough as far as it goes, but it is very difficult to put into practice, as it is almost impossible to get anyone to undertake to enforce the provisions. It has been done partly by constables, but they have other things to do. Furthermore, very few people are able to tell the difference between the Canadian thistle and the ordinary kind, and this adds to the difficulty of enforcing the law.

Mr. Collins: If we do not get someone to take notice of this matter we will be run over with the Canadian thistle.

Poll Tax, page 82.—This was referred to the Minister but considered to be impracticable.

Excise on Tobacco, page 83.—This matter was referred to the Inland Revenue Department and the following answer received:—

"OTTAWA, 25th June, 1905.

"SIR,—I am requested by the Hon. the Minister of Inland Revenue to acknowledge the receipt of your letter of the 20th inst., transmitting a resolution respecting a modification of the present excise law respecting tobacco, which was adopted by the Central Farmers' Institute of your Province at its last session. The Hon. the Minister desires me to say that, in his opinion, the question is one which should be brought before the Tariff Commission when it meets.

"I have, etc.,
"W. J. GERALD,
"*Deputy Minister.*"

"OTTAWA, June 28th, 1905.

"SIR,—Replying to your letter of this date, I beg to state that the excise duty on unmanufactured foreign raw leaf tobacco is 14 cents per pound when stemmed, and 10 cents when unstemmed, and that there is no excise duty on raw leaf tobacco of domestic growth.

"The duty upon manufactured tobacco produced from foreign raw leaf is 25 cents per pound, while on similar tobacco produced from domestic leaf the duty is 5 cents per pound. On cigars produced from foreign raw leaf tobacco the duty is $6 per M., while on cigars produced from domestic leaf tobacco it is $3 per M.

"Should this information not be all that you require, I will be glad if you would communicate further with me.

"Youry very truly,
"W. J. GERALD."

Acting on the suggestion, I brought this subject up before the Tariff Commission and got practically the same answer.

Range Riders, page 85.—Is referred to the Government, but no action has been taken in the matter.

Inspection of Nursery Stock.—Mr. Cunningham has certainly been a most energetic officer and deserving of the utmost praise in that respect.

Tax on Dogs, page 86.—This was referred to the Minister, but was considered impracticable, the question being one the Government could not legislate upon.

Alberni-Comox Road.—Referred to the Chief Commissioner. I have not heard what was done in the matter, but I believe the surveys were taken last year.

Dominion Experiment Station.—The resolution was referred to the proper authorities.

Bounty on Crows, page 87.—It was asked that a bounty should be placed upon crows in those parts of the Province where they were doing an injury. You can see for yourselves it would be almost impossible to deal with the matter in that way. When opinions were asked as to the destructiveness of the crow, the answers given were of such a character that the Government could not consistently place a bounty on them. Although crows are a very great nuisance in some parts, there are nevertheless portions of the country where they are not considered so, some people going so far as to say they are actually beneficial. In the face of that, we therefore cannot very well ask for a bounty.

Assessment Act.—Some action has been taken in the matter.

Dairy Instruction, page 88.—I think, in view of the proposed arrangement for the segregation of the dairying interests from those of the live stock interests, and the appointment of Mr. Logan as Secretary of the Live Stock Association, with the idea that he will undertake in his spare time the inspection of dairies—if these arrangements are made, as the Minister stated, we will have gained something along this line. In any event, someone will be appointed to these duties before long, because their character requires something to be done,

since dairying is one of the most important industries we have to-day; and from the fact that we to-day import such a large quantity of dairy products, the subject is one to which we should give more attention than in the past. I hope that when the Dairy Association is formed on the ruins of the old one, this matter will be taken up.

Creamery Butter, page 89.—It was complained that butter was sold in this Province marked "Government Creamery Butter," to the disadvantage of our own butter, and it was asked that the matter be taken up by the Ottawa authorities. I referred it to Ottawa and the receipt was acknowledged, but what was done in the matter I do not know.

Mr. Collins: Nothing was done; they sent us more butter, that was all.

Minerals.—This was a resolution asking that samples of the minerals used by the Institutes should be furnished by the Dominion Department, and the following answer was received:—

"Ottawa, 11th August, 1905.

"Dear Sir,—Your letter of the 31st ult., addressed to the Honourable the Minister of Agriculture, Ottawa, has been transferred to me. I note that your Department in British Columbia will require about twenty-six sets of minerals which are used in agriculture. In reply, I beg to say that I will have pleasure in complying, as far as possible, with your request. It may, however, be some time before I can send the samples, as the gentleman who has charge of our mineral collections is at present away on field duty and will not return to Ottawa for some weeks.

"Yours faithfully,
"Robert Bell,
"*Acting Head, Geological Survey of Canada.*"

These have not yet been received.

Specimens of Injurious Insects, page 96.—Referred to Ottawa and the following answer received:—

"Ottawa, June 29th, 1905.

"Dear Sir,—In further reference to your letter in regard to the views of the Central Farmers' Institute concerning injurious insects, I have pleasure in stating that the Minister has instructed Dr. Fletcher to do all in his power to meet the wishes of the members of the Institute in this matter. Dr. Fletcher will communicate with you on the subject.

"Yours truly,
"Geo. F. O'Halloran,
"*Deputy Minister of Agriculture.*"

"Ottawa, 30th June, 1905.

"My Dear Mr. Anderson,— * * *

"By all means, I would get up as complete a list of B. C. plants as you can and publish it. The list of Lepidoptera would also be most useful to naturalists. The list got out by the Museum is comparatively useless; there are so many mistakes in it. E. M. Anderson did his best, but had not sufficient knowledge of the matter and did not consult those who had.

"I am putting up for you 25 specimens of the San Jose Scale, which I will send off within a few days.

"Of course, I shall be delighted to help you in any way in my power, and will discuss what I can do to help you when we meet. In the meantime, please notify all of your Institutes that I am entirely at their service and request them to send me promptly any insects that trouble them as soon as they appear.

"Yours very truly,
"J. Fletcher."

Seeds from Experimental Farm.—I received the following letters:—

"Ottawa, June 27th, 1905.

"*Seed Supplied by Central Experimental Farm.*

"Sir,—I have the honour to acknowledge the receipt of your letter of the 16th instant to the Minister, on the above-named subject, and embodying the remarks of Mr. Noble, a member of the Central Farmers' Institute, whose views and appreciation of the distribution of seed from the Central Farm are very gratifying.

"I am, etc.,
"Geo. F. O'Halloran,
"*Deputy Minister of Agriculture.*"

"OTTAWA, June 28th, 1905.

"DEAR MR. ANDERSON :—I thank you very much for your letter of the 16th inst., giving me a report of the discussion which followed the remarks of a member of your Central Farmers' Institute in connection with the seed distribution from the Experimental Farm; also for enclosing a copy of the communication you have sent to the Hon. Minister of Agriculture in this connection.

"It is gratifying to us to know that the farmers of British Columbia appreciate this work and that it has been of so much use to them. We are always glad to have the opinions of farmers relating to all branches of the farm work.

"With kindest regards, etc.,
"WM. SAUNDERS,
"*Director.*"

Co-operation, page 95.—There are quite a number of associations formed throughout the Province to undertake the marketing of produce and other matters in that line. Quite extensive powers are granted to these associations by Order in Council. Enquiries from Ontario as to how these associations are conducted; quite a compliment to have an older Province like Ontario looking to us for laws relating to co-operation among farmers.

That is about all I have to say on these matters. I am sorry I cannot, in some instances, give more definite information.

Mr. Heggie: There is a motion at page 62 introduced by my predecessor, in relation to the Rural Schools; have you any reply to that from the Government?

The Superintendent: No; there was no action taken in that matter and it was referred to the Minister of Education, and by him to the Superintendent of Education, who replied that the matter had been and was being considered at the time. I must have omitted that in looking over my answers.

Moved by Mr. Collins, seconded by Mr. Harris—

"That a committee be appointed to report on the Superintendent's address." Carried.

Mr. Heggie: I do not see any discussion on the Superintendent's address in last year's report. Don't you think we should have that discussion first? There are some matters in the Superintendent's address this year that ought to be discussed, and I think it would be quite in order to have the report of the committee on that address brought in as soon as possible.

Moved by Mr. Heggie, seconded by Mr. Metcalfe—

"That the report of the committee appointed to report on the Superintendent's address be brought in as soon as possible, so that the meeting might be able to discuss any matters therein, it may desire to consider."

The Chairman: I appoint Messrs. Redman, Whelpton and Peatt.

Mr. Heggie: Before putting the motion, it seems to me to be entirely out of order. I think the gentlemen who brought forward the motion ought to include in it the gentlemen who should be on the committee. It seems hardly the thing that the Superintendent should appoint the committee to report on his own address, and I think the mover of the motion should be the one to see who composes the committee.

Mr. Collins: I think we cannot do better than appoint the men the Superintendent has designated.

Mr. Redman: That seems rather a challenge.

Mr. Heggie: I disclaim any such idea. We are perfectly satisfied that the Superintendent will do what is fair, but it is only a matter of procedure.

Mr. Metcalfe: Such committees are generally appointed by the Chairman, but in this case it is all right to appoint them by motion.

Motion carried.

The Committee on Resolutions reported progress and asked leave to sit again.

Moved by Mr. Collins, seconded by Mr. Brandrith—

"That all resolutions be in by to-morrow morning, and that no resolutions be received after that time."

The Chairman: I do not think it well to bind members down too closely, but it is necessary that there should be some limit.

Mr. Collins: It was not possible to make a report last year, because resolutions kept coming in all the time.

Mr. Heggie: I support Mr. Collins. There is nothing to hinder these resolutions being brought in at the proper time. As the Superintendent states in his report, he should have had these resolutions in time to return them to the secretaries of Institutes so they could make themselves familiar with the subjects to be brought up. I second the motion.

Mr. Jas. Evans: I do not agree with the idea of shutting a man down, because points crop up through discussion requiring resolutions to be brought in, and if you put that motion you simply stop them.

Mr. Brandrith: I think the motion four years ago was that all resolutions should be in writing.

Moved by Mr. Brandrith, seconded by Mr. DeHart—

"That all resolutions be in writing and placed in the Secretary's hands before 10 o'clock to-morrow morning."

Motion carried.

Further Report of Committee on Resolutions.

10. Dog Tax—Messrs. Cleasby and Peatt.
11. Adulteration of Products—Messrs. Brandrith and McHardy.
12. Grant to B. C. Board of Horticulture—Messrs. McHardy and Carmichael.
13. School Act—Messrs. Wickersham and Randle.
14. Experimental Station—Messrs. DeHart and Robb.
15. Gun Licence—Messrs. Peatt and Carmichael.
16. Pure-bred Stallions—
17. School Bill—Mr. Wickersham.

Moved by Mr. Metcalfe, seconded by Mr. Brandrith—

"That the mover of a resolution have ten minutes to speak to his motion and the seconder five, all other delegates five minutes, and only once without permission of the Chairman, and the mover five minutes to reply." Carried.

Mr. Waugh, of Manitoba, was then introduced and addressed the meeting, speaking eulogistically of the prospects offering in British Columbia to the industrious man.

Moved by Mr. DeHart, seconded by Mr. Cleasby—

"That a hearty vote of thanks be tendered Professor Waugh for his interesting talk." Carried amid applause.

Stumping Powder.

The Chairman: The first motion is on the powder question.

Moved by J. R. Carmichael, Victoria, seconded by J. F. Collins—

"That the Government be commended for their endeavours to secure cheaper powder and we beg to urge that means be taken to carry the arrangements to a practical result at once."

Mr. Carmichael: I was appointed delegate at the annual meeting of our Institute and at the time the main subject was the powder question. I was asked to bring it forward here. Since that time the Government has completed arrangements with certain concerns, and, I believe, to a certain extent with the railway companies, to handle the powder in such a way that we can get the advantage of carload rates. Our Institute got notices to the effect that we could get a rate of 10½c. a pound if we could guarantee the Government that we would take up a carload within a certain time. Not necessarily our Institute alone, but it could be a group of Institutes. We ought to thank the Government for coming to such an arrangement. It was no fault of theirs that the arrangement fell through, and the only thing that remains is for us to work out the details so as to derive the benefit. The question is of very great importance to us, more so than to the Upper Country, on account of the heavier timber here.

Mr. Collins: This is the most important question that has been before us for some years. The Government is doing something for us, but I do not quite like the circular which came to us the other day. The Government has eleven months to consider our proposal. They sent this circular to us and the secretary was asked to get the names of the different members of the Institute requiring powder, and the quantity they would take. We are now half-way

through our powder season, and have no hesitation in saying that if the Government had purchased the carload at the beginning of the season we would have used it all and part of another. I saw the manager of one of the works, and he said they wanted a guarantee that a carload would be taken, and I do not think the Government should ask us in that short time to specify our requirements, especially as we all know farmers are so slow to move. Last year three carloads of powder was used by the farmers of British Columbia, and that should be sufficient guarantee to the Government that one carload will be used. I think we should form a society among ourselves to guarantee to the Government that we will take so many boxes. We used three carloads last year, and I think the same will be used this year. I would like to see a committee appointed to interview the powder company again, because we do not want to see the powder question dropped, and we must stick to it until we get what we want. The 60 horse-power machines for clearing land are considered economical, but they are impracticable in most districts. Stumping machines are very well in their way, but powder is more efficient.

The Chairman: The Government agreed to buy a carload of powder at the rate of 10½ cents per pound, and the Hamilton Powder Company agreed to deliver that carload in quantities to suit at either Nanaimo or Victoria, where they have magazines. I wrote the secretaries of the Institutes informing them of this proposition, and asking them to send a memo. of the quantity they would require, in order that the Government should be put in a position of knowing, approximately, the quantity needed, the farmers to make their own arrangements about transportation for the Upper Country. We had to approach the railway company for rates, and an answer was received that purchasers would be put in the same position as people taking a carload of powder at a time. Even with double first-class rates, the reduction to the farmer was material, as, for instance, 200 lbs. at the regular price in Vernon cost $34.20; 200 lbs. at price by the carload is $21; freight to Vernon, $8.16; total, $29.16. The difference between $34.20 and $29.16 is $5.04 on 200 lbs. On the lower Mainland and along the Fraser I suggested a small steamer or schooner to transport the powder right to their doors, while on the Island a quantity could be hauled to many points in waggons.

Mr. Phillips: I am very pleased at the movement in this direction, but I think our salvation is in co-operation. The season is pretty well passed now, but we could get right for next season. It is my intention next winter to try and get Langley, Matsqui and Maple Ridge to co-operate, and get as large an order as possible.

Mr. Metcalfe: As I understand it, we must order a carload before the Government will purchase that quantity; now, how much is there in a car?

Chairman: 400 boxes.

Mr. McHardy: Providing the different Institutes sent in their orders and they amount to a carload and a half, would the same rate apply?

The Chairman: I suppose they do not hold you to one carload. I understand the farmers were to pay the money down with the order, when placed with the secretaries. The money was to accompany the order when sent in to this Department, and those ordering would receive an order from the Department for the quantity required.

Mr. Robb: This is a burning question where I come from, and I desire to say that the powder should be supplied to us by the Government at $4 a box. This idea is quite in accord with last year's resolution, which says the Government should give a rebate of $1 a box, and I think the Government could, and should, bonus the farmers to that extent. I beg to move last year's resolution in amendment.

Mr. J. N. Evans: I may say that when the House met I did not know that the Minister of Agriculture had taken any steps in the matter; we had no knowledge that anything had been done, but I found out afterwards that it had been referred to the Lands and Works Department, and it was dropped there. The cheap powder question has been before the Institute for years. Last session it was much as at the present time; the season was over and we did not want it. We paid $7.15 per box for the powder we used last season, but similar powder can be bought in Washington at $4 per box. It is a burning question, and we want the Government to give it close attention. Enough orders can be got by next fall to effect a saving to the farmers. Just before I left I authorised our secretary to get these circulars printed (handing document). These were to be filled out and sent in, and I think this method, if carried out, would result in the Government being posted as to how much powder was wanted. In regard to stumping machines, I may say that we have one in Cowichan. My brother cleared up some 4½ acres in 4 days. Of course, there were no large stumps. He pulled

up these stumps, which were of all diameters, 5 feet, some of them. The cost was $20 a day for three men and the machine, and he furnished the rest of the men. At the same time that the machine is a success, we cannot get along without stumping powder. There is a difficulty, of course, with the machine, and that is the moving of it. It took three days to move it three miles. I think, however, that six horses could move it anywhere. The cost of the machine would be about $2,000. This may be out of the reach of the individual, but I do not see any reason why it should be out of the reach of the Institutes, any more than a creamery. There are lots of stumps to be taken out, and many of those already removed would never have been taken out otherwise. Nevertheless, it is my experience that we must use some powder.

Mr. Harris: We are just where we were last year on this question. When we left here at that time, powder was sent to us at $5.25 a box, by the Government taking a carload at a time. We have no better terms to-day, and I would like to ask why it took eleven months to find this out? We were to get some advice in a few days, or as soon as possible; that was decided here last year. Now, I do not know whether this thing is something like last year or not, but it has been put off too long. I do not see why the Government could not give us some word nine months ago just as well as now. It has been dragging along so long that it looks rather a doubtful question. If there is anything done, it must be here, because if the powder is not obtainable in small quantities it will be out of reach of the Fraser River people.

Mr. Vasey: I fail to see that the Government has done anything for us in this line. They tell me you can go to the manufacturers and get it at $5.25 a case, and the Government wants us to put up the money for a whole carload at once. I think the Government should do something to assist the farmer to remove the stumps. I consider that they should allow a rebate of $1.50 a box on powder.

Mr. Cleasby: We are not so vitally interested in stumping powder in my district as are the Island and Lower Mainland people, but still it is needed in certain quantities. It seems to me that the Government has done practically nothing, as we have to get the money in before it can purchase the powder. Why not go ahead and get the powder and then get the order from the Institutes? It will take six months; the money will be lying in the hands of the Government that length of time before the man gets any benefit from it. I would suggest that we co-operate and get the powder ourselves.

The Chairman: That is practically the idea. The farmers are to pay for the powder as they want it, at carload rates. It has never been contended that private parties could not get powder at the same price, but if the Government is to act as banker in this case, and has to pay the money, they want to know that the farmers will take at least a carload. Anybody can buy the same as the Government, only they go and buy carload lots and take delivery of it at once, while the Government pays for a carload and takes delivery of it in small lots.

Mr. Cleasby: There seems to be a misunderstanding between us. I understand that before the Government will buy a carload the different Institutes must, through their secretaries, order that quantity of powder and deposit the money therefor?

The Chairman: That is not so. I will read Mr. Robb's amendment:

"Whereas the Government has shown a desire to assist farmers in the clearing of land, by granting an appropration of $4,000 for the purchase of a steam logging outfit;

"And whereas the said appropriation has lapsed;

"And whereas practical experience has demonstrated that the use of stumping powder is absolutely necessary for the removal of the large stumps we have to contend with;

"And whereas the powder companies are willing to reduce the price from $6.75 to $5.25 per box, if purchased in carload lots;

"Now, therefore, be it Resolved, That the Government be urgently requested to purchase powder in carload lots, and also to give a rebate of $1 per box of stumping powder ordered through any Farmers' Institute in the Province of British Columbia."

I may say at once that a proposition of this kind will not meet with the approbation of the Government. In Mr. Cleasby's district the people are very much interested in irrigation; and naturally they say the Government should assist the inauguration of irrigation works. On the Lower Mainland the people are interested in dyking. In a timber country the people are interested in the removal of stumps. In other words, each locality has different interests and naturally seek to have the Government assist in overcoming the difficulties peculiar to that locality.

Mr. Dixon: You referred to the Lower Fraser. The Government has never been asked for a dollar for dyking the Lower Fraser.

The Chairman: I did not say that. I was merely illustrating the point, that different parts have different interests, and each wants to press its claim on the Government for recognition.

Mr. Phillips: If there is any chance of the Government giving a rebate we want to take advantage of that, and we also want better freight rates. The Government seems to have benefited one part of the Province and not the other.

Mr. Metcalfe: I have found through travelling over the country that the difficulty is the carload lot. We cannot get in any one district enough people to use one carload at a time, or two contiguous districts to get a carload at any season of the year. The season it is required is winter, because in summer we are too busy at other things. We would like to know if this can be bought in lesser quantities at the quotation for carload lots.

The Chairman: This idea of a carload lot was to supply the whole country.

Mr. Metcalfe: We find that the difficulty is to get the approximate amount of a carload lot. They would like in our district to get it in ton lots.

The Chairman: You can get a box at a time.

Mr. Metcalfe: But you have to guarantee to take a carload.

The Chairman: That is from the whole country.

Mr. Metcalfe: The difficulty is that you cannot get them in any approximate time to give orders approximating a carload. It would take six months to do anything.

Mr. Dixon: We are wasting our time. We asked the Government for cheaper powder; they claim that they have furnished us with it. We asked for it at certain prices; you take upon yourselves to oppose that, and we may as well withdraw. The first resolution doesn't say whether the Government answer is satisfactory or not, or whether it is cheaper powder or not. The Government doesn't grant one cent towards the transaction. We should be either allowed to put in a resolution stating what we really want or else stop.

Mr. Leeson: My district is more interested in this powder question than any other Institute. If I understand the Government's proposal aright, we are going to get cheaper powder. I have paid $7.55 a case, and I would be satisfied to get it at Nanaimo at $5.55 and pack it ourselves. Can we, at any time we wish powder, send an order, or go to Nanaimo, after communicating with you here, and get powder, though only two tons, at carload rates? We would like to get it all in the fall, as that is the only time we can use it. If we can do this I think we will be satisfied for awhile, as half a loaf is better than no bread.

Mr. Whelpton: I have been asked to find out if we could get half a ton and distribute along the line, and what the freight rate would be.

The Chairman: I thought I had explained that the price was at the magazines; the transportation must be at the expense of the purchasers.

Mr. Wickersham: There is nothing to hinder us combining to purchase a car, as we could get it as cheap as the Government can.

Mr. Metcalfe: As I understand this resolution, it asks to have this made effective as soon as possible, and then I understand there will be a carload at the disposal of the Farmers' Institutes, so that if I want a box I can order it. In other words, the Government act as bankers for the farmers in respect to stumping powder. Of course, there are a great many more interests will ask like assistance if we pass that resolution, but I think we should pass it nevertheless.

Mr. Randle: I do not see my way clear on this powder question yet. The Government proposes to help us as bankers, according to some speakers, but in my opinion they are not doing so very much, because we have to go around and find how much powder we will consume, send in an order, and forward the money for it to Victoria. Now, I believe a much better way would be for the Government to purchase a carload, amounting to about 20,000 lbs., and the secretaries would give their members an order on the powder works to purchase it in what quantities they wished, and the secretaries would receive their cash as they got the powder; and as soon as that carload was exhausted, the Government would step in and purchase another carload. That would suit my district perfectly. If we have to order enough for a carload we have no advantage; we can get it ourselves just as well as the Government can. This is the question I want decided: Will the Government buy that carload lot before one pound of it is purchased by the farmer?

The Chairman: Yes; that has been repeated time and again. As long as the Government is assured that a carload will be purchased they will buy it, and you can buy it from the Government—a box at a time if you wish.

Mr. Randle: That is satisfactory to me, but we have not so understood it.

Mr. Carlson: We live quite a piece away, and we are not very well acquainted where the magazines are, but it is clearing up, but the only point with me is whether the Government will buy a carload of powder before getting a single order. It was stated here a little while back that the Farmers' Institutes could use about three carloads a year. In that case the Government has no risk, and they could buy it and store it with the powder companies, and issue orders on the companies as the orders come in from the Institutes, and sell it to them at carload rates, and they run no risk in keeping one car on hand at a time.

Mr. DeHart: I am not particularly interested, but last year we went and interviewed the powder companies about this, and if I remember aright they promised to furnish powder to any members at carload rates, providing the Government went security. We were to send our orders to the Farmers' Institutes, through Mr. Anderson, and an order from him would get one box or two boxes at any time, and the Government did not need to pay until they got the money for it.

Mr. Jas. Evans: I think that any of those who were present last year will agree this question was threshed to pretty near a finish. We got all the facts and figures from both sides, and we brought forward a resolution, but as far as our Institute is concerned, the only satisfaction we got out of it was the information that the Government had decided to take no action on it. It is strange it takes them a whole year to do anything. They promised us to take steps immediately, and the steps, so far as my Institute is concerned, was that it decided not to take any steps. What did induce them to take steps later I do not understand, but five years ago they shipped a carload of powder to our section. It must have been a general election at the time, but what they intended to do with this carload I do not know, whether to bribe us or not. I think the proper steps would be that we find out why the Government cannot take the steps asked last year. If Mr. Tatlow has given this subject proper attention, they must do something. My instructions were to put forward the powder question as the main one in which our Institute is interested. I was told to get some satisfaction about it. It seems to me it would not be a great matter for the Government to go good for a carload of powder.

Mr. Heggie: The Institute I represent did not instruct me to bring up this subject, simply because it had been brought up so often without any consideration given it by the Government that they did not think it worth while bringing up that or any other subject. From reading the reports of the last five years, and from this afternoon's discussion, I can hardly congratulate the Government on their foresight. I am not in favour of this resolution.

Mr. Redman: There is a point of view that does not affect the Upper Mainland men. We have firms handling powder, but not stumping powder, and they are an uncertain source. Anyway we would not benefit, because we would pay very high for small quantities. We would be charged a very much higher rate than the C. P. R. charge Prior or Megaw. They sell 60 % at $10.25 per case, 40 % at $8.25; 25 % is stumping powder and would probably cost us somewhere about $7. We must make arrangement with the C. P. R. or the dealers, backed by the Government. The few stumps we have do not much matter, but up the North Thompson they are now getting outside the dry belt and are becoming interested in the powder. It is quite an intricate problem for the Government, but I think, under the circumstances, they are wasting time by carrying powder to the Upper Country; they had better make arrangements with the dealers.

Mr. McHardy: I think if the Government would do as suggested, or as they promised to do—get a special rate so we could ship, say, 200 lbs. at carload rates, I think this is about all they can do. The matter of bonusing is, as the Chairman has said, one that will provoke like requests from other interests. My district is a mining section and the miners are entitled to a bonus as much as we farmers are, and I cannot see why it would be fair to bonus one industry and not another. As I have said, I think if the Government will arrange for small quantities at carload rates, and if the minimum be fixed at 200 lbs. at first-class rates, it would be all we could ask.

The Chairman: That is the old vote; I think they will do better now.

Mr. Carmichael: There seems to have been a misunderstanding. I think that Mr. Anderson explained that the Government is ready to buy and pay for a carload of powder whenever

the Institutes say that it is desirable that it shall do so, and that the Institutes or their members, when they are ready, within a reasonable time, could get that powder in small lots, paying for it as it was ordered. We cannot expect the Government to put out money for us for six months or a year in advance. We want the powder and are willing to take it; the only question is in regard to the price. I think it well to urge that the Government be requested to keep stumping powder on hand at all times, and then supply it to the Institutes as orders come in. The Government will be able to supply powder to up-country points as well as to island points at a considerable reduction from present retail rates. We will find it impossible to get the Government to bonus us. This purchase of powder is a relief and we should grasp it now, and if in the future we can secure a further concession, then let us do so.

Mr. Jas. Evans: The reason I seconded Mr. Robb's amendment is that I did not believe in the farmers of this Province floundering around. We threshed this matter out thoroughly last year, and I consider it waste of time to discuss it now. We brought in that resolution and I went through my own resolutions and left out something to make room for this. This amendment is simply endorsing the action of the Institute last year. If we go on bringing in resolutions it gives the Government a chance to say that we do not know our own mind. There was one point raised here about mining. The conditions are not similar. The mining industry and the lumber industry will go down, but the farming industry stands permanently. The farmers are the backbone of any country, so that the circumstances are altogether different. The trails and roads cost a lot of money before any mineral production is possible. While I am opposed generally to bonusing, I think farmers should have their chance with others. This resolution is simply endorsing the resolution of last year. If the Government has done anything—but I do not see where they have—we should be thankful for it.

Mr. Harris: I have much pleasure in endorsing the last speaker's remarks.

Mr. Cleasby: The members of my Institute will be perfectly satisfied if the Government will arrange so that they can buy the powder at a fair rate, and I shall have to vote against the amendment.

Mr. Randle: It appears to me the amendment rejects the Government offer, and we are placed in the position we were in in previous years, and we would thus have nothing at all.

The amendment was lost. Original motion carried.

DEMONSTRATIONS IN PLANTING AND CARE OF ORCHARDS.

Moved by Mr. H. R. Phillips, seconded by Mr. Peatt—

"That as the fruit industry is of such vital importance to the country, and that we cannot impress too much on the growers the importance of keeping up the good standard now obtained, we respectfully request the Agricultural Department to appoint one or more practical men to give demonstrations and addresses during the present year in the planting and care of orchards."

The Chairman: I was authorised to get Professor Lake to speak at the Spring regular meetings, but he was unable to leave his present duties, though he hopes that he will be able to come over during the year.

Mr. Phillips: I am very pleased to hear it. My reason for this resolution is that the effort made by the fruit-growers some thirteen months ago to have certain members of the Association visit other members and assist them with advice and demonstrations in the care and culture of their orchards has not been successful. It was done in some instances and real interest was aroused and considerable help given, but it is necessary that the officials should take up the work in order to obtain the best results.

Mr. Metcalfe: Mr. Peatt is not hear to speak, and I want to give a little explanation. We know that Mr. Cunningham has not the assistance he should have and this would help him out. At our annual meeting at Vancouver the question of spraying came up, and also in particular to the No. 2 apple, and a good deal of discussion was evoked on this subject. The most effective agent we have is spraying, and our growers should be carefully instructed in how and when to do this to give the best results. At the Dominion Convention one of the most important questions to be referred to is the No. 2 apple. Some take the ground that we should not have a No. 2 apple, and it is likely friction will result between the Provincial members and the Dominion authorities if No. 2 fruit is insisted upon. This point demonstrates the importance of having proper instructors to instruct the growers. Another point is, the trees are becoming so large the spraying pumps in use now are to a great extent useless. The concensus of opinion is that the benefit of spraying is in the power more than anything else. It

seems to me that the Government should demonstrate the capabilities of the power sprayer, because the time has come when our larger orchards must have power sprayers. These cost perhaps $500 each, and they should be demonstrated in different parts of the Province by the Government, so that we could have the experience without paying for it individually. There should be an application made to the horticultural member for power sprayers operated by gasoline or compressed air, and the instructors should deal with all phases of the industry, from the inspection of the orchard down to the time the fruit is marketed.

Mr. Phillips: The sprayer I have cost me $22, and I can spray over the dome of this building.

Mr. Metcalfe: We are using the same pump, but we have got beyond it now.

Mr. Evans: I think it a move in the right direction, especially if it will furnish us with definite knowledge in regard to the fruit pests and enable us to determine other portions; so far the information has not been gathered generally. We know about the San Jose scale, but there are a lot of other pests we know nothing about. I think the question is to know when to use the sprayer, and it should be the duty of the Inspector to compel people to spray who would not otherwise, because what is the good of your spraying if your neighbour dosen't? They should make all people spray, no matter what it costs, and the expense of a few Inspectors is trifling compared to the cost to the country of the San Jose scale. There should be an Inspector in each district.

Carried.

Fruit Pest Inspector for Kootenay.

Moved by Mr. McHardy, seconded by Mr. Dow—

"That in view of the rapid increase in the planting of nursery stock and fruit trees and the extensive acreage of land under cultivation in the Kootenay District, the West Kootenay Farmers' Institute desires to urge upon the Government of British Columbia the urgent necessity for a resident Fruit Pest Inspector for the East and West Kootenay District, to be located at Nelson."

Mr. McHardy: I hardly think it will be necessary to take up much time in discussing this motion, as the necessity of having such an official is self-evident. As the Minister stated this morning, some 800,000 trees were planted last year; there will be many more this year, and as the industry increases the number of trees planted annually will also increase. I think in West Kootenay alone there willl be 200,000 trees planted this year. Mr. Cunningham is a good man, but it is impossible for one man to inspect such a quantity of fruit trees. One nurseryman put it this way: "I cannot cover these two districts to sell, let alone inspect." To give a slight idea of the importance of the inspection asked for, I might say that the Superintendent of the Dominion Inspectors stated that he had been down in the Niagara country, and where in previous years it required forty men and boys to attend to the fruit shipments, last year one man has done the work. This condition of affairs is entirely due to the pests, and we here ought to be taught how to protect our orchards from destruction and there should be some authority to make us spray or cut down old trees, or do something for the protection of ourselves and neighbours. The industry is so small and yet so big, and it is growing so rapidly, it is utterly impossible for one man to visit the entire Province, and it will be well to have some one appointed to take charge of these two districts, for what was farming is simply fruit-growing. It might be in place to say that my Institute instructed me to express to this meeting and the Government its appreciation of the services of the Government in its endeavour to promote the best interests of the industry, and to thank them for the valuable and practical assistance derived from the presence of the different experts who have been provided by the Department, and we also wish to thank the Dominion Minister of Agriculture for the prompt and courteous attention he has always given to the West Kootenay affairs.

The Chairman: Might I suggest that the words "located at Nelson" be left out? It would add strength to the resolution.

Mr. McHardy: Nelson is very centrally situated. Creston, Slocan, Lardeau, Boundary and Ymir are within easy reach of that point.

Mr. Metcalfe: All nursery stock is inspected and fumigated at Vancouver.

Mr. McHardy: I know that, but I have some orchards affected with pests now. We are not asking for fumigation at all, we are asking for instruction how to protect ourselves from the pests in the orchard. I am putting out 2,500 trees this year already, and next year those may be affected.

Mr. Metcalfe: Have you a sufficient quantity of trees to keep an Inspector there and make it worth while paying the man a salary?

Mr. McHardy: We are asking for two men. As regards the quantity, according to the Minister there were 800,000 trees planted last year, and there must have been 200,000 planted in West Kootenay, and that would be one man's work to look after these.

Mr. DeHart: Mr. Cunningham will want three men; we planted over 300,000 trees last year.

Mr. Dow: I think we absolutely need the assistance.

Mr. Jas. Evans: We cannot afford to sacrifice this fruit industry, no matter what it costs. There may not be one man in a thousand who knows it all, but we can learn something at any rate. I think we should pass this resolution, and I would be in favour of appointing Fruit Pest Inspectors throughout the Province.

Mr. Metcalfe: I do not think if you ask for them you will get them, but if you ask for assistance to Mr. Cunningham you might get it.

Mr. Heggie: I thought we had an assurance from the Minister this morning on this point, and that Mr. Cunningham had been instructed to get that assistance.

Mr. DeHart: That was a motion I brought forward last year, that Mr. Cunningham be instructed to get assistance and it was stated that he had been empowered to get assistance.

Mr. McHardy: I cannot withdraw those words. It will have to stand or fall the way it is. We have more than one man can look after, and we are working only for what we need.

Mr. Randle: I have trees on the Island that need inspection as well as the trees on the Mainland—more so, I should say, on account of the climate; the trees on the Island are more subject to disease than the trees on the Mainland, where they have not the same conditions. I consider it selfish on their part to seek to get an Inspector for that part alone. We will be perfectly satisfied if there was an additional Inspector to Mr. Cunningham and let him visit the whole Province, and if he cannot cover the ground we can ask for more assistance at a future meeting.

Mr. Wickersham: I do not think this question will pass; it looks too much like class legislation and discrimination. If we are going to appoint an Inspector for one district, every district will want one.

Mr. Harris: It appears a little one-sided to me to name certain places. If we took in the Province by asking assistance for Mr. Cunningham it would be right; it certainly would not be our right to station a man up there to do the business. I suppose the expense of travelling would be as much as wages or more, and it would not pay unless there was a great deal to be done. At any rate, I would not name any place; it looks too one-sided.

Mr. Dixon: I think these fruit men are asking too much. Government officials are very thick now, and I think if the Government would make us a grant of money it would be better.

Moved by Mr. Carmichael, in amendment, seconded by Mr. Phillips—

"That the immense amount of work entailed on the Provincial Fruit Inspector makes it imperative that more assistance be placed at his disposal, and that the Provincial Government be respectfully requested to provide Mr. Cunningham with the assistance required."

Mr. McHardy: It is only right, gentlemen, that there should be some provision made by the Province whereby the Fruit Inspector could be situated up there, instead of travelling up and down and taking up his time. The fruit industry will be one of the biggest industries in British Columbia in a few years if we look after it, and the man appointed to the position should live up there.

Original motion lost and amendment carried without discussion.

Moved by Mr. Carmichael, seconded by Mr. DeHart—

"That Mr. Palmer be tendered a request to attend the meeting to-morrow." Carried.

Adjourned until 10:30 a. m. to-morrow.

SECOND DAY.

Tuesday, February 28th, 1906.

Convention re-assembled at 10:30 a. m.

On motion, Mr. Thomas Cunningham and Mr. A. D. Paterson, Delta, were invited to attend the meeting.

Mr. Collins: The Committee on Resolutions beg leave to report progress and ask to be discharged.

Report received and committee discharged.

The Chairman: There is a resolution on the Public School question. I have communicated with the Minister of Education and asked him if he and the Superintendent could be present when this is brought up, as they could give all the necessary information as to the status of the question. I know nothing about it myself, and since the Minister is present we had better take up that question.

Mr. Jas. Evans: Are we to have an interview with Mr. Tatlow regarding the powder question? I feel it is very unsatisfactory to the up-country people. My instructions were to come down here and if I could not get satisfaction to come back home. I think the question should be re-opened. The resolution passed is very unsatisfactory to the up-country people, as it commends the Government for doing nothing. If they want to commend the Government, let them pass local resolutions. I cannot ask myself that it be re-considered but the mover and seconder can.

Report of Committee on Superintendent's Address.

Mr. Redman presented the report of Committee on the Superintendent's address, as follows:—

"We, your committee on the Superintendent's address, beg to report as follows:—

"The increase in membership is very satisfactory, but the attendance at the meetings during the year must be considered as unsatisfactory, and we urge that each Institute take up this question and make an effort to increase the interest in Institute work.

"We are of the opinion that more interest is now taken in lectures on fruit-raising and poultry-keeping, rather than in lectures on farming methods.

"We believe that the comments of the Superintendent on the neglect of Institute work are well-founded, and we would urge that the delegates make an effort to induce their Institutes to take up their work with more energy.

"We believe that the distribution of literature conveying instruction and information is much appreciated and is a very valuable branch of Institute work, and we urge that the printed matter be as widely disseminated as possible, abroad as well as at home.

"We believe that members should try to make the Institutes centres of social attractions and also a means of business co-operation for the purchase of seeds and live stock.

"We wish to record our appreciation of the interest shown by the Hon. R. G. Tatlow, the Minister of Agriculture, and Mr. J. R. Anderson, the Deputy Minister of Agriculture, in the development of the agricultural resources of the Province. The fruit-growing, stock-raising, dairying and poultry industries are developing rapidly, and we hope that the authorities will be encouraged to aim at still larger and more important achievements in the immediate future.

"All of which is respectfully submitted.

"John Redman,
"Arthur H. Peatt,
"Joseph Whelpton."

Moved by Mr. Metcalfe, seconded by Mr. Harris—

"That the report be received and adopted." Carried.

Provincial Dairy Inspector.

Moved by Mr. Webb, seconded by Mr. Redman—

"The meeting is gratified to learn that the Government intends to appoint a Dairy Inspector for the Province, for the development and inspection of dairies, and request that this appointment be made immediately."

Mr. Webb: This resolution was brought forward last year. I am very glad the Government is taking steps towards appointing Inspectors, and I would like to see this meeting indorse this work and request the appointment immediately.

Mr. Redman: I am very much interested, although our section has never been considered a dairying country. An Inspector did not consider it necessary to stop off at our town, but now a good many people are making butter and we need instruction.

Mr. Metcalfe: Would it not be possible to combine the office of Sanitary Inspector with that of Dairy Inspector?

The Chairman: That will be taken into consideration when defining his duty. All those things connected with dairy work come within his province.

Mr. Webb: Last year's resolution was:

"Whereas dairying has become one of the most important factors of agriculture in this Province;

"And whereas it is essential that the highest possible standard of quality of our dairy products may be attained, in order that we will be in a position to compete successfully with the imported products, thereby holding for ourselves the markets of the Province, to which we are justly entitled;

"Therefore, be it Resolved, That this Central Farmers' Institute urge upon the Government the necessity of the appointment of a thoroughly competent dairy instructor, whose duty it shall be to inspect all farm dairies and creameries, their equipment and utensils, and to give instruction where necessary in the proper care and handling of milk and cream, and their manufacture into first-class dairy products."

Resolution carried.

FORESTRY.

Moved by Mr. Redman, seconded by Mr. Cleasby—

"That the Dominion and Provincial Governments be urged to institute measures for the better regulation of timber licences and the cutting of timber in the dry belt, to the end that the volume and purity of the sources of water shall not be impaired,"

Mr. Redman: The reason we are bringing this up is that the great development in the lumber industry in what is known as the dry belt makes it desirable that some steps should be taken to protect the sources of the water supply. Up to a short time ago the dry belt timber was not considered of much commercial value. Now, however, they regard it in a different light, and the timber at the headwaters of the rivers is being taken up and lumbering carried on. While there has been a good deal of talk in regard to the appointment of proper forest arrangements, we do not want to interfere with the lumber interests, but simply to ask that the two Governments take up the matter and impose proper restrictions on the lumbermen. Fires follow the lumbermen, and if the banks of the creeks become denuded, the Lower Mainland will be subject to greater floods. Lumbermen naturally do not want restrictions now, although it would be beneficial later. I am sure that our Lieutenant-Governor here, Sir Henri, is very much interested in it. It is getting very near the time when something must be done. In the States to the south of us the streams, instead of running fairly well during the summer, owing to the dense growth on their banks, now go down in one large freshet and the country is seriously injured. On Jameson Creek the land is divided into 300 small holdings, all occupied by new settlers. If the water supply is injuriously affected it will do more harm than the value of lumber obtained from the forest. As I said before, I do not want to interfere or stop lumbering, but we do want to have some restrictions that will safeguard agricultural interests and prevent the devastation of immense areas by fires, that leave us nothing but burnt trees, offering no protection against the intense summer heat.

Mr. Cleasby: I have much pleasure in supporting Mr. Redman's contentions. He has left me little to say. One thing, however, I could say, that since I have been in my section, 18 years now, the denudation of the banks of the creeks by the removal of the timber lets the snow go off with a rush, and these freshets cover the valley lands with boulders, timber, rocks and débris. I know of two or three places almost destroyed by these freshets. The question of water supply and its conservation is a very serious one with us, and anything that makes for the preservation of the water source of supply should meet with our heartiest approval. We wish to protect the higher lands from indiscriminate cutting and slashing.

We ask that the lumbermen shall cut only such trees as are suitable for logs and that they should not wantonly destroy other timber. We should also like some protection that will prevent the denudation of the hillsides by fire, which leaves thousands and thousands of acres bare and rendered absolutely useless.

Mr. McHardy: Does that include the payment of rangers? The question does not affect my section particularly as yet, but the yearly forest fires do. The railway is responsible for a good many of the fires, and the C. P. R. is quite prepared to fight any lawsuit in preference to putting on spark-catchers. I know instances up there of immense fires having been started by the C. P. R., but it is pretty hard to prove in a court of law. I would like a clause put in asking for the appointment of rangers to protect all sections.

Mr. Metcalfe: The motion necessarily leads up to that.

Mr. J. N. Evans: The "Bush Fire Act" should be enforced, but it is left to half a dozen different officials and so nothing is done. If they should confine the administration of the Act to some special officer, something may be accomplished. It is provided that there shall be spark-catchers on the engines, but I do not think there is any inspection of the engines to see if these are on.

The Chairman: These resolutions must necessarily apply to both Governments, and I would suggest that that be taken into consideration; you should say "Dominion and Provincial Governments."

Mr. Redman: Will you add that in, please?

Which was accordingly done.

Mr. Dixon: The "Bush Fire Act" seems to cover the point pretty well. I think, if we enforce the law as we have it, it would be all right; if we cannot enforce the present law, what is the use of asking for another?

Mr. Jas. Evans: If the Act were enforced it would be all right, and if the Dominion Government enforced the regulations it would be all that is necessary. In my own particular section 100 men were employed in fighting fires, and their jurisdiction extended over 20 miles. The whole country was on fire for a time, and finally the men quit trying to put out the fires, and after that there were no more broke out; so I concluded it was the fire fighters who were starting these fires.

Mr. Redman: I might say that what is wanted is a better inspection of timber limits and some restrictions to prevent so much waste and to prevent them from cutting, in some years. The Provincial Government has declared the Upper Fish Creek a reserve for the presevation of water, but the Dominion Government, which owns a greater part of the dry belt, is not assisting in this work. The C. P. R. objects to spark-catchers but is providing men to fight fires. Let us show both Governments that they have our support in this matter.

The Chairman: There is no question about the importance of timber in the preservation of the sources of the water supply. I have just had a conversation with the Superintendent on the irrigation scheme projected at Kamloops, and he emphasises the important bearing that timber has on the water question and deemed it a most important factor.

Motion, as amended, put and carried.

Endowment for an Agricultural College.

Moved by Mr. Collins, seconded by Mr. J. C. Metcalfe—

"Whereas it is of the greatest importance to the agricultural interests of the Province that a system of education in the science of agriculture should be inaugurated: And whereas no provision has been made for such a purpose;

"Be it Resolved, That the Government be asked to make a reserve of forest lands for the purpose of an endowment for an Agricultural College."

The Chairman: I suggested this resolution to the mover and seconder. Last year I met Professor McLean, Director of the Idaho Agricultural College, Moscow. He was visiting here on his Canadian trip and asked what had been done regarding a reservation of forest tracts for the endowment of an Agricultural College. He volunteered to come over here if desired and give all the information at his command. He stated that some years ago a large reservation was made in the State of Washington and it is now of immense value, and that the college was now richly endowed at practically no cost to the State.

Mr. Collins: I think that although the words have not been spoken before, the sense of the resolution has been before us more than once. We talked once of a tract of land being set

apart for educational purposes. Now is the time to arouse interest in the endowment of an Agricultural College. We have large tracts of land in the Province, obtainable without expense—lands now in the hands of the Government. With new settlers, railways, etc., in a few years lands worthless at the present time will be worth thousands of dollars. In this way we can secure an endowment without expense.

Mr. Metcalfe: It is not necessary to say anything in support of the motion; it commends itself to all here. The very fact that our Province is taking an interest in university work in connection with an Agricultural College points the necessity for an endowment for the college. It is a pity it was not brought to the attention of the Government earlier in the history of the Province. I have great pleasure in supporting the motion.

Carried.

RECONSIDERATION OF RESOLUTION ON STUMPING POWDER.

Moved by A. H. Peatt, seconded by W. R. Robb—

"That the resolution with reference to powder be reconsidered."

Ruled out of order.

Moved by Mr. Metcalfe, seconded by Mr. DeHart—

"Resolved, That the reconsideration of the powder question be taken up at the end of our session."

Mr. Redman moved in amendment, seconded by Mr. Wickersham—

"That the Chairman request the presence of the Minister of Agriculture, and that we re-open the powder question whenever he is able to attend." Carried.

GLANDERS.

Moved by Mr. Vasey, seconded by Mr. Carmichael—

"That whereas the present system of testing horses for glanders is unsatisfactory to the horse owners of this Province;

"Be it, therefore, Resolved, That the Honourable Minister of Agriculture be and is hereby requested to discontinue the present method of testing with mallein test; that no horse shall be subjected to the mallein unless and until clinical or outward symptoms have developed to indicate the disease; that inspection be made periodically by Government vets. for clinical symptoms, and that quarantine stables be established where necessary for animals showing clinical symptoms of glanders, then to be as thought best by Government vets.;

"That copies of this resolution be forwarded to the Minister of Agriculture and to each B. C. representative in the Dominion House."

Mr. Redman moved in amendment, seconded by Mr. Cleasby—

"That the Dominion Government be urged to increase the staff of veterinary surgeons, to the end that a more effective attempt be made to stamp out the disease of glanders in the infected parts of the Province, and that the following regulation be made:

"Horse owners be allowed a second mallein test without surrendering right to compensation; the Government to pay two-thirds the value of every horse."

Mr. Vasey, speaking to his resolution, said: I was instructed to bring this forward. It is practically the same resolution as that passed at a public meeting in Vancouver a short time ago, and I would like to hear Dr. Tolmie's opinion on it, after which we will be better able to discuss the matter. It has been the opinion of our people that this test was not as reliable as it was supposed to be, and also that glanders is not as catching as supposed. I have had the opinion of a veterinary that glanders is not supposed to be catching until there are outward symptoms, and we do not think it right that the test should be applied until clinical symptoms develop. The Government has now been about five months testing the City of Vancouver, and they are not through yet. There are no quarantine regulations and horses are allowed to go everywhere. One livery man brought horses over here that were not tested and who might have spread the disease all over Vancouver Island. There should be some quarantine regulations. Another thing, if the Government is to test all the horses it would cost a lot of money, as they must have more men than they have at present. If they will do as suggested in that resolution, go over the country and inspect for clinical symptoms, and if the horse is suspected place it in quarantine until they are sure, it should prove a

better way. I do not want to see horses killed that have not the glanders for sure, but I do not think there is a man here who would not want his horse killed if it be found infected; but I do not want my horse killed on suspicion.

Mr. Carmichael, seconder, said: In seconding this I took into consideration, besides the veterinarian point of view, the position of the Province and the men who are in the horse business and employing horses throughout the country. I think, from scientific research, there is no doubt that the mallein test is as certain as almost any other of these bacterial tests. I do not see any doubt at all on the efficacy of the test, but, as Mr. Vasey says, there is a doubt. There is no doubt that where this disease of glanders exists it seems to have been lying dormant in horses for a long time without being visible externally, except in a few cases, and I think any uncertainty on that point the horses should be given the benefit of the doubt, because horses are like human beings, and in many diseases will not give off the infection until a certain stage has been reached, and these horses might recover. To take another point of view: We are dependent to a very large extent for our living on the horses. If these tests are to be made throughout the Province and the Province declared to be rotten so far as the horse is concerned, what is to be the result? If out of the total number of horses—I do not know how many there are, possibly 50,000, perhaps 100,000 horses—there are 50,000 declared unsound; and if the Province is to foot the bill for two-thirds of the value of the infected horses, how are we to conduct the agricultural and commercial business of the Province if the law be strictly executed? We are going to be plunged into a very heavy expenditure. I think, taking everything into consideration, that the motion should be carried by this meeting.

Mr. Redman, speaking to his amendment, said: This is a very serious question in the Upper Country. Mr. Carmichael makes an error in discussing the motion, because it is not a question for the Provincial Government, but for the entire Dominion. If this disease is to spread to 50,000 horses, what good is it going to do to test only a few here and there? If they are going to do it at all it should be thoroughly done, because it is better to stamp it out at once and keep it off the ranges. Ranges are healthy now. One diseased horse would infect an entire range. The mallein test was discovered as far back as 1883, and a series of experiments were conducted in France. That country raises finer and more horses than any other country, and the result of those experiments has been the endorsement of the mallien test. It is known that no horse ever contracted the disease and recovered, and that it is fatal to man, and we ask for more energetic measures for stamping out the disease.

Mr. Cleasby, seconder of the amendment, said: The question is one that affects us vitally, because there are more horses shipped from the Yale District than from all the rest of the Province put together; although the individual horse may not be as valuable as a race-horse, yet the aggregate represents a large amount. There were about 5,000 horses shipped last year from Kamloops, Ashcroft and elsewhere in the District, and I was informed last night by a resident of Kamloops that, out of a large number of horses shipped to the Coast, not one exhibited any sign of glanders upon being subjected to the test. Some of these were from my own district, and that is why we want the mallein test enforced as strictly as possible. There is no glanders on the ranges; we do not want it there; if it comes there it will ruin the country. There are thousands and thousands of horses there that will have to be destroyed if the disease comes there. Some of these horses cost three and four times their value to bring in. Another thing, we have a large market for our horses in the North-West, and if our ranges ever become infected, the Dominion Government will enforce quarantine regulations against us, and we will be seriously handicapped. While I am giving my views as representing only one section, it is not a sectional question, and everyone should give expression to his opinion.

Mr. Metcalfe: The concensus of opinion is in favour of the mallein test. Ninety per cent. of the tests are reliable, and very few exceptions are found. I do not see why we should ask for a suspension of the test. I do not think that the compensation question is vital, as the amount now covers the cost of an ordinary horse, although in the case of blooded animals the compensation might be raised.

Mr. DeHart: Let us hear Dr. Tolmie.

Dr. S. F. Tolmie, V.S., Provincial and Dominion Inspector of Animals, was then introduced by the chairman and made the following address on glanders:—

I would far rather answer questions, as I think I could give more information on the subject, but as regards Mr. Vasey's resolution, if this system of destroying only those animals that show clinical symptoms were adopted, we would find it far from satisfactory. It was found to be unsuccessful in London during the ten years from 1894 to 1904. They adopted the system of going into a stable and making an examination of every horse in it, destroying the clinical cases, but not touching any of the contact horses. After using that system for those ten years, they found that in the year 1904-05 there were about double the number of horses killed for the glanders than in any previous year, with the exception of the two previous years. The London Board passed a resolution asking the Board of Agriculture to make regulations of a more stringent character. They said: "We want to make a success of putting down the glanders in Great Britain, and to do so we will require the following three regulations enacted:—

"1. That veterinarians be compelled to report all cases of glanders.

2. "That inspectors be empowered to test all contact horses."

The contact horse may be considered to be: Suppose we went into a stable containing 15 head of horses and found two cases of glanders, all the rest would be considered contact horses, for the reason that they have been exposed to the infection either directly by exposure to a diseased animal or indirectly by means of stable utensils, harness, water troughs, etc.

3. The third provision they asked for was a legal recognition of a reaction to the mallein test as diagnostic of glanders, whether the animals showed clinical symptoms or not.

They claimed that these were the least regulations required in order to eradicate the disease in the City of London.

The mallein test was discovered by a Russian, in the year 1891. This test has been carefully experimented with by all the principal Governments of Europe since that time, and it is now considered beyond the experimental stage. Before the regulations at present in force in Canada were adopted, the matter was carefully looked into by the Veterinary Director-General, Dr. Rutherford, who is a most capable man and recognised all over this Continent for his ability in the veterinary profession, and who is no doubt seeking to do the best for the country. After this careful investigation and employing every means to compile information on the subject, these regulations were adopted a year ago last September. Previous to that, when an animal reacted but showed no clinical symptoms, it was re-tested the second and the third time, and if he ceased to react to the test he was branded on the left foot and released, and was known as a "ceased reactor." They found that these ceased re-actors frequently showed clinical symptoms of glanders within six months or a year after having ceased to react the last time; and in some instances serious outbreaks were started through their introduction into healthy stables.

It is a well-known fact that while mallein has not been proven to have a curative effect on the disease, it seems to suppress it where frequently injected. Again, an animal will cease to re-act, but on being re-tested at the end of six months or a year will react as strongly as ever. This, with other evidence we have in hand, shows that a horse, although showing no clinical symptoms of the disease, is often a dangerous source of infection. We have had a good illustration of this in the Boundary country within the last few months, where three horses were sold on to three different farms. These horses exhibited no clinical symptoms of the disease, but within six weeks they had an outbreak on each of these farms. On the mallein test being applied to the band, these new horses, while they reacted fully to the test, still showed no external evidence of glanders.

Now, as regards the compensation paid for glanders in Canada, I think it will be found upon investigation that it is the higest paid in the world. The value of an ordinary horse is taken at $150 and a pedigreed horse at $300. Two-thirds of this is paid as compensation where the animal is worth it. Now, while this seems, perhaps, to be a small sum to be paid for a pedigreed horse costing two or three thousand dollars, still, when you take into consideration the fact that a horse once condemned for glanders is valueless in the market, the compensation does not appear so small. It must also be borne in mind that these horses are destroyed and the Government, of course, realises nothing whatever.

Regarding the question as to whether the application of the mallein test introduces the disease into the system, a description of how the mallein is prepared will show that it is absolutely safe in that respect.

The culture medium employed is glycinerated boullion, which is distributed in suitable flasks and inoculated with the growth from a pure culture of glanders bacteria. These flasks

are placed in an incubator at a temperature of 37° C., and allowed to remain there until the growth ceases, the length of time necessary to accomplish this depending upon the condition of the culture from which the inoculations were made, but from four to ten weeks are usually required. After the maximum growth is attained, the cultures are sterilised by either boiling in a closed water bath or heating to a higher temperature in an autoclav. The cultures are filtered after sterilisation to remove all the dead bacteria, and the filtrate is then evaporated over a water bath to the desired degree. They then pass the concentrated liquid through a filter, either a Pasteur or a Berkefelter, and standardize, bottle and label it for distribution. The perfect mallein is clear though it may vary in colour, but it is rejected if cloudy. All this work is performed in the Government Biological Laboratory at Ottawa, and the most scrupulous care is exercised in the process.

You will, therefore, see that from the method of preparation mallein cannot possibly contain living glanders bacteria, since it is on two occasions heated to a temperature and for a length of time far beyond what is required to destroy them, besides being passed through a filter capable of removing all bacteria.

In applying the mallein test, the greatest care is used, the instructions sent from headquarters at Ottawa being followed to the letter.

We look for three distinct reactions, one or more of which may be manifested. The first is a large, painful, and increasing swelling at the seat of inoculation; the second is a marked rise in temperature; and the third is a general dejection, loss of appetite, stiffness of the limbs, and a marked depression. Should the temperature of the animal be abnormal it is not tested then, but is tried again in a few days. Two temperatures are taken before inoculation and five afterwards. In the case of an animal exhibiting a re-action that is not satisfactory but still suspicious, he is re-tested at the expiration of from 14 to 20 days, and no animal is destroyed unless the reaction is perfectly satisfactory. All cases of doubt are given the benefit of the doubt and re-tested again. If a horse has no glanders there will be no well-defined reaction.

Referring again to the question of infectiousness and the statement attributed by one of the delegates to a veterinarian that the disease was not infectious unless a well marked discharge was present, this statement is not borne out by experience, as demonstrated by the instance given of the horses in the Boundary, and also by the ceased reactors in the North-West. Let us see what has occurred in other countries where careful inspection has not been carried out.

In certain parts of the North-West Territories, where only a few cases were found a few years ago, the disease has been found to have increased to a marked extent. In the early part of the nineteenth century, in France, the contagiousness of the disease was doubted, with the result that all regulations regarding it were abolished. The disease increased to an alarming extent, and the ill-effects of this action are evident in that country at the present time.

In parts of Quebec, where the disease existed in a mild form a few years ago, it has shown itself in a very virulent form during the last year or so, one lumbering firm having lost 50 head by deaths in one year. An Inspector was sent to this district. He went into one stable and found that out of the 38 horses kept 37 were diseased. They all gave good reactions except one, and that one he discovered, upon inquiry, had just been brought into the stable. The Inspector went down to a church and examined all the horses tied up there while their owners were at service, and he found almost all of the animals infected. The farmers there were only too anxious to have their animals destroyed and take their compensation.

It would be deplorable to have here conditions similar to those described, or to allow the disease to gain any appreciable foothold. So far, we have not had a strictly range horse affected by the disease. We have had animals said to be range animals react, but upon inquiring into their past history we discovered where they had been exposed to the disease either in some infected stable or in contact with a diseased horse.

As to the claim that the owner should be permitted to re-test an animal once tested by the mallein test but showing no symptoms of the disease, I might say that mallein is no longer considered an experiment. Before this test was introduced into this country in connection with the present regulations this matter was fully gone into, and a reaction to the test considered diagnostic of glanders. You can readily see that if an experiment was carried out with each animal tested it would mean a great deal of work without any good being done. Our present system of applying the test in British Columbia is to apply it only where the

Inspector has reasonable grounds to suspect that glanders exists. We do not intend to test every horse in the country. It can be readily seen that that would be an impossibility. Our idea is to follow up the disease where it exists and to eradicate it.

With regard to the influence of climate on glanders, I might say that we get just as good reaction in the Okanagan Valley as we get on the Coast. We have examined horses on farms where we got no reaction whatever, and taking it into consideration that we have range horses not affected, it would seem a great pity to allow the disease to extend until it becomes general throughout the Province. I do not see that by putting off the inspection, or by avoiding issues, we are going to improve matters. While we may become idle, the glanders will not, and if the inspection work is relaxed, the disease will be bound to increase to a very great extent, as the history of outbreaks in other countries has shown already. After studying the matter very carefully, I do not think that any half-way measures will be efficient.

With regard to the symptoms, the disease usually shows itself in a chronic form, the symptoms exhibited being a glutinous discharge from one or both nostrils, which is inclined to stick about the nose. On making an examination of the lining membrane of the nostrils, we find little nodules and ragged-edged ulcers. Sometimes several of these run in together, and sometimes they will break down the partition between one nostril and the other. In well-marked cases, the discharge from the nose is often of a bloody nature. We find an enlargement of the glands situated between the jaws, which are hard and appear to adhere to the bone. In rare cases they may form pus. In the farcy form of the disease, we find abscesses formed in different parts of the body, particularly along the course of the lymphatics, on the inside of the leg, down the neck, and on the head, although they may appear on any part of the body. One of the symptoms also is a chronic enlargement of one or more of the legs.

A horse may last for weeks, or even years, in the chronic form. In the acute form we have the symptoms as described above, but also great dejection and high fever, the animal usually dying in about 15 days. The acute form is more prevalent among the ass tribes than among horses.

Some cases of glanders show no external symptoms whatever, and it is in such cases that the great value of mallein is recognised. It is impossible for the disease to originate spontaneously. The usual source of infection is the introduction of a diseased horse into a healthy stable, or from harness, stable utensils, curry-combs, drinking troughs, etc.

It is impossible to have glanders develop from distemper. The only possible way of contracting the disease is by the introduction of the glanders germ into the system. The disease is easily communicable to man from an infected horse, and usually results fatally.

Cattle and fowl are entirely immune. Some horses do not seem to be susceptible to the disease. In an experiment carried on at Pullman, Washington, a healthy horse was placed with three glanderous animals and compelled to eat out of the same manger and drink out of the same trough. After keeping him there for several weeks he was tested with mallein, but did not react. On a post-mortem no signs of the disease were found. (Applause.)

Adjourned until 2 o'clock.

Afternoon Session.

The meeting was called to order at 2 p. m.

The Chairman: These two motions were before the meeting previous to adjournment—Mr. Vasey's, seconded by Mr. Carmichael, and an amendment by Mr. Redman, seconded by Mr. Cleasby, on the glanders question. Now that we have heard the very lucid explanation given by Dr. Tolmie, I think we are all in a better position to judge of the merits of the two resolutions than we were before.

Mr. DeHart: There is a certain clause in the amendment I would like struck out—that in all glander tests a second chance be given to all horses doubtful, such test being ten to fourteen days after the first test. That would be only asking for another test. If these words were struck out, "horse owners be allowed a second mallein test without surrendering right to compensation," I think that the amendment is quite satisfactory.

Mr. Jas. Evans: If you put that in the form of an amendment I will second it.

Mr. Dehart: I will put it in that form.

The Chairman: I think, with the consent of the mover and seconder, the words can be struck out.

Mr. Redman: I may say I am willing that they be struck out. I think, after what Dr. Tolmie has explained, we would really weaken that resolution instead of strengthening it, by having it kept in.

Mr. Cleasby: I am agreeable also.

Mr. Vasey: With the consent of my seconder, I wish to withdraw my motion, after hearing Dr. Tolmie's able address this morning. I do not think that, after what he said, any of us will wish that resolution to go any further; so I wish to withdraw it.

Mr. Carmichael: I think Dr. Tolmie's explanation warrants us in withdrawing our motion; I quite acquisce.

The clause referred to by Mr. DeHart was struck out by consent, and the Chairman put the resolution as follows:—

Moved by John Redman, seconded by H. Cleasby—

"That the Dominion Government be urged to increase the staff of veterinary surgeons, to the end that a more effective attempt be made to stamp out the disease of glanders in the infected parts of the Province and that the following regulation be made: The Government to pay two-thirds the value of every horse."

The resolution was carried.

Extinguishing Bush Fires.

Moved by C. Carlson, seconded by H. S. Cleasby—

"Resolved, That in order to successfully cope with bush fires, after such have started, we recommend that the Government appoint a person with authority to compel people to assist in extinguishing such fire, and that the Government be asked to set aside a fund for the payment of such service."

Mr. Carlson: By consulting the Statute I can find no provision made for the extinguishing of forest fires after they get started. We had some experience with fires in our locality last year, and it is the lessons that that fire cost us that caused our Farmers' Institute to pass this resolution at our meeting, and I was asked to bring it before this Central Institute, to see if we could not have some provision by which people could be compelled to fight fires in their incipiency. To illustrate what I mean, I may tell what happened in Bella Coola last summer. There was an old bachelor there who was engaged in clearing land, and he had started a fire at the dryest time of the season; a wind springing up, the fire got beyond his control and got into the bush. It was running along the mountain sides for a long time; it did not threaten anybody exactly; of course everybody was busy with his own affairs, some out fishing, some attending to their farm work, and nobody had any time to spend for a fire that apparently was not going to hurt anybody anyhow. Well, it ran along like this for three or four weeks, and one afternoon, no rain having come in the meantime and everything being as dry as tinder, a high wind sprung up; the fire got down on the flats again and it spread very fast. Everybody turned out then in the neighbourhood, but there were very few; they saved two houses, and then it ran along past there, and they didn't think it was running as fast as it did; it seemed that it ran just about as fast as a person could run for a short distance, and the first thing we knew there was a farm-house and all out-buildings and everything they owned burnt up. We think that such a calamity as that could have been prevented if there had been some provision made in the Statutes by which somebody in authority could have called the people out and compelled them to fight that fire while it could be fought, so that it would not spread as described. We have in that locality a Government official who holds a position as a Provincial constable, and we think that if he were given power or authority to call the people out, make them come out, leave their own work and fight fires, it might not probably take them much more than a day or two to put that fire out, and it would have saved all this damage. And it is for that reason that we have introduced this resolution. And we hope that if the resolution may not be followed out in its present construction, that some measure may be taken to carry out the intention at least of the resolution. (Applause).

Mr. Cleasby: I have much pleasure in seconding the resolution. I have seen fires started and seen them sweep over large expanses of timber country, and sometimes over roads, burning fences, and over farms, even in the winter time. And I think the authority asked for could be given to the Government official in charge of the district, and is very much needed. If

prompt action is taken in those cases when a fire starts, it wont cost very much to put it out, whereas if it is left to run unchecked it may destroy hundreds of thousands of dollars' worth of valuable timber, to say nothing of the property of private persons.

Mr. Dixon: Do you think the Government has power to compel men to do anything like that? We all quite admit the necessity of private individuals turning out for anything of that kind. The Government can ask them to aid and pay them to go, but to compel a man to do anything, I do not think the Legislature have power to do it.

The Chairman: One would imagine that in their own interests they would do it.

Mr. DeHart: I may say, on the contrary, the Government has power to make the people go out and do it; and I have seen them brought right out of church and fight fire to save a town. I do not agree with the idea of asking the Government to pay men for protecting their own property. I think in a neighbourhood where a fire is started, some official ought to have authority to bring people out and make them fight the fire.

The resolution was carried unanimously.

EXPERIMENTAL STATIONS.

Moved by F. R. E. DeHart, seconded by W. R. Robb—

"That the Dominion Government be requested to establish Experimental Stations on Vancouver Island, in the dry belt, and in the Kootenays, and that the representatives of British Columbia in the House of Commons and in the Senate be requested to use their influence to have the same established."

Mr. DeHart: I may say that I had a resolution ready for an experimental farm in the dry belt; then it was pointed out to me by Mr. Brandrith that it was better the wording should be changed, and not say experimental farm, but experimental stations, and to divide them over more country. There are a good many here who are aware of the condition of the experimental farm that is now at Agassiz. I am sure it is not of much use to anybody even in the wet belt, let alone in the dry belt. And as the fruit from the dry belt is taking such a great stand, and as it is the fruit industry of British Columbia which is one of its chief industries, or at least going to be, I think it is high time that steps were taken to start experimental stations. Take fruit trees—in fact, all fruit,—certain kinds do better in different localities. For instance, you take the Duchess of Oldenberg apple; in the dry climate it does very poorly, while the Baldwin, Spitzenburg and some other varieties do equally well in the dry belt, and people got $2.30, $2.50 and $2.75 for them last season, and they were shipped to the Old Country. I think there should be stations started in the different sections. They will illustrate the different systems and methods of spraying and the results from them; and persons can go there and see the demonstrations. I think it is high time the Government were taking steps to do something in that line for one of the chief industries of the Province. By way of illustration, I would say that in another Province—take Indian Head for example—the experimental farm has caused Indian Head to be famous throughout the wheat-growing world; there is more wheat grown and shipped from Indian Head than any other locality in the world, and it was on account of the experimental farm there; the people came and saw what was grown, and how it was grown, and settled up that district. And that is the chief reason for experimental farms.

Mr. Vasey: Is there more than one experimental farm in the other Provinces?

Mr. DeHart: Yes; there are two experimental farms in the Province of Ontario.

Mr. Robb: I think it is quite necessary that we should have a station here on Vancouver Island. The conditions are different, our soil is different, and we are in what you may call the wet belt; and I believe we can grow just as good fruit, if it is properly looked after, on Vancouver Island as anywhere. I think there ought to be a station here to prove what could be done in that way

Moved by H. S. Cleasby, in amendment, seconded by J. R. Carmichael—

"That the Dominion and Provincial Governments be urged to co-operate and establish a series of illustration stations throughout the Province."

Mr. Cleasby: Now, gentlemen, I suppose you are all aware of what I mean by the term illustration stations. It is an idea which I think was first started by Professor Robertson two years ago, and it took hold of my mind at once. It seems to me it is the best solution of the experimental problem in this Province. We are not like Manitoba or the North-West; we have not much land over which the conditions are practically the same. British Columbia is

split up, as you all know, into a series of, to a great extent, isolated patches of ground of more or less size, and in nearly all of which climatic conditions are different. It is asking for what we will never get, to ask for more than one experimental farm in British Columbia.

The Chairman: Allow me to correct you; it is not asking for an experimental farm, but stations.

Mr. Cleasby: Well, my resolution possibly is much on the same lines as Mr. DeHart's, only I ask for a little more than he does. I do not think it will cost such a tremendous amount. My idea is this, that if the seed, etc., now sent out by the Dominion Experimental Farm, instead of being sent out to the individual farmers, were put in larger quantities and sent to illustration stations, to be conducted one in each district by one reliable farmer (it might be a number of farmers instead of one, if you like), and the same quantity and the same class of seed sent to each station, and a record kept of the experiment, the experiments to be conducted by someone appointed for that purpose, and the reports and experiments be published at the end of the year, it seems to me it would be much better for us all. We would not have to travel two or three hundred miles for an experimental farm. If there was an experimental station a few miles from us we could all go and see what the experiments showed. You can can learn far more through your eyes than your ears in that respect.

The Chairman: There really is not very much difference in the resolutions.

Mr. Cleasby: Not much; only mine goes further than Mr. DeHart's; he specifies certain localities. Experiments in Okanagan, for instance, are of no practical use in the Nicola, and of much less value to farmers in the Thompson Valley. In Great Britain they are using these stations; they have some other name for them. The experiments are carried out by different men under different soil and climatic conditions, and the results are collected and published at the end of the year. Anybody that lives close to where one of these experiments has been conducted can go and see it and learn far more than by reading about them.

Mr. Carmichael: I have pleasure in seconding this. The district represented where an experimental farm is situated has an advantage over others. The tenor of the first resolution, of which our motion is an amendment, would appear to me to leave the formation more of an experimental farm than a simple experimental station for the testing of seeds, and so on. And seeing that the climate, soil and conditions are so diversified, both on the Island and the Mainland, I think this motion would be much more satisfactory in its workings if each district where the climate and soil varies so much has its own appointee, either from the Farmers' Institute or the direction of the Government, who shall receive seed and instructions for the propagation of it, and who will make a proper demonstration for farmers who live in the district and can be easily reached. At the present time, even if we had those experimental farms, the annual report, without any demonstration, is all we have to go on. I think this experimental station would be very much better, and possibly cost less to the Government, and be more easy to get them to adopt.

Mr. Jas. Evans: Judging from the experience of the experimental farm at Agassiz, speaking with regard to our own district, it seems to me we are past the experimental stage. I think we can solve this question quite easily; we have got a lot of experimental farms for sale up in that part of the country; people are more advanced even than the experimental farm at Agassiz.

Mr. Brandrith: I wish to speak to the experimental station asked for in Mr. DeHart's resolution. Those here two years ago will remember we passed a resolution asking the Dominion Government to establish a station in the dry belt. We re-affirmed that last year, at page 86. In the meantime, the people on Vancouver Island conceived the idea that they were entitled to an experimental station, on account of the peculiar climatic and soil conditions. And the people in the Kootenay Valleys, and all round in the dry belt, are also of the opinion that they should have a station on account of the peculiar climatic conditions and soil. On the Mainland we have an experimental station at Agassiz, and I am sorry I cannot agree with my friends Mr. DeHart and Mr. Evans—at least, I am glad I cannot agree with them; put it that way—the experimental farm at Agassiz has done noble work and is doing noble work. The trouble is, our farmers do not take advantage of the lessons placed there before them, and they do not have to go hundreds of miles to see them.

Mr. Evans: Yes, they do.

Mr. Brandrith: You have to, yes; and that is one of the reasons why I am supporting this resolution, to form an experimental station in the dry belt, and an experimental station on the Island, and in the Kootenays. I think we are entitled to this consideration from the Dominion Government. They have an experimental farm in Ontario; they have a rich

Government in the Province of Ontario; they have an experimental college, a farm, and several stations conducted by the Province. And if the Dominion Government will only do as much for us as the Provincial Government of Ontario is doing for the farmers in the Niagara District; for instance, take some well-known farmer and give him the materials and say you plant such and such variety of trees, and take care of them, note the result of their growth, and the condition of the fruit, and so on, and we pay you a wage—and the farmer still has the product of his farm and the product of his labour—that is the way it is done in Ontario—that is an illustration station, and that is all we are asking for.

Mr. Cleasby: That is what we are asking for.

Mr. Brandrith: I am opposing Mr. Cleasby's resolution on the ground he is asking two Governments to do it; well, they won't do it. The Provincial Government will either do it or let it alone, and the Dominion Government will either do it or let it alone; they won't combine to do it.

Mr. Metcalfe: I do not think the Dominion is doing any experimental work outside of the regular farms. It is a question whether the Province or the Dominion ought to give us these experimental stations. If you think you are likely to have more success with the Dominion Government in establishing experimental stations over this Province, by all means let us take the Dominion. If not, let us try the Province.

Mr. Vasey: Why not make them model farms?

Mr. Metcalfe: They cannot be model farms.

Mr. Cleasby: I am willing that the word "Provincial" or "Dominion" Government should go in, whichever you wish. I would be glad if somebody would move an amendment to that effect, to test the meeting on the subject.

Mr. Metcalfe: This subject is coming up at the convention to be called in Ottawa on March 20th. If you see fit to pass this resolution asking the Dominion Government, we will be in a position—I am one of the delegates—to go there and urge the matter.

Mr. Cleasby: Which will be the most useful?

Mr. Metcalfe: The resolution for the Dominion Government.

Mr. Cleasby: For three or two stations?

Mr. Metcalfe: Whatever they see fit; we will consider the number when we are there.

Mr. Redman: This has come up for three years now; we have tried for three years to see what could be done about this matter; and the Dominion seemed to be so hard to urge that I went to the Provincial officers, and I asked them. I said: "The Provincial Government own about 300 acres of land in Kamloops, on which the Old Men's Home is situated and the Provincial Gaol, splendid land, which can be put in operation very easily; it only wants about one person to oversee it; there are horses there, and ploughs, and everything." But they said, "We cannot do it; if you talked about some experimental station, we might consider that question." So when Mr. Cleasby has taken this matter up and asked for illustration stations I support it, because if we do not ask for something we will not get started. To ask for three experimental stations is different from asking for three experimental farms. If we can get three stations at first, we may get more afterwards. It is not to make a large establishment; the cost would be moderate.

Mr. Jas. Evans: The last gentleman is under a misapprehension. I do not think we asked for three experimental farms, but only experimental stations.

Mr. Metcalfe: I think the illustration station and the experimental station are one. I think we should ask the Dominion Government.

Mr. Carlson: From the remark that Mr. Metcalfe let fall, it seems that the Dominion Government are going to take into consideration the establishment of such stations. And for that reason, I think it would be the best for this Institute to direct its efforts towards securing those stations from the Dominion Government. I therefore move that the word "Provincial" be struck out of the amendment. I move that as an amendment to the amendment.

The resolution by way of amendment, offered by Mr. Cleasby and seconded by Mr. Carmichael, was here put and carried.

PURE BRED STALLIONS.

Moved by Arthur H. Peatt, seconded by John Redman—

"Be it Resolved, That the Government be asked to advance the importation of pure bred horses by giving a bonus to the importers, to encourage the breeding of good stock, or that the Government import the horses and sell the same by auction, and bear the loss, if any, in connection with the same."

Mr. Peatt: I may say, in Nova Scotia they are doing the same thing, and they had an auction sale of bulls and other live stock; and I cannot see why they cannot do the same with horses here. I have been asked to withdraw the resolution, but I do not see why I should.

The Chairman: I think you would advance the interests of the breeders if you withdrew it, and I will tell you why. During the last two or three years the Dairymen and Live Stock Association has gone into this other thing, and there has been quite a loss attached to it. Latterly the Government has paid off the loss, taken over the assets, and wound the whole thing up. Now there are two associations to be formed, one the Live Stock and Breeders and the other the Dairymen's Association. This resolution will carry no weight with it. I think it would be a pity to pass it.

Mr. Whelpton: We have dealt with this matter in our Institute. I do not think we could do anything here with it. Leave it to the Live Stock Association.

Mr. Vasey: There are a lot of people breeding stock in this country, and I do not think the Government has any right to bring in stock to compete with the breeders of this Province. Twenty years ago it was a different matter, but now the breeders of this Province have plenty of stock to supply the Province, or nearly so. I do not think the Government would be doing justice to the farmers of the Province to do any such thing.

The motion was put and lost.

Gun Licence.

Moved by Arthur H. Peatt, seconded by J. R. Carmichael—

"Be it Resolved, That the Government be asked to impose a tax of five dollars annually on all persons carrying guns. Farmers only to be exempt from this tax."

Mr. Peatt: In offering this resolution, I was asked by the Institute to bring it forward. I brought it forward last year. There has been so much trouble with cattle getting shot, and bringing dogs in, and shooting all over the place, I think it would be a very good thing out our way if a gun licence were put on.

Mr. Carmichael: This is in line with one of the resolutions I was asked to bring up, but which did not carry in caucus. So I have nothing to say in the matter, but let it go to vote.

Mr. Harris: I think if you were to insert in the resolution to make Sunday a closed season it would be a good thing. If you go in the country, you see people going all day Sunday shooting, scores of them. I think British Columbia ought to be a place where they have a little respect for Sunday; and that is not what they have in the country. The two things ought to go together. Anybody that goes shooting on Sunday ought to be hauled up. Six days is enough for anyone to shoot.

Mr. Vasey: What about the man that has got to work six days?

The Chairman ruled that Mr. Harris's remarks are not pertinent to the question.

Mr. Wickersham: As I understand, last year there were about 86 resolutions passed. And I understood from a number of the delegates that they were going to make it concise this year and bring it down to a few important questions. Now you are going to ask the Government to licence a man that picks up a gun, and you are going to discriminate in favour of the farmer. The Government has already protected every farmer by giving them a trespass law, so that we do not need to allow any man to shoot on our land, either week day or Sunday. We have it in our power to stop them if we like, and I do not see we need any further protection. We are only just annoying the Government by asking these frivolous questions; and when we ask important questions, we should not tack them on to this.

Mr. Randle: It appears to me we are trying to pass legislation in favour of the rich to the detriment of the poor. And I certainly think we have laws enough now to protect the farmer, without putting on an extra gun licence. I am sure that the gun licence will not protect the farmer. In Victoria, or anywhere else, the Gun Club will come out; they are willing and able to pay the $5, but the workingman is not able to pay, in many cases.

The motion was put and lost.

Adulterated Jams.

Moved by W. J. Brandrith, seconded by Chas. F. McHardy—

"That whereas a large percentage of the jams and jellies labelled "Genuine" or "Pure," which are offered for sale throughout the Dominion, are adulterated;

"And whereas the low prices quoted on these articles secure for them a ready sale, to the disadvantage of the pure article;

"And whereas the interests of the manufacturers of pure goods, the fruit-growers and the consumers, are thereby injured;

"Therefore, be it Resolved, That this British Columbia Central Farmers' Institute urgently request the Dominion Government to amend the "Pure Foods Act," so as to compel manufacturers to print the formula on their labels, and that the Act be strictly enforced."

Mr. Brandrith: This resolution was first brought up two years ago by the Victoria Fruit-Growers' Association. It was brought to the Central Institute by the delegate from Victoria Institute and endorsed in this Central Institute. It was taken from here to the annual meeting of the British Columbia Fruit-Growers'Association, and it was there endorsed, with this difference, that the word "Provincial" was in the original motion, but in this motion the word "Dominion" has been substituted. I think the motion itself will appeal to you without any remarks from me. We all know at the present time you can go to the market and buy a five-pound pail of stawberry jam for 40c., and you cannot buy the strawberries for that in the season; so that there must be a nigger in the fence somewhere. The Dominion Government Analyst has been gathering specimens of the different classes of bottled fruits, and he says over his signature in the last report to the Minister of Inland Revenue, that the fine strawberry jam is composed of apple pulp, vegetable marrow fibre and timothy seed. While it is true that none of these things may be injurious to health, at the same time it is not fruit, it is not strawberry jam. And if this resolution is carried and the Dominion Government acts upon it, the manufacturer will have to publish "apple pomice, vegetable marrow, and timothy seed" on the label, and aniline dyes as well. And then if any person wishes to buy that kind of goods, why, we have no objections; but we do not want the public to be imposed upon as they are at present. It destroys the market for the purer fruit; we believe it to be injurious to the public health; and it is not to the interest of the fruit-grower. I may say that the matter has been submitted to the Dominicn Government, to the Department of Inland Revenue; and the replies that have been received here have been, as usual, that it will be taken into consideration.

Mr. McHardy: I hardly think it is necessary to add anything to what the mover has already said. I think the motion only asks for something that we all feel should be given, namely, that we know what we get when we buy.

The resolution was then put and carried.

TAX ON DOGS.

Moved by H. S. Cleasby, seconded by Arthur H. Peatt—

"Resolved, That in the opinion of the Central Farmers' Institute, the Minister of Finance can obtain a new source of revenue and the farmers much needed protection in unorganised districts by the imposition of a dog tax; provided that said tax can be enforced on Indian dogs found off their reserves."

Mr. Cleasby: This is a slightly differently worded resolution to the one you had before you last year. Last year you debated a resolution for tax on dogs, but farmers to have an exemption on two. I don't believe in exemptions. We want protection from Indian dogs that roam over the country killing chickens, sheep and anything else. These Indian dogs are used to a great extent to hunt deer, and they rout out grouse and other birds off their nests in the season. There is one law, it seems, for the white man and another for the Indian. We can build up the country, and the Indian with his dogs comes and destroys it. In the district that I come from there are as many Indians as white men. And on those large reserves there the Indian dog question is a nuisance. We want some kind of remedy, and we are willing to stand the tax ourselves if we can abate the nuisance. I am given to understand by legal gentlemen that it will be impossible for the Province to do anything with Indian dogs alone, but if there is a tax put on our dogs generally we would be able to do something with the Indian dogs if we got them off the reserve. It would either compel the Indians to pay a tax on their dogs or keep them on the reserve.

Mr. Peatt: I don't know why the Indian cannot pay the tax if we are taxed just the same. They are educated now like other people and no fools. We are troubled with Indian dogs killing sheep and chickens at all times of the year, and they run off the deer and everything else.

Mr. Carlson: We are also troubled with Indian dogs in our part of the country. Every summer there are Indians coming through from the Interior, and they have some very bad

dogs with them. I had two calves attacked by those dogs and nearly killed; and I know of instances where calves have been killed by Indian dogs; and there is no redress, it seems, the way the thing stands now. I am heartily in favour of the resolution.

Mr. Vasey: I think there is an Act now, isn't there, to provide in municipalities, anyhow, for a dog tax? I know in our municipality we all pay a dog tax.

Mr. Cleasby: This is asking for outside of the municipalities, in unorganised districts.

Mr. Robb: I can speak feelingly on the subject. I started in sheep-raising at one time, and they cleaned my lambs out and then began on my ewes, and that put an end to sheep breeding.

Mr. McHardy: It seems to me this directly affects the members of the Dry Belt District. As far as the Kootenay District is concerned, we do not care how many dogs there are; they chase away the wild animals and keep away vermin; I do not think the farmers there object; and I do not think it should be made applicable.

Mr. Dixon: We have a dog tax by-law in our district, and there is a dog tax collector. We got one fellow and he stayed on the job a few days; then we got another one and he started out. He got one dog and then came to another place where they told him to take the dog; it was a big dog and he would not take it. It was not as much trouble to pass a dog tax by-law as it was to get a collector. I do not suppose the Government could get anybody to collect from the Indian dogs.

Mr. Whelpton: I live near the Indian reserve, and only a year ago I lost a yearling calf by the Indian dogs. I think there should be some protection, if we can get it, from the Indians. I am perfectly willing to pay a dog tax; it is the Indians we want to get after.

Mr. Webb: As far as the municipalities are concerned, we have a dog tax. The assessor, when he goes around assessing every farmer, asks how many dogs he has, and it is collected with his taxes. We are bothered with Indian dogs a great deal. There are seven reserves in our municipality. The Indians are pretty careful now to keep the dogs at home. I am in favour of a dog tax.

Mr. Randell: I fail to see where a dog tax will accomplish the object in view. It seems the object in view is to prevent the Indian dogs from destroying sheep and cattle. Now, we can put a dog tax on every one of us, but that will not accomplish the object, for the simple reason we cannot put a dog tax on the Indians at all. I do not think by putting a dog tax on it will prevent the Indians from taking their dogs with them; I am sure it will not. So what is the use of our having a dog tax?

Mr. Phillips: I think the cheapest way is to notify the Indian Department. I have no doubt if the dogs prove a nuisance they will attend to it the same as they did the thistle. The thistles got to be a nuisance and they cut them down in a week on the reservation.

The resolution was put and lost.

Change of Name of Lillooet Farmers' Institute.

Moved by Mr. Cleasby, seconded by Mr. Redman—

"Resolved, That an Order in Council be asked changing the name of the Lillooet Farmers' Institute to the Nicola Farmers' Institute."

Mr. Cleasby: The delegate last year was asked to get the same thing. The resolution was passed and apparently no action was taken; and I ask a similar resolution this year, and also to ask why no notice was taken of the former resolution. We think it a very reasonable request. At our annual meeting this month we found but one member outside of Nicola District. And we think the name should be changed to that of the district in which the Institute is really located. This year only one meeting was held in the Lillooet part of the district. The people there simply would not attend the meetings. The year before the meetings were held, but in some cases a note was made that one farmer attended, or two farmers attended, and so the meetings were discontinued. In Ashcroft and Clinton, both very large places, there were no meetings held at all. So that I think this is a reasonable request.

The Chairman: I might suggest that, instead of putting it in this way, the Lillooet district be subdivided.

Mr. Cleasby: That would suit us equally well.

The Chairman: I think you had better reconsider this motion, write out another one, and bring it forward again, suggesting that the Lillooet Institute District be subdivided by

any line you choose—the Fraser River, perhaps, or whatever line you may suggest—and that the one part be called the "Nicola Institute District" and the other the "Lillooet Institute District." I think that would be more to the point.

Mr. Heggie: I submit this is not a matter at all for this meeting, but a matter entirely for the Superintendent of Farmers' Institutes.

Mr. Cleasby: I will be satisfied if we have the assurance of Mr. Anderson that the matter will be attended to.

The Chairman: If you will designate a dividing line that will be suitable.

Mr. Cleasby: Very well; I will explain to the Institute when I return.

The Chairman: And I will bring it up before the Executive when I receive your answer.

CHANGING THE NAME OF BURRARD FARMERS' INSTITUTE.

Moved by W J. Brandrith, seconded by J. C. Metcalfe—

"That this Central Farmers' Institute respectfully request the Minister of Agriculture to cause an Order in Council to be passed changing the name of the Institute known as 'Burrard' to the 'Central Park' Farmers' Institute."

Mr. Heggie: I also submit that this is not a matter for this meeting I do not think we can argue the thing here; we do not know the circumstances.

The Chairman: I do not think it is.

Mr. Heggie: We cannot vote on it or understand it. I move "that the resolution be struck out, and that the subject be left to the consideration of the Superintendent of Institutes."

The motion was seconded and carried.

FENCES AND WATER-COURSES ACT.

Moved by Arthur H. Peatt, seconded by J. R. Carmichael—

"Resolved, That the 'Fences and Water-courses Act,' chapter 76, Revised Statutes of British Columbia, 1897, should be amended so as to provide a simpler and more expeditious method of dealing with fence and water-course questions, and that it is desirable that said Act be amended so that—

"(1.) Any owner may, without reference to the fence-viewers, bring an action in the County Court having jurisdiction in the locality against any owner of adjoining land for an order determining any question in relation to the construction, erection, maintenance or repair of any fence, bridge, ditch, drain or water-course affecting said land or any part thereof, and said County Court shall have full jurisdiction, according to the usual practice of the Court, to deal with any such question and to make such order as the nature of the case may appear to require.

"(2.) Any such order shall be subject to appeal, according to the Statutes and practice for the time being governing appeals from a County Court."

Mr. Peatt: I may say that I have had about 25 years' experience as a fence-viewer, and I have had lots of trouble. I would like to see this resolution supported. There was a line fence between me and a speculator, and it took me two years to get a fence put up, and I had to finish it myself. He just put me off. When I would go to him he would say "I am working on it," and it took him two years putting in a $50 fence. The machinery is hard to move. If you are in position to say you want a ditch dug, it will take you at least two years to get the machinery going to get that done, and it will cost you an endless amount of money in the end.

Mr. Carmichael: In my district I have observed the difficulty in handling the Act as it is at present. The fence-viewers are slow and expensive. It takes so much time. They are all scattered through the district. A man has to travel for a considerable number of miles to notify them that he wishes a certain matter adjudicated on, and it is some time before they come together. When they do, their fees are high; their time is all put in on a matter possiby that might be of the value of $20 or $25; and I think possibly the lowest charge for adjudication on that would be, as in the last case I know of, which happened about two or three weeks ago, the costs came to about $60. And I think that this amendment would do away, to a great extent, with that trouble. Besides, after the adjudication of the fence-viewers, no man could go and compel those people to act without taking it to the County Court in the end.

Mr. DeHart: I do not really understand the object to be gained.

Mr. Peatt: The object is to reduce the expense and the time of getting the work done; that is the whole object, to reduce the expense. There was a case in point, that happened up at Cowichan, that cost $500 for a small ditch; they had to take a lawyer and a surveyor, and I don't know who else.

Mr. Evans: I think it goes farther than this meeting should deal with. I would be quite in favour that the Act be amended, but in what form, I do not think it would be possible for us to fix; we might apply for them to amend the Act, but not in the way in which it should be amended. I have not had enough study on the subject to vote on the question.

Mr. Webb: In our district we have the present fence-viewers, and it is very satisfactory. We have had no suits, I think, for the last 15 years. As soon as a fence-viewer has been called out, the matter has always been settled very satisfactorily.

Mr. Leeson: In our district there are fence-viewers appointed, and I happen to be one of them. We were called on in one case and we went to both the parties and asked them to settle it between themselves, just on that account; we thought the thing would be too expensive. They were both poor men, and if they let the thing go according to the present Act it would have cost them, I guess, $50 or $60.

Mr. Vasey: It strikes me the motion is to do away with fence-viewers.

Mr. Peatt: Not at all.

Mr. Whelpton: The Act is something like the Act in Ontario; I was fence-viewer there for several years. The fence-viewers charged so much a day, and they made their award, and we never had any trouble at all with the work of the fence-viewers; there was scarcely any expense; and if the parties would not pay we could take the matter to the Courts and sue them.

By request, the present Act was read for the information of the members.

Mr. Robb: It seems to me, if this Act is amended, it will destroy the fence-viewers altogether; because, instead of applying to the fence-viewers, it will be to go to the County Court, which will be as expensive and probably more so.

Mr. Wickersham: I may say, in our Municipality, certainly, the fence-viewers have given good satisfaction. As to the water-courses, we have been working with them year after year, and are doing something with it yet. But I think an amendment of this kind would incur just as much expense as the present Act. I do not think it would better it any.

The resolution was put and lost.

School Act.

The Superintendent of Education, Mr. Robinson, here attended by request; and the following resolution was taken up:—

Moved by N. C. V. Wickersham, seconded by Joseph Randle—

"Whereas the life and prosperity of our country greatly depends upon the high standard of education;

"And whereas the Government, in our opinion, is the most competent to superintend our schools;

"And whereas the School Act of 1905 and the proposed amendment thereto is cumbersome in its working, especially in Rural Districts;

"Be it, therefore, Resolved, That the Government re-enact the old Act of 1891 and strike a rate on personal and real property, and draw on municipalities for a proportionate rate sufficient for school purposes."

Mr. Cleasby: I rise to a point of order. I move that the resolution be struck out, because the question is not a proper one for the consideration of a Farmers' Institute, it being a large public question on which it is undesirable for us to pass.

Mr. Redman: I second Mr. Cleasby's motion that it be struck out. We have had no instructions; this has not come up in our Farmers' Institutes. We are here for agricultural questions, first, last, and all the time.

The motion to strike out was carried.

Merchandise Marks Act.

Moved by J. Redman, seconded by W. Metcalfe—

"That it is desirable that a General Merchandise Marks Act be enacted, and all merchandise and manufactured goods shall carry a proper label describing the grade and quality."

Mr. Redman: This western country is behind all others in affording the protection this resolution calls for. All the great shippers regard this western country as the place to ship all their waste material that cannot be sold at other places. I think we ought to start in with this. When a man buys a buggy it should be known that all the wood and material is properly described. They do guarantee them for a year, and you take great care of them, and a little after a year the thing may go all to pieces. Many of the agents come around and say if it is broken they will only too glad to replace it if we ship it back. But that does not help; it does not make up for the time we lose. Another thing, a farmer, like everyone else, always wants to buy a thing for the cheapest price it can be got; and the same class of buggy, or implement, like a suit of clothes, will be sold by one dealer cheaper than another; and it is by pandering to that taste that they are enabled to make us believe a thing is just as good, when it is not so. We want the grade established so that when we buy a good thing we know we are getting it, and if we buy a poor thing we know we are getting a poor thing.

Mr. Metcalfe: We are taking action with respect to our food products, for establishing a formula of what they contain, and I do not see why we should not have a Merchandise Act describing the quality of the waggon or vehicle of whatever kind it may be that you wish to buy. In respect to the making up of a rig, the wheels and that kind of thing are described now; but when the article is put together, and it is all covered up with paint, you don't know what you have got. In buying wheels and all those things you buy them as first, second and third class; and I think when the article is put together there should be some Merchandise Act making them describe the article properly. It applies to articles of all kinds.

The resolution was put and carried.

CONVENING OF THE CENTRAL FARMERS' INSTITUTE.

Moved by James Evans, seconded by A. B. Dixon—

"That the convention of the Central Farmers' Institute of British Columbia be convened not later in each year than the first day of the regular session of the Provincial Legislature."

Mr. Evans: We have arrived here too late for the Legislature to take any action this year on our dealings, and they are very likely to forget them before we meet next year; and we should recommend legislation in time so that they will be in a position to take action.

Mr. Dixon: I think we are all satisfied that we are just a little late to do anything for this year; and next year, if we start in a little earlier, we may accomplish something.

Mr. Carmichael: It was my intention to have brought in a motion, but finding Mr. Evans had a motion on the list very much to the same purport, I withdrew mine. But I think that Mr. Evans' motion does not go quite far enough. He says not later than the first day of the session. Well, as you all know, it takes the Executive some time to get their Bills that they put before the House drafted; they do not do it during the time that the House is in session. They only discuss and pick the Bill to pieces when they go through the committee; but the Bills are all drafted before the House meets. I suggest, as an amendment, that the Farmers' Institute meet not later than the 1st of January, and that the Institutes be instructed to send a list of their subjects to the Superintendent of Institutes not later than the 30th of October, for distribution, when the Superintendent of Institutes shall forward to each Institute a condensed list of all the motions that are to be brought up; so that each delegate, when he is appointed from his Institute, will have the chance to discuss matters with his own Institute before he comes up to this meeting.

The Chairman: You will have to put that in a motion, Mr. Carmichael, if anyone is going to second it. But I would call attention to the fact that the Institutes have the whole of January to have their annual meetings in, and it is not possible to have the returns ready for consideration at the beginning of January; it would be at least the beginning of February before they could be ready.

Mr. Carmichael: My idea, and the idea of very many members of our Institute, is that the work that is brought up ought to be done by the old Board, not by the new officers who are not conversant with the work. The work that has been done throughout the year that is passed, and by officers who are in office; that is a much better time than bringing all these matters up before new officers and new executive, who do not understand the work at all, possibly. The work that has been done throughout the year ought to be carried through by such officers and delegates appointed as have been members of the executive for one year.

The Chairman: That is the case now; all the returns are made by the previous Secretary; and he makes the returns of the new officers.

Mr. Cleasby: I think, Mr. Chairman, that the 1st of January is a little out of date anyway. I think some of the members here would have to lose their Christmas dinner to get here by the 1st of January. I think the 1st of February would be better.

The Chairman: There is no amendment before me.

Mr. James Evans: I would be quite agreeable if there was an amendment inserted; but my reason for putting it in that way was that there would be a little option in the hands of the people calling this meeting as to what time it should be; they might call it in December or January. I have consulted a good many, and they think that the latter part of December and 1st of January is a busy time. Our elections come on in January; the School Board elections come on in January. But I think we should get here early, and I think by the first day of the local Legislature we should be here, and if we come earlier than that I would be satisfied. As far as sending in the subjects, I think it is the rule now that the subjects shall be sent in, and it is neglect on the part of the secretaries if they are not.

The Chairman: They were applied for in December, and they should have been in my hands by the end of December.

Mr. Metcalfe: The only difficulty in fixing a date is we do not know when the Legislature will meet.

Mr. James Evans: It would be fixed according to the time they meet.

The resolution was put and carried.

Increase of Secretaries' Salaries.

Moved by George Heggie, seconded by James Evans:

"That the Farmers' Institutes Act be amended to increase the salary of secretaries to $50 per annum, and to raise membership fees to $1 per annum, the Government allowance to be increased accordingly."

Mr. Heggie: The Superintendent, in his report yesterday morning, made a remark on the inactivity of many of our secretaries—a fact which I do not wish to dispute at all. At the same time, it is hardly to be expected that they could give much more of their time to the Institute work than any of the other members. At the present time, the Act allows the secretary a remuneration of $25 per annum. And to take the words of our own secretary, in the Institute I represent, he said that the subscriptions which he received and forgot to put down the names, it took the $25 to make it up. Of course, that has nothing to do with the Act; that is the fault of the secretary himself. The resolution I have brought up will, if adopted, enable the various Institutes to pay the secretaries a proper remuneration; and we will then be in a position to dictate to him and demand a fair return for the money paid. Now, I do not think I need say anything more about this. As a rule, the scattered districts have the smallest membership; and there is not a corresponding decrease in the amount of work the secretary has. They are not in as good a position to pay their secretary any bonus as some of the larger Institutes. I, therefore, take pleasure in presenting the resolution.

Mr. James Evans: The reason I second this motion is that I think the salaries as they stand are too small. As far as our own secretary is concerned, sometimes I feel like finding fault with him, but when I see the salary he receives one's conscience won't allow him to do it. And as regards the fees, I think anyone would be as willing to pay $1 as 50c. They receive much more value from it than $1 in various ways.

Mr. Vasey: I think, in one way, it would be doing a wrong to raise the membership fee, because some will kick now at paying 50c., and I think you will keep many a man out if you raise it to a dollar. And I think, as far as I am concerned, if you want to increase your secretary's salary you can do it in your own Institute.

Mr. Harris: It appears to me that some of our representatives think that the Government is made of money. We are begging all the time something or other; and I think when you come to make another haul on them, if you cannot do something better than that, I think we ought to leave it alone. I think good enough ought to be good enough; leave it alone. Because the first thing we know, a great many of our Institutes won't have any members at all, and the Institutes will die a natural death. Members won't pay it. There are a great many of the Institutes at the present time can hardly keep enough members to carry them along, and they have to do a good deal of canvassing; and if you ask the Government this salary, and then to raise the entrance fee, it will put two obstacles in the way. Now, some Institutes give some assistance to their secretaries. For instance, we give our secretary some-

thing when he goes around canvassing for members. And other Institutes can do that. And some Institutes have got over $100 on hand; and why not give the secretary some little of those funds?

Mr. Randle: I think myself a proposition like this would retard the growth of our Institute work. In our district we are making an effort now to increase our membership, and I believe, under the present conditions, we are in a position to increase it materially this year; but if this change were made, I think it would place us in a position that our membership would decrease rather than increase. Now, there is no way to increase the secretary's salary without taxing the members for it. Let the secretaries go around and canvass the district, and pay them a percentage of every candidate they bring in. That is the way we do, and we find that it works very good with us. And in the present year we have also offered a premium for everyone that joins, two papers; one is "The Ranch," and the other is "The Poultry Review," which, if given singly, would cost just double what we charge them; and we find by canvassing around and increasing the membership we are able to do that. And I am sure, if we charge $1 instead of 50c., you might as well just quit canvassing, because you would only be putting a stumbling-block in the way.

Mr. Redman: We have another way of increasing the pay of our secretary; we vote him the balance over and above expenses; sometimes it is $10 or $12, and sometimes $25 or $30. As soon as there is enough for the carrying out of the Institute business, he gets the remainder as a commission.

Mr. Wickersham: I may say of our secretary, I think he is as hard a working man as there is in the Province to-day. And you will notice you received a communication from him as to what they instructed me to speak on at this meeting, which you did not from many of the others. And he is always opposed to raising the secretary's salary; he says $25 is sufficient. And I have worked myself two or three days to get new members to join, at 50c.; and I have loaned them the 50c. to join with. And if we increase it to $1, where are we going to come out at?

Mr. Phillips: I think, if this motion is carried, the Institute will die a natural death; and I think the Government has treated us very well at the present time.

Mr. Collins: I think we had better let well enough alone. If we increase the membership fee to $1, I am sure, in my district we shall not have half the members. And I do not think for one minute, if you ask the Government to pay the secretaries any more, that they will do it. And I do not think we ought to ask for anything we do not expect to get.

Mr. Heggie: My idea for bringing this resolution before the meeting was to get at the Government. It is a pretty hard thing to get anything out of them, as we all experience. I do not think anyone would begrudge the extra 50 cents. Any member of an Institute who refuses or thinks a dollar is too much, I don't think he ought to be a member at all, as I think that the literature that he gets during the year would more than represent $1. Then again, he gets the speakers that the Government send in regularly; that is worth more than a dollar. I was surprised to hear Mr. Wickersham mention a secretary who was pleased with what he got; I never heard of a secretary yet that was pleased with the $25 he got from the Government. It is a pretty hard thing to get a secretary who is capable enough to handle the work of an Institute, let alone to get a man who has philanthropic ideas enough to tackle the business. I know we cannot get them up in our country. The secretary is the heart and soul of the whole thing. And I think the extra remuneration will be the key-note of the whole thing. I am very much surprised at the way this resolution has been received. I would like to hear from others and get a little more backing. I think, for one, we should have more social functions in connection with the Institute. The social element is mentioned, and I think this ought to be attended to in connection with the Institute. If we had more funds on hand we could attend to that side of the Institute. Nothing would be better for the Institute than to get together in the summer and have a good picnic, and have a good chat over the crops grown, and other things, and have our wives and children with us. I think we ought to consider that phase of it too.

The resolution was put and lost.

It was moved by Mr. Metcalfe, seconded by Mr. Harris—

"That Mr. Cunningham be asked to address the Convention."

Carried.

Address by Mr. Thos. Cunningham, Provincial Inspector of Fruit Pests.

Mr. Chairman and Gentlemen,—I thank you for your kindness in affording me the opportunity to speak to you. My heart is with you in your work. I can say that I have never seen a day from my boyhood that my tendencies and aspirations were not toward agriculture and horticulture. In my boyhood, from the time I was 15 years old, I have watched carefully the development of the countries in which my lot has been cast, and I have never seen a country really prosperous when agriculture was in ruins. And I have never met a man yet who has been able to prove to me that agriculture is not the basis of success and prosperity in any country. Every time I take a trip through the upper country I am impressed more and more with that fact. I find the population of mining towns increasing and decreasing; but wherever I find men cultivating the soil and raising stock, I find prosperity and stability; and I find that nowhere else. Miners come and miners go, but agriculture and horticulture go on forever. I think we cannot sufficiently impress that upon the Government of the day, and everybody that has influence in the development of the country.

I was very much struck, as soon as I came here, with the importance of some of the questions you are wrestling with. One has to come in and get in touch with you to realise it fully. They are very important matters. That question that you were discussing when I came into the room first to-day, the question dealing with the glanders, is a very important one. I have given considerable thought to that too; I happened to lose a very dear friend when I was about 15 years old, who died with the glanders; and I have watched its development from that time on. I have some knowledge of the physical signs of glanders impressed upon me when I was a boy. And when Dr. Tolmie was speaking, I could not but help feeling in my own heart gratitude that we, who are dealing with fruit-growing, were so fortunate as to take up this question of defence of the country against the introduction of pests and diseases some 15 years ago. If the same care had been exercised to ward off the introduction of glanders into this Province as is being taken now, I do not think the disease would have been introduced to such an extent. We have hardly a conception of the loss in Vancouver by the destruction of horses; many of our best animals are being killed, involving the dislocation of business and great personal loss to the owners of the horses. While I was up in the Boundary country some three years ago, I think it was, I discovered glanders on horses coming across the line; I discovered American team horses being driven across, and knew they had the affection. And I am positive I saw many horses and teams being driven into our country without let or hindrance, which were affected with the glanders. Until you stop infected horses coming, as we do infected fruit and infected nursery stock, you cannot hope to control the disease. You must stop it on the frontier. I think this is a question that should be dealt with by this Institute, and that every care be taken to prevent the introduction of foreign teams carrying that infection or showing any symptoms of it.

We started in the business of horticultural inspection 15 years ago. We passed regulations then that nursery stock and fruit coming into the country must be carefully inspected. It was not as effectively done then as it is now, because we inspected nursery stock at several points of entry into the Province; my experience is that you cannot find men with the requisite knowledge to enable them to deal with the infected stock. The inspection of trees must be centred at one point, and some one party held responsible. That has been my duty during recent years, at Vancouver. The result is, we can guarantee every tree that passes through our hands as perfectly free from pests and disease, and that no infection is thus carried to new settlements throughout the country.

Further, there is not a pound of fruit imported into British Columbia that is not carefully inspected. And the effect of that is that diseased fruit is not thrown upon the market as a cheap grade, destroying the market price for our own good fruit. If there is infection found, we destroy all the fruit in the package, or send it back across the line. A great deal of this has been done not only in Victoria, but throughout the Province, during the past year. We have many serious problems to contend with in this business yet. A new discovery has been made, namely, infection of Japanese oranges. The San Jose scale, which we all dread, was found upon the oranges. Some twenty-five thousand boxes of Japanese oranges were imported, and I myself found, on inspection at Vancouver, that these oranges were covered with the San Jose scale. That was disputed by very high authority, disputed at Ottawa. While I held up the Japanese oranges for fumigation or condemnation, as the case may be, a telegram was sent across from Ottawa stating that I was wrong in my diagnosis, and that what I had mistaken for San Jose scale was not San Jose scale at all, but was fungous disease. Very well, I have lived

to see that contradicted even by the man that sent the telegram. So that we have achieved very important success on these lines during the past year. A rule has been established that such fruit as lemons and oranges must be inspected before being distributed in British Columbia. It would take too long to explain the particulars of the investigations which led up to this point. I would say that we now have the proof that oranges carry infection; we have put all citrous fruit on the same scale for inspection as apples, pears and other deciduous fruits that may carry disease. We have now the door completely closed against outside infection. As long as I am permitted to live and occupy my present position, I can guarantee, gentlemen, you will receive clean fruit and clean trees.

Another question, that is not so easily handled, is the disposition of our own fruit. Some of it that is now put on the market is not to our credit, and not to the ultimate benefit of our fruit-growing industry if offered for sale at all. We have had to take severe measures during the past year by condemning home-grown fruit and sending it back to the grower, or else destroying it, as the case may be. Every box of infected fruit (home-grown) that is offered for sale has a tendency to break down the market. This must be self-evident to any man that thinks at all. For our fruit is not judged by the highest quality, but by the lowest quality that is offered for sale. We are enforcing the regulations as far as our own fruit is concerned, and we intend to enforce them as long as we are supported by public opinion—as long as we are supported by such gentlemen as you are, representing the important districts. And I ask your cordial support and friendly co-operation. We have now obtained great eminence in horticulture; we have achieved as high a standard as we possibly could; we have taken the gold medal in competition with all the world. And, certainly, as we have attained this eminent position we are in duty bound to maintain it; we cannot afford to lose it even if we have to condemn some home-grown fruit. It were far better that the Government pay for all diseased fruit and get it off of the market, than have the reputation of our fruit destroyed. And I appeal to you, gentlemen, to help us in the solution of these questions in such a way as to reflect the greatest benefit upon our country. The fruit-growing industry is going to be a pre-eminent industry in this Province. I was up the other day in a little mining town in the Kootenays, and I took particular pains to ascertain how much land is tributary to that town where fruit can be successfully grown. I had never heard of this little town as a fruit-growing centre; and before I left I ascertained, from reliable data, that 5,000 acres of fruit land is available at that point. That is an important thing to find out. Afterwards I went over the line of the Kaslo & Slocan, and saw all along that line thousands of acres of splendid fruit land, not touched at all; there is not a tree on it yet. And wherever I go I see thousand of acres of land which will grow the best quality of fruit. Now, then, as our market is expanding, our area for fruit-growing is expanding too; I think the outlook was never better than it is to-day. And as far as the profits of fruit-growing are concerned, they are increasing. Twenty-five years ago, when I commenced fruit-growing commercially, apples were selling in Victoria and in New Westminster (there was no Vancouver then) for 50 to 75 cents a box. It was predicted then that by the time my trees got to bearing I would be feeding apples to the swine, because there would be no outlet for this fruit. What are the facts? Fruit is sold to-day in Vancouver for $2 a box wholesale; and we cannot overtake the market; no matter how many acres we plant, no matter how active we are in developing the fruit industry, we will never overtake the North-West market. They will need apples there faster than we can supply them. And so long as we maintain the character and quality of our fruit, so long shall we control that market. I shall see to it that the very fact that British Columbia is stamped on a box is worth 25 cents to its intrinsic value. Shall we maintain that? I say yes, by all means. And if we do, the time will never come when we shall not have a profitable market for the distribution of our fruit.

I do not know that I have very much more to say to you. I appeal to you for your moral support to help us and help the Board of Horticulture; help me in the discharge of my duty. It is a difficult one; it is an unpleasant duty to take a thousand, or two thousand, or three thousand trees and burn them up; it is a difficult thing to inflict this injury upon any man; it takes a lot of moral courage. And it is a difficult thing to take 50 or 100 boxes of fruit that a man sends and expects pay for, and condemn it and send it back to him because of infection. Only for the confidence that I am doing the very best for the ultimate good of the country, I could not do it. There is no difficulty in dealing with foreign fruit; but to deal with our local grown fruit, it is a question that must be very carefully considered, and we want all the assistance and co-operation that you gentlemen can give us.

I thank you for your kindness in giving me this opportunity to say a word to you.

Mr. Redman: Don't you think you are using extreme methods with regard to local fruit—

Mr. Cunningham: I do not think so.

Mr. Redman: And leaving orchards that have never been sprayed or pruned for 40 years untouched?

Mr. Cunningham: We are getting after them now. I am going out to a district now to compel a man to either destroy or clean. I destroyed three orchards within the last three weeks. I gave a man his choice. I said to this man, you will not be permitted to inflict an injury upon your neighbour; it is bad enough for you to be careless, but your own carelessness must not affect your neighbour; you must either cut down or clean.

Mr. Metcalfe: I am sure we are all in touch with the work of the Horticultural Board up to the present time, and I hope we shall always be. But there is just one question that is looming up, I think, in the horizon, that is liable to give us some trouble in our Province, and at this meeting at Ottawa it is one of the questions that comes up there—what is the definition of a No. 2 apple? Now, as you know, the Fruit Marks Act, at the present time, does not define the No. 2 apple. And the trouble has been, where we perhaps have been able to keep our fruit-growers up to a No. 1 product, under this 10 per cent. of an allowance they have been putting in culls and other things as No. 2 and letting it go into our market. Now, if they indicate a No. 2 grade of fruit, allowing say 15 or 20 per cent., how is that going to work in the Province, Mr. Cunningham?

Mr. Cunningham: From our stand-point, the enforcement of our regulations?

Mr. Metcalfe: Yes.

Mr. Cunningham: Well, we don't condemn for quality; we do condemn for disease. Now, it is disease that produces bad quality; nearly always there must be disease in the tree to cause disease in the fruit. We can handle it that way.

Mr. Metcalfe: I think it would drive nine men out of ten out of the apple business if you condemn a good grade of No. 2 apples. When I say good grade—we have not established a good grade of No. 2 apples that we have placed on the market as No. 2; but if the law defined a good grade of No. 2 apples, with apple scab, I think it would work a monstrous hardship on farmers if the examination was made general.

Mr. Cunningham: But not if we control it.

Mr. Metcalfe: I think the consensus of opinion in Canada and the United States is that the San Jose scale, cotton moth and apple scab can be kept in check, but never be got rid of.

Mr. Cunningham: In one place where the apple scab is prevalent, in Chilliwhack, I never saw better apples than were raised there, which I bought at $1.50 a box; and they are the best that came to my place this year. If one man can raise such perfect fruit, others can do so. They do not spray enough.

Mr. Collins: How many times would you spray?

Mr. Cunningham: You cannot cure it in one season; you must begin and keep at it.

The Chairman: Every two weeks it is done in the most up-to-date places, during the dormant season.

Mr. Cunningham: Why is it that across the line, over the boundary 100 yards, they send as good apples over as they get in the Okanagan country? It is absolutely clean and perfect fruit. On our side it is scabby. Why is it? I know the reason. It is owing to the system of spraying that American growers have adopted.

Mr. Collins: You think it is not the climatic conditions.

Mr. Cunningham: No; it is not. The conditions are exactly alike, but in the one case the spray is used assiduously, and in the other case it is not.

Mr. McHardy: We might have a show of hands on the question of the matter of having one grade of perfect fruit. As I understand it, our No. 1 fruit permits of 10 per cent. of inferior fruit. It seems to me that in all cases there should be one class perfect. I would ask that Mr. Metcalfe and the other gentlemen going to Ottawa should have the expression of the Institute backing them, and that this Institute show itself in favour of having such a position taken.

The Chairman: Mr. McHardy, that had better be in the form of a resolution.

Mr. Metcalfe: While in Portland, two years ago, I was talking with a very large shipper there, who had shipped some 70 carloads of fruit; he said 90 per cent of it was infected with cotton moth and apple scab. Now, we don't let that fruit in here, and we give Mr. Cunningham credit for that. But they have as much infected fruit over there as we have.

The Chairman: I am sure I have listened with great pleasure to Mr. Cunningham's remarks. I can certainly endorse some part of it—I did not hear it all. He said that the work was not as effectively done in days gone by as it is lately; I quite endorse those remarks. And since Mr. Cunningham has occupied the position he does at the present time, as Inspector of Fruit Pests, he has certainly been the most zealous officer we have ever had in the Department. And I can bear witness to the effective work he has done, and to the arduous work that he performs. He is never tired of being at his post day or night, wet or cold; and on several occasions I have said to him: "Do not injure your health; you are getting like all of us, past the meridian; you cannot expect to be playing ducks and drakes with your health much longer." Mr. Cunningham seems to disregard his health altogether in the performance of his public duties. I take a great deal of pleasure on this occasion in subscribing to the sentiments he has expressed.

Mr. Redman moved a hearty vote of thanks to Mr. Cunningham for his excellent address; seconded by Mr. Vasey, and passed unanimously.

Mr. Logan was then unanimously requested to address the meeting.

MR. F. M. LOGAN'S ADDRESS.

MR. CHAIRMAN AND GENTLEMEN,—I can assure you that I esteem it a pleasure to meet this delegation and to say a few words to you. I am a little frightened, I may say, in endeavouring to make statements before this audience, as I consider this the most critical one I have ever listened to. However, it is a sign of progress, and is a good omen for the Province of British Columbia when representatives are sent to a central meeting, such as this is, who are able to discuss matters from every standpoint. I think that your labours, although you do not get 52 resolutions passed every year by the Government, certainly must be productive of some good. It shows the trend of the opinion of the Province, and this Convention is certainly along the right line.

Now, I heard it mentioned here, and I realise it, that an outside man is labouring under a disadvantage trying to work in the agricultural interests of this Province. I came here three or four months ago, practically a stranger to everyone in the Province. And I wish here to thank the ones that I have come in contact with all over the Province, for the kindly way in which they have received me as a stranger. I have had nothing but kindness and good fellowship shown in every place that I have gone. And as a stranger from the other side of the Continent, I assure you that I esteem very much the good fellowship I have received on every hand.

I may say that I think you have a great future ahead of you in this Province. I have lived in the Province of Nova Scotia; I have travelled pretty fully through the Province of New Brunswick, through Quebec, lived in Ontario, and have come right out through the other Provinces to the Coast, and I may say that you have got the best land here that is to be found in the Dominion of Canada. (Hear, hear.) I find in some places, however, that it has been badly farmed. To-day the man who is farming 100 acres is very often not the man who is making the most money. Now, it is intensive farming, doing only what you can properly look after, doing everything when it should be done, and as it should be done, that is bringing returns in money to-day. I can take you down to the Province of Nova Scotia and show you lots of farmers who have 200 acres of land, and they are barely making a living. There are some that have 200 acres and scarcely have $200 worth of produce a year; and I can take you to other men who have 3 or 4 acres, who get over $2,000 worth of strawberries a year. There is the difference between extensive and intensive farming.

I have heard some of the discussion that has taken place with regard to the powder question. I realise the importance of clearing more land, but first, let me sound the warning, do not clear up more than you can properly look after. There are men who have 20 or 30 acres in this Province, and they are praying for more powder, when they could not look after more than 8 or 10 as it should be done; and the consequence is, they are not making half as much money as another man is making off three acres. So that the question nowadays is to do everying right, to do it at the right time. I have seen some of the best orchards that are to be found in Canada here in the Province, and I have seen some of the worst, most discreditable looking trees, just due to lack of attention and time to attend to them. Well, that will be the result if you undertake to farm too much land.

Another thing, let me say, 15 years ago in the Province of Nova Scotia I bought lumber at $5 a thousand; and poorer lumber there to-day is selling for $13 a thousand. That shows an advance of price of more than double in 15 years. Now, I am not a prophet, but I think I am safe in saying that the lumber on your places that you are chopping down and burning up to-day, in 20 years will be worth $20 a thousand. It is only reasonable to suppose that the whole country east of the mountains is going to be filled up with settlers as fast as they can get in there; and there is no lumber there to build with. As soon as they make money growing wheat they are going to build better houses and better barns, and the lumber has got to come from this Province. The Provinces of Nova Scotia and New Brunswick are nearly depleted of lumber, and from British Columbia has got to come nearly all the lumber of the future. I can remember seeing farms in Ontario which had been growing walnut trees. The farmers 30 or 35 years ago cut these trees down and burnt them up to clear the land to grow buckwheat; with the result that to-day, walnut lumber is worth $200 a thousand; and they are digging up the stumps and selling them to make walnut lumber. Now, look ahead a few years and see what is going to take place in this Province. With the great growth of the farms in the prairie, lumber is bound to double in price. And another thing: in a few years the Panama Canal will be cut through and this lumber can go from here to the West Indies and South America and the eastern ports of the United States, which will certainly increase the price of lumber in this Province, and fir, which is one of the best lumbers in Canada, will bring over $20 a thousand in 20 years. I do not see anything to stop it. So that I would not be in too much of a hurry in wasting good lumber to clean up land to grow more grain, but to farm better what you have got cleared.

Now, being interested in the live stock matters, I thought that I would perhaps have time to prepare something definite to give you along live stock lines, but I have been very busy these last two or three days trying to get ready for the printer our catalogue in connection with the sale which we are holding in New Westminster. As you know, the Live Stock and Dairymen's Association got into bad repute. I need not go into the history of that; I believe it is familiar to you all. I met a number of the breeders at the fair at New Westminster, and they thought that a sale of live stock would be a good thing; not to import cattle from the East, but to encourage the breeders who had already expended money in that work, and to encourage home-grown cattle (Hear, hear). So that I communicated with the Ottawa Department, and they agreed to give us a grant of $500 to hold an auction sale. But they stipulated that they would not give this grant to be expended under the auspices of the old Association, because they had had trouble with the Association in the past, so that about the only way to get this sale held this year was to form a new Association. We did that; met in New Westminster and formed what we call the "British Columbia Stock-Breeders' Association." We issued a pamphlet in regard to this sale; and I may say that now we have over 60 entries of horses, cattle, sheep and swine. The catalogue will be issued next week and we will send you all a copy of it, so that you can see what is to be sold. We want to make this a success if possible, and to make it an annual affair. You can understand, if a man wanted to buy a bull, or one or two cows, it would take him a week to go all around among the breeders to see them all and see what they had to sell before he could make a selection; while by holding this sale, all the breeders may put in the stock they have for sale; and a buyer can get special rates on the railroad if he wants to attend that sale, and he has there an opportunity of examining 60 animals in a few minutes. We want the people of British Columbia to support it, to contribute what stock they have for sale, and also if they are buying stock to come there and buy, if they can get anything to suit them at the right price. We do not expect this year that stock will go high; but we want to make a success of it and make it an annual affair. Anything you can do to help it along will be appreciated, I am sure.

Now, I heard a discussion yesterday in regard to the value of a pedigreed animal. It might be well just to talk a few minutes on that question, and you can ask questions on it. Dr. Tolmie is here, who is better posted on this, no doubt, than I am. I have met several men here in the Province who will tell you that they do not care whether an animal has got a registered pedigree or not; they have seen so many registered animals that are scrubs, and they have seen better animals which were not registered; therefore, they pay no attention to a pedigree. Now, what is a pedigree, anyway? Every animal has a pedigree, only every animal is not registered. A registered animal is one where a record of the dam and sire, and grand-dam and grand-sire, and so on, have been kept all the way back. That is the only difference between an unregistered one and one registered. They tell us that you have inherited every

tendency which your grandfathers have had since the days of Noah, or as far back as Adam—that you have inherited, mind you, every tendency that your fathers and also your mothers have had. The question is, how much of that tendency, or how much of those characteristics, comes out in you? Take the case of a crazy man; you will often see insanity in a family; the next generation won't show it at all; it will skip perhaps two or three generations, and then insanity will break out. Now, the cause for that is, that this characteristic was in that man where insanity did not break out, but he had other things, other tendencies, other characteristics fighting against this one which kept it back. Well, now, the idea is this: it has taken over 100 years, 140 years, in fact, to produce the short-horned cattle of to-day. For 140 years they have been breeding along a certain line to produce those cattle, which now sell for $5,000 or $6,000 apiece. Why is it that one of these animals will gain two or three pounds a day in flesh, where another animal, a Jersey or an Ayreshire, perhaps, won't gain more than a pound a day? The reason is, they have selected animals which showed that tendency to a marked degree, and they have been bred for that for the last 140 years; they have been bred to take on flesh. Now, if you get one of those animals that have been bred to take on flesh, and you cross it with the Jersey—a Jersey has been bred for 100 years for the purpose of producing milk, not flesh,—there you mix the two together, the beef-producing tendency and the milk-producing tendency, and what have you got? An animal half of whose tendencies are towards producing flesh and the other half towards producing milk. That makes the dual-purpose cow. Now, you breed that animal, which is a heifer, and what will be the result? You don't know whether she is going to take the tendencies of the sire and go towards producing flesh, or the tendencies of the dam, which are to produce milk. You can never tell which she will do. That is the way that a good many good milkers have been gotten by accident. They have bred back perhaps for several generations to an animal, one of their great grand-sires or grand-dams, which came from milking strain. But suppose you wanted to get an animal for producing flesh as fast as possible, you would not breed that cow to a Jersey, which had not been bred for that purpose, but you would breed to a short-horn, or one of the beef-producing strains. What I want to emphasise is this, that the tendency has been bred in these animals, and a pedigree shows that an animal has been bred for a number of years along that certain line, without intermixing blood in that breed—which had not that tendency. Therefore, if you get an animal which has been bred for 30 or 40 years, for generations, along that certain line, you are almost sure that those calves will be the same. But if you breed from what we call a scrub bull, or one that is not registered, although it may be a good animal itself, you are not sure of the result; it may be good or it may be bad. There is the benefit of the pedigree. It has taken 150 years for the men of England to breed up the different breeds of cattle, so it is not for you, as intelligent men in British Columbia, to start all that work over again; because it has costs hundreds of thousands of dollars to do it. It is now for you to start where these men are leaving off. Take advantage of their experience and begin now with good animals, with these animals which have been produced in 140 years. It is no easy task to breed up a good animal. John Bright, who is known the world over, made the statement, that if England wanted a Prime Minister he knew of a half a dozen that would make excellent ones, but, he said, there is only one man in the whole United Kingdom, I know of, that knows how to produce a first-class short-horn. There is the idea that John Bright had of breeding cattle.

I just thought I would like to make these few remarks on that line, because I have met a great many who will condemn pedigreed animals, and I think it is largely due to the fact that a good many scrubs have been imported in this country. A good many animals have been brought from Ontario and other places that should not have been brought here; there is no doubt about that.

Mr. Evans: Sent out by the Dominion Government from the Experimental Farm.

Mr. Logan: No; I do not think the Dominion Government ever sent them.

Mr. Metcalfe: But these animals were all pedigreed.

Mr. Logan: They were pedigreed, but I do not wish you to believe that pedigree is everything. Pedigree is about half, or perhaps more; but do not buy a scrub, a poor-built, bony animal, because he has a pedigree. But if he is a good animal himself, and has got a pedigree, he is just that much better. But a pedigree is not the whole thing.

Mr. Redman: Have we any guarantee, in any shape or form, that the pedigree that is handed out with the animal belongs to the animal?

Mr. Logan: Well, about the only guarantee you have is that of the owner or the man who sells the animal. There is a severe penalty for a man who will give you a pedigree and represents that it belongs to a certain animal, when it does not.

Mr. Redman: I think that must have been done, because there are bulls bought by people around Kamloops that anybody would be ashamed to hang a pedigree on at all.

Mr. Logan: I do not doubt that. But, of course, you can understand it is impossible for the Government, or anybody else, to know every animal round the country; they have to accept a pedigree that is sent in by the man himself.

Mr. Redman: I think those farmers back East buy pedigreed stock from other breeders, get a good bull and pedigree, and then, when the dealer comes round to buy bulls for British Columbia, they hand out one of their own bulls that are not pedigreed; they are obviously half-bred.

Mr. Logan: I do not know what has been done in the past; there are some dishonourable men in the work of breeding live-stock, there is no doubt about that; there are some who undoubtedly would do a trick like that; but I do not think that Ontario or the East has men that are more dishonest than elsewhere; I think you will find they are just as honest men as you will find in the West, and probably no better.

The profits in dairying depend largely on the kind of cows you are keeping. I can show you cows in this Province that are giving 10,000 pounds of milk in a year, and there are other cows that are not giving more than 2,000 or 3,000. So that you can see there is a marked difference. Back in Ontario, two cows were standing together eating the same kind of feed; one gave a profit, clear of all expenses, of about $50, and the other gave a loss of about $20. So that the matter of the kind of stock you keep is very important. I know that some animals will take on two pounds of flesh a day, on the average, during their life. I have seen steers at two years of age weighing 1,200, 1,400 or 1,500 pounds, while you see other animals at the same age that would not weigh half as much. According to the last census taken in 1901, the live stock of Canada was valued, the unregistered animals at $23 apiece, and registered animals at $52 apiece—about double, you see. Well, that means $325,000,000 to the farmers of Canada—$325,000,000 between good stock and poor. Not only that much difference in the present valuation, but the better your animals, the better bred they are, the cheaper they can be fattened and the more profit there will be in them.

Mr. Cleasby: How was the valuation of the pedigreed animals arrived at? Was it the market value of pedigreed animals as they were put on the market, or according to their weight?

Mr. Logan: You know how the papers were made out in taking the census; the owner would put the valuation on, generally speaking.

Mr. Cleasby: If all the stock in the country were pedigreed the value would decrease?

Mr. Logan: It would decrease to some extent, but very little. Now, when British Columbia is young, is the time to start right, to lay the foundation for a good future. I can see in some parts of this Province where they have wasted hundreds of thousands of dollars, I might say, by bad farming. Some of these farms in the Province are almost valueless on account of the weeds that are on them. Now is the time; I don't know that you need legislation upon anything any more pressing than that of regulating the weeds of this Province. What is the good of one man clearing the weeds off of his farm if his neighbour pays no attention to the matter? There are farms in this Province, and every Province of Canada, which are practically valueless. I know some cases where the farmers have left them, just pulled up and left their farms on account of weeds. Now, this Province has the best facilities for growing weeds of any in Canada. In the first place, you have a fertile soil in nearly every section; in the next place, you have a mild climate, and weeds may grow all the year round. Back East they are frozen up seven months of the year and have to stop growing; here they grow all the time. I believe you would do more good at this Convention if you would ask the Government to strictly enforce not only the Weed Act, which is on our Statute books at the present time, but to make it still stronger; and you would rise up and call the Government blessed in a few years, if it were done. Because, if you do not do it now, this country will become so infested with weeds that nothing under heaven will stop them when they are thoroughly established.

Mr. Collins: We have tons of weed seed come in every year.

Mr. Logan: Yes; I expect that is the case, too. Just take the matter of the potato bug in the Eastern Provinces. Potato bugs have cost the farmers of Nova Scotia $500,000 at

least, and they could have been stopped for a few dollars if they had been thoroughly sprayed when they first started. The San Jose scale has cost the United States between $10,000,000 and $20,000,000, and they have not got rid of it yet. The time to do this is right on the start. In some places the weeds have got an enormous hold now, but you ought to go to work right at once. Not only clear your own farm, but make your neighbour clear his.

I must not take up any more of your time; I have talked longer than I expected. I thank you for listening to me.

A hearty vote of thanks was passed and tendered to Mr. Logan.

The Convention adjourned until to-morrow, March 1st, 1906, at 10 A.M.

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THIRD DAY.

THURSDAY, March 1st, 1906; 10 A. M.

IRRIGATION.

Moved by Mr. DeHart, seconded by Mr. Redman,—

"That whereas in several districts in the Province conditions exist with reference to the problem of irrigation such as will seriously retard the settlement of the same, and is bound to lead to endless and costly litigation if not immediately remedied:

"Therefore, be it Resolved by the Central Farmers' Institute, in session assembled, that the Provincial Government be and is hereby requested to appoint a Commission to inquire into and report upon some system for the conservation of water, and the proper regulation thereof for irrigation purposes in the several districts wherein water is used, or may be used, for irrigation, and without waiting for a full report from said Commissioners; that they be empowered to take evidence upon any question or dispute with reference to water used for irrigation purposes and adjudicate thereon without delay."

Mr. DeHart: Up to the present time, while the large ranches have held large tracts of land, there was little or no trouble about irrigation; they simply let it run all over their places and where it liked, and there seemed to be plenty of water for them; but now it is getting cut up into small patches, from one acre up to 50 acres, mostly 10-acre lots in the Okanagan country. The same is happening around Kamloops, Mr. Redman has told me, and there is lots of trouble about people wasting water. Now, there is plenty of water to irrigate 30,000 acres of land around Kelowna, more than at the present time is under irrigation. If a system were put in it would not be very expensive. There is enough water goes to waste in the month of June, through Mission Creek and Mill Creek, in the Okanagan country, to raise the lake, which is 10 miles long and from one to five miles wide, from about three to four feet. This is an enormous amount of water to go in. Those two creeks put two-thirds of the water into the lake. Now, the old-time records, some of them were given, I understand, without end, where others were given for 99 years. There is one instance in Kelowna where three sections of land are held on one little creek. The prior record is the man against the lake; he refuses to let the other two men have any water until he gets what he wants—which is naturally right, as his is the first record; but before the water gets to him it runs over a gravel bed or sand ridge, and it never reaches him; and, consequently, the other two gentlemen, who could use that water, are kept from getting it by the first record man. There ought to be some adjustment in such cases as that. And this 30,000 acres of land I am speaking of in the district of Kelowna, land in the Okanagan Mission District, and there are many thousand acres elsewhere—land that is not practically worth $12 or $15 an acre, whatever it costs for homesteading it or pre-empting it—this land can be put under cultivation and made worth from $100 to $300 per acre. And now, while so many people are coming in, the Government should look into this before it gets to be a very expensive affair. And I hope that the members will support me in this resolution, in asking the Government to take steps whereby these water records can be adjusted.

Mr. Redman: Of all the questions, I think, that have come up here repeatedly and had nothing done on them, the request for something to be done in regard to irrigation is about the worst. As Mr. Anderson says, he himself has been keen on this question for years. And Mr. Fulton tells me that as long ago as when Mr. G. B. Martin was Chief Commissioner he made recommendations. But somehow or other we have not been able to bring sufficient influence or force up against the Government to make them act. I have here the report of two years ago. (Mr. Redman here read the remarks of Mr. Tatlow made on that occasion). Now, the question has got more acute recently, not only on account of the dry season, but on account of the great inrush of settlers in these dry districts. In Canada, where irrigation is needed, it is not needed as it is down in California or the dry parts of Oregon. Our evaporation is not so great. What we find we are most in need of now are rules and regulations and some more competent authority to handle the Province. At present we apply to the Gold Commissioner, or Water Commissioner, as he is called, for the purpose. The Water Commissioners in different places are acting differently; one will grant every record asked for, and one will refuse them. They have no directions, and they feel themselves to be in the position of having to make laws and maintain laws. The Water Consolidation Act provides for Commissioners; and two parties to a dispute at Kamloops asked the Government to send a Commissioner under the Act, and it was found the conditions were prohibitive and they would not undertake it; they would rather let the quarrel go. Now, you can appeal to the County Court, but that is unsatisfactory, for the simple reason that the County Court Judge, no more than the Gold Commissioner, not as much, is not an irrigation expert, and he has no power and does not feel inclined to hire one and send him out and the expense be charged up to him. So it is unsatisfactory litigation, with nothing in sight. It must be 12 or 14 years ago a little water case was tried at Nicola by Judge Walkem, and no judgment has been given on that to this day. Judge Walkem told me though, afterwards, he was hardly competent to deal with it, and they had better let sleeping dogs lie. There are people who have the first records that are not getting the water. Many times the first records are the worst ones off; they can see nothing in litigation, and the people higher up the creek are getting all the water. We want the Government to devise rules and regulations by which the largest amount of people may be benefited and the largest amount of water may be saved. In the North-West Territories regulations are prescribed by the Minister of the Interior, and these can be altered from time to time as the Lieutenant-Governor in Council is advised. By that means they are able to have some very competent authority. And another thing, they define about on an average how much water shall irrigate an acre. Our Act omits to say that the water shall be measured; it provides for means for measuring, but makes no compulsion for measuring water; but, on the other hand, it says that no man shall waste water. The old timer does not know how much water he is using; now they say he is using too much; there is nothing to give a sound basis for it, if it goes to the County Court or any other place. It would be an easy thing to measure it; the size of the opening is measured, and a man can know how long he opens his ditch-head. I hope you will support our motion.

Mr. Wickersham: I am glad to see our bunch-grass friends alive to the most important question in their country; and I consider their country our country. I have lived some in an irrigating district on the other side, and I know the importance of a thorough system and discipline in the workings of irrigation. I know on the other side, where they have irrigation, they allow each man so many inches of water, according to the number of acres; and there are pretty few difficulties arise, because it is carried on on a system that everyone seems to understand, and is very satisfactory. And in these dry belts in Washington and Oregon the Governments are taking the matter up very extensively, and it pays them to do it. The land is a barren waste until something is done in the way of affording water. I heartily recommend that steps be taken to assist in this measure.

Mr. Cleasby: I am sure the bunch-grass people are very grateful to the last speaker, Mr. Wickersham, for the support he has given to the question before the meeting. It is very gratifying to us to get support for the dry belt measure from people who have to keep water off their land instead of putting it on. If the question of storage of water for irrigation purposes in the upper country is carried out to its fullest extert, as it doubtless will be in a few years, I think the people in the lower places will find that the spring freshet will not be as serious as it has oftentimes been in the past. There is a lot of water that has been doing them harm in the spring that will be held back in the upper country for use in the dry season. Of course, Mr. Chairman and gentlemen, this question of water commission is a pretty delicate

question. In going into the question of adjusting the water rights, you come up against the vested rights of the owners of those water records. That is one thing that the Commissioners once appointed will have to be very careful in considering. Because some men, while they may not have invested very much money in it, yet it is the possession of the water that makes their property valuable. Land is worth very little in the dry belt unless you have water. It is the water that makes the land valuable, not the land itself; and that is a thing that will have to be considered very carefully by the Commissioners. We are not asking, I think, that the Government expend any large sum of money to aid us in any way; we are not asking that the Government assist in irrigation works; we are simply asking that this Commission be appointed to regulate the irrigation question; a few practical men that are irrigation experts, to adjudicate the question of disputes between holders of water records and to report on sections where irrigation is needed. I do not think, gentlemen, that that will cost anything like the benefits which the country will derive from it. The people in the upper country are perfectly willing, so far as I know, to undertake the business part of it, so long as they can get some competent authority that they can go to to decide disputes and to force a settlement of vexed questions of irrigation, the storage of water more particularly. And I hope and trust that the Government of the day will, at a very early date, see its way to make the appointment of such a Commission.

The Chairman: I would like to add a word or two to this matter before I put the question. It was a good many years ago, now, when I first took up the question, having been through all parts of the country and having witnessed the effects of irrigation, not only beneficially, but in an injurious way. There is one phase of the question which very seriously affects it, and that is the injudicious use of water. Now, the injudicious use of water is responsible for a great deal of injury which results to growing crops and to fruit. One instance that I may mention, where there is abundance of water, that is the Grande Prairie section; they have a very large quantity of water, the Salmon River flows through there, and furthermore, they have a lake from which they can draw a supply; there I saw potatoes irrigated when they were nearly ripe. Well, anyone knows that that is wrong. And the quantity of water used is beyond all reason in most cases. Quoting from a United States report, this is what Mr. F. H. Newell, Hydraulic Engineer and Chief of the Division of Hydrography of the United States Geological Survey Department, says in "Irrigation in the United States," published in February:—

"In the humid regions rainfall is usually from three to four inches per month during the crop season. In the arid region, where the sunlight is more continuous and the evaporation greater, there should be, for the ordinary crops at least, enough water during the growing season to cover the ground from four to six inches in depth each month. Carefully tilled orchards have been maintained on far less. In Arizona, where the crop season is longest, being practically continuous throughout the year, twice as much water is needed as in Montana, where the crop season is short and the evaporation is less."

Now, it is tilling that is going to remedy this evil to a great measure; education on that point; the tilling of the ground. Fruit and crops that can be tilled can be produced with a tithe of the water that is now wasted on them. On pasture land, of course, and growing crops and grain, tilling cannot be resorted to; but there certainly can be a great deal of saving of water on those lands.

Mr. Cleasby: The less water you can use to get a growing crop, the better the crop.

Mr. Redman: I have seen a piece of land so much washed out in irrigating growing grain, that it has never grown anything since—four years ago.

The resolution was put and carried.

INSPECTION OF CITRUS FRUITS.

Moved by Mr. J. T. Collins, seconded by Mr. Joseph Randle—

"Whereas insect pests, notably the San Jose scale, have been recently discovered on citrus fruits imported into and exposed for sale in this Province;

"And whereas it has been proved by actual experiment that this dreaded pest, San Jose scale, breeds at the temperature prevailing in Vancouver, B. C., in December last, and is thereby a much more dangerous insect than has been generally considered;

"Therefore, be it Resolved, That this Central Farmers' Institute regards with great satisfaction the action of the Provincial Inspector of Fruit Pests in placing all citrus fruits on

the list of fruits that must be inspected before being removed from any dock, warehouse or station in the Province, and we heartily tender our support and co-operation in the enforcement of this recent regulation."

Mr. Collins: I do not think this requires any discussion whatever. We are all in favour of doing all we can to uphold the Inspector of Fruit Pests; and now that this new pest has been discovered, and comes from a foreign country, I think we should put our foot on it immediately.

The resolution was put and carried.

Reports of the Department of Agriculture.

Moved by Mr. John T. Collins, seconded by Mr. J. R. Carmichael—

"Whereas the reports of the Department of Agriculture have been proved to be of the utmost benefit, not only to the people of the Province but to those seeking information regarding the agricultural resources of the Province;

"And whereas no such report has been issued since 1902;

"Be it Resolved by the Delegates to the Central Farmers' Institute, in convention assembled, that the Government be requested to authorise the publication of the report as soon as possible."

Mr. Collins: Here is another thing that requires, I think, very little discussion. We are all agreed that this report has done a world of good. I think if we could prove that through that report we had brought into the country a half a dozen settlers, it would have been paid for. For my own part, I know two settlers that have come through that report, and these two men have brought money into the country. Now, that report is out of date. I may say, in looking over the report the other day, I found reports from my own district that were not at all up to date; and I have no doubt this applies to the Province at large. We want this report re-written and printed as soon as possible. It is not at all up to date; it does not give us the best of the country—or rather, give strangers. I believe this report has been to every country throughout the world, or nearly so, and it does not give them the truth of the matter. We are certainly now in this Province as much up to date in fruit-growing as anywhere in the world; that has been proved in the last few months; and I think we cannot do better than to pass this resolution. I should have liked to have put it more strongly if I could.

Mr. Carmichael: I think it very necessary to keep up this method as an advertising medium. Settlers who are coming into the country want information as to the different districts. It becomes a very expensive matter for a man that wishes to settle in the country to go to every district himself to find out the capabilities of it. And the agricultural reports we have sent out from the Department heretofore have taken up those matters to a very great extent, and assisted both the Immigration Office and others to give information to prospective settlers. But the old report, of course, is out of date. There are new districts opened now that were never heard of or mentioned in that old report. And I think it is very necessary that this report should be continued; and not only that a report should be made this year, but that it be amended and extended each year, as it is found necessary.

The resolution was put and carried.

Printing of Dr. Tolmie's Address on Glanders.

Moved by Mr. W. J. Brandrith, seconded by Mr. John N. Evans—

"That the Superintendent of Institutes be requested to have Dr. Tolmie's address written out and given to the press, so that the public may have the benefit of the same at once."

Mr. Brandrith: I think this requires no discussion. Those of us who heard Dr. Tolmie yesterday morning certainly have different views from what we had before with regard to the glanders question. And it is so full of interest, and the questions so vitally important to the horsemen of the Province, that I think it is incumbent on this meeting to pass this resolution and have that information disseminated broadcast.

Mr. John N. Evans: There is a feeling of great uncertainty among horsemen of this Province, and they want to know what treatment the Government will give them. Dr. Tolmie's address sets it out fully, and I think it would be of service to the country if it were printed as soon as possible and scattered all over the Province.

The resolution was put and carried.

The Chairman: When I can get the transcript from the stenographer I will be very glad to accede to this request as soon as possible.

Mr. Wickerson asked that three-quarters of an hour be given to informal discussion on the school question. Mr. Randle objected.

CLASSIFICATION OF FRUIT.

Mr. Cleasby moved—"That the Rules be suspended to allow Mr. McHardy to bring on his motion in regard to the classification of fruit." This motion was seconded and carried.

Moved by Mr. McHardy and seconded by Mr. Robb—

"That this Institute place itself on record as being in favour of a classification of fruit which shall be perfect and shall be so named or classified, and that Mr. Metcalfe, one of our members, who is also a delegate to the Fruit-Growers' Association at Ottawa, be and is hereby urged to ask for such a classification or grade of fruit when that association meets."

Mr. McHardy: The idea of the motion is to conserve the high standard of fruit that we have. And in the other Provinces of the Dominion, if they cannot attain to our standard, then let them take a secondary place, and let us have the place that our grade of fruit demands.

Mr. Robb: I was surprised yesterday to learn that in a box of our first class fruit the law allowed a percentage of 10 per cent. of inferior fruit. I have always understood that in a box of first class apples there was no percentage at all of inferior fruit, that they were all good apples. And I think we should endeavour to make it a rule that there should be no percentage of second class fruit in first class apples.

Mr. Carmichael: I should like to know if it is the intention of the motion to allow No. 2 apples in the market, as a classification of fruit, besides the extra grade of B. C.—if it is called a B. C. grade.

Mr. McHardy: It is not particular how many grades there are, as long as there is one grade of perfect fruit, no matter what they call it—special, extra, or anything else.

Mr. Carmichael: There is a great deal of fruit in the Province, and I suppose it will be many years before a second grade would be necessary, even with the close inspection we have. And it would be unfortunate to grade people who are not in a position to grow altogether first class fruit in the meantime. It might take some time to get their orchards up to a state to do that; but to debar altogether a second grade of apples from the market, I think would be a hardship to many fruit-growers.

Mr. Whelpton: I know in my part of the country the second grade of apples is difficult to get rid of at all. I think there should be a second grade at all events, if not a third.

Mr. Vasey: I think there are three grades at present; first, second and third—XXX, XX and X.

Mr. Cleasby: You can put anything in No. 2 and No. 3.

Mr. Harris: It appears to me that this is going to be a great obstacle in the Lower Mainland, where there is a good deal of this second grade fruit. Our No. 1 fruit is supposed to be good fruit. The Dominion Government gives us the privilege of having a few specs probably on them, but I think the Government is doing very well, and I think we ought to leave it alone. Let us not dictate to the Fruit-Growers' Association; they are better posted in these things than we are.

Mr. Randle: While I am in favour of having a grade for first class fruit, I think it would be foolish for us to destroy the second grade. We must have the second grade. A tree that will give first class fruit one season, owing to climatic conditions, in another season may only give second class, no matter how much culture it has.

Mr. Webb: I think that some seem to misunderstand this motion. The motion only asks for a first class apple to be marked so that it will be thoroughly understood that it is A No. 1. And I am in favour of it being marked just what it is. So that the man that buys the best fruit will get the best fruit. A box of apples where everyone was perfect would bring $2 a box, where a box of No. 1 fruit with 10 per cent. of scabs would only bring $1.

Mr. Wickersham: The aim is not to debar any man from selling his apples; they may be graded from first class down; but we are going to make a record of good fruit, and we want to be able to sell good fruit. And if we are allowed to put in every tenth apple a poor one, we certainly are not going to establish much of a reputation for fruit. Two years ago, when I was at St. Louis, at the World's Fair, I noticed a great many fruit-stands offering

fruit for sale, and they charged very high prices. The fruit came from Colorado. And what did I find when I got to Colorado? At Grand Junction, in an irrigated belt, they were shipping hundreds of carloads of apples at one station, and the farmers were receiving $1.25 a box right from the tree; they were being shipped East and going all over the world. Now, if British Columbia is going to sustain her market for fruit, she must pack a fruit that a man, when he buys, knows he is getting exactly what is represented. Let us put No. 1 fruit in No. 1 boxes; and No. 2 will be a good apple for our local market; and so on down.

Mr. Phillips: I am surprised at the expressions of some of the Lower Mainland people. I do not think there could be any hardship if we did not have the No. 2 grade abolished.

Mr. Brandrith: There is some misapprehension among the delegates as to the law regarding this matter. The Dominion Fruit Marks Act only describes a No. 1 apple; it permits No. 2 and No. 3, but it does not say what they shall be; it does not say whether they shall have five or fifty per cent. of affected specimens. This is one of the questions that will come up in the Dominion Conference. And it will certainly help matters there if we have an expression from this meeting as to what should constitute a No. 2. There is no use of attempting to change the present definition of No. 1; because that is established in the markets of the world and you cannot change it. It is possible to have a fancy grade, or an extra, as Mr. Phillips calls it, an extra grade of No. 1. No. 1 extra or No. 1 fancy might be established, in which every specimen should be perfect. We all agree that it was a mistake to ever allow the 10 per cent. of defective specimens to go into what is known as No. 1. But when the thing got established and trade established in that line, and dealers know what they are buying when they buy that No. 1, I think it is useless to try to change it. But what we do want is to establish a fancy grade, in which every apple shall be perfect. And we want them to say what No. 2 shall be. And No. 3, I think you should keep it at home.

Mr. Metcalfe: I can assure you that the question of No. 1 won't be touched at all; that is a settled thing, so far as the Conference is concerned. But they may entertain the idea of a fancy grade. And the question comes up as to No. 2 grade; the question is, what percentage are you going to allow in No. 2, or, are you going to allow anything in this Province?

Mr. Cleasby suggested that Mr. Thos. Cunningham, Provincial Inspector of Fruit Pests, be asked to speak on this question. This was agreed to.

Mr. Cunningham: The fundamental mistake authorised by the Dominion in establishing the No. 1 grade is the permission of 10 per cent. of infected fruit in a box of apples. Now, viewing it from our standpoint, that is the inspection for insect pests, there should not be any infected fruit at all in No. 1 grade—not one. If 10 apples out of every 100 have codling moth larvæ, it is only a question of a short time until the country will be infected as Ontario is. We permit nothing that is infected, no matter what the Dominion Government may determine, to come into the country. Now, I think what is fair to outsiders is fair to ourselves. We should have a grade that is perfect, that a man buying apples in Manitoba or the new Territories knows is a perfect grade; that the No. 1 is a perfect guarantee of cleanliness, free from pest diseases. In South Africa, the other day, apples from Ontario carrying ten per cent. of defective fruit were turned down. The same thing happened in Australia. The men in these countries, in order to defend their country against insect pests, determined that those apples were dangerious to let in. And if we are going to ship to England and to Australia, as we shall—we send some fruit over now, and it is doing very well, and we are going to ship elsewhere presently, and all over the civilised world—we want to have our grade a perfect guarantee of cleanliness. Because it has taken a long time, gentlemen, to attain to this position; it is an asset of the utmost value to fruit-growers to know that wherever the fruit goes it is a guarantee that everything is good. I am certainly in favour of a fancy grade. It is higher grade than anything they produce in Ontario. What happened at the London Exposition the other day? The Dominion Government fixed the day by special request for the exhibition of fruit from the Dominion; and when they found they had to show against British Columbia fruit they backed out; they dare not face us; they knew what was coming; they knew we had clean and perfect fruit, and they were afraid to face us, and we got first prize, the highest for the Empire. Let us follow on on these careful lines; this is my opinion. If I were to go back to Ottawa as a delegate I would insist upon the re-opening of the No. 1 grade; as a true Canadian, I would insist that no imperfect fruit should be put in No. 1.

Mr. McHardy: The motion does not deal with No. 2 grade at all; it only deals with the grade which I would suggest the name of No. 1 special be applied to. I do not think it would be fair to British Columbia shippers and fruit-growers to shut out all imperfect fruit from No. 1 under present conditions, but let us have No. 1 fancy, which will be perfect.

The Chairman: This motion does not deal with any question except of designating one sort of fruit to be first-class.

Mr. Carmichael: I move, as an amendment to that, that the words be added, "and that also a No. 2 grade be made, and the grade of fruit for this class be specified."

Mr. McHardy: That can go in the resolution.

Mr. Robb: Yes.

Mr. Metcalfe: I may say, for Mr. Cunningham's benefit, we are going to try to open the question of No. 1. I have no hope for success, for we have all the other Provinces against us, but we will put ourselves on record.

The motion was then put and carried, with the following words added:—"And that also a No. 2 grade be made, and the grade of fruit for this class be specified."

Honourable Mr. Tatlow here attended upon the Convention.

RECONSIDERATION OF RESOLUTION RE STUMPING POWDER.

The Chairman: Mr. Evans, I believe you brought up the question of the reconsideration of the motion with regard to stumping powder.

Mr. Jas. Evans: Mr. Chairman and gentlemen,—I may in a few words explain; I thought it was advisable to have it reconsidered. In the Upper Country we received no notice of the Government having done anything dealing with the powder question. It has been brought up for the last two years, and my Institute instructed me to come down here and get some satisfactory explanation of the powder question or else go home. You have passed a resolution commending the Government for what they have done; now, what will my people say to me about that? I think the resolution, instead of commending the Government, ought to condemn the Government. The Government ought to do something to settle this question. If they cannot get us any satisfaction let them say so, and we will try some other way. But to be humbugged from year to year is not the proper thing; let us have some conclusion.

Hon. Mr. Tatlow: I suppose this is a matter you are all more or less conversant with. We have had a good deal of correspondence with the powder manufacturers as to what could be done in the matter. The arrangement arrived at was that they would be willing to sell us a carload of powder at the wholesale rate, and store it for us, delivering it on our orders from time to time. As I understood from the correspondence, they proposed that they should put one lot of powder aside for us, and we had to take the risk of deterioration, or of any other accident that might happen to it. Having got that arrangement made, Mr. Anderson communicated with the Farmers' Institutes in the lower portion of the country, to tell them that as soon as we were authorised that we could get orders, and get sale for a carload of powder, we were perfectly willing to buy the carload of powder. In other words, we did not propose to do any more or less than this, to act as bankers. If we were sure we could get the sale of the powder, we would buy the powder for distribution. You would gain the benefit of the wholesale rate, and the Government would simply be advancing the money for your convenience while the transaction was going on. At the same time, we approached the railway companies to find out what rates this could be delivered at. We have a calculation, which is here, which shows that at present rates, say to Nelson, we could not have laid down the powder at a lower price than they would sell it at the magazine in Nelson, on account of the freight rates from the coast to Nelson. It would cost $1.50 a case more for the 200 pounds, if I am not mistaken. And as regards Vernon, there would be a very slight sum in favour of the person buying down here; so small as to make it hardly worth while, if I am not mistaken.

The Chairman: $34.20 for 200 pounds, as against $29.16.

Mr. Tatlow: That would be $5 on the 200 pounds; that is on the present rates. That being the case, we communicated with the C. P. R. to see what we could do in the way of freight rates, and we have this letter:—

"VICTORIA, B. C., March 1, 1906.

"*Hon. R. G. Tatlow,*
"*Minister of Agriculture:*

DEAR SIR,—With further reference to the matter of the shipment of stumping powder by the Government, I beg to say that arrangements have been completed with the Traffic Department under which we will move this powder when shipped by the Government, at car

rates, on a basis of minimum shipment of six thousand pounds. When you are prepared to make shipments, please communicate with Mr. G. L. Courtney, District Freight & Passenger Agent, who has been instructed in this matter.

"Yours truly,

"J. S. Dennis,

"*Asst. to 2nd Vice-President.*"

Six thousand pounds is the smallest amount, then, on which they will give us a carload rate. I do not know whether that is satisfactory to you or not.

Mr. Jas. Evans: I think it would be if you properly distributed the 6,000 pounds. Now, the last powder sent up was sent to the only prairie section there is in that part of the country, sent to Vernon. The object of that I cannot say.

Hon. Mr. Tatlow: When was this?

Mr. Jas. Evans: Some four or five years ago. If they would take 6,000 pounds and distribute it in three or four sections of the country after it goes up there, it would be more satisfactory. I think the whole powder question is solved right now; if we can get it at $5.25 here a box, and at the rates that that letter states, that would be a reduction of a couple of dollars a box; and that is really all we are asking for.

Hon. Mr. Tatlow: So far so good. Now, if we undertake to do our part of this thing, gentlemen, I think we have got to ask you to help us out from your Institutes. I think the Institutes must come together, and perhaps two or three of them, as our friend says. We cannot undertake the distribution; we cannot establish magazines. It would more than eat up the savings to have magazines.

Mr. Evans: We will look after that part of it.

Mr. Tatlow: If your Institute will send us down an order for say 6,000 pounds of powder, we will go to the magazine, we will buy the 6,000 pounds of powder, and arrange with the railway to undertake the shipment. How far does that go to fill the bill? I want when you leave here to-day to have an understanding one way or the other. (Applause.)

Mr. Jas. Evans: Last year I left here with the understanding that the powder question would be dealt with immediately. And the last thing I heard was that the Government had decided to take no action on the powder question. I want a guarantee before I leave that you will do what you have said here. I have a good reason for saying that. Last year's report shows they said they proposed to deal with the powder question immediately. It is time now that the powder should be there. And if you will even guarantee that it will be by the fall of the year, it would be something. It will only keep a certain time. But if it is shipped up during the haying season I would not be surprised if it did spoil. I am satisfied that the Institute will look after the powder when it comes there.

Hon. Mr. Tatlow: I am sorry about the delay last year. So far as the C. P. R. is concerned, we approached them. But the plan last year was not to take this up by the Institutes. It is only this year that the Institutes are mentioned. We understand each other on this question. The Institutes will give us the orders and collect the money; and they will send down here an invoice of the amount they want; and as soon as we get enough orders for 400 cases, or say 300 cases, or in the neighbourhood, we buy a carload of powder, on the conditions named; and we ship that powder and give orders to have it delivered to the Institute; and any delays after it leaves the Government, that is between you and the railway company. Our part ceases when we go to the manufacturer and forward the powder.

Mr. Evans: You ship that to all the Institutes?

Hon. Mr. Tatlow: To the Institutes that can give us a large enough order to fill up. It is no use for one Institute up country to order four or five thousand pounds alone. They have to make up six thousand to get this rate. If they want it at the ordinary rates, there would be no benefit.

A Member: Will you give that rate to Comox?

The Chairman: This refers to the part covered by the Canadian Pacific Railroad; not their water routes.

Hon. Mr. Tatlow; They will make the arrangement on their water routes, won't they?

The Chairman: They might; but a passenger steamer cannot carry powder, and you can haul it up by waggon cheaper.

Hon. Mr. Tatlow: You might take that up with them, and find out what can be done.

Mr. Collins: It suits us perfectly, but what we want is to be able to get this powder at once. Farmers are slow to move, and it will be difficult to get in the orders for a carload

within the next week or two. Now, you know is the time we want the powder; in the next two or three weeks we want powder. Something like three carloads of powder was used last year by the farmers. But a great deal more will be wanted this year. Last year the farmers were holding off because they thought the Government was going to do something for them. I have no hesitation in saying that if we can get this powder, far more than two or three cars will be needed; we shall want five or six cars. And I understand from the manager of the powder works that if the Government will put up the price, it will not be confined to one car but will go on car after car. I do not quite understand whether Mr. Tatlow will be in favour of that, whether after we have taken one car (which will very soon come, I am sure), we shall be able to get another car on the same terms?

Hon. Mr. Tatlow: As long as it is paid for, we will go on for all time with it. All that we want to see fairly carried out is this, we do not want to see any loss to the Province on the operation; for this reason, that after all it is not every portion of the Province that can get the advantage of it, and those people who do not get the advantage should not be called upon to pay for other people's powder. All we can do is to act as bankers for you, and buy in wholesale quantities, giving you every reduction in that way, by using the Province's money; but that the Province should not be the loser in the transaction.

Mr. Collins: The Mainland people are perfectly satisfied now.

Mr. McHardy asked if Nelson could be put on the same basis as Nanaimo and Victoria, there being a magazine there?

Mr. Scott, Manager of the Hamilton Powder Works, who was present, stated the car must be sold at the magazine, f. o. b. Victoria or Nanaimo.

Mr. Dixon: I think this proposition is not feasible that we presented to the Government. Capt. Tatlow seems perfectly willing to give us what we ask, but we cannot manage what we ask for. Now, the proposition for three or four Institutes to agree to ship a certain amount is not feasible at all. The only thing I can see, the easiest way is for us to be allowed to buy powder from our dealers, who get it from the magazines, and we can get a box whenever we like, and the Government allow a rebate. We could reasonably ask for such a rebate, on the grounds that they have granted the Upper Country and the Lower Fraser and the Middle Fraser relief from dyking; and if they grant a bonus on the powder it will relieve the people on the highlands.

The Chairman: There is no motion, Mr. Dixon. But really this question of bonus was taken up last year, and I think it is a waste of time.

Mr. Heggie: Speaking for the Upper Country, I think getting the rate on 6,000 pounds will fill the bill nicely.

Mr. Cleasby: Speaking of the 6,000 pounds of powder, can that powder be distributed at different points on the railway, or must it all be shipped to one point?

The Chairman: I fancy that the arrangement can be made to distribute it. It does not absolutely say so, but I think that is the understanding, so far as I know.

INSTITUTE WORK.

Moved by Mr. McHardy, seconded by Mr. H. R. Phillips—

"That this Institute express its appreciation of the efforts of the Department of Agriculture in supplying us with lecturers on the varied subjects within the scope of the Department, and in aiding us in many different ways; and also that we take this opportunity of thanking Mr. Anderson, Deputy Minister of Agriculture, for the interest he has always shown in our work and efforts, and the courtesy we have at all times received at his hands."

Carried.

VOTE OF THANKS TO CHAIRMAN.

Moved by Mr. Jas. Evans, seconded by Mr. Heggie—

"That a vote of thanks be tendered to the Chairman for the able manner in which he has performed his duties at this meeting, and that this meeting express its appreciation of his efforts in the performance of his duties as Superintendent of Institutes and Deputy Minister of Agriculture." Carried.

The Chairman: I feel very grateful for this expression of appreciation, but let me tell you this: that success depends more upon the officers of the Institutes than upon the Superintendent. Unquestionably, and I speak authoritatively on this matter, those Institutes that have had the most up-to-date officers, especially the secretary, have had the largest, and have

to-day the largest membership and the largest attendance, and the most meetings. And if, when you return to your homes and report on this meeting, you will impress upon the secretaries the importance of acting up to the requirements of the Farmers' Institute Act and regulations, I think you will find that there will be a very great improvement in the Institute matters in time to come. I thank you very kindly. (Applause.)

Mr. R. M. Palmer was unanimously requested to address the Convention.

Mr. Palmer's Address.

Mr. Chairman and Gentlemen,—I wish to thank you for the courtesy extended to me in inviting me to attend your meetings here. The invitation did not reach me quite at the time, but I appreciate it just the same. I have no long address to present to you, and I am sure you would not wish to listen to one if I did, because you have been in session now for some time, and have dealt with a great many questions of importance to the Province. I was very glad to see the stand which the Institute took with regard to the development of the fruit industry. I think we all recognise that grants that were sufficient in years gone by, when the industry was in its inception, are altogether inadequate now that the industry has reached such large dimensions. The shipments of fruit this year far exceed any previous year. That is evidence of what is going on. And there are in the course of development very large orchards in different parts of the country, and they need to be looked after. The extra care and assistance that has been spread all over the country, I think, has done a great deal to help, not only now, but will be of great advantage to the new orchards to be cultivated in the future. I may state in regard to the exhibit of fruit in London, that perhaps the market side of the question there appeals to me even more forcibly than I expected it would; that is, that the opportunities for marketing British Columbia fruits in the Old Country are better than I expected to find them. The prices which were realised for the samples of fruit that were sold there were most encouraging. For standard varieties, such as we would ship there, they ran from 11 shillings to 15 shillings a box; that would net us f. o. b. at shipping points in British Columbia something like $2 and $2.25 a box for fancy apples. When the matter of sending a carload of fruit to London was first talked of, some people thought they were going out of the way in passing the North-West. But this is not the case at all. For your information I may tell you that California alone has sent this past year 160 carloads of fruit to London. Oregon and Washington also made large shipments there of such fruit as we grow in British Columbia, and they are realising similar prices to those which we would realise for our fruits. Now, these prices are greatly in excess of those which we may expect to get in the markets nearer to us, that is, the North-West. We must recognise that in those markets for many years to come the people will be most concerned in purchasing fruit as cheaply as they can. They want good fruit, but at the same time it is a different trade from that to which we would cater in the Old Country. And another advantage is, that it is steadier than the market which is near to us. When it is known that we can command these high prices in outside markets, it is a factor in the market question that is of very great importance to us. And our efforts should be promoted in those districts where we can grow the right kind of fruit to extending the markets in the Old Country, and other parts.

Mr. McHardy: Fruits from all over the world enter the market in London on the same basis?

Mr. Palmer: Yes. If we were making regular shipments to the London market, we would be able to get even better prices than those made in last December, because the merchants then would be looking forward to those shipments, and would be on hand to buy them. After the fruit had been sold and distributed amongst the retail dealers, a lot of it was made up in little fancy packages and exposed for sale in the shops, for fourpence to sixpence apiece, when sold out to the consumers of the fruit.

I thank you for the opportunity of saying these few words, and I won't detain you longer.

A vote of thanks was passed and tendered the secretary for the able manner in which he had discharged his duties.

The chairman thanked the delegates for the courtesy that had always been shown to the chair during this meeting.

It was then moved, seconded and carried that the meeting adjourn *sine die*.

INDEX.

—o—

	Page.
Abortion, Prevention and Treatment of Contagious—By Dr. S. F. Tolmie	37
Address by Mayor Morley	44
" Minister of Agriculture	42
" F. M. Logan	83
" R. M. Palmer	96
" Thos. Cunningham	81
Agricultural College, Endowment of	63
Bush fires, Extinguishing	69
Burrard Farmers' Institute, Changing name of	76
Central Farmers' Institute Convention	41
" " Criticised	12
" " *re* Date of Meeting	78
Classification of Fruit	91
Committees	45
Cream, The care of—By T. A. Wiancko	23
Dairy Inspector, Provincial	61
Demonstrations in Orchard Work	58
Dogs, Tax on	74
Experimental Stations	70
Fences and Water Courses Act	76
Forestry	62
Fruit Growing, Local Conditions in—By Donald Graham	20
" Commercial—By Deputy Minister	24
" in British Columbia	40
Fruit Pulp on the Farm—By G. R. Harrison	38
Glanders	64
" Address on—By Dr. S. F. Tolmie	66
Gun Licence	73
Inspector of Fruit Pests for Kootenay	59
" Provincial Dairy	61
Inspection of Citrus Fruit	90
Institute Work	96
Irrigation	88
Jams, Adulterated	73
Lillooet Farmers' Institute, changing name of	75
Merchandise Marks Act	77
Milk, Creaming of—By T. A. Wiancko	33
Moisture, Conservation of—By F. M. Logan	31
Poultry Keeping—By H. L. Blanchard	18
Printing of Dr. Tolmie's Address	91
Reports :	
Superintendent of Farmers' Institutes	5
Spallumcheen Farmers' Institute, Secretary of	9

PAGE.

Reports—*Concluded:*
Surrey Farmers' Institute, Secretary of 9
Bella Coola " " 10
" " President of 9
Chilliwack " Secretary of 14
On Institute Work—By R. B. King 14
" " —By T. A. Wiancko 16
Of Committee on Resolutions 45, 53
" Superintendent's Address 61
Of Department of Agriculture 91
School Act 77
Secretaries' Salaries, Increase of 79
Seeds, Selection and Improvement of—By James Murray 27
Soil, Cultivation of—By F. M. Logan 31
Stallions, Pure Bred 72
Stumping Powder 53
" Reconsideration of Resolution 64, 93
Superintendent's Report 46
Trees, Home-grown—By J. R. Anderson 35
Vote of thanks to Chairman 96

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