EIGHTEENTH REPORT

OF THE

DAIRYMEN'S ASSOCIATION

OF THE

PROVINCE OF QUEBEC

SUPPLEMENT TO THE REPORT OF THE HON. COMMISSIONER OF AGRICULTURE AND COLONISATION

1899

QUEBEC

PRINTED BY CHARLES PAGEAU,

PRINTER TO HER MOST EXCELLENT MAJESTY THE QUEEN.

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Eighteenth Annual Report

OF THE

DAIRYMEN'S ASSOCIATION

OF THE

PROVINCE OF QUEBEC

To the Honorable Commissioner of Agriculture,

Québec.

SIR,—

The Board of Directors of the Dairymen's Association of the Province of Quebec has the honor to offer you the following report of its operations during the year 1899, and of the Annual Meeting held at St-Jérôme, 5th and 6th December last.

THE SECRETARY-TREASURER OF THE DAIRYMEN'S
ASSOCIATION OF THE PROVINCE OF QUEBEC,

EMILE CASTEL.

Saint-Hyacinthe, May 15th 1900.

Officers and Directors of the Dairymen's Association

FOR 1900

Honorary President : M. MILTON MACDONALD, . P. P., Actonvale, Que.
President : M. J. A. VAILLANCOURT, Montreal.
Vice-President : M. J. C. CHAPAIS, St-Denis de la Bouteillerie, Que.
Secretary-Treasurer : M. EMILE CASTEL, St-Hyacinthe.

DIRECTORS :

DISTRICT	NAMES	RESIDENCE
Arthabaska	Messrs. D. O. BOURBEAU	Victoriaville.
Beauce	J. DE L. TACHÉ	St-Hyacinthe.
Beauharnois	ROBERT NESS	Howick.
Bedford	C. H. PARMELEE, M.P.	Waterloo.
Charlevoix et Saguenay	J. D. GUAY	Chicoutimi.
Chicoutimi	JOS. GIRARD, M. P. P.	St-Gédéon, Lac St-Jean.
Gaspé	ALEXIS CHICOINE	St-Marc, Verchères.
Iberville	SAM. J. ROY	Sabrevois.
Joliette	J. B. A. RICHARD	Joliette.
Kamouraska	FRANCOIS GAGNON	St-Denis de Bouteillerie.
Montmagny	M. L'ABBÉ F. P. CÔTÉ	St-Valérien, Shefford.
Montreal	J. H. SCOTT	Montréal.
Ottawa	LOUIS LABELLE	St-Jérôme, Terrebonne.
Quebec	N. GARNEAU, M. P. P.	Ste-Foye, Que.
Richelieu	J. L. LEMIRE	La Baie du Febvre.
Rimouski	CHS. PRÉFONTAINE	Isle Verte.
St François	L'ABBÉ V. CHAREST	Sherbrooke.
St-Hyacinthe	L. T. BRODEUR	St-Hugues, Bagot.
Terrebonne	L'ABBÉ COUSINEAU	Ste-Thérèse, Terrebonne.
Three-Rivers	CHARLES MILOT	Ste-Monique, Nicolet.

LEGISLATION

AUTHORISING THE FORMATION OF AN ASSOCIATION UNDER THE NAME OF "DAIRYMEN'S ASSOCIATION OF THE PROVINCE OF QUEBEC."

(1749 to 1755 Q. R. S. and Scheldule.)

1749. The Lieutenant Governor in Council may authorise the formation for the Province of an association, having for its object to promote improvement in the manufacture of butter and cheese, and of all things connected therewith, under the name of the "Dairymen's Association of the Province of Quebec," 45 V., c. 61, s. 1.

1750. The association shall be composed of at least fifty persons, who shall sign a declaration in the form of the schedule annexed to this section; and every member of of the association shall subscribe and pay, annually, a sum of at least one dollar to the funds of the association.

The Commissioner of Agriculture and Colonisation shall be *ex-officio* a member of the association. 45 V., c. 66 ss. 2 and 6; 50 V., c. 7, s. 12.

1751. Such declaration shall be made in duplicate, one to be written and signed on the first page of a book to be kept by the association for the purpose of entering therein the minutes of their proceedings, during the first year of the establishment of such association, and the other shall be immediately transmitted to the Commissioner of Agriculture and Colonisation, who shall, as soon as possible after its reception, cause to be published a notice of the formation of such society in the Quebec Official Gazette. 45 V., c. 66, s. 3; 50 V., c. 66, s. 4.

1752. From and after the publication, in the Quebec Official Gazette, of the notice of the formation of the association, it shall become and be a body politic and corporate, for the purposes of this section, and may possesses real estate to a value not exceeding twenty thousand dollars. 45 V., c. 66, s. 4.

1753. The association shall have power to make by-laws, to prescribe the mode or manner of admission of new members, to regulate the election of its officers, and, generally, the management of its affairs and property. 45 V., c. 66, s. 5.

1753*a*. The association, with a view of obtaining a more prompt and complete diffusion of the best method to be followed for the production of milk, the fabrication of dairy produce, and, in general, for the advancement of the dairy industry, may subdivide the Province into regional divisions, in which syndicates, composed of proprietors of butter and cheese factories and like industries, may be established.

The formation and working of such syndicates are to be governed by the regulations made by the said Association and approved by the Lieutenant-Governor in Council; and such syndicates shall be under the direction and supervision of the Association.

To such syndicates, the Lieutenant-Governor in Council may grant, out of the Consolidated Revenue Fund, a subsidy equal to one half of the expenses incurred for the service of inspection and instruction organized therein, including the salary of inspectors, their travelling and other expenses directly connected therewith, but not to exceed the sum of two hundred and fifty dollars for each syndicate.

"**1753***b*. The inspectors, including the Inspector General, are appointed by the Lieutenant Governor in Council, and shall be experts who hold certificates of competence from the board of examiners mentioned in article 1753*d*.

The inspectors are to superintend the production and supply of milk, as well as the manufacture of butter and cheese in the establishments so organised into such syndicates, the whole in conformity with the regulations made by the said Association and approved by the Lieutenant-Governor in Council.

"**1753***c*. The salary of the Inspector General shall be paid by the Association.

His duties shall be defined by regulations to be passed by the Association and approved by the Lieutenant Governor in Council.

"**1753***d*. A board of examiners may be appointed by the Association for the purpose of examining candidates for the office of inspector.

The working of such board shall be governed by the regulations to be passed for that purpose by the Association and approved by the Lieutenant Governor in Council.

"**1753***e*. It shall be lawful for the Lieutenant Governor in Council to grant to the said society an additional sum of one thousand dollars, annually, for the direction and supervision of the syndicates, for the maintenance and working of the boards of examiners above mentioned.

1754. The association shall hold an annual meeting, at such time and place as shall have been selected by the board of directors, besides those which may have been prescribed and determined by the by-laws.

At such annual meeting, the Association shall elect a president, and vice-president, a secretary-treasurer and also one director for each judicial district of the Province, chosen from among the members of the Association, domiciled in such districts. 45 V., c. 66, s. 7.

1755. The officers and directors of the Association shall prepare and present, at the annual meeting of the Association, a detailed report of their operations during the past year, indicating the names of all the members of the Association, the amount subscribed and paid by each, the names of the factories, inventions, improvements and products which deserve public notice, and giving all the information which they deem useful in the interest of the dairy industry. 45 V., c. 66, s. 8.

SCHEDULE

MENTIONED IN ARTICLE 1750.

We, the undersigned, agree to form ourselves into an association under the provisions of section thirteenth of chapter seventh of title fourth of the Revised Statutes of the Province of Quebec, respecting the Dairy Association of the Province of Quebec; and we hereby, severally, agree to pay to the treasurer annually, while we continue members of the Association, the sums opposite to our respective names, and we further agree to conform to the rules and by-laws of the said Association :

NAMES	$	Cts.

45 V., c. 66, schedule.

52 VICT. 1899 CAP. 22, QUEBEC.

AN ACT TO PROVIDE FOR THE FORMATION OF FARMERS' AND DAIRYMEN'S ASSOCIATIONS.

Assented to 21*st March*, 1889.

HER MAJESTY, by and with the advice and consent of the Legislature of Quebec, enacts as follows.

1. The following section is added after section thirteenth of chapter seventh of title fourth of the Revised statutes of the Province of Quebec :

SECTION XIV.

FARMERS' AND DAIRYMEN'S ASSOCIATIONS.

"**1755***a*. The Lieutenant-Governor in Council may authorize the formation in each judicial district of the Province of an association, having for its object the promotion of agriculture, the improvement of the manufacture of butter and cheese, the inspection of butter and cheese factories, and all other things in connection therewith, to be called the Farmers' and Dairymen's Association of the District of

"**1755***b*. The association shall be composed of at least twenty-five persons, who shall sign a declaration in the form of the schedule annexed to this section.

Every member of the association shall subscribe and pay, annually, a sum of at least one dollar to the funds of the association.

"**1755***c*. The Commissioner of Agriculture and Colonisation shall be *ex-officio* a member of the association.

"**1755***d*. Such declaration shall be made in duplicate, one to be written and signed on the first page of a book, to be kept by the association for the purpose of entering therein the minutes of their proceedings, and the other shall be immediately transmitted to the Commissioner of Agriculture and Colonisation, who shall, as soon as possible after its reception, cause to be published a notice of the formation of such association in the Quebec Official Gazette.

"**1755***e*. From and after the publication, in the Quebec Official Gazette, of the notice of the formation of the association, such association will become and shall be a body politic and corporate for the purpose of this section, and may possess real estate to the value not exceeding five thousand dollars.

"**1755***f*. The association shall have power to make by-laws, to prescribe the mode or manner of admission of new members, to regulate the election and appointment of its officers and employés, and generally, the management of its affairs and property, for the purpose of carrying out the objects of the association.

"**1755***g*. The first meeting of the associatiou shall be held at the *chef-lieu* of the district, on the second Wednesday of the month following the one in which the notice of formation of the association is published in the Quebec Official Gazette.

"**1755***h*. The association shall hold an annual meeting, at such time and place as shall have been selected by the board of directors.

"**1755***i*. At such annual meeting, the members of the association present shall elect three directors from each county forming the judicial district for which the association is formed, chosen from the members of the association domiciled in the said counties, who shall constitute the board of directors of the association.

"**1755***j*. The board of directors shall elect, from their members, a president and vice-president, and shall appoint a secretary-treasurer and such other officers and employés as they may deem necessary for carrying out the objects of the association.

"**1755***k*. The directors shall prepare and present at the annual meeting of the association a detailed report of their operations during the past year.

Such report shall indicate the names of all the members of the association, the amount subscribed and paid into the hands of the secretary-treasurer, the names and number of the factories in their district, and give such other information as shall be deemed useful and in the interest of agriculture and the dairy industry.

A triplicate of such report shall be transmitted to the Commissioner of Agriculture of the Province, and another to the Dairy Association of the Province of Quebec.

2. This act shall come into force on the day of its sanction.

SCHEDULE.

MENTIONED IN ARTICLE 1755*b*.

We, the undersigned, agree to form ourselves into an association under the provisions of section fourteenth of chapter seventh of title fourth of the Revised Statutes of the Province of Quebec, respecting Farmers' and Dairymen's Associations, and we hereby severally agree to pay to the secretary-treasury, annually, while we continue members of the association, the sums opposite our respective names, and we further agree to conform to the rules and by-laws of the said association.

NAMES.	$	Cts.

SECTION III.

SOCIETIES FOR THE MANUFACTURE OF BUTTER OR CHEESE OR OF BOTH.

(R. S. P. of Q., Art. 5477 to 5483.)

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§ 1.—*Formation of such Societies.*

5477. When in any part of the province, five or more persons shall have signed a declaration, that they have formed an association for the manufacture of butter or cheese (or of both, as the case may be) in a certain place which shall be designated as their principal place of business, and have deposited such declaration in the hands of the prothonotary of the Superior Court in the district where the society intend to do business, such persons and all such other persons as may thereafter become members of such society, their heirs, executors, curators, administrators, successors and assigns, respectively, shall constitute a body politic and corporate, under the name of "butter and cheese manufacturing society (or both as the case may be) of (name of the place and number of the manufactory as mentioned in the declaration.)"

The prothonotary shall deliver to such company a certificate stating that such declaration has been made, which certificate shall be registered in the registry office of the place in which such society has its principal place of business, and be also, without delay, forwarded to the Commissioner of Agriculture and Colonisation, 45 V., c. 65, s. 1; 50 V., c. 7, s. 12.

5478. The declaration, to be made under the provision of this section, shall, in order to constitute into a corporation any butter and cheese manufacturing society, be in the form annexed to this section, 45 V., 15, s. 9.

§ 2—*General Powers and Duties*

5479. Every such society so formed, for the purposes for which it has been established, shall enjoy all the powers vested in ordinary corporations, especially that of choosing officers from among its members, of passing by-laws not contrary to the laws of this Province, to determine the number of its members, for its internal management, and for conducting its proceedings and the administration of its affairs in general. 45 V., c. 65, s. 2.

5480. The first meeting of the shareholders of the society shall take place within the eight days following the deposit of the declaration mentioned in article 5477, after a special notice to that effect has been given to the share-holders, at least two days before the meeting for the purpose of electing officers and approving the by-laws of the society.

The annual general meetings afterwards, and all special meetings of the society shall be regulated by by-laws. 45 V., c. 65, s. 3.

5481. A book shall be kept by each society for entering the subscriptions of shares, and another for entering in detail all the transactions of the society. 45 V., c. 65, s. 4.

5482. Each of such books and the by-laws shall be constantly open to the inspection of the members of the society. 45 V., c. 65, s. 5.

5483. During the course of the month of December, in each year, a statement of its operations for the year shall be forwarded to the Commissioner of Agriculture and Colonisation by each society formed under the section. 45 V., c. 65, s. 12.

SCHEDULE

IN ACCORDANCE WITH ARTICLE 5478.

We, the undersigned, agree to form ourselves into an association in virtue of paragraph one of the third section of the fourth chapter of the eleventh title of the Revised Statutes of the Province of Quebec, to be entitled "The Association for the manufacture of butter (*or*) cheese, (*or*) of butter and cheese, of the parish of county of , and we pledge ourselves to conform to the rules and by-laws of the said association.

(*Signatures*) 45 Vic, c. 65, Schedule.

49 VICT., CAP. XLII., OTTAWA.

AN ACT TO PROHIBIT THE MANUFACTURE AND SALE OF CERTAIN SUBSTITUTES FOR BUTTER.

Assented to 2nd June, 1886.

Whereas the use of certain substitutes for butter, heretofore manufactured and exposed for sale in Canada, is injurious to health ; and it is expedient to prohibit the manufacture and sale thereof : Therefore, Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :

1. No oleomargarine, butterine or other substitute for butter, manufactured from animal substance other than milk, shall be manufactured in Canada, or sold therein, and every person who contravenes the provisions of this Act in any manner whatsoever, shall incur a penalty not exceeding four hundred dollars, and not less than two hundred dollars, and in default of payment, shall be liable to imprisonment for a term not exceeding twelve months and not less than three months.

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52 VICT., CAP. XLIII., OTTAWA.

AN ACT TO PROVIDE AGAINST FRAUDS IN THE SUPPLYING OF MILK TO CHEESE, BUTTER AND CONDENSED MILK MANUFACTORIES, (1)

Assented to 2nd May, 1889.

HER MAJESTY, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :—

1. No person shall sell, supply or send to any cheese, or butter, or condensed milk manufactory, or to the owner or manager thereof, or to any maker of butter, cheese or condensed milk, to be manufactured, milk diluted with water, or in any other way adulterated, or milk from which any cream has been taken, or milk commonly known as skimmed milk.

2. No person who supplies, sends, sells or brings to any cheese, or butter, or condensed milk manufactory, or to the owner or manager thereof, or to the maker of cheese, or butter, or condensed milk, any milk, to be manufactured into butter or cheese, or conden-ed milk, shall keep back any portion of that part of the milk known as "strippings."

(1) The Ontario courts have declared to be "ultra vires ;" an Act of the Legislature on the same subject like that which exists in our Provincial Statutes. The Federal Act was passed subsequently to this judicial decision, and all prosecutions regarding frauds in the furnishing of milk should, as a measure of prudence be instituted in virtue of thisAct.

3. No person shall knowingly sell, supply, bring or send to a cheese, or butter, or condensed milk manufactory, or to the owner or manager thereof, any milk that is tainted or partly sour.

4. No person shall sell, send or bring to a cheese, or butter, or condensed milk factory, or to the owner or manager thereof, or to the maker of such butter, or cheese, or condensed milk, any milk taken or drawn from a cow that he knows to be diseased at the time the milk is taken or drawn from her.

5. Every person who, by himself, or by any other person to his knowledge, violates any of the provisions of the preceding sections of this Act, shall, for each offence, upon conviction thereof before any justice or justices of the peace, forfeit and pay a fine not exceeding fifty dollars and not less than five dollars, together with costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding six months, unless the said penalty and costs of enforcing the same, be sooner paid.

6. The person on whose behalf any milk is sold, sent, supplied or brought to a cheese, or butter, or condensed milk manufactory for any of the purposes aforesaid, shall *primâ facie* be liable for the violation of any of the provisions of this Act.

7. For the purpose of establishing the guilt of any person charged with the violations of any of the provisions of sections one, or two, of this Act, it shall be sufficient *primâ facie* evidence on which to found a conviction, to show that such milk so sent, sold, supplied or brought to a manufactory as aforesaid to be manufactured into butter, or cheese, or condensed milk, is substantially inferior in quality to pure milk, provided the test is made by means of a lactometer or cream gauge, or some other proper and adequate test, and is made by a competent person. Provided always that a conviction may be made or had on any other sufficient legal evidence.

8. In any complaint or information made or laid under the first or second sections of this Act, and in any conviction thereon, the milk complained of may be described as deteriorated milk, without specification of the cause of deterioration, and, thereupon, proof of any of the cause or modes of deterioration mentioned in either of the said two sections, shall be sufficient to sustain conviction. And in any complaint, information, or conviction under this Act, the matter complained of may be declared, and shall be held to have arisen, within the meaning of "The Summary Convictions Act," at the place where the milk complained of was to be manufactured, notwithstanding that the deterioration thereof was effected elsewhere.

9. No appeal shall lie from any conviction under this Act to a Judge of a Superior, County, Circuit or District Court, or to the Chairman or Judge of the Court of the Sessions of the Peace, having jurisdiction where the conviction was had; and such appeal shall be brought, notice of appeal in writing given, recognisance entered into, or deposit made, within ten days after the date of conviction, and shall be heard, tried, adjudicated upon and decided without the intervention of a jury, at such time and place

as the Court or Judge hearing the same appoints, within thirty days from the date of conviction, unless the said Court or Judge extends the time for hearing and decision beyond, such thirty days ; and in all other respects not provided for in this Act, the procedure under "The Summary Convictions Act," so far as applicable, shall apply.

10. Any person accused of an offense under this Act, and the husband or wife of such person, shall be competent and compellable to testify.

11. Any pecuniary penalty imposed under this Act shall, when recovered, be payable one-half to the informant or complainant, and the other half to the owner, treasurer or president of the manufactory to which the milk was sent, sold or supplied for any of the purposes aforesaid, in violation of any of the provisions of this Act to be distributed among the patrons thereof in proportion to their respective interest in the product thereof.

CONSTITUTION OF THE DAIRYMEN'S ASSOCIATION.

(Incorporated by Q. R. S., 1749 to 1755 and schedule.)

1. The Association takes as its designation ; "The Dairymen's Association of the Province of Quebec."

2. The object of the association is to encourage the improvement of the manufacture of butter and cheese and of all things connected with the above manufacture.

3. To become a member of the association, a subscription of at least one dollar ($1.00) a year is all that is requisite.

4. The affairs of the association shall be under the direction of a president, a vice-president, a secretary-treasurer, and certain directors named in accordance with the act of incorporation, all of whom shall form the Board of Directors of the Association, and shall make a report of the operations of the association at the annual general meeting of the association.

5. The election of the officers and directors shall take place at the annual general meeting, the date of which shall be fixed by the board ; to insure the right of voting at the above election, the previous payment of subscriptions will be requisite.

6. When more than one candidate is proposed for the office, the voting shall be by *sitting* and *standing* (*assis et levés*), the secretary shall count the votes, and the president shall declare elected the candidate who shall have the majority of votes.

7. The officers elected shall remain in office until the following election, and shall be re-eligible.

8. The president shall take the chair at the general meetings, and at the meetings of the board of directors.

9. The president shall be, *ex-officio*, a member of all the committees of the board of directors.

10. To the secretary-treasurer shall be entrusted all the moneys and other valuables belonging to the association; he shall keep, in a special register, minutes of all meetings of the association as well as the board of directors, and these minutes shall be signed by the president, or, in his absence, by the vice-president, and by the secretary-treasurer: he shall besides, keep books in which shall be entered, regularly without delay, all the monetary operations of the association. At the end of the fiscal year of the association, the secretary-treasurer shall present before the board a statement of accounts for the director's approbation.

11. The vacancies which occur among the officers or directors shall be temporarily filled by the board, and the board shall also nominate the directors for those judicial districts which may not as yet be represented.

12. The board, to ensure greater efficiency, shall be at liberty to claim the services of specialists as advisers.

RULES AND REGULATIONS OF DAIRYMEN'S ASSOCIATION.

1. The annual or general meetings of the association, as well as those of the board of directors, shall be called by notice in writing from the secretary treasurer to each of the members of the association and of the board. Notice of the meetings of the association shall be given at least a month beforehand.

2. At the request of three directors or officers of the association, the president may call a meeting of the board of directors; the call shall be in the form mentioned above.

3. At the meeting of the board of directors, three shall form a quorum, exclusive of the president and vice-president.

4. The board of directors may name, from among its members, a committee to audit the accounts, and other committees for any purpose it may think necessary.

5. The order of business at general and official meetings shall be determined by the board of directors.

6. No question shall be submitted for discussion except it be in writing and laid before the secretary-treasurer.

7. The secretary treasurer shall be obliged to furnish security to the amount of $400.00, which security shall be subject to the approval of the board.

SYNDICATES OF CHEESE AND BUTTER FACTORIES.

BY-LAWS ADOPTED BY THE DAIRYMEN'S ASSOCIATION AND ASSENTED TO BY THE LIEUTENANT-GOVERNOR IN COUNCIL.

Copy of the report of a committee of the Honorable Executive Council, dated January 23rd, 1891, approved by the Lieutenant-Governor

January 24th, 1891. (Translation).

No. 75.—On the approval of certain regulations of the Dairymen's Association.

The Hon. the Commissioner of Agriculture and Colonisation, in a memorandum, dated the twenty-third of January of the current year, 1891, recommends that the regulations of the Dairymen's Association of the Province of Quebec, a copy of which is annexed to the above memorandum, be approved.

Certified true copy,

(Signed), GUSTAVE GRENIER,
Clerk of the Executive Council.

REGULATIONS OF THE DAIRYMEN'S ASSOCIATION.

Whereas, by a law passed at the last session of the Legislature of the Province of Quebec, the Dairymen's Association of the Province of Quebec was authorized to create regional divisions in which the proprietors of creameries, cheese factories, and other dairy establishments may form themselves into syndicates, for the purpose of securing a more prompt and complete diffusion of the best methods of conducting the production of milk, the manufacture of dairy products, and the advancement in general of the dairy industry ;

And whereas the said association was, by the same law, entrusted with the duty of :

1. Establishing regulations for the formation and working of the said syndicates;
2. Of directing and superintending the syndicates ;
3. Of establishing rules to define the duties of the Inspector General and of the

inspectors who are to superintend the production of milk and the manufacture of butter and cheese in establishments so organised into syndicates ;

4. Of appointing a board of examiners for the examination of candidates for the office of inspectors, and of laying down regulations for the working of the said board ;

And, whereas, there is granted to each syndicate a sum equal to half the outlay incurred for the service of inspection and instruction organised in the syndicates, including the salary of the inspector, his travelling expenses, and other expenses relating directly to the said service, but which sum granted must not in any case exceed $250 (two hundred and fifty dollars) for each syndicate ;

Whereas, there has been granted to the said association, besides its subsidy and other ordinary concessions, an additional sum of $1,000 (one thousand dollars), for the expenses necessary for the direction and superintendence of the syndicates, as well as for the maintenance and due working of the board of examiners above mentioned ;

The said association constitutes, as follows, the programme of the formation and working of the syndicates, of their direction and superintendence, of the manner of conducting the proceedings of the board of examiners, and to the duties of inspectors :

I

DIVISION OF THE PROVINCE.

The province shall be divided as follows, for the purpose of the new organisation :

a. Syndicates of cheese-factories or of cheese-factories and creameries :

No. of Division.	Counties comprised in the division.
1	Gaspé, Bonaventure, Matane, Rimouski, Témiscouata
2	Kamouraska, L'Islet, Montmagny, Bellechasse.
3	Dorchester, Lévis, Beauce.
4	Lotbinière, Mégantic, Arthabaska.
5	Nicolet, Yamaska.
6	Drummond, Richmond, Wolfe.
7	Sherbrooke, Stanstead, Compton.
8	St. Hyacinthe, Bagot, Richelieu.
9	Rouville, Iberville, St.John's.
10	Shefford, Brome, Missisquoi.
11	Verchères, Chambly, Laprairie, Napierville.
12	Beauharnois, Chateauguay.
13	Huntingdon.
14	Saguenay, Lac St-Jean, Chicoutimi, Charlevoix.
15	Portneuf, Québec, Montmorency

16.....Three-Rivers, Champlain, St-Maurice, Maskinongé.
17.....Montcalm, Joliette, Berthier, l'Assomption.
18.....Hochelaga, J.-Cartier, Laval, Terrebonne, Deux-Montagnes.
19.....Argenteuil, Ottawa, Pontiac.
20.....Vaudreuil, Soulanges.

b. Syndicates of butter-factories.

As any limitation of territory would be a hinderance to the formation of syndicates of butter-factories, on account of the small number of such existing in the province, liberty may be granted them by the association to organise themselves in accordance with the following regulations; and the united counties in which such a syndicate shall have been formed shall constitute a territorial division for all the purposes of the present regulations.

II

DIRECTION AND SUPERINTENDENCE OF THE SYNDICATES.

1. The association shall direct the working of the syndicates :

a. By means of a fortnightly or monthly bulletin published during the season of manufacture, the prospectus-number of which shall be published at once, and distributed among the old and new members of the association and those of the public who are interested in the dairy industry ; this bulletin shall contain, especially, instruction and advice to farmers, producers of milk, patrons of factories, to inspectors and makers of cheese and butter, relating more especially to the time of year following the issue of each number ; it shall also contain general information in connection with the dairy industry.

b. By means of the school-factory of the association, whose work shall be conducted with a view to the new organisation.

2. The superintendence of the syndicates shall be exercised by the association :

a. Through the Inspector-general and the inspectors of the syndicates, whose duties and office will be defined hereafter ;

b Through its ordinary officers, as regards all private or public communications it may have to make to the representatives of the syndicates of the factories syndicated.

3. The association does not pretend to exercise any control over the interior management of the financial arrangement of the syndicates ; it will suffice, if the latter conform to the present regulations to entitle them to be considered as having accepted the direction and superintendence of the association.

4 The direction and superintendence of the association shall be exercised with a view to securing especially in the syndicated establishments :

a. A regular attention to the testing of the patrons' milk, in order to obtain from them milk of the best quality, neither skimmed, nor watered, nor adulterated in any way ;

b. A scrupulous attention to the general keeping in order of the factories, and to the maintenance of cleanliness therein ;

c. Good quality and uniformity in the products manufactured ;

d. A uniform system of bookkeeping, sufficient to insure exactness and integrity, of the operation of the year, which each factory will have to furnish to the association.

III.

ORGANISATION AND WORKING OF THE SYNDICATES.

1. A syndicate shall be constituted by the associating together of creameries, cheese factories, or other dairy establishments, to the number of not fewer than (15) fifteen, or more than (30) thirty ; it shall have for its aim the diffusion over the division in which it is formed of the best methods of producing milk and of manufacturing dairy products ; it may also aim at adopting and exercising all measures calculated to protect such interests of the patrons and proprietors as are to the general advancement of the dairy industry ; the proprietors or representatives of the syndicated factories shall for that purpose engage to support between them, in a proportion left to their discretion, the expense of the hiring of one or more experienced inspectors, who shall superintend the production and supplying of the milk, as well as of its manufacture into cheese and butter in the syndicated factories. The inspector shall be under the direction of the Dairymen's Association, under the conditions hereinafter enumerated, and shall conform to the present regulations.

2. The syndicate shall organise, as much as possible, by the beginning of the manufacturing season.

3. The syndicate shall organise by the signature in duplicate of the proprietors or the representatives of the factories who wish to form themselves into a syndicate to a declaration, on a printed form, which shall be furnished by the association, and a duplicate of which shall be sent without delay to the secretary of the association, who shall acknowledge its receipt.

4. In each territorial division, syndicates composed exclusively of cheese-factories or of creameries, or of creameries and cheese-factories, may be established.

5. If in any division there be not found a sufficient number of factories whose representatives desire to form a syndicate, these factories may agree with those of a neighbouring division to form a syndicate, or to become part of an already existing one.

6. Every factory shall have the right to ask for admission into the syndicate of its division.

7. Every syndicate shall have the right to prevent any factory of its division from uniting with a syndicate of a neighbouring division, except in the case provided for by the following article.

8. For special reasons, the association shall be empowered to allow certain factories of a division to unite with the syndicate of a neighbouring division, provided that this permission hinder not the formation of a syndicate in the former division.

9. The representatives of the factories associated into a syndicate shall name a president, a vice-president, and a secretary-treasurer, who shall be the officers of the syndicate and whose addresses shall be given to the association ; all official correspondence shall be carried out by the medium of the secretary-treasurer.

10. At the end of each season, the syndicate shall render an exact account, certified by its secretary-treasurer, of the salary paid to its inspector, his travelling and other expenses in direct direction to his duties of inspection, such as hire of carriages, railway and steamboat fares, board, stationery, postage, purchase of instruments for the inspector's use, etc., etc.

11. As the government grant is given specially for the service of inspection, this grant in no case shall exceed the half of the genuine amount of the expenses alone just mentioned, provided that half do not exceed two hundred and fifty dollars ($250.00) ; and the payment thereof shall only be made at the end of the dairy-season, after the report mentioned in the preceding article shall have been made to the association by the syndicate.

12. A subscription shall be paid by the proprietors, or by the representatives of each factory, to the Dairymen's Association, or to the dairy association of the district in which the syndicate is formed, in order that the makers or the directors may be kept *au courant* of the work of the association ; moreover, they shall forward to the association a complete certified report of the operations of their factory, according to the official form adopted by the association ; which shall not be made public except by consent of those therein interested.

IV

OF THE INSPECTOR-GENERAL AND THE INSPECTORS OF SYNDICATES.

1. The Inspector-General and the inspectors of syndicates are appointed by the Lieutenant-Governor-in-Council ; but in neither case will any one be appointed until he shall have previously undergone an examination sufficient to establish his qualifications before the board of examiners of the association. The Inspector-General shall be paid by the association, and other inspectors by the syndicates.

2. The duties of the inspectors, belonging exclusively to the teaching of the best methods for the production of milk and its proper supply to the factories, the manufacture of dairy-products, correct accounts, and the orderly management of the factories, these officers shall certainly avoid meddling with any troubles, with which their duties have no concern, whether they arise between neighbouring factories, between buyers and sellers, or between patrons and proprietors. They must, under pain of immediate dis-

missal, observe the most guarded discretion in regard to all matters they note in the exercise of their duties, and reveal them to no one except to the society or to the officers and servants of the factories concerned.

§ 1. OF THE INSPECTOR-GENERAL.

1. The Inspector-General is the representative of the association accredited to the proprietors, the makers, and the representatives of the establishments under syndicates; all the instructions, therefore, he shall give, with the approbation of the association, are to be observed.

2. Before the opening of the season, or even during the season, if he see fit, or if he receive orders to that effect from the association, the Inspector-General shall call together the inspectors of syndicates, by groups, at the school-factory of the association, or at some other factory, and keeping them there a few days, instruct them in their duties and in the best methods of manufacture.

3. After the opening of the season, the Inspector-General shall keep himself in communication with the inspectors of syndicates by going at different times to pass two or three day alternately with each of them, to ascertain the efficiency of the factories they have in charge. In these visits, the Inspector-General shall not be so much bound to visit the factories in particular, as to follow the steps of the inspectors in their ordinary duties

4. The Inspector-General shall lend his aid to the working of the school-factory, which he shall visit, taking it in turn with the syndicates.

5. The Inspector-General shall keep, in duplicate, a special note-book, in which he shall insert, day by day, all the observations he makes on the work of each of the inspectors, and on the general management of their factories; these notes shall be regularly communicated to the association, in time to be printed in each number in the bulletin, in which everything of public interest shall be inserted; the Inspector-General shall also keep a daily account of his travelling and other expenses.

6 With the consent of the association, the Inspector may visit the model establishments of this province or of Ontario, for the purpose of the studying and of publishing any new process of working which may have passed into current practice.

7. At the end of the season, the Inspector-General shall prepare a complete report of his work, giving a condensed statement of the observations he has made; the report shall be in two parts; one containing the matters interesting to the public, the other, private notes on the work of each of the inspectors.

§ 2. OF THE INSPECTORS OF SYNDICATES.

1. The inspectors of the syndicates are the servants of the syndicates, and as

regards questions of interior management, such as wages, payment of expenses, &c., are under the control of the officers of the syndicates.

2. As regards the performance of his duties, the inspector of a syndicate is under the direction of the association, and he must strictly conform to the instructions received from its officers or from the Inspector-General.

3. The wages, travelling and other expenses of the inspector are to be paid by the syndicate.

4. It is obligatory on each inspector to attend all the meetings called together by the Inspector General.

5. After the meeting convoked by the Inspector-General before the opening of the season, the syndicate inspector shall convoke his makers in one of the earliest opened factories, and shall repeat to them all the information he has received from the Inspector-General.

6. In order to learn as soon as possible how far his makers understand their business, the inspector shall visit as quickly as possible all the factories he has in charge; this done he shall devote himself to the assistance of the least skilled makers, passing a day with each of them ; later, he shall visit those whom he thinks the most skilful.

7. After having thus made himself acquainted with the situation of affairs, and having helped each maker, in proportion to his needs, with his assistance and advice, the inspector shall arrange his visits so has to make a regula rroutine journey from factory to factory.

8. After or about the Ist June, the inspector shall so divide his work that between two visits made to the same factory no greater number of days shall elapse than there are factories in the syndicate.

9. Unless prevented by distance, bad roads, or other hindrances, the inspector shall be present every morning at some one factory, to receive the milk in company with the maker, and shall test samples of each patron's milk ; he shall note the result of each test in a special memorandum book, which shall be preserved and handed to the association at the end of the season ; the inspector shall always have with him on his journeys good instruments for testing milk, with which the syndicate shall provide him.

10. The test of the milk, its delivery in good condition, its manufacture, the general state of the factories, the accounts, shall receive the constant attention of the inspector, that nothing in any factory be neglected or allowed to remain in arrear.

11. The inspector shall receive from the association a special note book, in which shall appear all the observations made in the course of his inspection ; from it he shall extract and forward an abstract to the Inspector-General, or to any other officer who shall be indicated to him by the association, at the end of each season.

12. The inspector shall daily note down all his travelling expenses, and give in the details once a week to the secretary-treasurer of the syndicate ; adding the list of

factories visited, and indicating the probable route of his next week's journeys, in order that the secretary-treasurer, if he desire it, may communicate with him.

13. On pain of instant dismissal, the inspector shall communicate to nobody, unless it be to the Inspector-General or the secretary of the association, his observations on the factories and the work of the persons employed in them ; still, he may, at the request of the proprietor, of the maker, or of the president of the directors of any factory, communicate to such persons the tenor of such notes of his as concern that factory.

14. In all cases, wherein he shall see need of making observations, either to the patrons in regard to the supplying of the milk, to the maker about his work, or to the proprietor about the fittings of his factory, the inspector shall first of all address the person in fault privately, by letter or otherwise : it is only after having ascertained the existence of serious neglect, or of evident evil intention, that the inspector shall warn the parties to whom the ascertained bad state of things will cause injury. In very serious cases, the inspector shall avail himself of the advice of the Inspector-General or of the officers of the association.

15. The inspector should be deeply impressed with the importance of the most guarded discretion, not only in regard to the foregoing cases, but in all the details of his duty ; a serious infraction of this rule may be punished by the withdrawal of the certificate of competence granted by the board of examiners.

V

OF THE BOARD OF EXAMINERS.

1. The board of examiners shall be composed of three members and a secretary appointed by the board of directors at the annual convention, or about that time.

2. This board shall settle, and publish immediately, a programme of the examination to be passed by the candidates for the office of inspector to give them a right to a certificate of competence ; it shall, at the same time, give the date and the place of examination, and mention the references to be furnished by the candidates, and the other formalities to be gone through before admission.

3. To those who pass a satisfactory examination the board shall give a certificate of competence ; this may state the degree of success obtained—pretty well, or well,—and it shall be either provisional or definitive ; the provisional certificate will be good for only one year, and the bearer may be called upon to pass another examination, either in all the subjects of the programme, or in certain specially reserved subjects.

4. The board of examiners shall, without delay, make to the Honorable Commissioner of Agriculture and Colonisation a detailed report of the result of the examination, containing specially the names of the candidates and of those who shall have received the certificate, with the degree of success obtained.

5. Even the definitive certificate of competence may be withdrawn by the board of directors of the association from any inspector who shall be guilty of a serious breach of the rules, or who, for any other grave cause, shall be considered unfitted to discharge his duties properly.

6. If the number of candidates be not sufficient to warrant the holding of the examination in more than one place, the association may, out of the funds allotted for the purpose of the syndicate, pay one-half of the travelling expenses of the more distant candidates from their homes to the place of examination.

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56 VICTORIA, CHAP. 37, OTTAWA.

AN ACT TO PREVENT THE MANUFACTURE AND SALE OF FILLED OR IMITATION CHEESE, AND TO PROVIDE FOR THE BRANDING OF DAIRY PRODUCTS.

Assented to 1st *April*, 18

HER MAJESTY, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :—

1. This Act may be cited as *The Dairy Products Act*, 1893.

2. No person shall manufacture, or shall knowingly buy, sell, offer, expose or have in his possession for sale, any cheese manufactured from skimmed milk, to which there has been added any fat which is foreign to such milk.

1. Every person who, by himself or by any other person to his knowledge, violates the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five hundred dollars and not less than twenty-five dollars, together with the cost of prosecution and, in default of payment of such fine and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding six months, unless such fine and the costs of enforcing it are sooner paid.

3. No person shall sell, offer, expose, or have in his possession for sale, any cheese manufactured from or by the use of milk commonly known as "skimmed milk," or milk from which cream has been removed, or milk to which skimmed milk has been added, unless the words "skim-milk cheese," are branded, marked or stamped in a legible manner upon the side of every cheese, and also upon the outside of every box or package which contains the same, in letters not less than three-quarters of an inch high and three-quarters of an inch wide.

2. No person, with intent to misrepresent or to defraud, shall remove, or in any way efface, obliterate or alter the words "skim-milk cheese" on such cheese, or on any box or package which contains the same.

3. Every person who, by himself or by any other person to his knowledge, violates any of the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five dollars and not less than two dollars for every such cheese, or box or package which is sold, offered, exposed or had in his possession for sale, together with the costs of prosecution, and in default of payment of such fine and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

4. No person shall apply any brand, stamp or mark of the word "Canadian," 'Canadien" or "Canada" as a descriptive term, mark or brand upon any cheese, or upon any box or package which contains cheese or butter, unless such cheese and butter have been produced in Canada.

1. No person shall knowingly sell, offer, expose or have in his possession for sale, any cheese or butter upon which or upon any box or package which contains the same the words "Canadian," "Canadien" or Canada" is applied as a descriptive term, mark or brand, unless such cheese or butter has been produced in Canada.

2. Every person who, by himself or by any other person to his knowledge, violates any of the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding twenty dollars and not less than five dollars for any such cheese or box or package, which is sold, offered, or had in his possession for sale, together with the costs of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labor, for a term not exceeding three months, unless such fine and costs of enforcing it are sooner paid.

5. No person shall sell, offer, expose or have in his possession for sale, any cheese or butter which is produced in any foreign country, unless the name of the country where such cheese or butter was produced, is branded, stamped or marked in a legible manner upon the outside of every box or package which contains the same, in letters not less than three-eighths of an inch high and one-quarter of an inch wide.

1. Every person who, by himself or by any other person to his knowledge, violates the provisions of this section shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five dollars and not less than two dollars for every such cheese, or box or package of butter, which is sold, offered, exposed or had in his possession for sale, together with the cost of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labor, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

6. The person on whose behalf any cheese or butter is manufactured, sold, offered exposed or had in his possession for sale, contrary to the provisions of the foregoing sections of this Act, shall be *prima facie* liable for the violation of any of the provisions of this Act.

7. In any complaint, information or conviction under this Act, the matter complained of may be declared, and shall be held to have arisen, within the meaning of *The Summary Convictions Act*, at the place where the cheese or butter complained of was manufactured, sold, offered, exposed or had in possession for sale.

8. No appeal shall lie from any conviction under this Act except to a superior, county, circuit or district court, or the court of the sessions of the peace, having jurisdiction where the conviction was had ; and such appeal shall be brought, notice of appeal in writing given, recognisance entered into or deposit made, within ten days after the date of conviction ; and such appeal shall be heard, tried, adjudicated upon and decided, without the intervention of a jury, at such time and place as the court or judge hearing the same appoints, within thirty days from the conviction, unless the said court or judge extends the time for hearing and decision beyond such thirty days ; and in all other respects not provided for in this Act, the procedure under *The Summary Convictions Act*, so far as applicable, shall apply.

9. It shall be lawful for any person who may be charged with the enforcement of this Act to enter upon the premises of any person suspected of violating the provisions of this Act, and make an examination of cheese or butter ; and any such suspected person, who obstructs or refuses to permit the making of any such examination, shall, upon conviction thereof, be liable to a penalty not exceeding five hundred dollars and not less than twenty five dollars, together with the costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding six months, unless the said penalty and costs of enforcing the same are sooner paid.

10. Any pecuniary penalty imposed under this Act, shall, when recovered, be payable, one-half to the informant or complainant, and the other half to Her Majesty.

11. The Governor-in-Council may make such regulations as he considers necessary in order to secure the efficient operation of this Act ; and the regulations so made shall be in force from the date of their publication in the *Canada Gazette*, or from such other date as is specified in the proclamation made in that behalf.

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60-61 VICTORIA.—CHAP. 21.

An Act to provide for the Registration of Cheese Factories and Creameries, and the Branding of Dairy Products, and to prohibit misrepresentation as to the dates of Manufacture of such Products.

[*Assented to 29th June*, 1897]

HER MAJESTY, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :—

1. This Act may be cited as *The Dairy Act*, 1897.

2. The Minister of Agriculture shall keep in the Department of Agriculture a book to be called "The Cheese Factories and Creameries Register," and any person engaged in the business of cheese or of butter making may apply to the Department of Agriculture, at Ottawa, for the registration of the cheese factory or creamery owned or duly represented by him ; and, on receipt of the particulars as set forth in schedule to this Act, the Minister of Agriculture, or such officer of the Department of Agriculture as is designated by the Governor in Council, shall forthwith send to the owner or representative of such cheese factory or creamery a certificate showing the registration number allotted to such cheese factory or creamery.

3. The person to whom such registration number is assigned shall thereafter have the exclusive right to use it for the purpose of designating the dairy products manufactured by him at such cheese factory or creamery, in the manner shown in schedule B to this Act.

4. No person shall sell, offer, expose, or have in his possession for sale, any butter or cheese made in Canada, and destined for export therefrom, unless the word "Canadian," "Canadien," or "Canada" is printed, stamped or marked in a legible and indelible manner, in letters not less than three-eights of an inch high, and one-quarter of an inch wide, upon—

(*a*) the box or package containing the butter or cheese, and—

(*b*) moreover, in the case of cheese, upon the cheese itself, before it is taken from the factory where it was made.

5. No person, with intent to misrepresent, shall remove or in any way efface, obliterate or alter the word "Canadian," "Canadien" or "Canada," or the registration number on any cheese, or on any box or package which contains cheese or butter.

6. No person shall knowingly sell, or offer, expose, or have in his possession for sale, any cheese or butter upon which, or upon any box or package containing which, is printed, stamped or marked any month other than the month in which such butter or cheese was made ; and no person shall, knowingly and with intent to misrepresent, sell, or offer, expose, or have in his possession for sale, any cheese or butter represented in any manner as having been made in any month other than the month in which it was actually made.

7. Every person, who, by himself, or by any other person to his knowledge, violates any of the provisions of sections four, five and six of this Act shall, for each offence, upon summary conviction, be liable to a fine not exceeding twenty dollars and not less than five dollars, for every cheese or box, or package of butter or cheese which is sold or offered, exposed, or had in his possession for sale, contrary to the provisions of those

sections, together with the costs of prosecution, and, in default of such fine and costs, shall be liable to an imprisonment, with or without hard labor, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

8. Any pecuniary penalty imposed under this Act shall, when recovered, be payable, one-half to the informant or complainant, and the other half to Her Majesty.

9. The Governor-in-Council may make such regulations as he considers necessary in order to secure the efficient operation of the Act; and the regulations so made shall be in force from the date of their publication in the *Canada Gazette*, or from such other date as is specified in the proclamation in that behalf.

SCHEDULE A.

Particulars for the registrations of cheese factories and creameries:

1. Name of cheese factory or creamery .....
2. Where situated:—

(*a.*) Province.....
(*b.*) County.....
(*c.*) Township or parish.....
(*d*) Post Office.....
(*e.*) Telegraph or telephone Office .....
(*f.*) Railway-station or shipping port.....

3. Name of owner.....
Post office address.....

If a co-operative dairy association or joint-stock company:—
Name of secretary.....
Post-office address.....

4. Registered brand or trade-mark, if any.....
4. Registered number allotted .....

The above is certified correct.

.....Owner.
.....P. O. Address.
.....Secretary.
.....P. O. Address.

Witness.....
.....P. O. Address.

Witness.....
.....P. O. Address.

SCHEDULE B.

Form of brand for registered number to be allotted to cheese-factories and creameries :--

REGISTERED
Nº *
DAIRY ACT 1897.

* The figure or figures of registration to be inserted.

DAIRYI

Arundel
Brownburg
Cambria
Cushing
Dalesville
Grenville
Harrington
Hill Head
Lachute
"
"
Mabel
Mille Isles
St Andrews
"
St Philippe

Arthabaskav

St Albert...
Ste Clotilde..
SteElisabeth
Ste-Hélène d
St Norbert..

St Patricks H

St Rémi de T
St Rosaire...
St Valère de

Stanfold.....

Tingwick....

Trout Brook..

LIST OF MEMBERS

OF THE

DAIRYMEN'S ASSOCIATION OF THE PROVINCE OF QUEBEC

FOR THE YEAR 1900.

ARGENTEUIL

Arundel	Thomas Lane			
Brownburg	Tohs Ross &	Sons,	Monaléa	No. 5
Cambria	"	"	"	16
Cushing	"	"	"	2
Dalesville	"	"	"	12
Grenville	"	"	"	11
Harrington	"	"	"	14
Hill Head	"	"	"	16
Lachute	"	"	"	19
"	"	"	"	8
"	"	"	"	3
Mabel	"	"	"	13
Mille Isles	"	"	"	17
St Andrews	"	"	"	9
"	"	"		
St Philippe	"	"	"	6

ARTHABASKA

Arthabaskaville	Eugène Pellerin
	M. Michel
St Albert	A. Desruisseau
Ste Clotilde	Louis Boulanger
Ste Elisabeth d'Auteuil	Edmond Desfossés
Ste-Hélène de Chester	Alfred Provencher
St Norbert	Alfred Dusseault
	A. Boissonneault
St Patricks Hill	Eugène Michel, Butter and cheese-mkr.
St Rémi de Tingwick	Albert Levasseur
St Rosaire	P. Leclerc
St Valère de Bulstrode	A. St-Laurent
	J. L Blanchette
Stanfold	C. Dion
	Ed. Baril
	G. Blanchet
	Z. Desharnais
Tingwick	P. Laroche
	Onésiphore Lemay
	F. V. Lessard, N. P.
Trout Brook	P. D. Larivière

ARTHABASKA (Con.)

Victoriaville	D. O. Bourbeau
	G. St Pierre
	Léonce Naud
Warwick	Alfred Bergeron
	Emile Morin
	Philippe Robitaille
	Nazaire Vidal
	A. M. Méthot

BAGOT

Acton-Vale	Alp. Chevrette (2)
Ste Christine	George Gauthier
St Dominique	Pierre Chicoine
	Emile Chagnon
	Norbert Frédette
	Albert Cordeau
St Ephrem d'Upton	Delphis Chicoine
	Alfred Vannier
	Chrysologue McDuff
	J. Albert Dion
	Pierre Savoie
Ste Hélène	Michel Houle, Ch. mk.
St Hugues	L. T. Brodeur
	Emile Lefebvre
	Adélard Brasseur
St Liboire	Joseph Lemonde
	Honoré Charland
	Wilfrid St-Onge
	Clément Dalpé
	Amédée Touchette
	D. S. Davignon
	Siméon Deslauriers
	T. Lemoine
St Nazaire	Aurèle Leclercq
	Wilfrid Lapierre
	R. Vadeboncœur
Ste Rosalie	J. Laliberté
	Jos, B. Grenier
St Simon	Azarie Deslauriers
	Narcisse Tétreault

PARISH OR POST OFFICE.	NAMES.
BAGOT—Con.	
St Théodore d'Acton.	Isidore Jodoin
	Ls de Grand Pré
	Hormidas Parenteau
	Trefflé Lemoine
Upton	Jean Maurice
	Louis Côté
	Emile Maurice
	G. E. Hétu
BEAUCE	
Adstock	P. Rancourt, Butt. M.
	J. N. Duguay
Providence	J. Auguste Jolicœur.
Sts Anges	Ferdinand Mercier
	Henry Giguère
St Ephrem de Tring.	Octave Roy
St Evariste de Forsyth	Louis Bernier
St François	Charles Busque
St Georges	Rvd Mr. Th. Montminy
	Wenceslas Talbot
	Théophile Poulin
St Hilaire Dorset	George Fournier
St Joseph	Noel Roy
	Ephrem Tardif
	Evariste Poulin
	Vital Cliche (2)
Ste Marie	Louis Ernest Faucher
St Zacharie	Louis Drolet
Scott Junction	Louis Gosset
	William R'Haven
	P. de Bacourt
BEAUHARNOIS	
Beauharnois	Ovila Harelle
Landreville	Alexis Lemieux (3)
	Wm Durnin
Ste Cécile de Valleyfield	Cyrille Henault
	Luc Charette
St Etienne	L. Laberge
	G. Brosseau
St Louis de Gonzague.	George Gardner
	Joseph Cartier
	A. Pilon (3)
St Lewis	Macpherson & Ferguson

PARISH OR POST OFFICE.	NAMES.
BEAUHARNOIS—Con.	
St Timothée	Jos. Ringuette
	Auguste Crevier
Valleyfield	Louis Simpson (Life Member)
	J. B. St-Onge
	S. A. Brodeur
	J. L. Poupart
Vendôme	J. Gendron
BELLECHASSE.	
St Charles	Onésime Mercier
St Damien	Jos. Beaudet, Butt. M.
St Gervais	Et. Côté
BERTHIER	
Berthier	Jos. Allard
	J. F. Fernet
	Adélard Frappier
Berthierville	J. D. Parent
	Cuthbert Chénevert
Isle du Pads	Thos. Sylvestre
Lanoraie	Art. Ferland
	Wilf. Boisvert
Lavaltrie	Jos. Chénevert
St Barthélemy	Pierre Comtois
	Ls Morand
St Cuthbert	Dme Wid Ant. Robert
	Isaac Grégoire
St Damien de Brandor	Camille Mondor
	Gravel & Sylvestre
St Gabriel	Jos. Brissette
St Michel des Saints.	Léandre Ménard
St Norbert	Arclesse Dubeau
	Wilf. L'Heureux
	Sullivan Denis
BROME	
Knowlton	Rbt Wherry
	H. S. Foster
Laroche	Alf. Lapierre
Mansonville	J. N. Labelle
St Etienne de Bolton.	Donat Decelles

PARISH OR POST OFFICE	NAMES.
CHAMBLY	
St Bazile	Arthur Joseph Monat
CHAMPLAIN	
Batiscan	L. P. Lacourcière
	Pierre Lapointe
	F. E. Tourigny
Champlain	Jos. Carpentier
	Zénhyrin Dontigny
Cap de la Madeleine	J. X. Lapointe
Mont Carmel	Cyprien Ducharme
	Phi. Rhéault
N.D. du Mont Carmel	Oscar Lord, Cheese M.
Ste Anne de la Pérade	J. H. Gendron
	Jos. Godin son of Jean
	Michel Loranger
	Edouard Douville
	Jos. Loranger
	J E. Z. Marchand
Ste Geneviève	Ern. Jacob
	Léopold Marchand
	Aug. Trudel
	Alf. Dessureau
St Luc	Beaudoin et Déry
St Maurice	Frs Ducharme
	Oscar Nobert
	Ant. Laprise
St Narcisse	Isidore Derouin
	Trefflé Trudel
	Wilbrod Boulanger
St Prosper	J. B. Trudel
	Alfred Trudel
	F. X O. Trudel
	Benoit Trudel
	Jos. T. Trudel
St Séverin Proulxville	Majorique Bordeleau
	Trefflé Veuillet
	Epiphane Mongrain
St Stanislas	Jos. L. Jacob
	Alf. Dessureau
St Tite	J. A. Lambert
	Jacob et Paquin
	J. S. Moreau
	Frs Marchand

PARISH OR POST OFFICE.	NAMES.
CHARLEVOIX	
Baie St Paul	Jos. Fortin
	Alf. Gagnon, Inspect.
	Jos.Simard, cheese M.
	Adél. Ménard, "
	Chas. Martel
	Jos. Tremblay, son of William
	Edmour Boily
	David Fortin,Ch.Mkr
	Thos. Lanoie
Isle aux Coudres	Louis Perron
Murray Bay	Jules Bradet (2)
Ste Agnès	Frs Harvey
	Jos.Bergeron,Ch.Mkr
St Hilarion	Amédé Tremblay
Ste Irénée	Ferdinand Gauthier
St Placide	Gédéon Perron
St Urbain	Charles Fortin
CHATEAUGUAY	
Allan's Corner	Thomas Drysdale
Aubrey	Jos. Lefebvre
	Macpherson&Ferguson
Brysonville	John Dunning
Chateauguay	N. R. Laberge
	Peter Macfarlane
	Jas. Mac Gill
Howick	Rbt Ness
	A. E Marleau
	E. Marleau
	Macpherson&Ferguson
Ormstown	A. S. Lloyd
	Jas. Cottingham
	Macpherson&Ferguson
Russeltown	N. Beaudin
St Chrysostome	E. Gamelin
	John Boyd
	J. P. Brown, M. P.
Ste Martine	Ed. McGowan
	John McGowan
	Edmour McGowan
	Wilfrid McGowan
	Mrs McGowan
Ste Philomène	F. X. Laberge

PARISH OR POST OFFICE	NAMES
CHATEAUGUAY—Con.	
StePhilomène	J. B. Damour
St Urbain	Arthur Barrette
	Antoine Vinette
	J. B. Primeau
Stockwell	H. W. Stewart
CHICOUTIMI	
Chicoutimi	Pitre Gaudreault
	J. D. Guay
	Dr L. E. Beauchamp.
	Richard Gagnon
	Ls Guay
	Jean Perron (2)
	Ed. Tremblay
	Elie Fortin
	F. Paradis
	Honoré Langlais
L'Anse St Jean,	Zéphirin Desgagné
Laterrière	Joseph Perron
	J. Art. Gaudreault
	Alf. Tremblay
	Frs Brassard
St Alexis	Ernest Lavoie
St Alphonse	P. Tremblay
	Dydime Bouchard
	Jos. Maltais
	Ed. Villeneuve son of Frs.
	Jos Côté
Ste Anne	Ern. Gravel
	Henry Côté
	Jos. Savard
	Ls Boucher
	Ovide Villeneuve
	Hemery Gravel
	Alex. Gagnon
	Alm. Savard
St Charles Borromée	Louis Godin
St Cyriac	Lazare Vaillancourt
St Dominique de Jonquières	Chas Fortin
	Théophile Lapointe
	Jean Brassard
	Pascal Bergeron
	Jos Gagnon

PARISH OR POST OFFICE	NAMES
CHICOUTIMI—Con.	
St Dominique de Jonquières	Pascal Angers
	Louis Girard
St Fulgence	Jos. Harvey
COMPTON	
East Clifton	E. S. Lussier
Emberton Chartiervil.	Onésime Tremblay
La Patrie	Samuel Gobeil
Paquetteville	Ludger Lazure
	Isidore Lazure
St Malo	Jos. Roy
Val Racine	E. Arthur Turcotte
Waterville,	Frank. Nap. Therrien
DEUX MONTAGNE	
Oka	G. Boron
St Benoit	Jos. Laurin
St Hermas	Honoré Pagé
St Placide	Napoléon Dubreuil
	Frédéric Dubreuil
	Adélard Lavigne
	Ernest Théoret
Ste Scholastique	J. E. Grenier, Bte 74
DORCHESTER	
Coulombe	Phi. Bernard
Frampton Ouest	Damase Lacasse
Ste Claire	Ferdinand Labonté
St Edouard Frampton	Wm Free
Ste Hénédine	Gabriel Dumont (2)
Ste Malachie	Chas. Tremblay (2)
	Jos. Dion
Ste Marguerite	Jos. Maure
St Odilon de Cranbourne	Linière Maheux
Station	Pierre Chouinard (2)
DRUMMOND	
Drummondville	J. A Gosselin
Kingsey French Vill.	J. P. Lefebvre
	A. Francoeur
	E. Morin

PARISH OR POST OFFICE	NAMES
DRUMMOND—Con.	
L'Avenir	Owen McGiveney
	Alex. Charpentier
	Alp. Charpentier
	Chas. MacDougall
Lisgar	J. E. M. Lyster
	H. N. Lyster
St Cyrille de Wendov.	Arthur Neveu
	Zotique Laliberté
	Rodolphe Janelle
St Eugène de Granth.	D. Drolet
St Germain de Granth.	Olivier Lemaire
	Ed. Laplante
St Guillaume	Ovide Major
	J. B. Vigneault
South Durham	John O. Griffith
	A. J. Hyde
	Alfred J. Miller
GASPE	
Ste Anne des Monts.	Et Thibault
HOCHELAGA	
N.-D. de Grâce	V. Dubord
Pointe aux Trembles.	Philias Hardy
	Wilf. Dusseault
	Art. Cloutier
	C. Ant. Larue
St Joseph, Rivière des Prairies	Delvica Adam
HUNTINGDON	
Anderson's Corner	Geo. S. Henderson
Athelstan	J. A. MacDonald
Boyd Settlement	Macpherson&Ferguson
Cazaville	D. Vass
Clyde Corner	D. M. Macpherson
Dewitville	Macpherson&Ferguson
Elgin	" "
Gore	D. M. Macpherson
Helena	Henry Hughes
Hemmingford	Jos. Fournier
	I. Boyes
Herdman	Geo. W. Lornis
	Richard Boyd

PARISH OR POST OFFICE	NAMES
HUNTINGDON—Con.	
Huntingdon	H. W. Walker
	George A. MacMillan
	Macpherson&Ferguson
	Archie Muir
Kelso	William H. Harvey
	Macpherson&Ferguson
	A. W. Smaill
Kensington	George W. Wilson
Lorne	Macpherson&Ferguson
New Erin	R. S. Fenny
New Foundout	Macpherson&Ferguson
Port Lewis	" "
Powerscourt	J A. Plamondon
	H. R. Thompson
Rivière Outarde	Macpherson&Ferguson
Rockburn	Farquar & Olliver
St Anicet	Henry C. Bruce
	A. Latulipe
Ste Barbe	A. Archambault
IBERVILLE	
Sabrevois	S. J. Roy
St Alexandre	A. Labrecque
	Narcisse Brault (son)
Ste Anne	N. L. Duhaime
Ste Brigide	A. Davignon..
	Osias Archambault cheese maker
	Hormidas Tessier
	O. Archambault
	J. Touchette
St Geo. de Henryville.	Napoléon Paquette
St Grégoire	Damina Bernard
	T. Barrière
	Frank Ravenelle
St Grégoire Mount Johnson	Adélard Tétreault
Ste Sabine	Aldéi Lanoue
St Sébastien	Pierre Brault (son)
Versailles	Arthur Paquette
JACQUES-CARTIER	
Ste Geneviève	J. U. Brunet

PARISH OR POST OFFICE	NAMES
JOLIETTE	
Joliette	J. B. A. Richard
	F. Ponton
	P. E. MacConville
	Aimé Riopel
St Alphonse	Alfred Préville
	Alb. Desrosiers
St Ambroise de Kildare	Sinai Comtois
	Ethier & Laporte
	Tancrède St Georges
St Béatrix	A. Laporte
	Ephraim Beauregard
St Cléophas	Auguste Boucher
Ste Elisabeth	P. L. Gaboury & Cie
	Ev. Ducharme
Ste Emélie de l'Energie	Moïse Beaulieu
	Onésime Beaudry
	Camille Cazinet
St Félix de Valois	Georges Asselin
	Hormidas Ducharme
	Noé Gravel
	Eugène Boucher
	Chas. Gravel
	Maxime Poirier
	F.X. Brault
St Jean de Matha	Georges Clermont
	Jos. Breault
	Cherrier Roberge
	Loiselle & Cie
	T. Gaboury
Ste Mélanie	Désiré Nadeau
	Alb. Archambault
St Paul	Jos. Malo
	Ad Ratelle
	Lessard & Forest
St Thomas	Ephrem Dion (2)
	Maxime Coutu
KAMOURASKA	
St Denis	J. C. Chapais (Life member)
	Chas. Bouchard
	Frs Gagnon
	Omer Martin
St Germain	L. A. Lévesque

PARISH OR POST OFFICE	NAMES.
LAC ST-JEAN	
Chambord	Octave Lefrançois
Hébertville	Marc Gaudreault
	Alf Lavoie
	Arth. Tremblay
	Amédée Gervais
	Josaphat Deschènes
	J. Elisée Hudon
	Adélard Lemay
Normandin	Alphonse Poirier
Roberval	Luc Lizotte
St Cœur de Marie	Rbt Lemay
St Félicien	Alb. Naud
St Gédéon	Jos. Girard, M. P. P.
	Adm. Gagné
	Edgar Desgagné
St Jérôme	Jos. Gagnon
	Napoléon Gagné
	Chas. Simard
	J. B. Bergeron
	J. P. Gagnon
St Joseph d'Alma	Liguori Harvey
	Elzéar Harvey
	Edmond Boulay
Ste Lucie d'Albanel	Achille Corriveau
St Prime	Adélard Perron
LAPRAIRIE	
St Constant	Siméon Létourneau
	Jos Fyfe
St Isidore	J. R. Pagé
	H. Malo
L'ASSOMPTION	
Lachenaie	C. Aristide Laurier
L'Assomption	I. J. A. Marsan
	Jos. Parthenais
	Chs. Aug. Vaillant
	Docteur Forest
L'Epiphanie	Jos. Moranda
Rapide	Alp. Soucisse
Repentigny	Jos. N. Thouin
St Lin	Brillant & Gauthier
	E. Desmarais
	Jules Bélanger
	Théodule Corbeil

PARISH OR POST OFFICE	NAMES
L'ASSOMPTION—Con.	
St Paul l'Hermite....	Samuel Chagnon
	J. B. Marion
St Roch L'Achigan..	Aibani Forest
St Sulpice.....	J. A. Chicoine
	Jos. Robitaille
LAVAL	
Ste Rose.....	J. F. Cossette & Archambault
	J. G. Héroux
	O. E. Dallaire
	G. Jubinville
St Vincent de Paul...	C. E Paré
	J. H. Paré
	Raoul Duclos
LEVIS	
St Nicolas.....	Jos. Flamand
	Emile Lemay
L'ISLET	
L'Islet.....	Adjutor Lecompte
St Aubert.....	Albert Tremblay
St Cyrille.....	Athanase Morin
St Roch des Aulnais.	Jos. Emile Peltier
	J. Arth. Francœur
Trois Saumons.....	J. A. Talbot
LOTBINIÈRE	
Lotbinière.....	Léger Pépin
	Henry Pérusse
	Philias Laliberté
Parisville.....	Francis Hamel
St Agapit.....	Benjamin Bergeron
	J. N. Allard
	Francis Roger
	Edmond Olivier
	Georges Olivier
Ste Agathe.....	Martin Brown
	Joseph Dubois
St Antoine de Tilly..	Guillaume Laroche
	Ephrem Aubin

PARISH OR POST OFFICE	NAMES
LOTBINIÈRE--Con.	
St Antoine de Tilly.	Isaï Côté
	Edouard Boucher
St Apollinaire.....	Ferdinand Fortier
Ste Croix.....	Henry Bergeron
	Adélard Hamel
	Garneau & Cie
St Edouard.....	Honoré Castonguay
	Edmond Daigle
	Onésime Lemay from the cheese and butter association
Ste Emilie.....	Evariste Lauzé
	Jos. Jésophe Beaudet
	Ernest Lauzé
St Flavien.....	J. Louis Bibeau
	Jos. Daigle
	Zénaphore Bergero
St Jean des Chaillons..	Phydime Hamel
St Louis.....	Philias Desrochers
	Elie Groleau
St Narcisse.....	Didace Kirouac
St Patrick de Beaurivage.....	Alphonse Mercier
St Sylvestre West....	Pierre Bisson
MASKINONGE	
Louiseville.....	Arthur Milot
Maskinongé.....	Théophile Sicard
St Justin.....	P. O. Coulombe
	Rvd Mr. M. D. Gérin
St Léon.....	J. A. Lesage
MATANE	
Causapscal.....	Zoël Boudreault
Mechins.....	Geo. Eug. Verreault
	J. Arthur St Pierre
Ste Félicité.....	Joseph Tremblay
St Joseph de Lepage..	Edouard Cloutier
MEGANTIC	
Lyster.....	Lucien Lemay
N.-D. de Lourdes	Jos. Bouchard

PARISH OR POST OFFICE	NAMES
MEGANTIC—Con.	
S. C. de Marie	Georges Filion
	Théodore Landrie
MISSISQUOI	
Cowansville	Homère Hébert
	Nelson, Buzzel & Cie
Missisquoi	O. Courtemanche
N. D. de Stanbridge	A. Courtemanche
	A. Marois
Stanbridge Station	P. Noel Ménard
West Farnham	Amédée Charland
	Henry Archambault
	Guillaume Poulin
Noyan	George W. Robinson
MONTCALM	
Montcalm	Moïse Brault
Rawdon	Richard Parkinson
St Alexis	Ernest Liard
	Octave Magnan
St Calixte Kilkenny	Ferd. Thinel
St Esprit	Pierre Lesage
	Eloi Rochon
	Aimé Riopel
St Jacques l'Achigan	Athanase Desrochers
	Clément Laviolette
St Liguori	Jos. Gaudet
Ste Marie Salomé	J. B. Fontaine
	J. E. Gaudet
St Roch l'Achigan	Wilf. Lachapelle
	Ephrem Gariépy
MONTMAGNY	
Cap St Ignace	G. S. Dugal
MONTMORENCY	
Ste Famille (Ile d'Orléans)	Onésime Asselin
St Joachim	J. N. Pépin
	Isidore L'Heureux
	Célestin Fortin

PARISH OR POST OFFICE	NAMES
MONTMORENCY—Con.	
St Joachim	David Fortin
	Antoine Thomassin
	Hugh Brown
	Cléophas Philion
St Pierre (Isle d'Orléans)	F. X. Côté
St Tite des Caps	Ludger Leblond
MONTREAL	
J. A. Vaillancourt, (life member)	333Commissioner St.
F. A. Dorion	65-69 William Street
N. E. Clément	2-4 Foundling Street
J. H. Scott	c o A. A. Ayer & Co.
F. H. Ryan	71 William Street
F. Cypihot	65 William Street
H. G. Nivin	Box 845
C. Denning	94 Union Avenue, Hochelaga
R. Mayotte	381 St Denis Street
Hislop & Hunter	235-237-239 Commissioners Street
Alex W. Grant	33 35-37 William St.
Joseph Arthur Vaillancourt, son (life member)	Commissioner St. 333
Charles Langlois	241 St Paul Street
NAPIERREVILLE	
St Edouard	Fred. Robillard
St Michel	Edgar Lacombe
	Jos. Venchestaing
St Rémi	A. Laplante
	Chs. Huguet-Latour
NICOLET	
Nicolet	Napoléon Defossés
	J. Lucien Doré
	Abraham Beaulac
Ste Brigitte	H. Robert
St Léonard d'Ashton	Hyacinthe Cloutier
	Joséph Hébert

PARISH OR POST OFFICE	NAMES.
NICOLET—Con.	
St Léonard d'Ashton	Hyacinthe Dubois
Ste Monique	Charles Milot (4)
	B. A. Pothier
St Pierre les Becquets	Ferdinand Cinq-Mars
St Samuel	Arthur Picard
Ste Sophie Lévrard	George Barabé
OTTAWA	
Buckingham	Thos Ross & Sons, Monaléa, No. 15
Hollands Mills	Thos Ross & Sons, Monaléa, No. 18
Maniwaki	Frère Jos Laporte O. M.
Mayo	Thos Ross & Sons, Monaléa, No. 21
Montpellier	Louis Montpellier
Papineauville	Donat Hébert
Ponsonby, Boileau, PO	J. O. Danis
Silver Creek	Thos Ross & Sons, Monaléa, No. 20
PORTNEUF	
Allans Mills	Eugène Gauthier, fr.
Cap Santé	Wilfrid Vézina (3)
Deschambault	Uldéric Benoit
	Aubert Bédard
	Ludger Rousseau
Ecureuils	Oliva Auger
Grondines	Louis Archambault (2)
Lachevrotière	J. A. Guertin
	Gédéon Laganière
	Aubert Bédard
N.-D des Anges	J. Philippe Moreau
Poiré P. O.	J. O. Naud
St Alban	Hubert Perron
	John Savard
	Arth. Baril
St Augustin	Joseph East
St Bazile	Rvd Mr. Gauthier
St Casimir	Roch Massicotte
	Rivard & Lacourcière
	Cermain & Tessier
	Jos. Perron

PARISH OR POST OFFICE	NAMES
PORTNEUF—Con.	
St Gilbert	Arth. Morrissette
	Mérilée Morrissette
	Narcisse Naud
	Eugène Gauthier
St Ubalde	Ludger Hardy
Cap Santé	Gabriel Hamel
QUEBEC (County)	
Beauport	Pierre Lortie
Cap Rouge	Odina Garneau
Les Saules	Ambroise Jobin
Ste Foye (Road)	J. N. Garneau, M. P. P. (life member)
	J. E. Moisan
QUEBEC (City)	
Séminaire	Rvd Mr F. C. Gagnon
	Honoré Lortie
RICHELIEU	
St Aimé	Norbert Laplante
Ste Anne	Léonidas Latraverse
St Louis	Antoine St Martin (3)
	J. B. Laplante
St Marcel	J.A. Courchesne
	Odilon Vasdeboncœur
	Cléophas Vadnais
St Ours	Donari Desrosiers
	Prisque Hébert
	Ulric Hébert
	Appolli Potvin
	Pierre Lachambre
	Honoré Lachambre
	Louis Morin (son)
	Frs Robillard
	Edouard Durocher
	Aimé Robillard
	Arthur Durocher
	Adélard Pérodeau
	Cyrille Delabarre
St Robert	Michel Dufault
	J. P. Paquin
St Roch	Donat Collette
	Alexis Collette

PARISH OR POST OFFICE	NAMES
RICHELIEU—Con.	
Ste Victoire	Hercule Paul-Hus
	Magloire Houle
	Aamédée Bonier
	Alb. Chapdelaine
	Hormidas Plante
	Alf. Bibeau
Sorel	Phil. Duhamel
	Ald.D. de Grand Pré
	Narcissse Cournoyer
	A. E. Pontbriand
	C.J.C.Wurtele, advoc.
RICHMOND	
Asbestos Mines	Adolp. Parenteau
Brompton Falls	Ovila Bouchard
	F. R. Bouchard
Castlebar	J. E. Beauchemin
Danville	Jos. Desfossés
	J. A. McCullum
	James Hall
Flodden	G. Stalker
Kingsbury	John Watson (2)
Lorne	A. Pard
Melboro	Jno. Munroe
Melbourne Ridge	James Dunbar
	W. D. Stalker
	Nelson Greenwood
Nicolet Falls	L. M. Smith
Richmond	Alex Stewart
	Miss U. O. Thompson
	S. Wintle
St Cyr	Wm Houle
	E. Mercier
St Frs-X de Brompton	Pierre Labbé
St Geo. de Windsor	A. Marcotte
Upper Melbourne	H. W. Armstrong
	A. C. MacKay
Windsor Mills	E. M. Dion
	E. Lindsay
RIMOUSKI	
Bic	Adélard Blais, Ch. M.
St Fabien	Elzéar Belzil
Ste Flavie	Jos. Chouinard
St Simon	A. A. Nicole
Sandy Bay	Christophe Côté
ROUVILLE	
Angéline	J B. Dubé
Abbotsford	Napoléon Legros
	Jos. Martin
	H. Langevin
L'Ange-Gardien	Elie Bourbeau
	Marc McDuff
	Jos. Lacoste
Magenta	Cléop. Archambault
Marieville	Jos. Archambault
	Alfred Ostiguy
Pauline	J. P. Rocheleau
Ste Angèle Monnoir	J G. Bouchard
St Césaire	Samuel Aubin
	Henry Normandin, Cheese Maker
	Arthur Normandin
	J. H. Vadnais
	X. Senay
	D. Brodeur
St Hilaire	J. E. Beauregard
St Jean-Baptiste	Louis Remi
Ste Marie de Monnoir	Jos. Lebeau
St Michel de Rougemt	D. Métivier
ST JEAN	
Lacolle	Honorius Auger
St Luc	Pierre Paul Deland
Stottsville	Philippe Morin
ST-HYACINTHE	
La Présentation	Laurent Dusseault
	Jos. St-Pierre
	J. H. Beauregard
	Jos. Blanchet
St Damase	Z. T Marchessault, Corbin Cheese Fac.
	Z. T. Marchessault, Bridge Cheese Fact.
	Raymond Dusseault
	Emile Beaudry
	Michel Desnoyers Bridge Cheese Fact.

PARISH OR POST OFFICE	NAMES.
ST-HYACINTHE—Con.	
St Denis	J. B. Phaneuf
St Hyacinthe	Damase Lussier
	J. de L. Taché
	Hormidas Gadbois
	Emile Desjardins
	J. E. Gaucher
	J. N. Lemieux (life member)
	Henry Pihier
	Rvd M. C.A.Beaudry
	Emile Castel
St Judes	Amédée Lacroix
	Xavier Larivière
	Norbert Lamoureux
	Dolphis Béchard
Ste Madeleine	Louis Chabot
	EusèbeGaudrault, son
St Thomas d'Aquin	Hyacinthe Yvon
ST MAURICE	
Pointe du Lac	Olivier Duplessis
Radnor Forges	Maxime A. Cossette
St Barnabé	Arthur Corriveau
Shawenagan	Télesphore Pellerin
Yamachiche	J.Fortunat Côté
	Hercule Bourassa
SHEFFORD	
Bonsecours	L. E. Désilets
	Hormidas Boissé
Dalling Ely	Mag. Fleurant, father
Granboro	A. Fossey
Granby	Philias Maynard
	Arthur Bousquet
	E. W. Payne
	J. A. O. Martel
Mawcook	J. H. Rocheleau
Milton East	Frédéric Maynard
Nth Stukely	Nazaire St François
Nth Stukely, Bonsecours	Hormidas Simoneau
Racine	Modeste Choinière
	George M. Norris
	Delphis Choinière
SHEFFORD	
Rochelle	MaximeArchambault
	Joseph Morin
Roxton South	L. R. Savage
" East	Théod. St Onge
Roxton Falls	Edéas Laroque
	Henry Seney
	Alp. Touchette
	R. Favreau
Roxton Pond	Isidore St Pierre
St Alphonse, Granby	Adélard Authier
Ste Anne, Stukely	Louis Lozeau
	C. Bernier
St Joachim	Joseph H. Hébert
	A. Daigle
St Valérien	André Brasseur
	Maxime Robert
	Alphiri Touchette
	Arthur Marsan
	Rvd Mr F. P. Côté
	H. Paquette
	L. H. Côté
	Alphonse Lasnier
	Napoléon Côté
	Désiré Chaput
Savages Mills	Henry Purdy
	J. H. Leclerc
Shefford Mountains	Edouard Doonan
South Ely	As. L. Darby
South Granby	P. O. Domingue
South Stukely	W. S. Purdy
Valcourt Ely	Jos Véronean (2)
	Arthur Fournier
	Henry Balthazar
Warden	L. E. Richardson
Waterloo	J. A. Bourbeau
	C H. Parmelee, M.P.
	J. Aug. Hayes
West Ely	Nelson Moffat
	John Bousquet
West Shefford	Z. S. Lawrence
SHERBROOKE	
Ascot Corner	Rvd F. Venant Charest.

PARISH OR POST OFFICE	NAMES
SOULANGES	
Coteau Station	Emèric Sauvé
Rivière Beaudette	Louis Méthot
Pont Chateau	J. A. Bourbonnais
	Avila Pharand
St Clet	Fabien Châtelois
St Polycarpe	J. H. L. Leclair
	Gabriel Desrochers
St Télesphore	J. H. Gareau
	Louis Charlebois
STANSTEAD	
Barnston	G. B. Hall (4)
Boynton	T. A. Davis
Cassville	Alex. Thompson
Coaticook	Auguste Gérin
Dixville	Philibert Joucas
	Charlie White
	E. Humphrey
Fitch Bay	P. F. Remick
East Hatley	C. E. Standish
	J. D. Morrisson (2)
North Hatley	J. B. Reed
Kate Vale	Moïse Rainvilie
Ladds Mills	E. C. Wells
Marlington	W. B. Bullock
Massawippi	Eugène Colt
Smith Mills	H. Holbrook
TEMISCOUATA	
Green River	Ferdinand Thibault
L'Isle Verte	Télespore Caron
	Alfred A. Paradis
	Prefontaine & Bros.
St Arsène	J. A. Saindon
St Epiphane	Auguste Breton
	Frs Patoine
	Elie Lapointe
Trois-Pistoles	Jos. Boucher
TERREBONNE	
La Plaine	John Kelly
New Glasgow	Georges Bennett
	Amédée Désormeau

PARISH OR POST OFFICE	NAMES.
TERREBONNE	
Rivière Gagnon	Thos Ross & Sons
	Monaléa M. No. 7.
Ste Adèle	Dr W. Grignon
Ste Anne des Plaines	Siméon Giguère
	Magloire Forgette
St Faustin	Godefroy Paré
St Janvier	L. Jos. A. Desroches
	Ernest Cloutier
St Jérôme	Louis Labelle
St Jovite	Albert Danis
Ste Thérèse	Antoine Desjardins
	Rvd Mr.H.Cousineau
	J. D. Leclair
Terrebonne	Dr V. T. Daubigny
TROIS RIVIERES	
Trois-Rivières	J. A. Milot
VAUDREUIL	
Beauvoir	A. O. Ranger
	Em. Poirier
Graham	Trefflé Pilon
Mont Oscar	Napoléon Quesnel
Pointe Fortune	Thos Ross & Sons
	Monaléa 4
Rigaud	J. E. Chevrier (2)
Ste Justine de Newton	Henry Charlebois
	Théophile Doucet
	Josaphat Brabant
St Lazare	Oscar Denis
Ste Marthe	Peter Monahan
	Rosario Séguin
	Frank Monahan
Vaudreuil	Amédée Castonguay
	Elzéar Brasseur
	J. B. Besner
VERCHERES	
Belœil	Félix Blain
Contrecœur	Jos Cormier
St Antoine	Ovila Bonin

PARISH OR POST OFFICE	NAMES
VERCHERES—Con.	
St Antoine	Félix Messier
	Emile St Jacques
	Donat Hébert
Ste Julie	Alexis Chicoine
	Rvd J. C. Daignault
St Marc	Alexis Chicoine
	Hormidas Handfield
Varennes	J. S. Messier
YAMASKA	
Abénaquis Springs	Hector Biron
Baie du Febvre	J. T. Bélisle
	Uldéric Lévesque
	Nazaire Lemire
	J. Louis Lemire
	Zéphirin Duguay.
	J. N. Duguay.
Chatillon	Ovide Lépine
N.-D. de Pierreville	Ida Niquette.
St David	Albéric Mélançon
St Elphège	Dolphis Call
	Roméo Hamel
	Wm Parent
St François du Lac	J. O. Duhaime
	Elie Duhaime
	Adolphe Parent
St Pie Deguire	Edmond Call
	Edouard Giguère
St Thos de Pierreville	Adélard Boisvert
	Joseph Elie Boivin
St Zéphirin	Emile Lahaie
	Herman Lefebvre
	Alfred Boisvert
	Alfred St Clair
St Zéphirin Courval	Hormida Précourt
Yamaska	Calixte Robidoux
	Narcisse Parenteau
	Dolphis Parent
	Joseph Parent
	Jos. de Tonnancourt
WOLFE	
D'Israëli	Rodolphe Gagné
Garthby Station	Adjutor Lepage

PARISH OR POST OFFICE	NAMES
WOLFE—Con.	
Ham Sud	Antonio Dion
St Camille	Pierre Caron
	Saül Provencher
St Julien de Wolfestown,	Edmond Lahaie
Weedon Station	J. L. Painchaud
Westbury Bassin	Athanase Labrie
Wotton	Zacharie Bilodeau
	E. Lemire
Ste Camille	Edmond Boisclair
ONTARIO	
Guelph O. A. College	Charles Mortureux
Ottawa	Honorable S.A.Fisher
St Amour	Joseph Prieur
Ste Anne Prescott	Jos. Blais
	P. Roy
	G. N. Leroux
South Indian	Arsène Barré
NEW-BRUNSWICK	
St Louis de Kent	L. Cyriaque Daigle
St Jacques Madawaska	Arsène Pelletier
SASKATCHEWAN	
St Louis de Langevin via Duck Lake	Paul Blondeau
UNITED STATES	
Champlain, N. Y	J. B. Bédard
Gardiner City, Orégon	J. A. Janelle
ENGLAND	
London, 16, St Helens Place	W. Weddel & Co. (Exchange)
NOUVELLE ZELANDE	
Wellington	J. A. Ruddick, Dairy Commissioner (Exchange)

PARISH OR POST OFFICE	NAMES
FRANCE	
Menton, (Alpes Maritimes)	Charles Rayneri (Exchange)
La Ferrière d'Allevard (Isère)	Frs Horace Coquand
Paris, 88 d'Assas St.	A. Billard
Paris, 18 Clauzel St.	R. Lézé (Exchange)
Ouilly le Vicomte (Calvados)	C. Morice (Exchange)
FRANCE—Con.	
Lisieux (Calvados)	Edmond Goult (Exchange)
Mende (Lozère)	E. Rigaux, Professor of agriculture, (Exchange)
Lyon	Easthern Union of the agriculturai Syndicates (Exchange)

EIGHTEENTH ANNUAL CONVENTION

OF THE

DAIRYMEN'S ASSOCIATION

OF THE PROVINCE OF QUÉBEC

HELD AT ST-JEROME ON THE 5th and 6th DECEMBER 1899.

MORNING SESSION DECEMBER 5th.

The session opened at 10.15, M. J. A. Vaillancourt in the chair.

REPORT OF M. ELIE BOURBEAU.

To the Members of the Board of Directors of the

Dairymen's Association of the Province of Quebec,

Gentlemen,

I have the honour to submit to you my fourth annual report as Inspector-general of the syndicates of the creameries and cheeseries of the province of Quebec. I began my tour through the syndicates towards the end of May, and finished my inspection on the 6th of November.

I am happy to say that I found a sensible improvement in the quality of the cheese over what it was in the preceding years, especially in the months of May and July ; I met with very few of those sour cheeses, with no body, that I had been used to find so general in May, and those open (1) cheeses, with bad aroma, so often made in July formerly, were rare.

This improvement is due, in the first place, to the exertions of the Inspectors, which are telling more and more every season, and to the peculiar weather with which we were favoured during the summer, especially in July. If we compare the average temperature of that month in 1898 with that of the same month in 1899, we shall find a

(1) What our Vale of Glo'ster (Eng.) men called "heaved" ? A. R. J. F.

difference of 3.59° F. : average of temperature. 1898 : 71.9° F., of 1899 ; 68.31° F. As the temperature of most of our factories is for the most part the same as that of the external air, when that is propitious we at once find an improvement. Hence, I would beg you to do everything in your power to improve our ripening rooms : we should gain much both in quality and yield by doing so.

Though I observed in my opening sentence that I had found much improvement, I did not mean to convey to your minds that nothing more remains to be done. There are certain defects in cheese that are not curable at once. Of these I will only mention one : the fruity smell. Of this I have found as many instances as in preceeding years ; what is the cause of this defect and what its remedy, are questions I have often put to myself, and I arrived at the conclusion that a bad ferment of some kind, carelessness about the whey-vat or slovenliness, is the cause : though I am forced to confess that, in certain cases when this defect was perceptible, the cheese was very well made and the whole factory was in good order.

What then can be done ? Allow me to suggest that the Association might engage the services of a bacteriologist, in order that in cases like the above or in others analogous to it, we might get him to make investigations that would be of the greatest importance to us.

It is an ascertained fact, and has been for some years, that bacteria play an important part in the making and ripening of cheese ; some are beneficial, but many are injurious. Our competitors are so well convinced of this that, in England and the States especially, a specific study of the bacteria affecting our business is carried on.

In England, Mr. Lloyd, the chemist, has just published a report of the results of his investigations of the making and ripening of cheese during a period of eight years. By this you may judge the importance the people of the country attach to the subject. So interesting have I found this report, that I think it would be doing a service to our makers were some extracts from it published in the Annual Report of the Association.

Allow me too to draw your attention to an important point, concerning the divisions of the syndicates. According to the reports, the divisions comprise from one to five counties. Now it sometimes happens that more than one syndicate is formed in a division, and as the extent of territory is unlimited, the inspectors go over the same tract, so that each inspector has a large extent of country to traverse, which gives him such an excess of work to do that, in some cases, the factories may suffer from it.

According to the orders of your committee, I made cheese in July for nine days, and I watched its ripening in order to ascertain if the ripening of cheese in a room furnished with subterraneous air-conduits is advantageous. Before relating the results, I think it right to lay before you some details of this arrangement. The walls and floors of my room are absolutely air-tight, windows double, with blinds and porch at the entrance so as to admit as little heat as possible when the door is opened. The air enters the room after having been cooled by passing through twelve 6-inch pipes, each 96 feet long, sunk 5½ feet below the level of the soil, in connection with a draught-ventilator

(*cheminée d'appel*) 28 feet high. The entrance of the air is regulated by a register, and its exit is through two ventilators 10 x 12 inches in diameter. There is also an arrangement of sheet iron galvanised pipes which can be filled with ice to cool the air additionally if necessary. This I have not tried, as I wished to find out the value of the rest of the system. As regards the temperature I have ascertained the following : from July 4th to August 12th ; max. 69° F. ; min. 60. 5° F. average 66° F. I made 118 cheeses that weighed, on leaving the press, 9252 lbs., and when sold 9192 lbs, that is, 60 lbs, less, equal to a loss in weight of 0.648 per cent.

As to the quality, I found the ripening to have been very good.

Still, there is one fault, but it can be avoided by the use of formaline : it is the mould. How far the value of the cheese is lowered by it I cannot ascertain ; the trade can enlighten us on that point.

Another defect exists in the distribution of the air passing through only one entrance hole. The draught was sometimes too strong, so that a few cheese cracked. However this can be easily cured by dividing the air at its entry.

Respectfully submitted,

E. BOURBEAU

M. Bourbeau again advised the translating and publishing Mr. Lloyd's report ; it is a most important work, but too long to enter into his report.

DISCUSSION.

M. J. C. Chapais.—While still hoping that Mr. Lloyd's report will be translated and published, I should be very happy to hear Mr. Bourbeau if he would kindly point out its most important features to the meeting

M. Bourbeau.—In my opinion, the most important points are those that treat of acidity and bacteria. For instance, I have spoken of "sweet flavour" .....Now, in England a ferment has been discovered which produced a "vinegar flavour", and I should not be surprised to find that it turns out to be the same thing that we here call the "sweet flavour." It is that part that I should like to see published, because it describse the means of attackingt he acidity, a very interesting point, as well as the bacteria that cause the "vinegar flavour"

M. J de L. Taché.—What dealers bought your cheese ?

M. Bourbeau.—Mr. Nevan, of Montreal. He made a report of it by word of mouth. I let him have my cheese on condition that it should be sent to England and a report be sent from thence ; but he satisfied himself by having it examined by Mont-

real experts with whom I am not acquainted, and reported verbally that it had been found of excellent quality. I should have greatly preferred having a report from England, as the cheese would, in that case, have been riper.

I particularly wished for this because I considered that my cheese was of two qualities, although at Montreal they only treated it as of only one. I had made it on purpose of two qualities : one, of a firm texture, heated up to 106° F. with half an inch of acidity ; and the other to 102° F., three-fourths of an inch. When the lot was sent off, I found a difference, though not a very great one. I was not satisfied with keeping my cheese three weeks at the factory. I sent off four at the end of three weeks, and kept four cheeses for another month, until September : two of the high temperature, and two of the low. When sent off, my cheese was not exactly the same, but it was of first-rate quality. A month afterwards, a great change had taken place : the cheese heated high had kept well ; the flavour of the other, without being exactly bad, was by no means what it ought to have been.

During August, in which I continued my observations, the maximum of temperature of my room was 72° F.; but they were making butter in the factory, and some details were possibly neglected, so I cannot assert positively that the contract was carried out in perfect regularity.

M. J. de L. Taché.—What is the average temperature of the ripening-room in the ordinary factories ?

M. E. Bourbeau.—It was not so hot this season as last year ; I believe that in ordinary factories and taking one year with the other, it rises to about 72° or 75°, and sometimes to 80°, in some rare instances to 90°.

M. J. de L. Taché.—In the general run of factories, what is the loss of weight in three weeks ?

M. E. Bourbeau.—We caused our inspectors to take notes of it this season, but I have not yet received them. When I was a maker, the loss was about 2 lbs. a cheese. At that time we use to make cheese of 65 lbs. weight, so the loss was some 3%.

M. J. de L. Taché.—In the present case, it is not half a pound to the cheese ?

M. E. Bourbeau.—Yes, about that.

M. E. Castel.—There are cheeses in England that after eleven weeks keeping have loss 6% of their weight.

M. E. Bourbeau.—Such a loss as 6% I think is a good deal. I spoke to M. l'abbé Choquette about it : he said it was due to certain defects. I found, in looking over some the Wisconsin reports, in some factories there was no loss of weight at all. Their mode of making, however, is very different from ours.

The only difficulty I found in my room, is that of mould. It can be got rid of by the use of *formaline*, but that gives a good deal of trouble.

M. J. de L. Taché.—Did Mr. Nevan say how much your cheese lost in weight ?

M. E. Bourbeau.—He did not tell me, but I could learn and publish it in my report.

M. J. de L. Taché.—Mr. Scott could perhaps tell us how much cheese, bought a fortnight after making, would lose if were kept four months in Montreal.

Mr. Scott.—Two pounds.

M. Jos. Girard, M. P. P.—Does the mould injure cheese as regards the trade ?

M. J A. Vaillancourt, Chairman.—Doubtless the mould does some damage. When a box of cheese is opened, if the cheese is clean, the buyer is more likely to be attracted by it. But the mould does not injure cheese so much as butter, Formaline, of which Mr. Bourbeau spoke just now, should be used with butter; but for cheese, it is enough to steep a cloth in it and hang it on the wall of the ripening-room.

M. E. Bourbeau.—At the Experiment-farm at Ottawa, they sprinkle the cheese with a solution of formaline. I have only treated two cheeses with formaline ; I soaked a cloth in it and passed it round the cheeses every two days, and there were no signs of mould.

M. Vaillancourt, Chairman.—How many properly arranged ripening-rooms do you think there are.

M. Bourbeau. —There are no perfect ones.

M. Vaillancourt.—Well, without being perfect, how many well arranged ones ?

M. E. Bourbeau.—In my opinion, a proper room ought to be always maintained at 65° F. At present, such a room is non-extant. Many factories have taken advantage of the government grant and are about erecting some. I know of one, at Rivière Ouelle, below Quebec, that maintains that temperature (65° F.), but it is favoured by the climate of its locality ; a similar building with us would not give the same result ; still, I take it to be a good room as regards its temperature.

M. J. C. Chapais.—Have you satisfied yourself that its really well built ?

M. E. Bourbeau. – It is well built, barring ventilation, which is not perfect. I examined some cheese there that had kept admirably well ; however, it had a trifle of mould on it. As I just told you, the district is favoured as to climate. In plain truth, good ripening-rooms are very rare, though I must allow that there is a good deal being done towards their improvement.

M. Vaillancourt.—Are there some rooms that really spoil the cheese before it is sent away from the factory ?

M. E. Bourbeau.—Yes, there are many ; certainly 40% of the so called ripening-chambers are not true ripening-chambers but chambers that dry up and spoil the cheese.

M. J C. Chapais.—As to the mould, I know of factories that have completely got rid of it by the use of quick-lime, which entirely absorbs the moisture ; among these, is one at M. Girard's, Lake St-John ; he will probably tell us something about it.

M. Jos. Girard, M. P. P.—Last season, it did well ; but this year it has not succeeded at all.

M. J. A. Vaillancourt.—I think that formaline is the very thing needed, and that every creamery ought to use it. It is not expensive, and it has positively become indispensable in the creamery. I would also advise you to profit by the proposal of the Hon. Mr. Déchène and accept his offer of means to build ripening-rooms. I have met him, and he is disposed to continue the grant made for that purpose. And it is your duty to profit at once by this offer, as this grant will not be continued for ever. Besides, you not only have the advantage of receiving a sum of money, but you have the use of the plans furnished by the Department, and very good plans they are.

When you have the plan and a portion of the money needed for building, you have made a good start, and I think farmers are interested in seeing that the makers accept this offer. Judging from the results at my own factory during a lengthened period, I feel justified in saying that it would pay makers to build good ripening-rooms, even at their own expense.

A propos of the mould, I stated that I had employed galvanized sheets iron pipes to hold ice and salt ; I think the air of the room can be dried by means of those pipes thus filled ; the moisture settles and condenses on the outside of these pipes. They are so placed that the air in entering the factory passes near them.

M J. de L. Taché.—Had you deposits of moisture in your ripening-room ?

M. E. Bourbeau—I have no idea. The mould begins, in a week from the date of making, by tiny white spots. In September, I again made some cheese. There was no great difference between the temperature of the interior and external air ; I was even obliged to have a fire, which dried the air ; I have much less mould even from the very first.

M. J. de L. Taché.—How would rubbing the cheese answer ?

M. E. Bourbeau.—I do not know what effect that would have. The rubbing would only dirty them still more.

M. J. C. Chapais.—The mould affects cheese easily when it is rich (*gras*).

M. J. de L. Taché.—You do rub your cheeses often, I think.

M. Vaillancourt.—They were rubbed every morning, and at a given moment they became dirty ; the room is not an ordinary one, there were in it 72% of moisture.

M J. de L. Taché.—Are you convinced that you have suffered loss from your cheese being mouldy ?

M Vaillancourt—I have kept cheese till it was very mouldy, and it was by no means injured by it ; as regards its sale I mean. This very summer, an Ontario exporter told me that mouldiness did not at all affect the quality of cheese. The only thing is that you have some trouble in selling it in September, for the dealers then fancy that you are trying to pass off on them old June made cheese.

M. E. Bourbeau.—If it was obligatory to stamp on cheese its date of making, mouldy cheese would perhaps loose less in price, especially if that date could be depended upon as being exact.

An unknow n delegate.—As a dealer and retailer, I have proved that mouldy cheese has a better flavour and sells well. I have been ten years in the grocery trade and I can say that there is no loss in buying mouldy cheese. M. Vaillancourt, who has many grocers as customers at Montreal, can have no difficulty in selling them moudly cheese.

M. Millot.—I visit Montreal every fortnight to sell cheese, and I was surprised to find that the buyers took no notice of cheese being mouldy.

M. J. C. Chapais.—At Montreal, they knew that your cheese was not old, but on the English market, where the date of its making is not known, it goes for being older than it really is In my opinion, it is simply a question of age.

Mr Scott.—There are two kinds of mould, one caused by fermentation of new or green cheese ; that kind cannot injure cheese ; but there is a black mould caused by dampness in the ripening room, to this kind it is due that buyers object to cheese that is affected by it. I think that this compaign in favour of improved ripening-room will do a good deal towards parrying this objection.

M. J. C. Chapais.—The black-mould, of which Mr. Scott speaks, is nothing else than another stage of the mould in cheese. It begins with a tiny yellow spot, which turns green later on, and at last becomes black. This black-mould of course indicates a very great defect in the ripening-room.

M E. Bourbeau.—Acid ferment is the cause of mould in cheese. This mould is hurtful to open cheeses, but for firm cheeses it is harmless.

M. Allard.—How is openness (heaved) in cheese to be avoided ?

M. E. Bourbeau.—Th it depends upon the cause, for this openness arises from several causes. Sometimes it is due to want of acidity ; but most frequently it is caused by the work not being conducted with proper regularity, either the curd is left to cool in the mass (bloc), or the whole of the curd is not treated with the same care. Too much salt will cause open cheese. If the pressing is not followed up regularly, you will have what the trade calls *loose* cheese.

M. Allard.—Do you think that cheese the curd of which was heated up to 106° would be likely to heave ?

M. E. Bourbeau.—By no means ; just the contrary ; but it must b e given more acid. It may happen that you have in the factory some cheese that, in spite of having enough acid, is loose ; in this case you are advised to heat higher ; you raise temperature, without increasing the acid : the immediate upshot is open cheese. With less moisture, acidity will develop, and you will have open and heaved cheese.

M. J. C. Chapais.—Does not Mr. Lloyd, in his work, touch upon acidity ?

M. E. Bourbeau.—Yes, whe he is speaking of the grinding, an important and

delicate point in the making. When I was a maker, the practice in Ontario of judging the acidity by the hot iron test was begun and I adopted the plan. Mr. Lloyd used the acidimeter ; it is marvellous to see the difference between two curds that appear alike and seem to have the same degrec of acidity. One thing is certain, that acidity is developed with great rapidity when the curd is lumped. If you defer the grinding too long it will not keep so well. At the school they recommend the use of the hot-iron when about to grind the curd.

M. Vaillancourt.—I sometimes receive cheese that is hard, heavy ; will you tell us the reason of this defect ?

M. E. Bourbeau.—This generally is due to want of moisture in the cheese, and this may come from one or two causes ; either the heat has been too great, or the curd has been too dry. Now, on examination, the cause is easy to recognise, the very dry and highly heated curd will give a cheese soft to the touch, the other will be harder.

M. Vaillancourt.—Have you nó other questions to put, Gentlemen ?

You must h ıve observed by the Inspector-General's report that our ripening-rooms are not without defects. I therefore invite you to profit by the offer of M Déchène and build yourselves good ripening-rooms. You have everything to gain by this, and as M. Bourbeau says, the maker who builds a good room at his own expense, is certain to save the cost in two years, because his cheese instead of losing $\frac{3}{4}$ lb. on each cheese often loses two pounds, so that, if you make 200 cheeses a month, you will have six or seven dollars every month in your pocket. Wherefore, I would press you to apply to the Hon. Minister for the plans and grant, and set about fitting up a ripening-room in each of your factories. Do not let us forget that it is by our faulty ripening-rooms that the repute of the cheese of Quebec is endangered. In many of them the heat is so great that the fat exudes from the cheese and falls on the ground. Cheese thus exposed in a badly arranged room acquires more age in two days of great heat, than it would in a stay of two months in a properly constructed ripening-room. If your cheese is defective it is due to the ripening rooms.

Now, you are going to listen to the report of M. Plamondon, the Assistant-inspector-general, to whom I hope you will pay great attention.

M. J. A. PLAMONDON'S REPORT.

To the Board of Directors of the
Dairymen's Association of the Province of Quebec.

Mr. Chairman and Gentlemen,

I have the honour to submit to you my fourth annual report as Assistant-inspector general. I began my work this year towards the end of April, in the county of Iber-

ville, by assisting in the organisation of a syndicate. Thence, I went, with the same object in view, to the county of Richmond, where the syndicate had not been re organised after the departure of the former inspector. Certain factories of that syndicate fearing that they would not be able to obtain an inspector, had joined the syndicate No. 111 of Shefford, so in order to re-organise the Richmond syndicate we had to take some factories in that county and some in the county of Wolfe. Other Wolfe factories had to unite with the syndicate of Arthabaska, and several of that county were left out of the organisation, in spite of their ardent desire to become part of a syndicate. The season was too far advanced to find an inspector disengaged. On this account, I advise all proprietors or managers of factories, desirous of forming part of syndicate, to make their applications earlier in the season. If there is already a syndicate in their division, they must address their request to its secretary ; if not, they had better apply to the secretary of the Dairymen's Association, St. Hyacinthe, and must take care to do so before the month of May, since by writing in that month, they risk finding all the inspectors engaged as such, or at least as makers.

In Wolfe, there were factories enough to form a separate syndicate, while the Arthabaska inspector was obliged to enrol 30 factories and to refuse to accept several. Thirty factories are far too many for one inspector to manage, for the duties of the inspector increase and multiply instead of diminishing. If the Association had been warned earlier that these factories desired an inspector, they could have supplied one, but in May our diplomated inspectors, not engaged as such, had all taken places as makers, and could not possibly break their engagement.

After completing my regular tours, I visited 14 syndicates, twice, and 3, once, making 31 visits.

I also paid some special visits to some non-syndicated factories, to see makers who intend to present themselves for the examination as inspectors next winter.

In all, I inspected 241 cheeseries and 40 creameries, which, with their products, I classified as follows :

CLASS	Number of syndicates visited.	Number of cheeseries visited.	Factories and outbuildings, etc	Implements and utensils within and without the factory.	State of the factory.	System of making.	Number of cheeses tested	Number of factories in which all the cheeses were 1st class.	Number of cheeses of 1st class in these factories.	Aroma.	Body.	Texture.	Colour.	Appearance and finish.	Number of creameries visited.	Classification of butter	State of the factories.	Factories and outbuildings.
1st Class.....	31	241	74	155	117	140	18046	58	3585	11854	9726	6283	10374	9264	40	29	30	25
2nd "			132	84	116	91				2677	4765	8123	4117	5227		11	10	14
3rd "			35	2	8	10						85						1

Comparing this table with that in my last report, I find a very marked improvement, particularly as regards the aroma of the cheese. I really found less "off flavour" cheese this year than ever before; I only found 2,677 thus, and all of them had been made after the middle of August. Wherever I found cheese the aroma of which was bad, I there found, after examination, that the cheese was soft, pasty, and too moist. Makers do not appear to throughly feel the necessity of firming their curd more and more as the season advances and the milk increases in richness. The patrons, too, are equally responsible in great measure for the bad aroma of the butter and cheese in the fall. It is a matter of observation that many farmers who take great care to aerate their milk during summer neglect that duty as cooler weather approaches. Though milk does not so easily get spoiled at that season, it is quite as necessary to expel the animal odour from it by aerating it as soon as milked. By neglecting that precaution, milk retains that peculiar odour of which housekeepers so often complain, and of which they get rid by setting their milk in shallow vessels placed in currents of air. Besides making the taste of the milk disagreeable, this animal odour affects the aroma of both butter and cheese. In fact, then, aëration, on many accounts, is needed more in autumn and winter than in summer, for not only are cows kept more closely confined then, but their food is not the same; instead of tender juicy grass, they often get strong-tasted food which of necessity communicates to the milk a foreign flavour which is not without its malign influence on the manufactured article. Aeration well managed immediately after milking may possibly expel this flavour, but a cheese-maker who accept this milk, bad in condition as it is, and who makes from it soft cheese, is certain to find that cheese become rapidly "off-flavour." The firmer the cheese, particularly in the fall, the longer will it retain its aroma.

I can say with pleasure that at the beginning of the season, I met with none of those sour cheeses, of a dead white colour, which we used to see formerly in the spring. But I still found many open cheeses, and had it not been for that fault, more than half the cheeses I examined this year would certainly have been just in the first class in every respect. Were you to ask me to what I attribute this open cheese, I should answer in one word: "to want of care." Ninety makers out of a hundred known perfectly well how to treat their curd so as to avoid this defect, we have explained it to them a hundred times, in the school as well as at their factories; and when we show them a sample of open cheese and explain the reason of its being so they reply "Oh! this never happens here; I take good care of that." But it is only necessary to approach their vat and raise the cover to find out the cause of the trouble. In spring: while making a cheese firmer and with less acidity than they are accustomed to make at that season, the makers ought to leave the curd longer in pile in order to allow it to ferment sufficiently, and by doing so they would avoid a too frequent accident.

We are also badly behindhand as to the finish and appearance of our cheeses. Last April, at the meeting of the inspectors at St Hyacinthe, we met representatives of several of the leading export-firms of Montreal. They complained, not of the quality of

the cheese, but only of their want of finish and good looks. It is remarkable how little pride our makers take in the look of their goods. As long as their goods pass through the market without the price being "cut" they are satisfied, so we think that buyers ought to be a little more scrupulous, and count it part of their duty to explain, when they cut prices, why they do so. Such explanations carefully made could eventually eradicate the fault.

I was greatly amused at a little incident that occurred during one of my visits this summer. As I was entering a factory, with the inspector of the syndicate, the maker met us, and said : "I am glad to see you ; our seller has just come from Montreal, and says that the trade found fault with some of our cheeses. As you are here, you will perhaps tell us what is meant by it :" and he showed us the notes of sale that he had just received. By it we saw that he had been cut a cent a pound on the cheese because they were open. Was not this better than to have paid him $\frac{1}{8}$ or $\frac{1}{4}$ of a cent less on the whole lot ? The maker knew to a nicety why he had been cut, and I will guarantee that not a single open cheese left his factory thenceforward to the end of the season.

There were some factories I also found in which very bad water was employed, particularly in one case, where I though it so bad that I sent a sample of it to M. l'abbé Choquette, our provincial chemist, for analysis. His report shows that the water was absolutely putrid, and entirely unfit for use in cheesery or creamery. Although the smell of the steam from the water was enough to upset a man, the proprietor of the factory, when his attention was shown to its bad quality, declared that it was good ! I sent the analysis to the local inspector, and I am convinced that he took means to prohibit the use of that water thereafter.

The whole respectfully submitted,

J. A. PLAMONDON,
Assist.-Inspector General.

DISCUSSION.

M. J. A. Vaillancourt.—You spoke of the *finish* of the cheese, knowing, as you do, that the trade complain a good deal about that point, and I think, with reason. There are many cheeses that are not of the proper uniform size. When this is mentioned to the makers, they say that all the curd made on one day must be put to press at once, to avoid loss ; could you not suggest some butter means of using it up the next day, for instance ?

M. J. A. Plamondon.—Yes ; before acting as inspector, I made cheese for 19 years in an Ontario factory. We were strictly forbidden to put the over-plus of the curd into the next day's cheeses ; still, I always did so in spite of the order not to do so, and

no one ever found me out. In our tour through Ontario, M. Bourbeau and I found that in the cheeseries a pair of scales was held over the vat and not a single pailful of curd was allowed to be put into the mould without being weighed ; thus, uniformity of weight in the cheeses was secured. For my part I never took all that trouble ; only, I invariably filled the mould myself, taking care to put almost always about the same quanlity of curd into them, and my cheese varied but little in weight.

When I had some curd over, I used to keep it to the next day, and I then put it with the new cheeses, though I can not recommend that procedure, as it give too much trouble. It is almost impossible in this way to turn out good work with a recumbent press, but with an upright press one has a better chance to succeed. When I had a quantity of curd over not enough to make a cheese, I used to keep it till next day. I put the curd into the whey, mashed it up therein thoroughly, mixed it with the rest, and when it was ground it could not possibly be found out. No one ever blamed me for following out this plan, which was strictly forbidden, because, I suppose it was never discovered that I made use of it. It could have done no harm, and is an excellent way of securing uniformity in the size of the cheeses.

There is still another plan ; that is, to use up the rest of the curd in making small cheeses ; but these should not be put into boxes like ordinary sized cheeses without specifying and marking their weight on the box.

M. Vaillancourt.—Let those present who have questions to ask advance ; M. Plamondon is here to give information to those who seek it.

M. W. Parent.—I find that dealers always want uniformity in the size of cheeses and when one is obliged to make a small cheese they cut us half a cent : why is this ?

M. Vaillancourt.—We always look for large cheeses ; when you bring cheeses two of which go into one box, we naturally deduct something from the price. Were your cheese coloured, we should deduct nothing from the price of these smaller cheeses, as they could be kept for the retail trade.

M. Plamondon.—I found out another plan to get rid of the small cheeses ; my patrons used often to ask me for some cheeses for their own houses, and I gave them these small ones made from the remainder of the curd. The patrons were all the more pleased, as they preferred small to large cheeses. And in this way I avoided ever having to send small cheeses to market.

M. Vaillancourt.—M. Plamondon spoke just now about the *finish* of cheese ; as there are not many members of the trade present, you will perhaps allow me to make a few remarks on this subject.

It is most important that the finish of our cheese should be looked after particularly as regards uniformity in size and colour. There is nothing that has so bad an effect as to find five different shades of colour in a consignment of 100 boxes of cheese. It should be easy enough to measure the colouring put to the curd and to adapt it to the quantity of the curd before one. I have heard very disagreeable remarks on this subject.

A man comes asking for Quebec cheese, and sometimes I cannot find ten cheeses uniform in colour. People will not believe that the cheese is all from the same country and it is very annoying.

Now, if, as M. Plamondon said, we keep the remainder of the curd till next day, and abolish these unequal sizes of cheese, we should be receiving a benefit, and the makers would be doing themselves a great service as well. Let all cheeses be made of the same weight, about 70 lbs., and when that result is reached, a great point will have been made.

Another thing I have to mention ; it is that very often small cheeses are put into large boxes ; attention should be paid to this, so that only cheeses that fill them all ever be put into the boxes.

M. Plamondon.—I beg Mr. Chairman's pardon, but I forgot just now, when speaking of the remainder of the curd, that it must not be kept to the next day in a pail. It had better be put into a mould, with a light pressure of some sort, to expel the whey, because the excess of moisture would develop acidity, and we know that acidity cuts the colour ; so we should run the risk of having marbled cheese.

M. Castel read Mr. Macfarlane's report for which see p. 74.

M. Castel then invited the inspectors of syndicate to relate to the meeting any remarks they may have made in their tours through the country.

M. Castel then read an abstract of a report from an English inspector, insisting strongly on the duty of makers to give the inspectors the figures they ask for as these figures serve as the basis for statistics. There are no official statistics yet in the province of Quebec, as there are in Ontario, but it is in the interests of the makers to give the figures asked for, and that will supply information useful to them.

M. J. C. Chapais.—M. Castel has just touched upon a point on which the inspectors alone can enlighten us ; I mean the false returns that are made to them by the makers in some of the factories. Is there any one of the inspectors present who can tell us if he has met with any of these falsified returns ? Let him tell us about them without naming any one. I feel that any inspectors should denounce this practice so that means can be employed to put an end to these falsified reports. When we find two makers, both good workmen, and yet while one returns $1.25, the other only $0.90 or $0.95, because his return is an honest one, surely the latter must suffer from this state of things. I have proved that these false returns are made in many places ; makers have come to me saying : I have paid so much a month, and I was fortunately in a position to reply : it is an impossibility. But is one always in a position to reply like that to those who make these falsified reports ?

An Inspector.—In my county, I know of a maker who employed this means to injure a neighbour, and so well did he succeed that the patrons of the next factory agreed to change their maker ; but when the inspector came, he blamed them and they kept quiet. The maker in question not only played tricks with the scales, but his cheese

was too full of moisture. He used to say : it will go to Montreal and be sold like the rest. I saw his bills, they were fictitious ; there are makers who are able to confirm this ; a cut was made of 10% on the weight. This is a great evil, one difficult to put a stop to.

M. Plamondon.—In my visit to Arthabaska, this summer, I observed the existence of the evil : tricks were played on the scales, on the yield, false returns were made, etc. Then, the syndicates called together all their members, and passed a rule to compel all to swear to their reports, their weights, etc., for the differences in the yield were too great to be put up with.

An unknown inspector.—I think M. Plamondon is talking about something that happened in my syndicate. There was a factory that paid rather high, and gave a great yield. I examined the scales and found that the maker was taking two pounds ; I told him of it, and advised him to put the scales right again. At a certain time, the maker's wife arrived with her milk, poured it into the can and went to weigh it. The apprentice was waiting to weigh it when I had taken a sample, and I waited after him. The maker did not dare send the milk without weighing it before us ; his wife asked the apprentice how much milk there was that morning. That morning, the weighing lasted some time, and I then went to the scales and found that they were loaded with a piece of iron as big as an egg !

M. Chagnon.—At our factory, there was a maker who used to worry his patrons to agree to deduct 10%. The patrons consulted me. I said : the best plan, if you come hither, is to weigh your milk. You will know how your business is managed. If farmers would make a practice of doing this, it would later on improve the state of affairs.

M. Milot.—I have heard about the intrigue that is going on concerning the weighing of the milk. I think that the duty of opposing this state of things should fall to each inspector. He ought to prove, to his own satisfaction, the yield from the milk each time, and make a report of his tests for one or two factories. He should go thither himself, make a conscientious investigation, watch the scales and the maker. He should receive the milk, inspect it to see that it is not fraudulent, and then pass the day at the factory to superintend the work of the maker. He should report upon this work ; thus : At such date, in such a factory, I myself made the cheese, and the yield was a pound for so many pounds of milk. Then, the inspectors should, monthly, report on these operations to the Association which would publish a pamphlet containing the result of the tests. Thus, I think, we should arrive at a means of efficiently controlling these false returns. When any patrons blamed a maker for not giving them as much as others gave, he could take the official bulletin of the Association, and say : Look ; if other makers profess that they make more, they deceive you. It is such means that I would suggest should be employed to put an end to false returns.

M. E. Castel.—An excellent idea, indeed. It seems that our inspectors could easily supply this information, and it might be published in the Journal d'Agriculture that appears on the 22nd of the month.

M. J. C Chapais.—I think M. Miiot's idea might easily be put into execution, for it would not exact much more work from the inspectors who ought always to be present at the reception of the milk and at the making of the cheese. With these returns at hand, one could say to the makers : you assert that you get so many pounds of cheese from 100 pounds of milk ; you are wrong, look at the official returns.

M Chagnon.—This system would be more difficult to apply to makers of butter.

M. J. C. Chapais.—The process would not be perfect ; its conclusion would not be mathematically correct, but we should get a general basis sufficiently exact.

M. Milot.—The plan would be as easily applied to butter-makers as well as cheese-makers, since the inspector has to pass at least two days in a creamery.

M. Chagnon.—It is certainly desirable that the inspector should pass two days in the creamery, but it is not done.

M. Vaillancourt.—All these troubles are, doubtless, due to competition ; and competition does us a great deal of harm. A law could abolish the multiplication of small factories, but we are told, in reply to our application, that it would fetter the liberty of the individual. At any rate competition should be fair and ought not to make us less honest. This competition of which we complain may result in awful consequences. I have seen in our neighbourhood men obliged to leave the country because they had put too much money of their own on the yield of each month to appear to excel their neighbour ; his neighbour does the same with the same view, and the two have really sold the cheese at the same price, and are each a quarter cent out of pocket for nothing. Such things are but empty shows that ought to deceive no one ; every one knows that a difference of a day or two in the sales may cause a considerable rise or fall in prices.

M. W. Parent.—In my county these false returns were common enough ; there was a great deal of competition among the makers, and we had to find out some remedy for these false returns. I was then Justice of the Peace and inspector too, so I used to swear the makers to the truth of their statements ; this I did for two years, but of late years I have ceased to be a Justice, so I have not put the makers on their oaths. I found this plan caused a great improvement in the returns. At present, things do not go badly ; our statement are pretty uniform ; there are always a few variations, as the milk may be more or less rich, but the returns are pretty uniform.

M. Chapais.—You mean a "solemn affirmation," for you had not the power to put men on their oaths.

M. Parent.—No ; I made them take their oaths.

M. Jubainville.—All these means of which mention has been made to remedy these evils of which we complain have failed because they are two mild : rigorous means are required. We shall never succeed by mildness. I am the proprietor of a creamery, and I have something to say on the subject. The inspectors have no end of bother in getting the information they require, and our farmers do not know what goes on in the factories. I think that if all our makers were licensed and in dependence on the govern-

ment, we should be in a position to learn what was being done in each creamery. If the inspectors were dependent on the government and our creamery were rated, we should probably get more easily at the returns we seek for. It seems to me that if all the gentle means employed up to the present have failed, there remain nothing but harsh measures to be practiced. Were all our butter-makers licensed, we should not have, as we have to-day, to submit to all sorts of annoyances. In a province like ours, we have monstrous frauds, and it would be an important point gained could we take measures to protect ourselves, at least as regards the export-trade. We have game-laws, fishery-laws ; why should we not have creamery and cheesery-laws, for the factories are of far greater importance to our country than the chase or the fishery ? I own a creamery, and I would gladly be rated as such, provided that we had a law to protect us against frauds such as are always difficult to prove in this kind of trade. If gentle means have proved futile we must use rigorous means : we need a law.

An unknown delegate.—If my friend insists upon the creameries and cheeseries being rated, I, for my part, will insist that the Montreal grocers, who come into the country to compete with us, be also rated.

M. Jubainville.—I must tell you that I am the son of a farmer ; I have farmed, carted wood, dug ditches, as well as any of you. Three years ago, I took it into my head to start a trade of cream at Montreal. Not succeeding, I went to my natal parish, Ste-Rose, where I built a creamery with a view to favour my Montreal trade in cream. I established rules for the reception of the milk, the farmers abided by them, and I must tell you that I bought for twenty-five thousand dollars worth of milk from one January to the other. I do not suppose the people of my parish find much fault with me!

M. Vaillancourt.—I fear, Gentlemen, that this subject will lead to an exchange of personalities. On this question, I do not think I am compromising the Hon. Minister of Agriculture, here present, by telling you that he will never consent to the placing a rate or tax on creameries and cheeseries. We do not need a rate to keep ourself honest or to become so. I think that if all the makers were to listen to our lecturers, they would understand of themselves all the advantages they would derive from conforming to the advice given to them.

M. Jubainville.—You persist in favouring mild measures ; you will not find them succeed.

M. Vaillancourt.—We have already obtained great changes for the better, and we shall go on improving ; you are still a young member of our Association, having belonged to it for only 16 months ; I for 19 years, so pray trust to what I say.

The session closed at 1.30, P. M.

SECOND SESSION.

Opened at 2.15 P. M., M. Vaillancourt in the chair.

REPORT OF M. J. O. LECLAIR.

Mr. Chairman and Gentlemen,

I respond with pleasure to the invitation I have received to relate to you a few observations I made during my visits to the makers during the past summer.

The few remarks I am about to make do not apply indiscriminately to all the factories ; they do apply, however, to a sufficiently great number to justify me in communicating them to you. They will, I believe, deserve a little of your attention, and may be of use when opportunity occurs.

The first thing I found was that the factories are not perhaps managed as they might be, and perhaps, again, as they ought to be. A great many people have plunged into the butter-trade ; that is all very well, but, on the other hand, permit me to say that it is a trade that must be well understood before a man enters upon it. If among you there is any one who intends to enter upon this trade, let him gather all the information possible about it, in order to become acquainted with everything connected with it. In this trade, as in all trades, we must not look at the profits alone ; there are many things with which we have to reckon before we can be certain of the profits. These remarks do not apply to St-Jérôme more than to other places. My position allows me to become sufficiently acquainted with the defects that exist among a great number of proprietors of factories to enable me to put on their guard those who are present here, and to advise them not to involve themselves without thoroughly understanding the business.

Now, I am about to address the makers of butter ; but I think the makers of cheese may possibly derive some advantage from my remarks.

The makers, generally speaking, do not seem to think it is their duty to examine or test the milk ; but in my opinion that is one of the duties of the maker, and every man who sets himself up to be a maker of butter or cheese must be able to employ the instruments that serve to test the quality of the milk. This is a point very much neglected, for I may say that 95% of the makers of butter or cheese do not know how to test the milk.

I entreat you, Gentlement when you engage a maker of butter or cheese, insist upon the man being as skilled in the art of testing milk as in the art of making butter or cheese. The testing of milk should be considered as the first duty of the maker ; a maker who does not know how to discharge this part of his trade is not a competent maker.

I think I see in the meeting a certain number of farmers, and I am anxious that

these men should feel the need that there is for them to send to the factories carefully treated milk. When arrived there, it is very difficult to treat it if it was not well looked after before it left the farm ; this gives rise to cases of extreme difficulty, which defy the skill of the best makers, who then have no idea what to do with the milk send in to them. This is one of the causes that hinder our reaching the desired uniformity in our goods and prevents them from obtaining the full degree of success that is due to our efforts. Convince yourselves then, Messrs. Farmers, that the preparation of the raw material is in your hands, and that the more care that is bestowed upon it at home, the greater prospect is there of the maker converting it into a good article. It must always be hoped for that a time will come when your goods will be paid for according to their true value, and then you will receive larger profits in return for the attention devoted to your milk.

One of the best means to be offered to the maker for the obtainment of uniformity in butter is, I believe, the use of the *acidimeter*, which enables him to ascertain every morning the degree of acidity in the cream. They who have never inspected our factories have no idea of the difference there is in the products of the same factory from one day to another. Some makers there are who are not competent to decide upon the point of ripening in the cream. One means establishing uniformity is for them to call to their aid this instrument which will help them to decide about the acidity of the cream and to tell them the exact time when its temperature must be lowered to prepare it for the churn. Nothing is easier to use than this instrument, and they who wish to study it will find the means of doing so at the St. Hyacinthe Dairy-School.

Another point of importance there is, which has already been discussed, especially at Nicolet, when I spoke to you about the butter-boxes. I think I am justified in again calling your attention to their want of uniformity ; they are not equal in size We are now satisfied that the trade wants a box that properly filled holds just 56 pounds. The trade to day will not accept a box of 58 pounds. So, if the maker wishing to fill it, puts into his box more than the regular weight, it will be at a dead loss to himself. I think that it is in meetings like this that we should come to an arrangement to ensure for the future the uniformity in size of our butter boxes. As the butter-men themselves sell boxes of different sizes, with which they meet in the trade, the makers are likely to buy boxes of different sizes to patronise the sellers who are at the same time buyers from them, the makers. And so, if, to give them a good look, we fill them, some of the boxes will be over weight, which will entail upon us a dead loss. I therefore appeal to those present to suggest to us the best means to be taken to reach the desired uniformity in the boxes.

I know that there are present here a certain number of makers of butter who wish to air the difficulties they meet with in their business, particularly in winter ; but it is not easy to resolve in a meeting like this all the difficulties that present themselves and to give such advice as shall make churning an easy job. All the preliminaries to churning must be thoroughly understood before we can judge of it. This year, I suffered, as you all did, from this difficulty in winter butter-making. At that season it is not

easy to properly ripen the cream, and the consequence is that the butter that we send to market is hard y liked there. I may say, without deceiving myself, that our winter-butter is not considered fit for exportation because its flavour is not good enough, and it is not sufficiently uniform. Since the beginning of November, I have been in the discharge of my duties at the St-Hyacinthe Dairy-School, and I have tried a new method of working. I do not mean to give it you as a result of a perfected experience, as a method that is to replace all others ; I only impart to you here the advice to try it to see if it will give you, as it is gave us, a greater facility in the manufacture, a greater uniformity in the flavour.

It consists in this :

We proceeded by comparison. We first of all tried what we should produce from cream cooled immediately after skimming, and churned at once, without the addition of any thing at all. We got a firm butter, very delicate and exactly what the quality of the milk should give, but as to the aroma, that was neutral.

Then we took very thick cream, nearly 10% ; we cooled it and added a ferment in the proportion of 60% so as to dilute the cream and make its consistance suitable to churning. It was churned, and we at once got a butter with an aroma superior to that of the former proceeding.

We, then, having pasteurised cream of the same consistance, added to it a ferment in the same proportion and churned it at once. We obtained a butter with an aroma still more delicate, besides the churning did not take up more than 50 minutes. I think this process ought to help you a good deal. First, it has the advantage of freeing you from the necessity of keeping at the factory to take care of the milk, and you will not be obliged to be watching the temperature of the factory to maintain it at such a degree outside the usual working hours. I am convinced that your butter will be more uniform, and I can assure you that your butter will not be inferior in grain, or in texture, to that made from cream ripened during from 24 to 48 hours.

The ferment may be prepared from a pure culture ; the better the ferment, the better will be the butter. Still, I believe that you yourselves, by selecting milk of the very best quality, can prepare a ferment which will give you every satisfaction.

Such, gentlemen, are the remarks I had to make. I satisfy myself by, so to speak, making an exposition of my procedure. As I know that there are present a great number of persons anxious to have the details, I pause here, preferring to allow more time for the discussion.

An unknown delegate.—As to the yield, have you ascertained that there is a difference ? The cream you speak of having churned was sweet-cream, was it not ?

M. J. D. Leclair.—Yes, it was. I cannot accurately state its yield ; but I know that in two or three cases it was equal to that from cream ripened and kept for 24 hours.

The same unknown delegate.—Will you be good enoughto give us in detail a description of the ferment made for that cream ; the ferment you made yourself !

M. J. D. Leclair.—We took the milk of a cow not too far advanced in her period of lactation. We asked the patron to deliver the milk of that cow while still warm, and to milk her with the greatest possible care. We set it for the cream to rise for ten hours ; we skimmed the upper layer of the cream and pasteurised the milk at a temperature of nearly 200° F. for an hour, stirring it constantly and then allowed it to coagulate of its own accord.

M. Chs. Préfontaine.—Without cooling it ?

M. J. D. Leclair.—We cooled it down to 83° or 90°, and kept it at that temperature throughout the coagulation. That is the mother-ferment. We then mixed it with other milk, prepared in the same way, in the proportion of one to ten, and it is that mixture which we added to the cream, before churning it immediately after skimming. Then, by adding 60 to 65 per cent of ferment to the thick cream, by which the butter is properly diluted, our butter comes in from 50 to 54 minutes of churning. Last week, we examined these butters, and that made from pasteurised cream churned immediately after the addition of the ferment was indisputably far superior to the others, except to that made from sweet cream churned without ferment which was not perceptibly inferior to it. Thus came, first, the butter from cream ripened for 24 hours, next that from cream with a ferment added but not pasteurised, and at the top of the scale, as superior butter, that from pasteurised cream, cooled, and churned immediately after the addition of the ferment.

M. Chs. Préfontaine.—You do not know if this plan can be followed in summer ?

M. J. D. Leclair.—Not having tried it, I cannot say ; nor can I say if the same difference would be found at that season that I found in winter. I should be inclined to think that, with modifications, the method might be proved with advantage in summer.

M. J. de L. Taché.—I would draw the attention of the butter-makers to M. Leclair's communication. I am anxious to impress upon them that the process is likely to revolutionise our system of making and improve it too. I congratulate M. Leclair on his discovery. As to its suitability for summer-work, I cannot say, for no doubt it will need modifications on account of the temperature. Still, I think it would have the advantage of giving a uniformity to our butter and a superior quality as well. Uniformity I believe to be one of the most important things as regards the demand of the market.

An unknown delegate.—Can you tell us if the milk brought by the patrons to the factory is generally what it should be to produce good butter ?

J. D. Leclair.—Not always. There are doubtless times in the summer when the milk is bad ; if you do not make use of an artificial ferment, or if you do not destroy the germs it contains by pasteurising, it is impossible on those days to make good butter. Now it is to superior quality that the demands of the market bind us as an absolute necessity.

An unknown delegate.—I think it would be a great stride towards improvement if the milk were delivered twice a day. The makers might have the ferments needed to

treat the milk properly. We know that milk is often spoiled at the farm, where it absorbs the bacteria from the circumambient air. This source of danger might be avoided were the milk delivered twice a day at the factory.

M. J. D. Leclair.—That would certainly be an improvement, but one difficult of accomplishment. You know that milk is often brought from long distances, and it would be difficult to insist upon the patrons taking it to the factory twice a day. Besides, if they would take the trouble to preserve their milk better, to follow the advice given by the makers and inspectors, I believe that it would be easy for them to deliver at the factories milk that would enable the makers to turn out butter of the best quality.

The same unknown delegate.—Do you not think, M. Leclair, that the product would be better if the milk were delivered at the factory twice a day.

M. J. D. Leclair.—I doubt it.

The same unknown delegate.—Do you not think the quality would be improved ?

M. J. D. Leclair.—I cannot say positively that the quality would be improved, but the maker would find it easier to make better butter. Were farmers to bring milk in only once a day and take the trouble to keep it properly, or, which comes to the same thing, if the maker would refuse to accept badly kept milk, the product would be good in quality.

Another unknown delegate.—For my part, I can state here that I have made butter from milk fresh skimmed and with milk skimmed at 18 hours, and I proved that it took 2 pounds less milk to make a pound of butter with the fresh milk than it took with that of 18 hours. I think there is a difference of 7 or 8 cents in the 100 lbs. of milk both in quality and quantity.

M. J. D. Leclair—How do you account for the difference in yield ?

The delegate.—By the skimming being done at the same temperature.

M. J. D. Leclair.—Have you found how much fatty matter you had with the fresh milk and how much with the 12 (18 ?) hours' milk ?

The delegate.—About the same.

M. J. D. Leclair.—Then, how do you account for the greater yield ?

The delegate.—I think it depends upon the milk being fresher. I believe that milk that passes 12 hours in the cans must suffer from it.

M. J. D. Leclair.—It is by no means settled that milk suffers by becoming a little old ; on the contrary, new milk is harder to skim than 12 hours milk.

The delegate.—By bringing it back to the proper temperature, we have succeeded at any rate.

M. J. D. Leclair.—I am positively certain that, as I tell you, it is more difficult to skim fresh milk than 12 hours milk.

M. J. de L. Taché.—Don't you think that between 6 o'clock in the evening and the morning, milk may suffer less elsewhere than at the factory ? (laughter).

M. J. D. Leclair.—Decidedly.

A delegate.—Is not the morning's milk richer than that of the evening ?

M. J. D. Leclair.—That depends upon the interval between the milkings. If the cow is milked every twelfth hour regularly, it has never been proved that the morning's milk is richer than the evening's. If it has been fancied that there is a difference, that depends upon the milkings having been irregular. Sometimes people milk late in the evening and early in the morning, and then there may very likely be a difference in the richness of the milk ; but if you have the cows milked at the same hours, night and morning, you will no longer find that difference.

The delegate.—There may be a difference in the food of the cow ; in the day-time, the brightness of the sun is likely to affect the milk of the cow. In the evening she is at ease and may in the morning give a richer milk.

M. J. D. Leclair.—In all these cases, the separator is always able to extract all the fat in either the morning's or the evening's milk.

The delegate.—True, but if the morning's milk is the richer, will milking the cows every twelve hours make the milk equal in quality ?

M. J. D. Leclair.—At the factory it is not easy to make the distinction ; if you put the morning's milk and the evening's apart, we are very doubtful if you could show any difference.

M. J. C. Chapais.—One thing is settled ; the longer the milk remains in the udder, the less rich it is. When the milk is drawn at equal intervals, it is very seldom that any difference in richness can be detected.

A delegate.—I have often made tests with the same herd ; there never was any difference in the richness of the of the milk when the milkings were done at regular intervals.

M. J. A. Vaillancourt.—I was very happy to hear M. Leclair telling you about an instrument that enables the maker to judge of the degree of acidity in milk. There are many factories that turn out excellent butter all the summer, and when the fall arrives one would say that it was no longer the same man that made the butter. I can understand that a maker should make good butter as long as the temperature is in his favour, and that he should find it more difficult when the temperature is adverse to him ; I would therefore advise all makers to get one of these instruments. I fancy that this autumn the butter is not so good as it was in preceding years.

Another point to which I should like to call your attention is the white spots and stripes in butter. M. Leclair will be doing you a great service if he will tell you how to avoid them.

M. J. D. Leclair.—The question was gone into at full length two years ago. M. Taché made a spécial study of the subject ; I hope he will give us an abstract of the lecture he delivered on it.

M. J. de L. Taché.—The question is rather a long one : I will give you an abstract of it.

There are differents kinds of spots : some are like white spots that proceed from cream dried on to the vat ; to avoid these, the cream must be strained. There are other white spots, that come from the cream curdling in the vat, or by curd that forms under the cream. These come from too thin cream, and are rather difficult to cure. It is the white stripes that are more generally produced ; these are almost always caused by the imperfect mixture of the salt in the butter ; to mix the salt does not always mean that the salt is dissolved. That the salt dissolve, two things are needed : the working must be done at a suitable temperature, and with a sufficient quantity of water. I have seen makers get rid of spots by salting in the churn instead of on the table : their method was faulty, inasmuch as it dried the butter too much before salting it.

The imperfect mixture of salt with the butter may arise from different causes ; for instance, during summer, you put fairly dry salt in butter churned at a very high temperature ; it is all very well to work at it for a long time, the salt will not mix with the butter because it is too soft. Therefore, in summer, if you have white spots, you must salt with a sufficient proportion of water and work it in at a low temperature. In the fall it is the contrary ; the butter must be worked at a higher temperature. It often happens that the butter is too cold and the salt divides itself in the butter in layers which remain always distinguishable. The dissolution of the salt is a very important part of butter making. We have found that, after a certain time in the cellar, the marblings in some butters had disappeared on account of the salt having slowly dissolved.

The white marblings are invariably caused by imperfect working, or because the butter has been worked at a temperature too high or too low, or because the salt has not been mixed with sufficient water and has not been able to dissolve in the butter.

As to the winter season, the temperature must be higher, as high sometimes as 70° F. ; the doors of the rooms keep opening, the walls are cold, everything in the factory is cold, and this is what causes the spots.

It depends then upon water, working, and temperature being all three right.

M. Vaillancourt.—I called attention to the spots in butter, because in fall-made butter vast sums are lost on that account. There is hardly an invoice on which we do not lose as much as half a cent a pound on account of these spots. It will not do for the export trade, and even in Montreal it is losing some of its value. You see that the case related to you by M. Taché is simple enough ; if the spots depend up on cream dried to the vat's side, it must be strained ; if the salting is in fault, more water must be added. I advise you to devote all your attention to this point, for in doing so you will be doing great service to our farmers

M. Leclair spoke about the boxes ; uniformity in the size of the boxes is a most desirable thing. The best box for market-purposes is not yet patented ; it should be square in shape, rather narrower at the base than at the top, though very little, only

just enough to make it easy to get the butter out. It should be made with four *crochets* and of white pine. We sometimes receive boxes the mere sight of which is enough to prejudice us against the butter they contain, and yet it often happens that this butter is of the finest quality.

A delegate.—Will you tell us the dimensions of a box to contain 56 lbs ?

M. J. A. Vaillancourt.—I do not know, but it can easily be found out ; I think it should be 12 inches square inside measure. A box should be a trifle larger than is required to hold 56 lbs., but not much ; it is useless to put more than 56 lbs. in a box because the dealers object to paying for more.

M. E. Castel.—If I understand the point, the box should be so made as to hold exactly 56 lbs. ?

M. J. A. Vaillancourt.—Yes.

M. E. Castel.—It ought to be so built as to be the legal measure of butter ?

M. J. A. Vaillancourt.—Yes.

M. E. Castel.—If it is considered then as a legal measure of butter, could it not be verified just as the weights are ?

M. J. A. Vaillancourt.—Butter is sold by weight and not by measure.

M. E. Castel.—We have boxes which have weighed as much as 60 lbs., and yet were made to hold only 56 lbs. And although butter is sold by weight, buyers will not pay for more than 56 lbs. a box. Could it not be so arranged that butter-boxes should be branded by the maker, and that they should be sent out with a brand stating that they are of the proper size to hold 56 lbs. and the proper fraction over, so that no maker should run the risk of putting 60 lbs. of butter in a box that will only fetch the price of 56 lbs. It is but a trifling demand, that the branding of the box should certify that it has the proper capacity.

M. Vaillancourt.—Take two boxes of the same capacity ; give one to one maker and the other to another maker ; they will fill them alike, both of them, and yet it may happen that you will find a pound more in one box than in the other.

M. Castel.—It is the fault then of the maker of the butter, who should bear the responsibility : so much the worse for him.

M. J. de L. Taché.—Both boxes and makers then should be branded. (Laughter).

M. Castel.—If a maker have a box of abnormal size at the beginning of the season, so that he does not give the weight, he might easily be told that he is in error and be forced to correct it ; but when he buys boxes of varying sizes, each new box involves an experimental filling.

A delegate.—This butter is weighed, and comes out all right !

M. Castel.—Yes, and sometimes it does not weigh the full weight.

How many box-makers are there in the province ?

M. Vaillancourt.—A great many.

M. Castel.—Could not the Board of trade call them together at Montreal so as to give them a common standard ?

M. Vaillancourt.—You might send round a circular asking them for boxes of such and such dimensions. They ought to agree to it ; still, that need not hinder the Montreal Board of trade and the Buttermen's Association from doing the same thing. I belong to both boards, and I will look into it and get a resolution passed.

M. Castel.—We might get up our circular in committee of the Association and send it to Montreal.

M. Girard, M. P. P.—If the dealers were agreed upon a standard size, and refused to buy in future any butter packed in non-uniform boxes, no more of them will be made.

M. Vaillancourt.—That might be difficult, occasionally. A maker of butter, for instance, is offered a lot of boxes cheap ; he sees no drawback to their utility, and so he buys them.

A delegate.—Inflict a fine then on the Montreal dealers who want too large a box. (Laughter).

M. Vaillancourt.—M. Leclair will perhaps tell us something about the composition called "formaline". It is a very important product, and before long will come into general use.

M. Leclair.—We have not as yet used it, but I heard M. Choquette say, in his lectures to the students at the school, that it was very efficacious in the removal of mould ; but only in external use.

M. J. de L. Taché.—I think it would be prudent, before commending its general use, to learn the opinion of experts about it, since it is a strong poison.

M. Vaillancourt.—Prof. Robertson, when at Montreal lately, recommended its use, and said that it could even be employed on the parchment paper that enwraps butter.

M. Taché.—M. Préfontaine points out that "Hoard's Dairyman" condemns the use of formaline, as it is a strong poison.

M. Préfontaine.—We never use formaline at our factory and yet we are never in dread of mould. We make a very strong brine in a tub and soak the parchment-paper in it for at least 24 hours in advance, and by this means, there has never been the least mould on any of our tubs of butter. It is to the salt that I attribute this property of preventing the mould. I think that with a very strong brine, we can do without formaline ; but the paper must be very well soaked and not put on dry for if you do, it is sure to mould.

M. Vaillancourt.—Sometimes, the mould begins in the wood of the box or tub.

An unknown delegate.—That depends then on the boxes and tubs. At our place we never soak our boxes ; we put them into a large box into which we introduce steam. We steam them for three hours and we then put on the paper that has been steeped in

brine. As I have followed this plan for ten years, I guarantee it to do away with the mould.

M. Vaillancourt.—I believe the Minister of Agriculture, who is here present, can tell us something about the use of formaline.

The Hon. Sydney A. Fisher, Minister of Agriculture,—I have not much to say on the subject ; but I know that in the North-West, where my Department, under the direction of Prof. Robertson, has been making butter for some years, we have had a great deal of trouble with the mould. Mr. Robertson has used formaline ; he put all the paper used for packing into it. He also placed formaline in the room where the butter was kept, and having thus employed formaline, there has been no difficulty with the mould since we began its use. I am certain that its use is devoid of danger, and that it cannot injure the butter. It is not put into the butter, but only into the room where it is kept, on the tub, and on the paper used in packing.

I am happy to be able to give you this explanation, and I feel sure that we can now recommend, officially, the use of formaline : it offers many advantages, and is not in the least injurious to the butter.

An unknown delegate.—I have been using formaline for three years in my factory and I was satisfied with the results. The first year or two, I had some trouble with the mould, but now that I use it, I get along perfectly. My boxes are all paraffined.

M. Vaillancourt.—How much do you put on.

The unknown delegate.—I put it with the brine ; about 3% in the strong brine.

M. Vaillancourt.—And since that time you have had no mouldy butter ?

The delegate.—None. We make a mixture of water and formaline, then add 3% of this to the brine. Three volumes of water to one of formaline and 3% of this mixture to the brine. The paper is dipped into the mixture, without allowing it to soak, and that prevents moulding.

M. Vaillancourt.—We certainly cannot use formaline without being perfectly acquainted with its properties. As the trade will probably demand its employment before long, it is important that we should get all possible information about this new article as soon as we can.

A delegate.—You know that the English employ chemists to analyse the food products of other countries ; if they find that we are using substances injurious to health we may have to suffer for it.

M. Vaillancourt.—This stuff does not go into the butter.

M. Préfontaine.—Doubtless, but the surface of the butter is in contact with it.

M. J. Girard.—If formaline does good, why not use it ; it certainly will not be condemned.

A delegate.—I believe that it is used by certain *canners* at Montreal.

M. Vaillancourt.—You may be sure that Prof. Robertson has not recommended the

use of formaline without having thoroughly studied it ; neither has he recommended it without having considered any objections that might be made to it on the English market.

The Hon. S. A. Fisher.—There is a vast difference between using formaline, which is employed in the butter-cellar, and in the packaging, and using *preservaline* which is forbidden by law in England. I do not think that any objection would be made in England to the use of formaline. The English market objects to the use of preservaline, a compound containing *borax* and which even enters into the body of the butter ; but I do not think there would be any objection to formaline which is only used on the outside.

M. Prefontaine.—What is your way of cooling the cream, M. Leclair, in your novel process ?

M. Leclair.—When we tried that process, we had no special apparatus for cooling cream ; but I happen to know that a person is now studying an apparatus for the cooling of milk during the skimming, and which may be adapted to pasteurising. We pasteurise the cream at 140° F., and cool it. Up to the present, we have done the work in the vat. When the new process shall have been more deeply studied, and the results have been proved to be good, we shall have to end by its adoption.

M. Taché.—When you deal with milk that you have tested up to 200°, and you cool it down to 85°, what sort of a ferment do you find after 24 hours ? Has the abbé Choquette made any tests of this ferment ?

M. Leclair.—M. Choquette has not studied it ; but I know that we have obtained the same results as with a ferment of pure-culture.

M. Taché.—It is curious enough that you pasteurise your milk and find a ferment in it 24 hours after.

M. Leclair.—I should not have believed it myself, and yet there is the fact ! It took 48 hours before its curdled, and we got a ferment of excellent quality. I do not mean to set myself up as an opponent of the pure-culture ferment ; by no means ; though I have already stated the so-called pure-culture ferments were not always of the proper quality. All I say is, that the ferment we obtained would figure to advantage by the side of the best pure-culture ferments we had in the past. It is a fact, and as a fact I have stated it.

M. Taché.—I remember, by the bye, that my inspector at Brome, Mr. Wherry, was explaining to me how he set to work to win, several times running, the first prize at Sherbrooke and other exhibitions : " When I had to prepare exhibition cheese, said he, I was always present at the making. The evening before, I went with my well steamed vessels, having with me an aerator, and I selected for the milking the farm in which the cows are kept in good condition. " As soon as the milk was taken to the cans, he took his aerator and, in the open air, which is important, he lowered the milk to the lowest degree possible ; we must not forget that pure-culture is simply the isolation of the bacteria. This milk he used to take and make a cheese of it the next day. Now, I find

something striking in Mr. Lloyd's report. This is what he says : "During the year 1891, the first of my observations, I found that the principal bacteria were the lactic acid bacteria. From the year following, experiments have been made to see how far that idea could be carried out in practice, by sowing cultures of lactic acid bacillis in the milk. Since, experiments were made, and I have refrained from recommending pure-cultures of lactic acid. The inoculation of milk with lactic acid ferments will not make a good cheese. The greater the number of different bacteria in a cheese, the greater the chance of that cheese having a fine flavour. I hold that the lactic acid ferment alone can never impart that nutty flavour so sought for in cheese.

I also remember having seen, in the experiments carried on in Denmark, that the greater the number of different ferments, the finer the aroma.

This practice of Mr. Wherry, ought certainly to be followed by our makers, who might thus prepare their ferments with milk above suspicion.

M. Leclair.—I must say that, during the first years of the St-Hyacinthe school, we tried the pure-cultures, and the results were highly satisfactory. Later, however, they were not so good. This year, we tried preparations of pure-culture, and the results were excellent.

M. Vaillancourt.—It was proposed just now that the milk should be delivered at the factory twice a day ; in doing so, I think we should be going back 15 years. If farmers would take care of their milk, there is no reason why it should not be kept all day long at the farm.

M. Taché.—How is the cartage of milk managed in Denmark ?

M. Leclair.—It is delivered at the factory once a day.

M. Taché.—How is it treated at the farm ?

M. Leclair.—It is cooled and aerated. As soon as farmers treat their milk properly, it might just as well be kept at home as at the factory.

M. Chapais.—That does not alter the fact that for the proper care of the milk, there are a crow, of things that must be known, of which the farmer is ignorant. If the milk is delivered twice a day, the chances of its being ruined are fewer. At our factory, at St-Denis, the milk is carted twice a day, and there is never any bad milk. Nothing is more certain than that with once a day delivery, a great deal of inferior milk is found in this province.

REPORT OF Mr. MACFARLANE.

Having been requested by your Secretary to report upon experiments on cold-chambers in cheeseries, I have written the following, as I cannot possibly attend the convention.

The Department of Agriculture at Ottawa wishing to make a trial with a view to settle the difference between cheese kept in an ordinary ripening-room and that kept at a constant temperature of 60° to 65° F., selected for the carrying out of this experiment, two factories, one in Ontario, the other in this province. The latter is situated at Maskinongé Bridge, in the county of Maskinongé. Having been sent there to take charge of this experiment, I can describe to you the manner in which it was carried out.

The building was one of two storeys. In the lower were the rooms for butter and cheese-making and a living-room ; in the second the ripening-room. This room was divided into two parts by a double partition. In order to have the temperature completely under control, in one of these divisions, the walls, the ceiling and the floor were recovered with spruce boards dove-tailed, as well as with two linings of paper. Double windows too were added to the room, with two panes of glass to each square. As the room must be entirely isolated, all these precautions are indispensable.

A fairly deep trench was then dug, 100 feet long. In this trench we placed two layers of drain-pipes of 5 pipes each. About the outer opening of this trench a ventilation-shaft was erected, surmounted by a round cowl. The other end of this shaft opened into the ripening room, so as to introduce therein the cool air. Another ventilator passing through the ceiling of the room gave a vent to the heated air. When the exterior air was very hot, we had to use ice, too. We used a box 4x3 feet, filled with sufficient ice to ensure a uniform temperature.

Half the cheese made each day was put into this ripening-room, and the other half into a room kept under the ordinary condition. This experiment, commenced in the first week of June, was kept up to the end of August, that is, throughout the heat of the summer. In my opinion, as well as in the opinion of the Montreal experts, the cheese ripened in the cold-chamber was far superior in flavor, aroma, texture, in fact, in every respect, to the cheese ripened in the ordinary chamber.

The cheese has not as yet been sold, I cannot tell you how much the buyers are ready to pay for this difference in quality ; but the difference of price between the two kinds will not certainly be less than from $\frac{1}{2}$ to $\frac{3}{4}$ of a cent a lb.

In conclusion, I beg to say : Do not forget to get your factories in order, for it is expensive to get cold air in summer. Do not neglect the slightest details. Use plenty of paper, it costs less than lumber and is much more effective.

Hoping that these few lines may be useful to you, I remain, your old and devoted servant and friend,

PETER MACFARLANE,
Inspecter of cold-chambers.

Antigonish, N. S.

LECTURE BY Mr. J. H. SCOTT.

Gentlemen.

I feel a great pleasure in meeting you here, to-day, in this historic corner of our province.

Our meeting takes place under the most favourable auspices, for the season that has just closed has been a season of peace and prosperity for our farmers, and I will add to the whole Dominion, and I congratulate you heartily on the fine returns you must have made, as the results of your efforts from such an abundant harvest of butter and cheese of excellent quality, which has throughout this season found a ready market and good prices. You must now begin to realise the grand future that lies before the Province of Quebec, for I can assure you that we have only made the first step with our butter on the English market.

Our so attractive climate is especially suited to the making of butter; by encouraging and assisting the railroad-companies in establishing refrigerator-cars, and the steamboat-companies in fitting-up modern cool-compartments, our Government has placed it in the power of all of us to place on the market the products of our creameries in the finest condition; otherwise, all trade would have been impossible. Compared with the results, the cost of this to the province has been very light; never has any government made a better investment, and thus our Dominion has recoverd, over and over again, the amount of capital invested, or in other words, the grants made for the purpose.

The advice I have to give to-day to the farmers of the province of Quebec is this: Develop the butter-trade, adopt every means, every system likely to improve the quality of this product. Don't fancy that you know every thing, because you have succeeded so well this season; it is allowable for you to be proud of your success, but do not forget that there still remain advances to be made, that you have not yet attained the last round of the ladder which we ought all to aim at reaching; Denmark and other countries are still ahead of us, but, with a little patience, we can hit the mark, by adopting the means that science has placed at our disposal, and by utilising the advantages with which nature has so lavishly endowed us: the cool and pure water of our springs, our temperate climate are not surpassed anywhere, and it remains for you, farmers, to do your part. Will you do it?

Contemn not the advice I so frankly give you; imbibe my words, work in accordance with them, put them into practice; use nothing but the best salt, salt and work up your butter in the way the market requires; take the best parchment paper for wrapping; buy only the best boxes; don't bargain (screw down?) with your maker so as to render it impossible for him to furnish you with first-rate boxes; pay him a good price, but insist upon having the best boxes, made of kiln-dried wood.

For the manufacture, the salting, the packing and the shipment, employ the best

constructed separators, utensils and apparatus. Look to it that your makers invariably take every pains to ensure you the best results, to maintain the quality, and to maintain, at the same time as they keep up the reputation of your butter, the demands of the English market.

The rapid development of the butter-trade in Canada will be made clearer to you by an examination of the following figures which show the exports of butter from Montreal during the season of navigation since 1894 :

	Packages.
1894	32,065
1895	69,654
1896	157,321
1897	225,268
1898	278,922
1899	465,198

I am equally convinced that the marked improvement in the quality of the butter has at the same time increased the domestic consumption.

After having thus displayed this encouraging progress in the manufacture of butter, in the province, I am happy to be able to tell you that our cheese-makers have not been less successful, and that we have lost nothing of our prestige and of our honourable position as suppliers to England of a considerable proportion of her wants. The manufacture of cheese in Canada has probably been less this year than in the previous year by ten per cent This is due, in part to the drought that prevailed in Ontario, and also, probably, in a certain degree, to the enormous quantity of milk diverted for the manufacture of butter in the province of Quebec. Cheese-making, if it has decreased, has decreased in but a trifling degree, and the quantity, in my opinion, is improving in a satisfactory and continous manner.

There is no doubt at all that our system of inspection, and the information distributed by our Dairy School and these meetings of ours are of the highest importance ; the directions, too, disseminated by these insitutions are very productive of benefit to our makers ; and I do not hesitate to declare that it is absolutly necessary that we should persevere in our efforts of this kind, so that the province of Quebec, instead of lagging behind, shall take precedence of the other provinces.

And, now, I have a few remarks to make, posing chiefly as an exporter :

We need good cheese, rather thick, weighing from 75 to 85 lbs., in good, well-fitting boxes ;

We need the weights clearly branded on the boxes ;

We need the trade-marks of the factory, or of the shipper, branded on the boxes neatly and clearly.

We need greater care in the carriage : a trifle of clean straw on the bottom of your

carts, &c., a waterproof-cover to protect your butter and cheese from rain or dust. Before loading your goods, look to see if the cars are clean, and if they are not, sweep all the dirt out yourselves, if no one else will do it. All these points have their importance, for, in the eye of the buyers, external looks go for a good deal.

Need I remind you that the market requires a full-bodied, rich, mellow cheese, with a clean flavour? You have heard this a hundred times, and perhaps, there are some of you who have learnt its necessity by experience, especially when they have been presented with that little bit of paper called a "cut." You do not like them, I know; still they are great educators; for when a maker pays for his lesson, he generally remembers it well.

I will now leave to the professors and *savans* present the care of expounding the principles and the difficulties met with in butter and cheese-making. My remarks are made rather from the point of view of trade and exportation; but, for goodness' sake, dont' turn up your noses at them, for our daily contact with consumers of necessity acquaints us with their tastes and distates. The tastes and demands of the consumer deserve to the studied by all who desire to retain their customers.

J. H. SCOTT,

Of A. A. Ayer & Co., Montreal.

M. Castel then read an abstract of the experiments of Mr. Lloyd:

ON THE MANUFACTURE OF CHEDDAR-CHEESE.

The conditions essential to the manufacturing of a first class Cheddar-cheese form the subject of some interesting remarks in a Report prepared for the "Board of Agriculture" of England, by Mr. F. J. Lloyd, of the results of the investigations pursued by him during the last eight years in the cheesery-school of the "Bath, West, and Southern Counties" Society. It appears that the methods of making Cheddar-cheese differ in almost every locality in which it is made; but, although the practice followed may present considerable variations, the results obtained are frequently identical, in the sense that the article produced is Cheddar, or a cheese of the Cheddar-type. In some places, however, the character of the cheese varies according to the system of making adopted, particularly as regards the process of ripening, the texture and body of the cheese when ready to be sent out for consumption. Thus, formerly, Cheddar was not considered fit for consumption until it had been kept for twelve months; but, nowadays, a cheese, made after a rapid ripening process, will be fit for market in three months, while, generally, the duration of the ripening is six months; whence, the custom has arisen of qualifying the extreme methods as rapid ripening and slow ripening. Certain methods offer greater facility than others for the production of an article of uniform

texture; by certain processes the cheese has a tendency to be hard; while by others, a more mellow curd is produced, which of course has an important effect on the quality of the finished cheese. Moreover, as regards aroma, the process of making does not appear to cause many variations, and after a very earnest study of the different methods, Mr. Lloyd gives it as his opinion that a fairly good cheese can be made by any one of these processes.

In general, says Mr. Lloyd, when a maker fails to turn out a good cheese, it is not the process that is in fault, but it is due to carelessness about cleanliness, to the want of experience, or to the absence of the necessary skill. There is nothing more disastrous than for a cheese-maker who has failed to change his process for another. The only thing for him to do is to have recourse to the experience of those who are practising successfully the process he has adopted, in order to discover in what points he has erred from the rules of that procedure, and then to remedy the defects of his work.

A Cheddar, when it is cut, must be mellow and rich (fat). It should neither be hard nor crumbly; it must have at once the admired aroma and flavour of the nut. It must melt in the mouth, producing there not only an agreable flavour, but leaving behind it an after-taste of the most pleasant kind. In taste, it should be neither sweet nor sour.

Among the conditions recognised as requisite for the production of a cheese of this high quality, the first is to employ perfectly clean milk, of normal condition, and derived from healthy cows It is considered to be absolutely essential to observe these precautions relating to the cleanliness and healthfulness of the raw material, for, if they are neglected, neither care, nor skill can succed in making a good article.

The second in importance is to have at one's disposal a factory and ripening-chamber properly fitted up and supplied with the requisite implements. We may remark here, en passant, the chief necessaries of a good cheesery, such as Mr. Lloyd has described in his report. The first consideration is that the factory be placed in such a position as to ensure its being free from all bad smell. In general, the sties are much too near the dairy (Mr. Lloyd instances especially some of the private cheeseries on the farms in England,) or the windows of the factory open on the farmyard which is surrounded by the horse-stalls or bullock-sheds. If such be the case, the sties and cattle-sheds should be kept vacant during the cheese making season. Another source of bad air is the presence, either here or closby, of drains. Under no pretext, should there be any drains in within the factory. Examples might be cited when the cheese of the best factory has been ruined by the simple fact that the gutter (dalot) for the whey, in the factory was in communication with a drain leading directly to the sties, so that, when the wind was favourable, the filthy smells of the drain penetrated into the factory.

All the liquids of the factory flow away by an open gutter leading to an outside drain that is thoroughly closed up. In some farms, the privies, simple ash, or earth-closets, are much too close to the factory, and cannot fail to be the source of an impure at-

mosphere that gets in through the windows. Lastly, the factory should be completely separate from the dwelling house, and never, as is too often seen, open into the kitchen or the wash-house. Neither should it be near the pantry. The old custom of transforming the dairy into a pantry ought to be utterly done away with ; and yet, one still used to see, and that not long ago, in some dairies, game kept till it was quite high. Provided one keeps within reasonable limits, the larger the factory, the better ; though, if the air be fresh and pure, very good cheese may be made in a small dairy. For choice, the chamber should face the north ; and, if it is open to the East, the South, or to the West, it is advisable that during the making-season, the sun be prevented from shining into the chamber by means of shutters. Good ventilation is absolutely necessary, but it must be so contrived that there be no currents of air, and the best way to ensure this is to have two windows shut with fine wire net-work, so as to lessen the chance of draughts when the windows are open. Besides, this wire net will keep out the flies and insects, which, at certain seasons, are very annoying. Early in the spring time and in the latter autumn, the building must be warmed. For this there is nothing better than a slow combustion stove. There must also be a similar stove in the ripening-room.

The floor of the factory must be either of cement, or concrete, or of well cemented stone, so that it shall be quite level, with no cracks into which the whey can penetrate. The walls must be plastered and white washed An excellent mixture for whitewashing is made of two-thirds of lime and one-third of cement. Care must be taken to put no glue in the wash, for it attracts the flies to such a degree that they become unbearable. Against the wall should be placed one or two wooden shelves and a small cupboard, all at a handy height so that one can reach up to them easily and keep them clean.

As regards the implements, (utensils) of the factory, you are advised to keep there only the few things that are in the daily use for the making of the cheese, such as the best style of cheese-vat, and a round metal tub (tinned copper), jacketed, and provided with a very large funnel the bung of which can be easily removed.

This tub is placed on a wooden frame so as to be within easy reach of the cheese maker who when it is thus placed will not have to stoop without it is absolutely necessary. The hoop at the top of the tub should be soldered. In many factories, the milk and whey are carried in pails, and heated in large vessels placed in a copper receptacle filled with hot or boiling water. This takes up a great deal of time and we do not see any special advantage that would make it worth while. At the cheese-school of the Bath, and West and Southern Counties Society, the milk is always heated by steam in a calorifere placed in the dairy at the side of the cheese-tub, the steam being supplied by a generator or boiler.

The other principal utensils are a metal refrigerator containing a screen, cheese-presses, a curd-mill, and a bench on which to place the cheese when the band is to be put on. The cheese-presses are three in number, the second one presses the cheese more powerfully than the first, and the third more than the second. It is doubtful if the

presses in ordinary use act thus. The effect of progressive pressure on cheese deserves to be studied. The whey-vat is often kept in the factory ; but it is better, if possible, to keep it outside. A pair of scales should be kept to weigh each day's make of cheese before taking it to the ripening-room.

A list of the smaller utensils that should be found in every factory : a strainer, curd knives, a skimmer and bowls, a runner-measure, an acidimeter, a record of the make, etc.

The ripening-room is to be situated above the making room ; it should have a lift to facilitate the raising of the cheeses. The floor of the ripening-room is of wood ; it must not be on the ground floor and so paved with stone. The chief things requisite in a cheese ripening-room are the absence of moisture, uniformity of temperature, and good ventilation. The cheeses are placed on the shelves and never on the floor. On no account should a current of air be suffered to reach a cheese while ripening ; so the arrangement of the ventilation must be carefully looked to. It must not be forgotten that, as the upper part of a room is warmer than the lower part, the last made cheese should be placed on the highest shelves. A maximun and minimum thermometer and a hygrometer should be placed in every ripening-room. A stove, during cold weather, should be used to keep up a regular temperature

All the above conditions being complied with, the maker must possess a fitting knowledge of his work. The object a practical maker should keep in view, either consciously or unconsciously, when he puts the milk and curd through the numerous operations required in the making of cheese is to place, with the least possible loss of fat, his curd in such a condition that after ripening it shall turn out to be a good cheese. The different tests used by the maker to ascertain this result are, it would seem, generally empirical, and depend upon the use of the touch, the taste, and the smelling-power ; so the cause of failure is usually attributed to the fact that the maker does not possess, either by nature or from a faulty education and experience, the requisite delicacy or the degree of sensitiveness desirable, in his touch, his taste and his smell. Some makers, for instance, can judge by the sense of taste, with some degree of exactitude, if the curd is fit for grinding ; while others seem to be utterly incapable of doing so. On the other hand, some can never form a correct idea, by the sense of touch, of the condition of the curd "when in scald", or if it is ready for the draining off of the whey ; while it often happens that those, who later cannot judge properly of the curd being ready for the mill, seem to have no difficulty in judging when the whey is in a proper state to admit of the draining off of the whey, or whether it should be retained longer. From the draining off of the whey to grinding, each of the details of the process, except the time during which the curd should remain heaped-up (en bloc), proceeds by intervals of a fixed duration, and it does not therefore require much special fitness, up to the moment when it become necessary to determine whether or not the curd is fit for the mill. This, doubtless, is the point which requires, on the part of the maker, the greatest judgment, and every error, of any importance, ruins the cheese without remedy. An error in judgment in any of the pre-

ceding details can always be largely compensated for, by a skilled maker, in the subsequent operations ; but as to the moment when the curd is fit for grinding, the slightest error is irremediably fatal. This determination of the proper state for curd for grinding, has been probably the greatest of all difficulties that the maker has in the past been called upon to combat. The importance of this difficulty can be estimated by the variations presented by the following figures taken before the value of the acidimeter was recognised. On August 30th, 1891, the acidity of the last liquid running from the curd before grinding, was 0.84%; three days previouly, the 27 th, it was 0.93 per cent; and again, three days previouly to that, the 24th, it was as high as 1.05 per cent. In September, the acidity varried from 0.87 per cent, the 18th, to 1.10 per cent, the 15th; and in October, from 0.92 per cent, the 22nd, to 1.15 per cent, the 9th.

This trouble could not be got rid of without finding out some means of discovering exactly the different degrees in the progress of the curd, instead of having to reckon upon the old-fashioned "rule of thumb" as formerly.

Fortunately, Mr. Lloyd turned his attention to the solution of the problem, and succeeded in proving that all these conditions, of which the makers had previously had to judge by taste or smell, are chemical conditions which can be estimated to the greatest nicety by the acidimeter. So it would seem that the proper time for draining off the whey coincides with the development in the whey of a degree of acidity approaching to the acidity of the milk before the adding of the rennet. By means of the acidimeter, the maker can determine the acidity of the whey, and so ascertain with perfect accuracy when he ought to draw it off ; thus ensuring not only the right development of acidity in the future operations, but at the same time shortening materially the time the cheese takes to make. Again, it is settled that the acidity that is found in the whey that escapes from the curd when in the cooler is a sufficiently precise guide to the readiness of the curd for grinding ; and by giving every day a uniform degree of acidity to the curd at this specific moment, the maker secures uniformity in both the quality and in the ripening of his cheese.

Whether the cheese be made after the "Cannon" or after the "Candy" modes, or after the Scotch mode (1), the acidity of the liquid oozing from the press should be either uniform or only varying from day to day within very narrow limits. Generally speaking, the acidity of this liquid should never fall below 0.80%, or rise above 1.20% and the nearer it keeps to 1.00, the better (2)

The exact determination of the degrees of acidity will not alone ensure a good cheese ; it is quite as important to devote the greatest attention to the temperature, the time, and to all the other factors that can be determined with exactitude ; a record must

(1) Messrs Cannon and Candy are two Somersetshire farmers, in the Cheddar Valley, both long noted for the excellence of their cheese, though not working alike. A. R. J. F.

(2) Translated from the "Journal of the Board of Agriculture, Sept. 1899." (London, Eng.) Mr. Lloyd remarks that "the acidity of the oozings from the press should be equal to five times that of the evening's milk, when brought fresh to the factory."

be kept of all these points. No cheese-maker, says Mr. Lloyd, can hope to be successful unless he compel himself to keep carefully a daily record of his work; and every cheese before being placed in the ripening room, should have a ticket sewn on to its bandage, bearing the date of its make. Then, be the cheese good or bad, he can refer to the record and discover the cause of its success or its failure.

As to the duration of the period of ripening, the maker must remember that a cheese when ripe has reached its highest point of perfection, and that from that instant it begins to deteriorate. The better the room in which the cheese is kept, the more rapid will be both its ripening and the deterioration that will follow when it shall have attained its apogee; whence it follows, that cheese made towards the end of the season keeps better and for a longer time than cheese made at its beginning. The early-made cheese ripens in a period of increasing temperature, so the process of ripening keeps constantly increasing in rapidity; that made late in the season, in a period of constantly decreasing temperature, and therefore the ripening-room must be artificially heated in autumn, lest the cheese should not ripen properly. The temperature of a ripening-room should be kept at 60°F. The sole means of preventing a cheese from exceeding the limit of its ripeness is to place it, as soon as ripe, in a low temperature: 40°F., is said to be the best temperature for the purpose, as agreeing with the demands of science, though even at that low temperature, certain changes may take place. Connected with this point, it may be observed that, if a cheese has been made with exceptionally pure milk, the changes that take place in the cheese, after it has attained to what may be called its complete maturity, are such as cannot greatly injure it and that only produce themselves slowly, comparatively speaking. But if in the milk from which the cheese was made there was any bad taint, then the changes produced after complete ripening are much more rapid in action, and far more injurious to the cheese.

A box of cheese, containing 50 small pats of a pound each was examined.

And the Session adjourned at 7½ P. M.

LECTURE, BY M. J. C. CHAPAIS, ON THE BACON-TRADE

THE BACON-TRADE IS A PURSUIT THAT MUST BE UNITED WITH THE DAIRY.—Founding my advice on the fact that there is a great deal of competition in the Dairy-trade, I would persuade all practical farmers to embrace the practice of the industries supplemental to the dairy-industry, which will enable them to encounter successfully the fall in prices that will infallibly occur in the future, as it did in the years preceding the last year.

One of these industries is now offered to the Canadian farmer : the breeding of hogs for the manufacture of bacon.

The report of our Dairymen's Association for 1898 contains a lecture on that kind of breeding, a lecture that I delivered in several places in our province and whose publication was requested for that report. This bacon-trade is beginning to attract the attention of farmers in Quebec, and I have been again requested to give a few details concerning it, so as to manifest its great importance before this convention.

THE ENGLISH MARKET IS AN EXCELLENT ONE FOR HOG-PRODUCTS.—Let us first see what the English market, our natural market for almost all our agricultural products, is for the farmer who thinks of growing hogs for it.

In 1894, England imported 4,818,000 cwts, of 112 lbs., of bacon and hams valued at $52,868,720. In 1898, she imported 7,683,000 cwts, valued at $68,231,820; 653,000 cwts. of which came from Canada. The average price of imported bacon in 1898 was $8.66 the cwt.; in this average, Danish bacon figured for $12.74 ; Canada bacon for $8.94 ; American for $5.08.

From these figures it would seem that the consumption of pig-meat is greatly on the increase in England, that that country is therefore an excellent market for a considerable quantity of that meat, that, if we choose, we can produce here, and that, on the other hand, we have a great task before us if we wish it to take on the English market a place in an equality with the Danish bacon.

CHANGES TO BE MADE IN THE BREEDING OF THE BACON-HOG.—Up to the present time, we have bred plenty of pigs, but chiefly with a view to their conversion into "pickled pork", a very fat style of meat. Up to about two years ago, that trade paid well. We began to improve our great breed of "Trotting" hogs" by imports of Berkshires, Chester whites, Poland-Chinas. Consult the 17th Report of the D. Ass. (1898) pp. 169, 158, 161 ; fig. 8, 1, 2, 3, 4.

But the market for that sort of meat began to fail us ; by degrees, the demand

decreased, prices fell, and, consequently, pig breeding became less profitable. Ontario, before us, was moved by the weakening of prices in this pig-market, and betook itself to the English market for the sale of its hams and bacon. In 1897, Canada exported for $6,000,000 of this meat, five-ninths of which went from Ontario. In 1898, the exports reached $8,000,000.

It is calculated that this year this export trade will probably reach $10,000,000, and that the number of hogs fed in Ontario, beside those slaughtered on the farms for local consumption, will exceed 2,000,000. These figures. I lay before you to show you what Quebec may do in this line. All writers on dairying agree in saying, and practical farmers agree with them, that on every farm a hog of 300 lbs. should be turned out for every dairy cow kept. Now, we have about 700,000 milch cows, so we may without difficulty attain to an average of 700,000 hogs by next year.

But, now, let us leave these figures and devote a little attention to the measures we must take to make bacon.

BREEDS OF PIGS TO BE CHOSEN FOR MAKING BACON-HOGS.--I mentioned just now the breeds that have been employed during the last thirty years in improving our common hog for the manufacture of pickled pork. I will now give you those which are suitable to the production of the bacon-hog. They are the Improved Large Yorkshire and the Tamworth ; (See the above Report, D. Ass., pp. 162 and 163, figs. 4 and 5.) that is, it is the large breeds that are the best for bacon. A cross of either of the two mentioned with the Berkshire is also productive of good results. The desirable points are, that they are not too precocious, not too quick in taking on fat, but that they grow very rapidly when young, so that, by the time they are 7 or 8 months old they are lengthy and well developed in the sides. One of the reasons why Danish bacon sells better than ours in England is that the Danes have made the sensible and methodical breeding of the Large Yorkshire the basis of their bacon-trade.

THE QUALITIES THAT THE MEAT OF THE BACON-HOG SHOULD POSSESS.—The English market is very choice in its selections, buying only the best of every thing, bacon included. Now, this is what it seeks for as the desirable points in the meat : the bacon must come from a large breed of pigs ; must not be more than 8 months old ; must not weigh more than 200 lbs., be full of firm meat, the fat of which must not exceed 1½ inch thick on the back, and in flesh must be mixed fat and lean in almost equal proportions. For a long time, the Irish seemed to be the only people able to supply meat of this kind. An Irishman related, one day, that to produce such pigs he fed them freely three days running and then fasted them for the two following days ; fed them full rations for the three more days, fasted them again for two days, carrying on this plan for 4 or 5 months. Each period of full-feeding, said he, made a stripe of fat and each fasting period of one lean,in the meat, and thus was formed the marbled character of his hogs. His recipe was, to the say the least of it, doubtful, and it would be better for us to pursue the more rational methods of making bacon that are adopted by experts in the business.

STUDY OF THE DIFFERENT TYPES AND CARCASES OF HOGS AS REGARDS THE PRODUCTION OF BACON.—In order to show you what a good bacon-hog ought to be, here are some portraits of several faulty animals, some of them because they are too lean, others because they are too fat for good bacon. The cuts A. B. C. show a pig of 145 lbs. live-weight, which, when opened and emptied, is nothing more than skin and bone. Hogs of this type are of no value for bacon, and should never be sent to the bacon maker for sale, for, they would find no purchaser there.

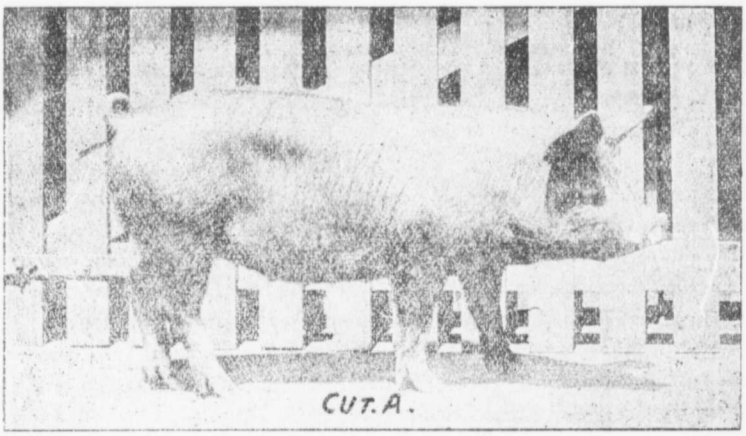
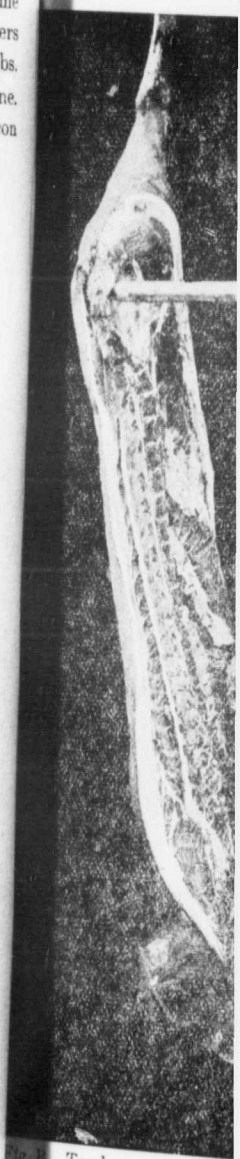


Fig. A. Too lean. One of the thousands of badly fattened hogs, sold by the farmers at a dead loss to themselves, and giving no satisfaction to the packer.



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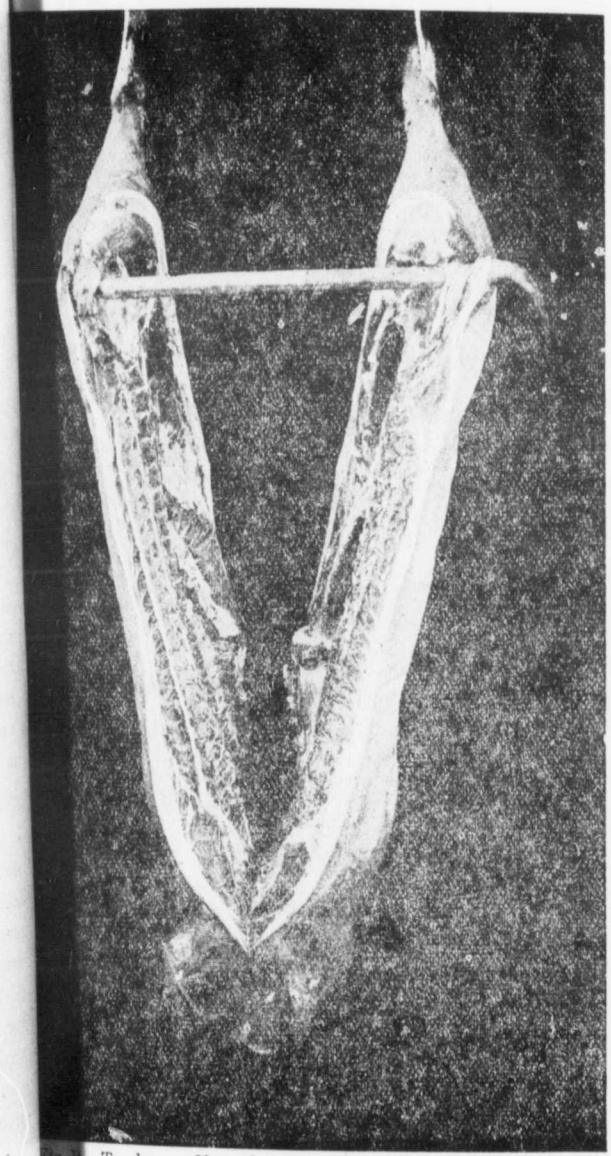


Fig. B. Too lean. Hog of fig. A. after being slaughtered.

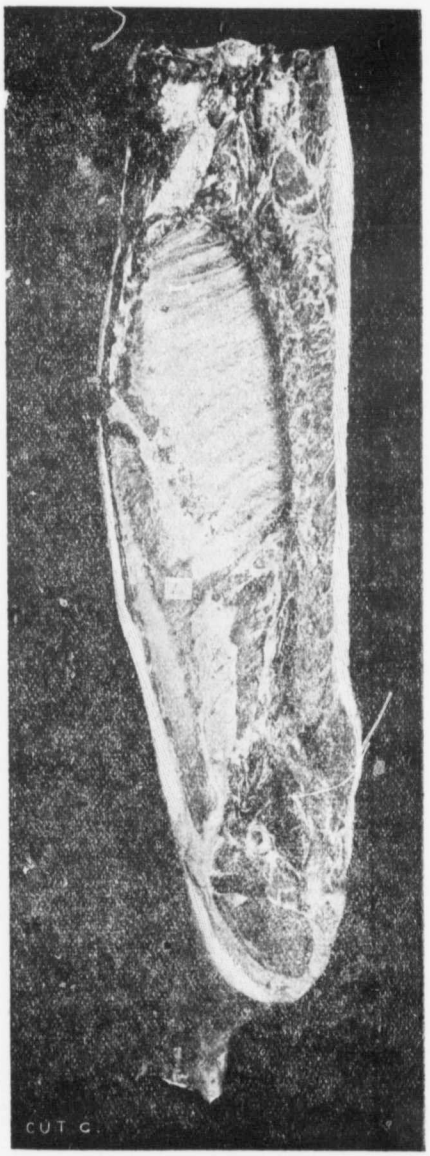


Fig. C.—Too lean. Side of the same hog, smoked, ready for sale. No meat on the back, much below the "standard."

If those lean hogs are absolutely unsaleable, those that are to fat, such as the hogs represented in the cuts D 1, D 2, 6 and 8 still alive ; and dead and all ready for the

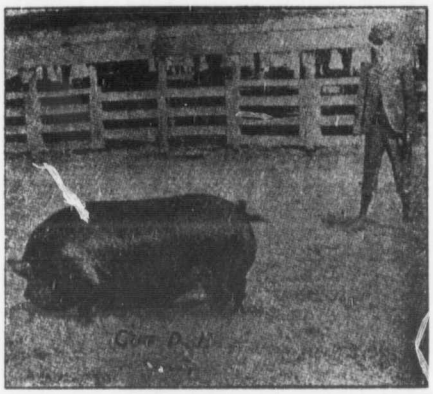


Fig. D. 1.—Too fat. Exposition of Toronto.

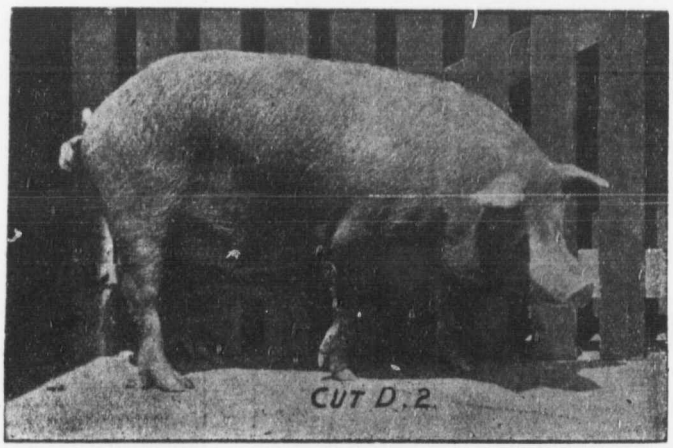


Fig. D. 2.—Too fat. Heavy shoulder.

market as in cuts E, F, 7 and 9 are worth no more. Such hogs, that make what is called fat bacon, generally fetch $1.20 a cwt less than true bacon hogs, although they cost much more to produce.

Fig. 6.—A type which the trade does not want. Fat all over.

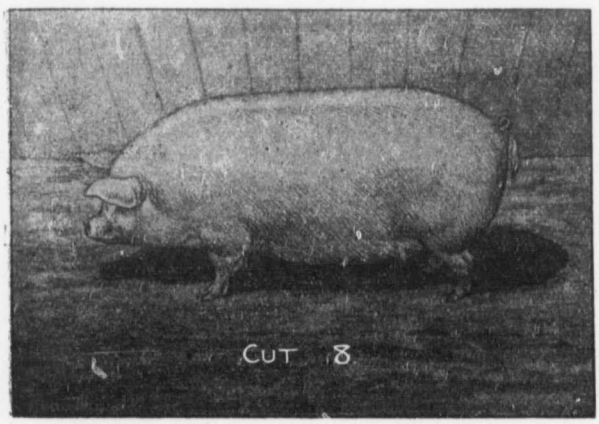


Fig. 8.—Stout class. The shadow lessens the depth to the eye.

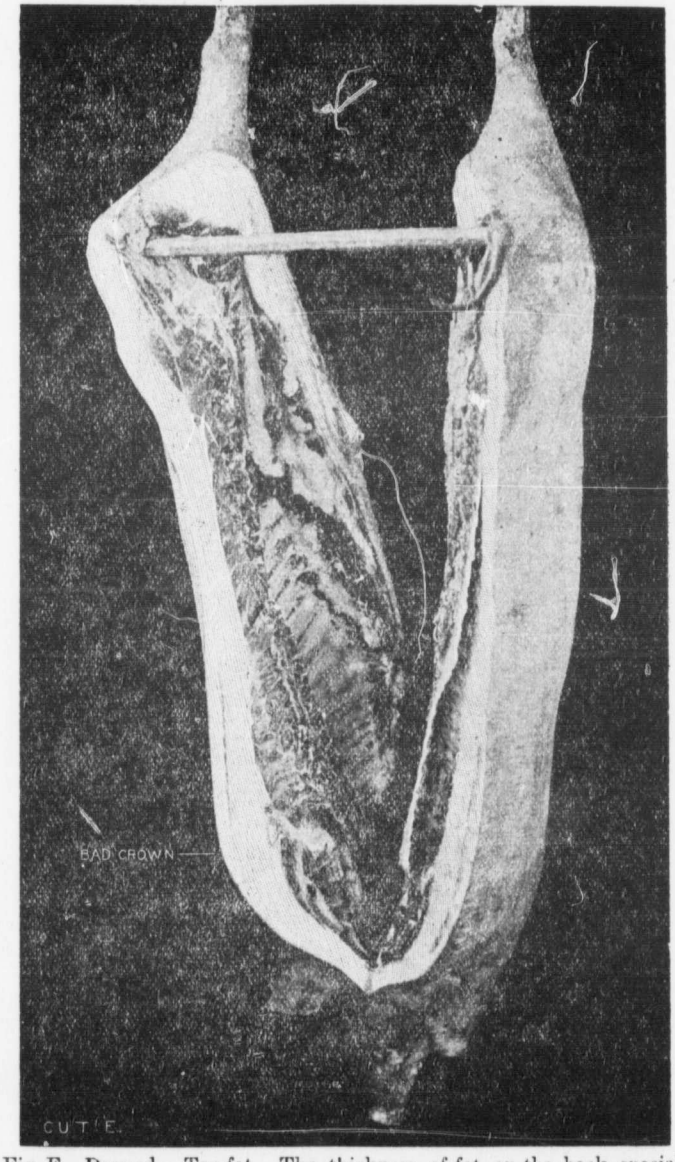


Fig. E. Dressed.—Too fat. The thickness of fat on the back, specially at the shoulder, causes the loss of at least 1 ct. a pound on the price.

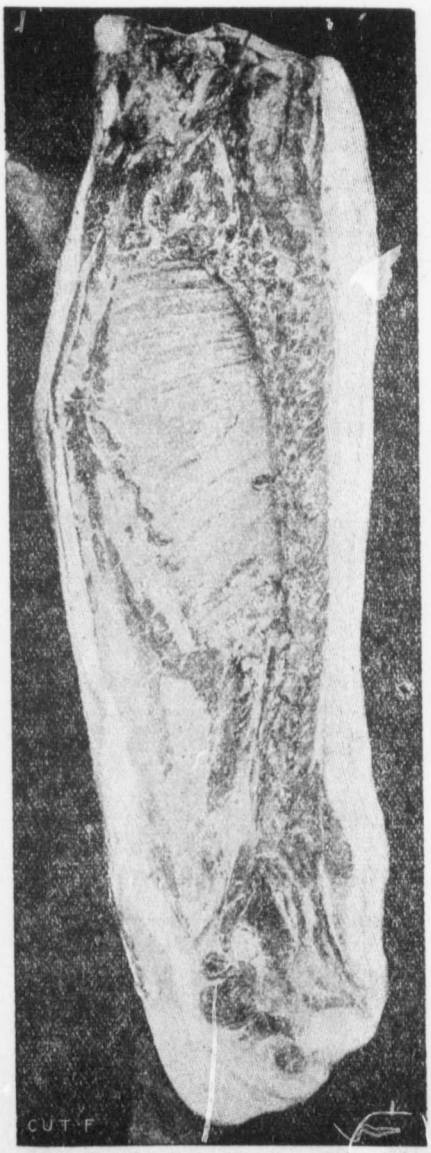
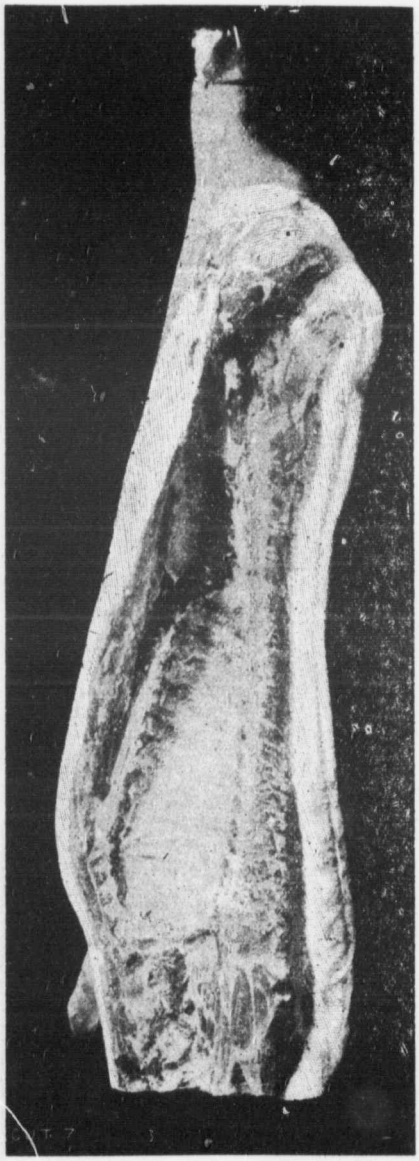


Fig. F.—Smoked Too fat. Side of the same hog as fig. E.



7.—Smoked side of hog of fig. 6. Too fat, too short, either for local or export market.

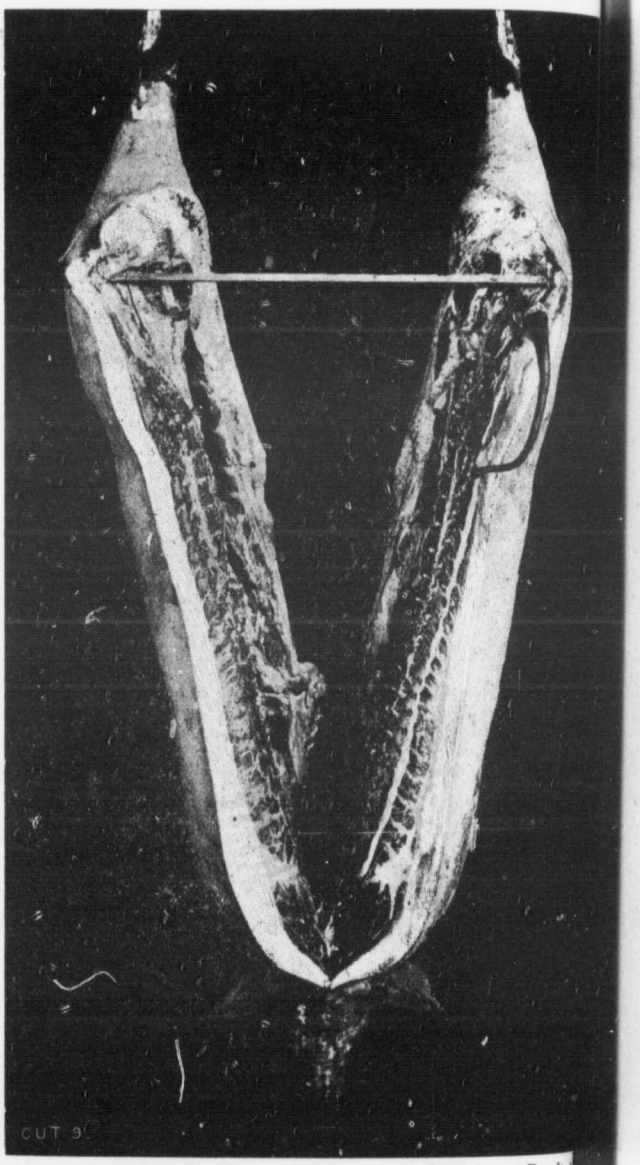


Fig. 9.—Carcasse of a "Stout". Too fat; fed too long. Result: less a pound than a good bacon-hog.

A third type, equally objectionable, is that represented in cut G. This is a pig put up to fat immediately after weaning, and so pushed forward into a greasy state that he is what is called "ripe fat" (*fin gras*); he is already *immaturely mature*, but weighs very little at his age of 4 or 5 months, when he was about 150 lbs., and when killed he resembled the cuts H and I. It is utterly impossible for the farmer that breeds such pigs as this to get a good price for his bacon, and if he persists in fattening them in the way he need look forward to nothing but losses.

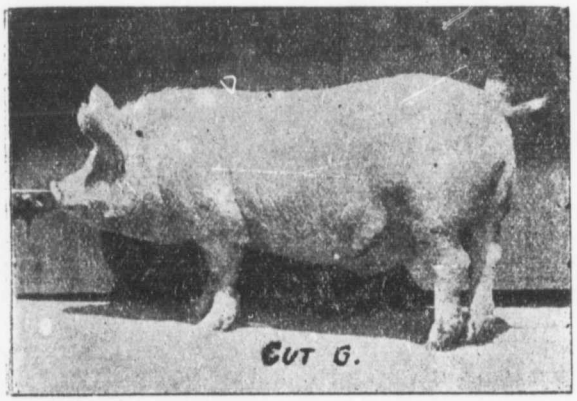


Fig. G.—A Hog forced from birth.

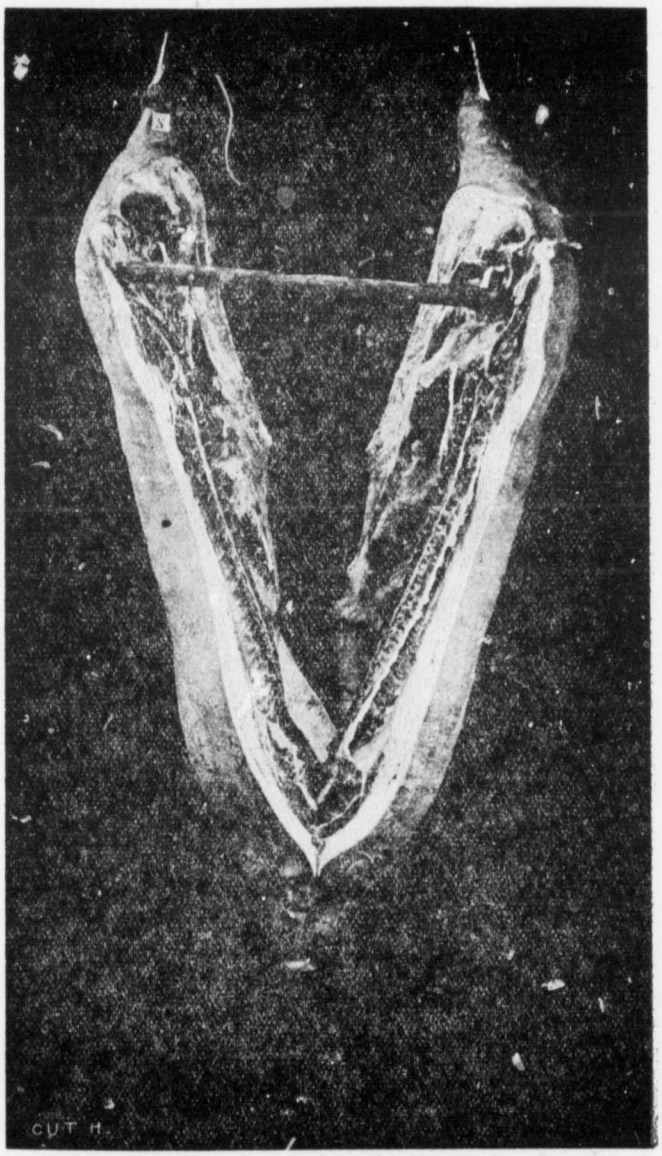


Fig. H.—Same hog, forced, dressed. Too thick and too fat.

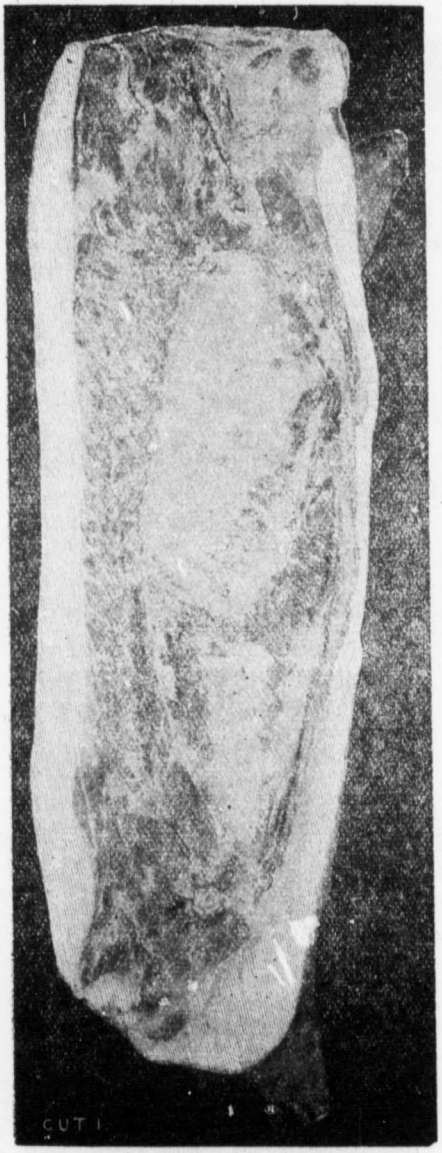


Fig. I.—Side of the same. Too thick and too fat.

Let us now look at the type of a good bacon-hog. The cuts K, 1 and 2 show three good types of the bacon-hog alive; that of the cut 10, 17th Report D. Ass.

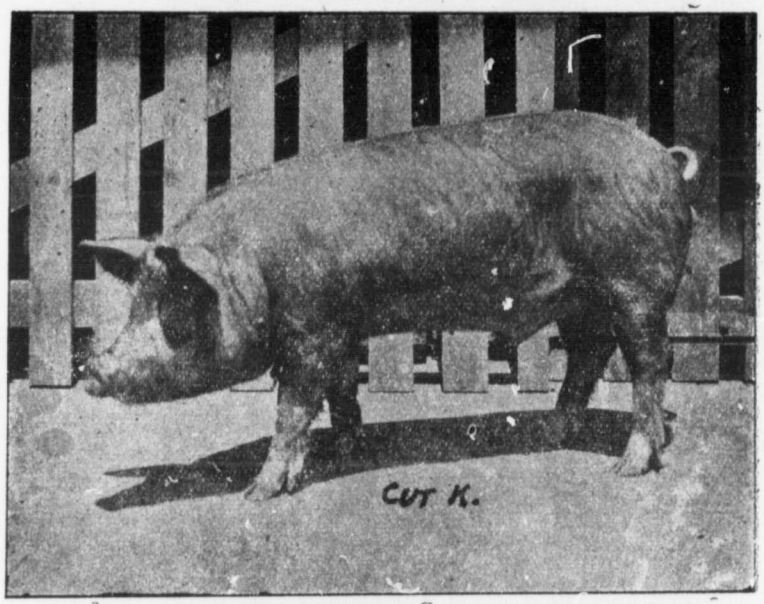


Fig. K.—The packer's model.

A bacon-hog. The portrait, taken from above, shows a good, very level back.

page 171, is the product of Berkshire boar out of a Yorkshire sow, and was part of a group of hogs that received the first prize, as the best lot of pigs for export-bacon, offered by the "Laing Provision Packing Company of Montreal", at the Montreal show in 1896. He was selected by the Judges as the best type of the bacon-hog in the whole lot.

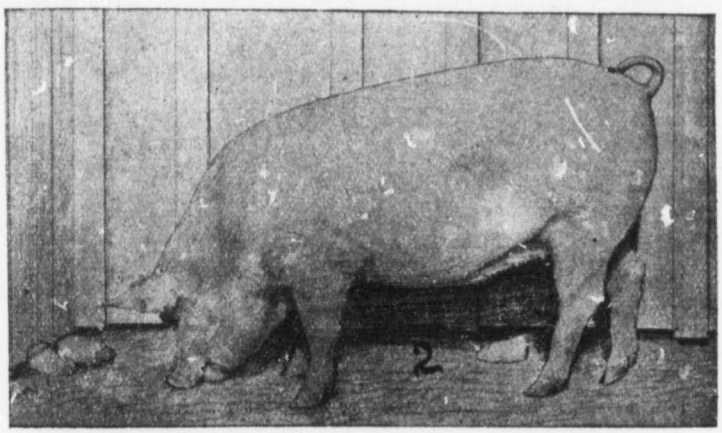


Fig. 2.—A side view of fig. I.

The fig. 8, 17th Rept. D. Ass., p. 171, borrowed from an English book on pigs, by Saunders Spencer, show two ways of cutting up a bacon-hog as practised in England.

1 Streaky quarter,
2 Rib quarter,
3 Middle quarter,
4 Ham quarter,
5 End of neck,
6 Middle of neck,
7 Thick back and sides,
8 Prime back and ribs,
9 Loin,
10 Fillet,
11 Shoulder,
12 Prime streaky,
13 Thin streaky,
14 Flank,
15 Middle of gammon,
16 Knock of gammon, (1)
17 Fore end.

(1) Should not "knock" read "knuckle"? A. R. J. F.

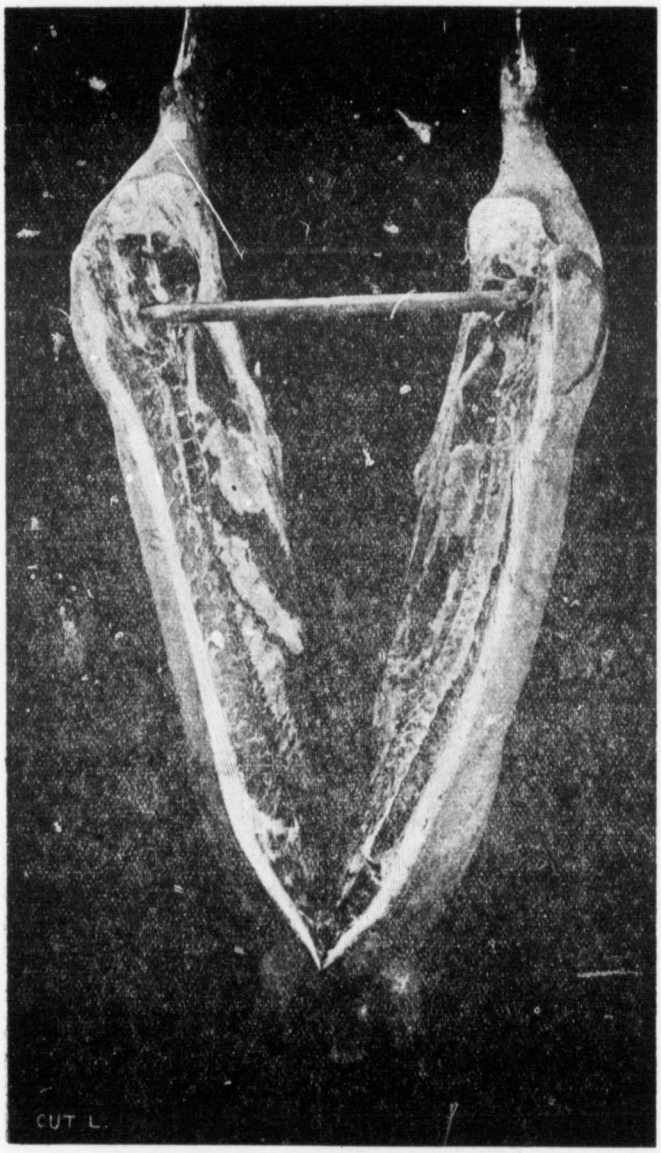


Fig. I.—Carcasse of first quality. Fat equally distributed along the back.

The cuts L. M. represent dead bacon-hogs ready for market.

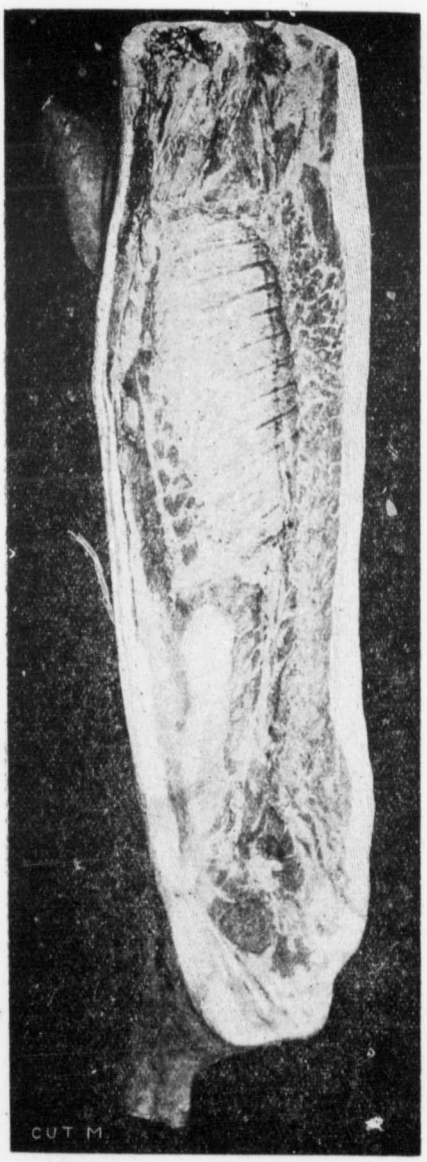


Fig. M.—A Smoked side of the first quality, exactly the kind the market requires. Observe the equal distribution of the fat.

Engravings 3 and 4 display the hogs shown in cuts 1 and 2, dead and prepared for bacon.

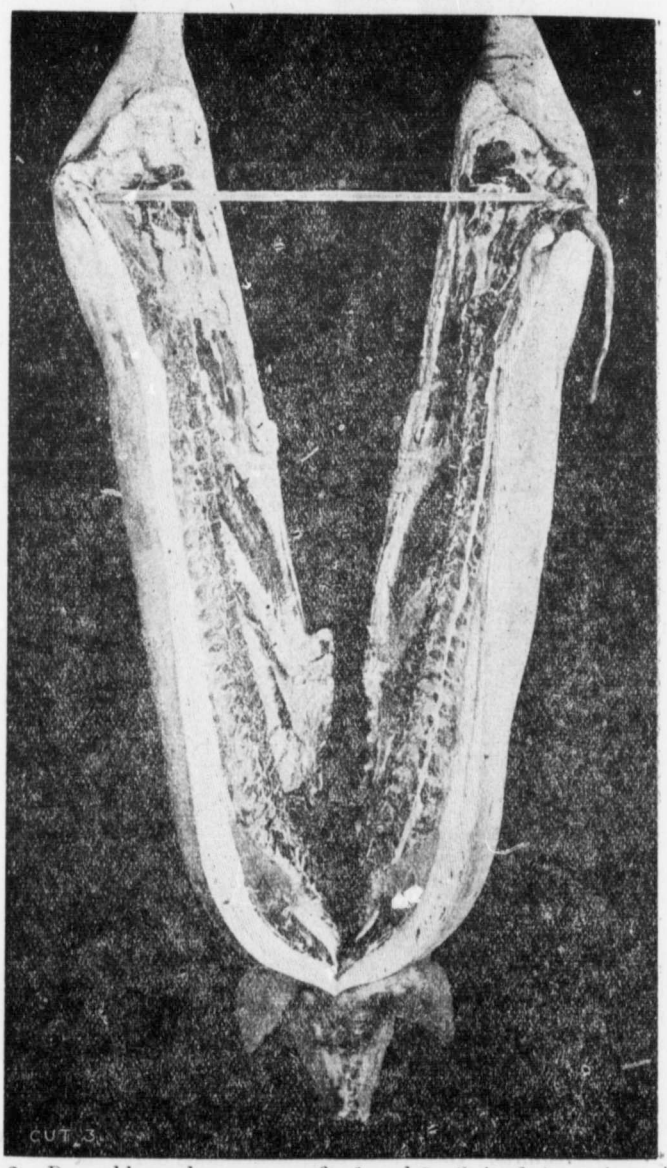


Fig. 3.—Dressed bacon hog; same as fig. 1. and 2. Quite first rate in quality barring a little too much fat on the shoulder.

Fig. 4.—Side
of fat on th

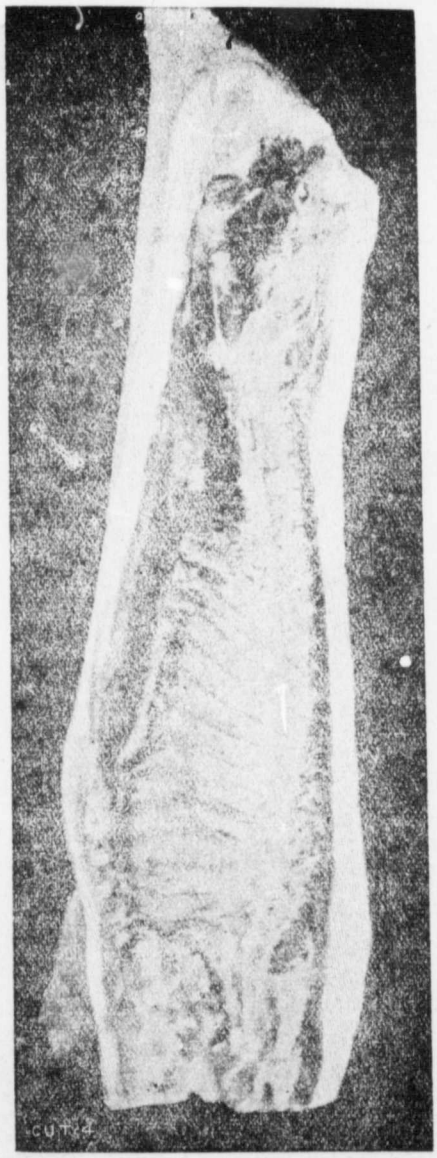


Fig. 4.—Side of the same, whereon is depicted clearly the equal distribution of fat on the back, as well as the trifling excess of fat on the shoulder.

Lastly, cut 10 shows some good bacon-hogs, and cut 11 shows the same in the carcase. Nos. 1, 2 and 4, are especially good. They are all of good quality, although Nos. 1. 2 and 6 may be rather short.

The Dairymen's Association thanks Mr. G. H. Creelman, Superintendent of Farmers' Institute of Ontario, for his kindness in lending these engravings that so charmingly illustrate M. J. C. Chapais' lecture.

WHAT IS MEANT BY "SOFT BACON".—I now have to speak of a variety of bacon that is but too often seen on the market, greatly to the hindrance of the obtaining of a high price for the good bacon among which it is found. This variety is known in England as "soft-bacon". It cannot be depicted in engraving, for it is met with sometimes in types of external appearance. but which are inferior in the quality of their meat. Soft-bacon has a bad texture, a bad colour, and the fat is without consistence and melts in cooking. It comes from hogs that have been kept on grass up to a short time before slaughtering, or which have had too many roots without enough grain, or have been fed on maize. One need do no more than to mention the causes that produce soft-bacon to teach people how to avoid them.

THE ADVANTAGE THAT BREEDING BACON-HOGS HAS OVER BREEDING HOGS FOR PICKLED PORK.—It has been often said, and repeated, that one of the advantages of breeding bacon-hogs, is that they cost less to produce. This is true, especially if we compare the quantity of grain needed to increase the live-weight of a young pig by one pound with that needed by another pig that exceeds the age that a bacon-hog ought to be when killed, i. e., 8 months.

At the Official Agricultural experiment-station of Denmark, the following figures have been recently published in one of the reports :

A hog of	75 to 115 lbs.	eats	4.39 lbs.	of grain	for 1 lb.	of increase.
"	115 to 155	"	4.67	"	"	"
"	155 to 195	"	4.99	"	"	"
"	195 to 235	"	5.13	"	"	"
"	235 to 295	"	6.24	"	"	"

These considerable differences between the various quantities of grain needed to produce a pound of increase, in live weight, with hogs of varying ages, are explained by the fact that the young animal, who is in the flower of his powers of growth, assimilates much more of the constituents of the food to form his frame, his bones, and his muscle than the full-grown hog who ends by only assimilating these elements of his food that go to form fat.

If, in addition to this, we reckon that the food of the bacon-hog is composed chiefly of clover, roots, skimmilk or whey, with a comparatively small weight of grain compared with that necessarily consumed by the hog fed for the salt-pork firms, we soon see that the bacon business is indisputably one of the most profitable ones that can be added as a supplement to our dairy-trade.

COOPERATION AS A MEANS OF DEVELOPING THE BACON-TRADE.—Every one knows how great a part cooperation has played in the development of our dairying. Why should it not play the same part in favour of many of the other departments of our agriculture!

I was invited the other day to deliver a lecture, on potato-growing, in one of the richest parishes of the province of Quebec, the Baie du Febvre. There I found a starchery being fitted up after the same cooperation plan as that followed in the dairy-

trade. Why should we not do as much for the bacon-trade? I read, a day or two ago, that this system had been adopted in Ontario. At Orangeville, a cooperative company has been formed, for the exploitation of pigs-meat, with a capital of $50,000. At Listowell, too, a like company has been started with a capital of $37,000, in 1,500 shares of $25 each. We might imitate this movement, on a more modest scale perhaps, and I submit this idea to my present hearers.

REPLY TO TWO QUESTIONS ABOUT BACON.—A good many farmers who have already felt that bacon-growing is the complement of all proper dairy-farming, have put to us several questions as to the way of selling their hogs fattened for bacon, and how to make bacon of them at home. I will reply to these two sorts of questions here and now.

HOW TO SELL BACON-HOGS.—Let us say at once that the bacon-factories prefer buying the hogs alive, as soon as they are fit, in order to kill and dress them according to their own taste. They state, every week, the highest price given on the market, live-weight; the hogs are sent in to them, weighed on arrival, and the price forwarded to the seller. This, of course, pre-supposes that the bacon-factory men are above all suspicion. They judge of the value of the hogs by the eye, and unless the fattening-farmer has neglected to conform to the rule that no pig over 8 months old or weighing more than 200 lbs. should be sent in, he is always sure of receiving the full value of his hog at the current market-price of the day of reception. If the hog is too heavy or too fat, it loses in value, and this is hard to make our farmers understand, who, until lately, have always got higher prices for their hogs the fatter they were; and so, of course, it remains the case with hogs for the salt pork trade, but not for the bacon-trade, which should not have more, but rather less, than 1½ inch of fat on the back, and must invariably be "streaky", i. e., the fat and lean intermixed.

There are also buyers who traverse the country-parts and, after having seen the farmers' hogs, buy them alive if they are fattened expressly for bacon. But in this case, the farmer loses the profit that the third party makes, who acts as an intermediary between him and the bacon-factory-man. On the other hand, in the case where the farmer distrusts the factory-firm, either because he is not well informed as to its reputation, or because he is distrustful even if its reputation is good—the sale to the buyer who pays at delivery of the hog, does away with all fear of loss.

PREPARATION OF BACON.—As regards the home-preparation of bacon, let us say at once that an ordinary farmer should never be advised to care export bacon. Still, as some persons like to make bacon at home, whether for their family-table or for sale on the local market; as, besides some farmers have spoken to me about the possibility of success in the establishment of cooperative bacon-and-ham-factories in certain considerable towns, I will now give a method of preparing bacon and hams practised in England. This method is that described by Mr. L. M. Douglass, in the book entitled "Pigs, their breeds and management," published by Mr. Saunders Spencer, in England, and here follows the description in abstract.

Three things are needed to make good bacon, when once the meat is ready for treatment: 1. a cellar with uniform temperature; 2. a pickle of uniform strength; 3 perfect cleanliness in every operation. In the cellar below a house or a shop, a temperature of 55° F. can be maintained in summer by shutting all the windows, except one very small one left for ventilation, and keeping ice in a raised receptacle. In this cellar set up, along the wall, a platform 2 feet high by 3 feet wide, rather on the slope, to allow the brine from the meat to flow off into a trough that leads into a tube below. In the midst of the cellar, is placed a brine-vat; which if the factory is small, may be a large wash-tub. If the cellar does not keep up a regular temperature of 55° without aid, ice must be stored in the upper part of it. A temperature 45° is better, and will prevent any accident happening to the meat. Should there be an ice-storage with a refrigerator-compartment, it would be well to cool down the meat to 40° before beginning the work of preparation.

I omit the details of slaughtering and scalding, explaining only that the proper heat of the water for the latter is from 175° to 180°, a thing generally ignored, and which often causes a failure. The dead hog takes usually 12 hours to cool down to 40°, in a refrigerating-chamber at 38°. When that temperature is reached, it is taken to the cellar.

The brine is supposed to be ready. It is made as follows: Into 20 gallons of water are put 50 lbs. of salt, 5 lbs. of salpeter, 5 lbs. of pure cane-sugar. The writer in describing this method, says that 5 lbs. of Douglass' antiseptic are added for bacon; but it is right to say that in the preparation of bacon and ham in England borax is always used, and that it is probable that Douglass' antiseptic is principally borax. The antiseptic usually employed is a mixture of 4 parts of boracic acid in crystals, to 1 part of sodium phosphate; that is, for the 5 lbs. mentioned here, 80 ounces of boracic acid to 20 ounces of sodium phosphate. When the whole is dissolved, it is to be carefully stirred. This brine should indicate 55° by the Douglass' Salinometer.

The meat is placed on the platform mentioned above, and the brine is injected into the lean or fleshy parts by means of hand-pump, furnished with a lance ending in a hollow nedle, perforated at the sides, near the point, which, thrust into the flesh, makes the brine penetrate into it under a pressure of 20 lbs. to the square inch. When the meat has been thus impregnated, it is placed on a thin bed of salt, the cut surface uppermost. On this surface sprinkle a mixture of saltpeter and the antiseptic, and then cover it with fine salt. If you have to put several layers of meat one above the other, place between every layer pieces of birch or ash to allow the air to circulate. Leave the pieces in salt for from 5 to 14 days, according to their thickness and the degree of saltness required. Then turn the pieces, face downwards, to allow them to drain for several days; wash them in cold water, and they will be ready for sale, if you sell them unsmoked, or for smoking if you wish to sell them as smoked bacon, in which

latter case, after drying, sprinkle them with fine flour from Canada pease and submit them to the smoke, the best of which is that from oak sawdust, or if there is none, sawdust of some other hardwood. If sawdust is hard to come by, some damp wheat straw may be added.

PREPARATION OF HAMS.—For hams, the meat is to be cooled down to the same temperature as the bacon, the cellar treated in the same way, and the brine too. The hams, when cool, are thrown into brine and left there for 12 hours to disgorge the blood from the veins. They are then withdrawn and impregnated, by means of the pump, with the same sort of brine as was used for the bacon, but never with that in which the hams have been soaking. The pump is the one mentioned as being used for the bacon and the pressure is the same. The brine in which the hams have been soaked may be used over again if it is previously boiled and skimmed. When the hams have been impregnated with the brine, they are placed on the platform on a bed of salt, the end surface uppermost, like the bacon, and the hock (*gigot*) hanging below the platform. Place the hams as near one another as possible, sprinkling each with a mixture of saltpetre and antiseptic prepared beforehand. Work in with the finger into the opening of the vein, and that done, throw fine salt all over the hams and leave them so for three days; take them up then, one by one, squeeze them to extract all the colored fluid from the vein, carefully wiping the cut surface. Replace them on a bed of salt covering them with salt as before, leave the smaller hams in this position for at least 15 days, and if they are intended for long keeping. leave them there 21 days. At the end of three weeks, if they weigh more than 21 lbs. each, leave them where they are an additional day for every pound of weight by which they exceed 21 lbs. At the expiration of that time, take up the hams and treat them as advised for bacon whether they are to be smoked or not.

THANKS.—I have now only to thank Mr. Hodson, the new Live Stock Commissioner, (an appointment we owe to Mr. Fisher), who has enabled me to pass before your eyes, by means of the Magic-lantern, and thanks to the skill and kind attention of our devoted secretary, the engravings that have served to render more clear the ideas expressed in the course of my address. (Cheers.)

M. Chapais added a few words on the excellent effects of cooperation in dairying.

These advantages have been manifested at St. Marcel, Islet county. It is one of most "renowned" parishes, 23 miles from the St-Lawrence, and contains 50 farmers. By Providence it has been gifted with one of the most devoted priests in the province. He found the people, if not in the darkest misery, at least very backward and by no means well off. Having seen the success of dairying in Beauce, he said to himself that it ought to produce the same effects at St-Marcel as it had done in Beauce. The people had only a few cows. The idea of going to work to build a cheesery with only 62 cows seemed at first to be only too bold. In spite of that he set to work, saying to the farmers: "You will, of course, give me a lot on which to build the cheesery; you

have plenty of wood, of which you will give me all that is wanted, it shall be brought hither and its value estimated; as to the lot, it shall be credited to the man who supplies it, just like the wood. There are some among you who have nothing to supply, except their labour, which will be set to work." And thus the building cost nothing, except the nails, that had to be paid for in money. When the factory was finished, the curé, who had in hand part of the money required, bought the apparatus for cheese-making from Carrier and Lainé, and required a year's credit for the balance, without interest, giving as a guarantee the building and lot. At the year's end the factory and its machinery being ready to go to work, he borrowed some money of a capitalist, and started operations. There was a farmer-cheesemaker who made cheese and took out his pay in shares. It is now three years from this, and next year the factory will be entirely paid for. One of the farmers told me: "I came to the factory for the first time last year; before that, I only made 38 dollars worth of butter, and last year, with the same number of cows, I made 88 dollars worth;" and he added: "There are many others like me". Next year, the curé told me, there would be 125 cows; so their original number has nearly been doubled by breeding.

It is very certain that, by ordinary measures, no maker could have gone and started a factory at St-Marcel, and yet cooperation formed one. And the people there now know the sensation of feeling money, whereas formerly they hardly ever saw it. Cooperation that has done such marvellous things in those farms, cannot be less efficient in rich parishes like this one we are in, where the men can supply not only lumber but money.

The President then read a letter from Mr. Hodgson, president of the Association of the Butter and Cheese Traders of Montreal, excusing himself of having been unable to come to the Convention.

TUESDAY, DECEMBER 5th,

SOLEMN OPENING OF THE CONVENTION.

The Session opened at 8 P. M. ; M. J. A. Vaillancourt in the chair.

M. J. B. ROLLAND, Mayor of St-Jérôme.

Mr. President,

Mr. Minister of Agriculture,

Gentlemen,

I am here in the name of the citizens of St. Jérôme to bid you welcome and offer you our thanks for having selected our little town for the eighteenth meeting of your Association. The presence here of the Hon. Sydney Fisher, Dominion Minister of Agriculture, as well as of a vast number of Members, show the interest taken by our politicians and governments in the great agricultural question.

You will allow me here, Gentlemen, to evoke the memory of two great personages, both of whom have left this scene, but who were, so to speak, the pioneers of the Dairy-industry in the province of Quebec ; I mean the regretted Monsignor Labelle, and the Hon. J. Chapleau.

I am happy to see how great is the progress made by this question since these two men have departed ; I am certain that it is due to the intelligence and devotion of your body, which has laboured with such happy results, and I am charmed to believe that the farmers of the county of Terrebonne will derive the greatest possible benefit from the holding here of this Convention.

M. J. A. VAILLANCOURT.

Mr. Mayor,

Messrs. Councillors, Gentlemen.

In very truth, you put us to confusion by the expression of such sentiments, for we were far from expecting to receive so brilliant a reception or to see so grand a demonstration. I am really incapable of worthily conveying to you our gratitude for the kind and sympathetic welcome to which we have just listened.

Without being deserving of the praises you heap upon us, still, we can tell you that we know how to appreciate the encouragement and sympathy you so benevolently tender to our Association.

Aided by the encouragement of the more intelligent part of the population of our country, by the liberal support of our governments, and by the good will of the clergy, I trust that before long we shall succeed in restoring to our dear country comfort and prosperity ; that is the object of our labour, the work we have undertaken to carry out. You have been good enough to place at our disposal for our sessions the splendid assembly-room of your Town-hall : Pray accept the expression of our heartfelt gratitude for its use, and convey to your colleagues, the Councillors of your lovely town of St. Jérôme, as well as to all your fellow-citizens, our deep and sincere gratitude.

We shall take away with us a pleasant, a lasting remembrance of our transient sojourn in your pretty town, endowed as it is with a population so enterprising from every point of view ; a town that has enjoyed the advantage of reckoning among its citizens such men of greatness of heart and devotion to its interests as the Hon. Senator Rolland, who has provided St. Jérôme with one of the finest paper-mills in the province, and as the great coloniser, he who has done so much for our Northern Townships, so much for his country at large ; for I do not think I an wrong when I call him one of the fathers of the Canada Pacific : Monsignor Labelle.

Once more, Mr. Mayor, we thank you sincerely for the really royal reception you have given us. (Cheers.)

The chairman then read a telegram from the Hon. J. Déchène, Provincial Commissioner of Agriculture, excusing himself for not being able to be present at the Convention.

To M. E. Castel, Sec. D. Ass., St. Jérôme,

M. Déchène regrets that, for serious reasons, he cannot be present at your meeting. He wishes you all the success you deserve.

S SYLVESTRE,
Sec. Dept. of Agriculture.

GENERAL REPORT OF THE PRESIDENT.

Gentlemen,

I am not going to make a speech, for that is not one of my habits ; allow me only to tell you how proud I am to see that you have replied in such numbers to our invitation, thus displaying the interest you take in dairying ; for I find before me that the liberal professions and the trades, as well as the farmers, are represented.

I am delighted to be able to reckon among us, here, several persons of eminent position, who have been good enough to leave their different occupations to honour us with their presence : The Hon. Sydney A. Fisher, the Hon. J. Déchène, the Hon. F. Nantel, Hon. M. Rolland, your worthy member M. Chauvin, and our clergy, who are so well represented here, and many others.

I think I ought to thank specially the Hon. the Minister of Agriculture, Mr. Fisher, who has done so much to encourage the dairy-industry. Being a farmer himself, he understands the wants of the farmers. If the dairy-trade has increased in such a large proportion, I do not hesitate to say that it is greatly due to the Minister of Agriculture who has endowed us with the facility of having our goods carried in refrigerator-compartments on board steamers and in the cars, without its costing the farmers or the trade a cent, the whole being at the expense of the government. Not satisfied with that, he has also offered to each proprietor of a creamery who likes to build an icehouse, a bonus of $100 ; and, lastly, he helps to support the St. Hyacinthe Dairy-school.

I would also particularly thank the Hon. the Commissioner of Agriculture of the Province of Quebec, M. Déchène, who has done his part in putting at our disposal the funds required for the support of our butter and cheese-syndicates, by paying half the outlay incurred, by contributing to the budget of the school at St. Hyacinthe, by organising the competitions of dairy-products, rewarding makers of the first class and pointing out to others, through competent judges, the defects found in their make ; besides, last year pushing generosity still further by offering a proper bonus to every cheesery proprietor who should build a ripening-room. I trust, too, that these Hon. Gentlemen will spare nothing to ensure that the products of the Province of Quebec shall appear with every advantage at the Paris exhibition next year.

I must also thank the members of the clergy, for among them I see many earnest-minded men. More than once have I heard curés speaking, from the pulpit, in praise of dairying ; and it is even within my own knowledge that, in some parishes where private people had failed over and over again, the curé, putting himself at the head of the movement to establish model-factories, has conducted the entreprise to a successful end.

The season, Gentlemen, that is just over was without doubt one of those with which we have every reason to be satisfied, for it was an exceptionally good one both as regards production and prices.

It is for that reason that your Board of Directors asked the Curé of St. Jérôme to

be good enough to have a thanksgiving mass celebrated to-morrow morning at 8 30, to which celebration you are all invited.

I do not think it right to promise you that next season will be as favourable to you as the past, for it is by no means probable that the drought in other countries that turned to your account will be renewed; but all the same, the prospects are excellent, for we shall more likely begin the new year without any accumulation of stock in either market, English or Canadian. To start with, we are sure of one thing, there will be a demand in England for our butter and cheese, for the English count upon us for their supplies of cheese, as they consider ours the best they receive, and our butter, if we go on improving it, will be as highly appreciated as our cheese is now. Allow me to quote to you an article from "The Trade Bulletin," of July 21st, 1899:

"The export-trade in butter has increased more than 700 per cent.

"During the last ten or twelve years, the Trade Bulletin has been trying to make our farmers understand that butter-making ought to be our leading dairy-trade, far before the cheese-trade. We have often employed the official figures to show that England imports more than three times as much butter as cheese. Last year, that country took $80,000,000 worth of butter, only $3,900,000 worth of which came from Canada. However insignificant may be the latter sum compared with the sum total of imports, it means a considerable improvement since 1894, when the imports of Canadian butter hardly reached $450,000. Thus, during the last five years, the imports of butter from Canada into the mother-country show a marvellous increase of more than 700 per cent. This season, our imports have already increased by 82 per cent, and everything tends to show that the increase will be still more considerable. The reason for the increase in the consumption of our butter in England is due to the fact that the quality of our creamery-butter is rapidly becoming equal to that of the celebrated Danish brands, which have commanded the highest prices in the English market. But the sale of the best Canadian butter, which, a short time ago, in London, realised the same price as the best Danish, shows in a very striking manner, that with the improvement of our refrigerators, the disadvantage of the long distance in our competition with Denmark is decreasing daily. In time, we hope to see our butter arrive in England under conditions as favourable as the Danish butter, and then that country will have to yield to Canada a part of that annual sale of $36,000,000, of which it now boasts, although, on the others hand, beyond that sum, we may aim at the upwards of $40,000,000, that remain. With the finest climate in the world, the most extensive pastures, and herds of improved cows, who would dare to predict that the dairy-trade has not a promising future in Canada."

Our exports during the last two years are as follows:

Butter, 1899	—	465,171	packages, worth	$ 6,000,000
" 1898	—	278,992	" "	3,300,000
Increase	—	186,249	" "	2,700,000
Cheese, 1899	—	1,852,273	" "	12,54,0000
" 1898	—	1,887,435	"	
A decrease of 35,162 boxes,				
An increase arising from the fact that cheese fetched $1.40 a box more.....				$2,160,000

Our butter-exports may be considerably increased without any lessening of the cheese-exports, for the proportion that Canada supplies to England is only about 6%, that is, 6 tubs out of every 100 tubs that are consumed. But to succeed in increasing our butter-exports and take the place that we ought to hold in the English market, the assistance of our governments is not sufficient, we must have the assistance of you, the farmers; you must do your part, you must take your milk to the factory in proper condition. I cannot sufficiently impress upon you to the care you must take of your milk, for by delivering bad milk at the factory you are not only responsible for the making of bad cheese and butter, but you are exposing yourselves and your families to dangerous diseases. How many of you have had to deplore the loss of a wife, of children whom you loved, of a brother or sister, caused probably by bad milk? Without being a prophet, I make bold to say that before long we shall be obliged to pasteurise our milk in order to destroy the microbes and get rid of all impurities.

I do not like to talk to you about adulterated milk, either by practical skimming, or by the adding of water, for I believe in the honesty of these whom I am addressing; but were there only a single exception, I think the subject is sufficiently important to admit of a single word being said about it: it is neither more or less that an unmitigated, indefensible robbery, and I trust that before long, we shall have an easily construed law, that will help us in our endeavour to punish the guilty as they deserve.

It is not enough to feed your cows well, they must be treated with gentleness, have a comfortable lodging, well ventilated, and above all, have only pure water to drink, in spite of those who hold that so long as it is water, whether it be clean or foul, it is all right for the cows.

I was reading lately in a newspaper that in Switzerland a servant who has a fine voice earns better wages than the others, because it has been observed that a cow will give one-fifth more milk if her ears are amused during the milking, by melodious singing.

In another paper, we read that the man who ill-uses his cows is a man of a bad disposition, and, according to my experience, a man very likely to ill-treat those who should be dear to him.

It is then not surprising that, if the milker when he, or she, approaches the cow strikes her roughly with his foot or otherwise, the animal becomes nervous and only gives down half the milk she should yield. Once more, treat your cows gently and your profits will be all the greater.

I might detain your attention longer, Gentlemen, by offering your advice as to the improvement of your herds by the selection of bulls, the rational methods of breeding, the carefully studied principles of feeding, their houses, health, &c., &c.; on the proper management of your crops for the economical and continuous supply of rich and abundant milk; on the best systems of housing and preserving the products; the art of utilising the bye-products and the allied industries; the advantage of extending to a long

period, and, if possible, continuously thoroughout the year, the season of manufacture; and, lastly, to a hundred other subjects.

But I should be afraid of abusing the privileges of the Presidency, and your good will. Besides, many of these subjects will be dealt with by men who are their masters. To them I yield my place, and will no longer keep you from the pleasure of listening to their eloquent instruction. (Cheers.)

THE HON. SYDNEY A. FISHER, MINISTER OF AGRICULTURE.

Mr. President,

Gentlemen,

I beg leave to thank you for the honour you have done me in inviting me to be present at this annual convention of our Dairymen's Association of the Province of Quebec. I say our Association because, I have been a member of it for more than fifteen years, and I am always glad, when I come to this annual meeting, to be present at the discussions which arise concerning our dairy-trade.

I am anxious too, Mr. President and Mr. Mayor, to tell you how happy it makes me to profit by this occasion of seeing this fine town of St-Jérôme. Unfortunately, it is the first time I have visited your town; but I must tell you that you have a fine town for your abode, a town whose prosperity is evident, and strikes the eye of a stranger the moment he arrives. I had an opportunity, this afternoon, of looking over M. Rolland's factory and I must congratulate you on having here a manufactory of such importance: a certain source of riches and prosperity.

We have to speak here this evening on the trade of dairy-goods, and I have to congratulate the Dairymen's Association of the Province of Quebec on the prosperity of that trade. This year, not only the dealers, but every farmer has benefited by the success of this trade. We have reaped in the dairy-trade a harvest of success that has never been approached in this province. (Cheers.) I can show you by figures that the trade of dairy-products has returned to us this year $5,000,000 more than any previous year. (Cheers.) The trade now brings in more than $20,000,000, a year; it is one of the most important branches of our export-trade, and the farmers who have so much to hope for from dairying must be proud of the success obtained.

This season, cheese has sold, on an average, for 1½ cent more a pound than it fetched last year. It is true enough that the figures of our exports have slightly decreased, but, in spite of that, we have received for them a larger sum of money.

But, Gentlemen, our mode of cheese-making is not yet perfect; especially in the province of Quebec, and on that account we cannot exhaustively satisfy the demands of the English market. On this point, we are unfortunately inferior to our brothersin

Ontario. Still, there are means to improve our methods of manufacture, so as to place ourselves on the same level as that occupied by our fellow-countrymen in Ontario.

Under the management of Professor Robertson, my Department has carried on, this season, some experiments in the ripening of cheese. The principal faults found with our cheese on the English market are that the taste is rather too strong and the texture is not what it ought to be. The strong taste of your cheese depends on the variations of temperature it has to suffer in the ripening-rooms. To succeed in having a mild taste in cheese, such a taste as the English look for, it must be kept constantly in a ripening-room in which the temperature shall range from 60° F. to 65° F.

One of our experiments was the following: In a certain factory, we divided the milk into two parts; we made the cheese from them at the same time; we took, every day during the season, half of the cheese and put it into an improved ripening-room, where the temperature was under absolute control, and the other half we put into an old-fashioned room where the temperature was out of all control. After the close of the season, we submitted all these cheeses to a committee of the Dairy-Society of Montreal. The cheeses was all mixed together; the committee could not know which were those that had been kept in a badly constructed room, and which were those that had been kept in a good room, and yet the committee did distinguish at once the one from the others by a simple examination. The cheese that had been kept in the good ripening-room was valued at $\frac{1}{2}$ a cent and even $\frac{3}{4}$ of a cent a pound more than the other: that is, that cheese was of much finer quality.

At present, on the English market, our best cheese sells for 20 shillings a hundred pound less than the best English cheese; could we have everywhere improved ripening-rooms, I can tell you that we should soon obtain an advance of 10 shillings a hundreds pounds, which would give every summer about $30.00 (*sic*) to each maker at the head of an ordinary factory. With this additional sum, it would be easy for the proprietors of factories to make the proper improvement in the ripening rooms without its costing them a cent, and when once these improvements were paid for, there would be an additional net revenue of from $300 to $400 a year.

Another thing to which the province of Quebec must pay attention, is the packing, which is not well done. Makers, unfortunately, do not pay sufficient attention to this. A great many boxes, even 75 per cent, are broken when they reach England; they are not strong enough. This is a serious defect. a defect that could easily be avoided and which must be avoided without delay if you wish to obtain the greatest possible profits from your cheese.

You have all observed that the price of cheese on the English market has been very high. This is due to the drought that reigned in England and not because our cheese was better than the English cheese. The make of cheese in England was not large, and, in consequence, our cheese sold so well.

Gentlemen, in the dairy-trade, we have still butter to talk about. I can truly con-

gratulate the farmers and the Dairymen's Association on the success accomplished in this branch. Our sales amounted to 12½ millons (*sic*—probably 2½ millions, A. R. J. F.) of dollars more than in any previous year. (Cheers.) This increase of cash-returns our farmers, patrons, and makers have received. But, still, there is another and a very important point to be considered in connection with our trade in butter. If all the milk in Canada had been made into cheese this year, the cheese would not have fetched these higher prices ; we should have exported almost twice as much cheese as we did export, and the price would have fallen instead of rising. The butter trade is as important to the cheesery-proprietor as to the creamery proprietor, for it is to the increase of the make of butter in Canada that is due the price at which our cheese is now selling. In this province, we enjoy perhaps the best possible conditions for making good butter, and I was very proud to hear yesterday, at Montreal, that the butter of the province of Quebec was this season, the best in Canada, better, even, than that of Ontario. (Cheers.) We have here, in Quebec, the best pastures in Canada ; we have cows that yield the richest of milk, and we have the makers of the best possible butter. But, Gentlemen, there are some things that need closely looking after if we wish to greatly increase the production of butter in Canada, and to profit by this propitious opportunity of sending our goods to the English market, where our butter occupies almost the highest position.

If our butter sells well, it is due to its not being too highly salted, and it must be made still milder, or not salted ; the English like mild butter.

There is another thing : it is quite possible that before long we shall have to begin to pasteurise our milk for butter-making if ours is to suit the English market. There was something said this afternoon about the use of *preservaline* and other matters, derivatives of borax, which are employed in making some butters. I know that the Danes and Australasians have largely employed these substances; but on that account the butters of Australasia have not earned a good name on the English market, and ours has been more sought after there than theirs.

A few years ago, Australasian butter was fetching a higher price than ours ; but now we have passed it, and Canadian butter is now worth from three to four shillings a cental more than Australasian butter ; it is almost equal in price to the Danish which has the highest position in England.

We have made some experiments, at the Department of Agriculture, on the use of *formaline* for the prevention of mould in butter packing, and we find that in the North West, where we manage the factories, its use in small quantities is of great service to the keeping of the butter. Formaline does not enter into the making of butter ; it is used only on the paper, the boxes, and in the rooms where the butter is kept. It is quite a different thing to the use of borax, or preservaline, both of which enter into the making of butter, and are so risky that I must warn our makers against their use, while I advise them to employ formaline to wash their paper, and to place them in the room in which the butter is stored.

Your President told you just now that there are still many things, connected with

the dairy, that need attention on the farm. This summer, we have a capital market for our young stock, raising calves has paid well since the quarantine between Canada and the States was abolished, about two and a half years ago. During the four and a half years it lasted in operation, we only sold very few cattle, to wit, 3,700 heads, representing a value of $52,000. I made arrangements with the government of the United States to abolish the quarantine, two and a half years ago, and at once the trade in young stock began to increase. During the two and a half years, since the quarantine was abolished, we have sold to the States 213,000 cattle; valued at $3,000,000, and now, Gentlemen, this year, we have had an extraordinary demand from the States for all sorts of young stock. I know that, at home, in the Eastern Townships, car-loads of calves have been sold at from $6.00 to $7.00 a head; these were last spring calves, raised on skim-milk. The calves that brought their owners six dollars each had had neither extra care nor extra food; they were ordinary five to six months old calves. At the same time, all the young heifers, in the whole district, were sold, and that is a branch of our dairy-trade of which we must take advantage. In the past, it was the custom to kill all the calves; a decided mistake, for they will pay well for raising; and in future, I hope to see one-half of the calves born in this province raised and sold at a good price.

This season, unfortunately, pork has not sold so well as usual, and the milk employed in raising calves certainly paid better than the whey given to the pigs.

I gladly tell you a few things connected with breeding poultry. We have found in England an extraordinary demand for all the poultry we can send thither. Lately, we have been experimenting at the Ottawa Department of Agriculture, and we find that for England, fowls must be fattened like bullocks. If you choose to sell your poultry in the lean state, you will not make half the profit you would have made by fattening the same birds for two or three weeks before selling them. We sold some fowls in England for double the price they had cost here. From that price the cost of transit and the sellers' commission must be deducted; but that is not much. I can assure you that, in connection with dairying, nothing pays better than breeding poultry.

Mr. President and Gentlemen, I wish to thank you, before taking my seat again, for the compliments you have paid to me on the work done by my Department. I can assure you, Mr. President, that it is an encouragement for me and for all the officers of my Department to exert ourselves still more strenuously in the interests of the Dairy-industry. It is my duty to do all in my power for that industry, and I shall do so with the greater pleasure that I myself am interested in dairying, and that, as Minister of Agriculture, I find that to do all that is possible to promote that industry is one of the most important of my duties. I assure you that the compliments that you have paid me on the labours of my Department will greatly encourage me, and that the Dairymen's Association of the Province of Quebec will always find every assistance that my Department can possibly afford it. (Repeated cheers.) Many thanks, gentle

men, for your kind attention, and if these few remarks can serve to indicate the best route to follow in the prosecution of the dairy-trade, I shall feel very glad. I wish you, gentlemen, every possible success. (Appl.)

M. J. A. Vaillancourt.—You see, according to the figures that have been laid before you, that the dairy-trade is greatly on the increase. This year, our cows have yielded us about $4,000,000 more than last year. This Association and the St-Hyacinthe Dairy-school observe with pleasure the increase in our trade. But this increase requires a greater expenditure, we shall have to engage a larger staff, more inspectors. We desire not only that Quebec shall furnish the best quality of butter, but also that it shall supply the best cheese, and to reach that degree of perfection, we need an experiment-station at St-Hyacinthe. (Cheers.) I profit by the presence in our midst of the Minister of Agriculture and of the representative of the Commissioner of Agriculture at Quebec, to inform them that we shall soon have the pleasure of requesting them to increase the grants they now make to the St-Hyacinthe School, to establish there an experiment-station, and, at the same time, to increase the numbers of inspectors.

Now, you are about to have the pleasure of listening to the Assistant-Commissioner of Agriculture at Quebec. When he speaks, he has always something interesting to say.

M. GIGAULT.

Mr. President, Mr. Minister, Gentlemen,

The Hon. G. Déchêne, the Commissioner of Agriculture, had accepted, with the greatest pleasure, the invitation to be present at this meeting; he would have been happy to take part in the so instructive deliberations of this convention, and to have passed a few days at St-Jérôme, a town so distinguished by the enterprising spirit of its inhabitants, as well as by the interest it takes in the promotion of all the great industries, agricultural and others, that contribute to the prosperity of our country.

Unfortunately, just he was leaving Quebec, the Minister came to me to say that he had been called away to the bedside of one of his relations who was dangerously ill, and thereby would be prevented from being here with you this evening. You will regret this, I am sure; I regret it, since on that account, I am compelled at this moment to address you. My name is not on the programme for this evening, and I certainly do not intend to inflict a formal speech upon you; I will not prevent you from listening to the speakers who are to follow me in order to speak about agricultural associations, and it would not be justifiable for me to detain you very long.

The Hon. the Commissioner of Agriculture, I must tell you, particularly after the allusion made this morning to the ripening-rooms, wishes to continue the policy he

inaugurated for the encouragement of the establishment of good ripening-rooms, indispensable as they are to the winning by our goods of the first position on the market. It is also his intention to continue the grant for the competition of milch-cows. I am happy to find that your Association, that takes so lively an interest in the progress of the dairy industry, approves entirely of this grant, and even requests that it may be extended in its scope. If we have not good herds to produce the raw material in abundance, the dairy trade cannot succeed in the province of Quebec. The Commissioner too desires to continue his policy for the improvement of the high-roads, which is another contribution to the success of dairying, since when improved they would enable the farmers to deliver their milk with greater ease, and would probably lead to the extinction of those small factories of which it is our interest to get rid.

I cannot allow this occasion to pass without recalling the great services rendered to the province of Quebec by this Association. The present convention will be one of the most fruitful meetings, if I am to judge of it by the discussions of to-day on the manufacture, the ripening, and on the means to be taken to get rid of the white-spots in butter and the mould in cheese. All this shows that in the meetings of the Dairymen's Association we put forth ideas whose realisation has the greatest effect in the development of that branch of Agriculture.

And so, Mr. President, you must feel honoured by having been chosen as head of this important Association. As regards the interests of the province of Quebec, I consider that you ought to feel as highly honoured by your position as is he who presides over our legislative assemblies. You are employed in looking after the most important interest of our province, and, almost invariably, at each convention of your Association, fruitful ideas are brought to light, the realisation of which contributes to the advancement of agriculture. At one time, you asked for the establishment of dairy-schools, and the government granted your request; you laboured for the establishment of syndicate inspectors, and that institution is to-day cited in foreign countries as one of those that contribute the most to the success of agriculture.

I was happy to hear your worthy Mayor evoke the memory of the regretted Monseigneur Labelle. Were he here this evening among you, he would rejoice in the immense development of dairying, in which he was interested both as to its connection with agriculture, and because it is the only means of promoting colonisation. What the settler needs is an industry that enables him to dispose profitably of the products of his crop. In proportion to the progress made by the dairying, we see the forests recoil and vast districts emerge from it; we see an industrious people making important clearings, and contributing to the increase of our public wealth.

We feel, Gentlemen, that the shade of Monseigneur Labelle is hovering over this little town of St-Jérôme, and that you are filled with the large ideas that inspired him when the advancement of our province was in question. I rejoice to see that you continue to follow in his footsteps, that you earnestly desire the fullest develpment of our agricultural resources, and that you welcome with cheering the success of the Dairymen's

Association, composed, as it is, of men devoted, without hope of remuneration, to the success of the most important of our agricultural branches.

I will say no more, Gentlemen, but simply congratulate you on having come to this convention in such numbers. The demonstration of this evening will be an encouragement to the Dairymen's Association to devote itself all the more strenuously to the grand part assigned to it, a part that it plays to the satisfaction of everybody and which gives the greatest hopes for the future of the province. (Cheers.)

M. J. A. Vaillancourt.—The Dairymen's Association has a friend here present in the person of its honorary president, Mr. Milton MacDonald, who is still interested in the dairy-industry. I think he will recall once more the encouragement he has given to the farmers, and will not refuse to say a few words to us. (Cheers.)

Mr. MILTON MACDONALD.

Mr. President, Mr. Minister, Gentlemen,

Your worthy President invites me to address you ; I assure you that for me it is not only a duty, but a pleasure, to come hither this evening to unite with my co-directors in taking a part in the labours of this meeting.

At the sight of the numerous audience present before me, I see that our Association was quite right in holding this Convention at St-Jérôme, and I have no doubt that if you have followed with attention the labours that have succeeded each the other all day, the farmers of this region and the makers of butter and cheese will derive great profit from them.

Gentlemen, you have heard with pleasure, I am sure, the compliments that the Hon. Sydney Fisher paid to our Association. Coming from the Minister they are of great value, especially because he knows better than any other the work done by the Society of which he has been a member for so many years—almost from its foundation—and of which he was for a long time Vice president.

M. Gigault, too, spoke in high terms of our body. Those who are acquainted with the work done by it, know that we can accept them as well merited, for this is the 18th convention held since the foundation of the Society at St-Hyacinthe by learned men, who had at heart the future of the farming population of the province of Quebec, and of whom I may mention the leaders : the regretted Mr. Ed. A. Barnard, M. Chapais, and M. Taché. They, the leaders who survive, must be proud of their success. The outset was very simple ; nothing could have been more novel than this Association for the safe-guarding of the interests of dairying, but its work has made itself felt in the most retired parts of the country.

The government has always seconded our efforts with much good will; the first grants we received were, if I remember, given us by Sir Adolphe Chapleau, your former member. I recollect that at that time it used to be said that M. Chapleau promised more butter than bread to the farmer-class; and those who said so were not mistaken, for we have to day more butter than bread.

At present, the history of the Dairy-men's Association s to be found in the reports it yearly distributes to its members; but at its foundation, when people were only beginning to talk about the making of cheese, it needed a great deal of work and many an effort to attract the attention of farmers. It set to work; at the foundation of the Society we were only exporting a few thousands pounds of cheese of inferior flavour. The Association saw that to form competent makers, was the first thing to be done; at that time we use to import, at a great expense, makers from the States, for the Canadians had not the slightest ideas of the way to make cheese. The Associotion sent only a single inspector during the season to visit the makers. A few years later, it found that it was absolutely necessary to set up a school and the first school for the instruction of makers was founded by our Association at St Hyacinthe. We saw than our makers of the first-class who were sent out all over the province, and some years afterwards, we had the satisfaction of seeing that our cheese was better appreciated on the English market and that its exportation was on the increase. It was in 1892 that the Association pressed the government to give it a grant towards the founding of this school, which is now giving highly satisfactory results.

Now, Gentlemen, the Society felt, in 1892 or 1893, that the farmers were plunging too deep into the manufacture of cheese, that the English market was on the point of being overdone, and that it was advisable to divert the agricultural classes a little from the manufacture of cheese to the manufacture of butter. The first teacher at the St-Hyacinthe school was from your county, M. Damien Leclair, of Ste-Thérèse, (cheers), and the Hon. Minister, M. Beaubien, sent him and M. Gigault, in 1894, to Denmark, to study butter-making, seeing that at that epoch, as it is to-day, Denmark butter was at the top of the English market. All those who were interested in dairying have read with the greatest attention the report of those gentlemen on their return.

We felt that if we did not divert farmers from the making of cheese to the making of butter, we should overload the English market and, consequently, the price of cheese would fall considerably; and you see by the figures that the Minister laid before you just now what were the results of this new course. There are but four or five years since we were exporting hardly more than a few hundred thousand dollars' worth of butter, and, this year, butter has produced for us some six million dollars. Such have been the results of the work and efforts of our Association. As soon as these gentlemen had returned from Denmark, we prayed the Society to have a meeting with the Montreal butter-exporters, in order to gain their support to a request we were making to the province of Quebec and to Ottawa to obtain the establishment, on board of the cars and steamers, of cold chambers to enable us to export our butter in the best condi-

tion. M. Taché, M. Chapais, and I were commissioned to act for the society to the exporters of butter. We explained to them our requests to the governments, and the things we sought from themselves. We met among them two friends of the farming classes, our present president, and Mr. Ayer, who seconded us with all their powers, the rest ridiculed our idea ; but we did not let ourselves be discouraged ; Mr. Ayer and M. Vaillancourt helped us bravely, and we betook ourselves to Ottawa, where M. Angers, the Minister of Agriculture, granted our request. This was in February, and by the fifth of June we had our cold-chambers. Such, Gentlemen, was the success of the Dairymen's Association. Mr. Fisher nobly continued the work of M. Angers ; the result is that our butter occupies one of the finest positions on the English marke now that we are allowed to lay it down on the other side in almost as good condition as it was when it left our ports, and the English were surprised to see that the province of Quebec can turn out as good butter as is made in Denmark. At this moment, it becomes you to do your part, you farmers, you must take care of your milk, great care. We have done our part, but we do not intend to stop there ; your President has just profited by the presence of the Ministers to proffer fresh requests to them, and our requests will not be rejected because they are orders to our Ministers, especially to Mr. Fisher, who can refuse us nothing,

M. Gigault has just told us that the Quebec government has decided to continue its policy as to the ripening-rooms ; it is again to the Dairymen's Association that this policy is due. And the results, as you see, are excellent.

The Association has still to contend with small factories that are on the increase throughout the province, and which are one cause of weakness in our business because the English market that buys our products desire a uniform class of goods, such as they get from the Danes. In Denmark, all dairy-goods are uniform ; they are managed by great syndicates. The butter is inspected before it is sent out, which is not the case here. If the competition which is taking place in all the parishes continues, there will be, before long, factories at every corner, and the ruin of the dairy-industry will be not long in following.

Follow with attention the advice that you are about to receive during the next two days, and let all the makers present join our Association. The Report, which is sent to you every year for the modest sum of a dollar, is worth ten times that amount, and, besides, you have a right to receive the Journal of Agriculture.

It gives me great pleasure to be present here this evening ; and I can tell you that we, the directors of the Association, shall carry away with us a very pleasant recollection of the time we have passed among you. (Cheers).

M. Vaillancourt.—You were told just now that we had devoted ourselves to the interests of dairying, and had received no recompense for our devotion. It is true that we have received no money for it, but we have received on every side so much encouragement that we esteem ourselves to be amply rewarded. In our Association we meet with

neither parties nor shades of politics ; we have never been affected by changes of the ministry and we have always be favourably received by every body. It is thus that we have here this evening a Minister and a member of the Legislative Council, M. Rolland, who, I trust, will not refuse to address a few words to us. (Cheers.)

M. Rolland.—I accept the invitation of your worthy President.

It is with pleasure that I find myself, for the first time, at this convention of the Dairymen's Association. When your excellent President informed me of your intention to hold your convention here, I agreed with the Canada-Pacific that the prices of tickets should be reduced for those who wished to visit the Northern Townships.

I am glad to see the Minister of Agriculture visiting the North, that part of the country that so greatly resembles the Eastern-Townships. Here I see a great future for the dairy-industry. In a visit I was paying to the North, last summer, with the Hon. F. Marchand, the Minister, I asked him to help to establish some cheeseries in the districts we passed through, and which were too far removed from railways to answer for creameries. M. Marchand promised help to these factories that will be at work next spring. When Nomininguc shall be attainable by rails, these cheeseries will be converted into creameries. Colonisation will advance all the more as it is pushed forward by dairying. The work you are doing, gentlemen, these deliberations that will appear in the papers, are calculated to help the farmers and to improve the art of butter-making.

For me, I do not understand how to make butter, but I know that our farmers have more money to spead now than in the past, and this is due to dairying. Therefore, I congratulate the Association on its success. (Cheers.)

M. Vaillancourt.—We have here a friend to the dairy-business ; I have been sent to him as part of a delegation, and he always met us in a kindly manner ; I call upon M. Nantel.

M. NANTEL.

Mr. President,

Mr. Minister, Gentlemen,

Many thanks, Mr. President, for recalling the past, which may perhaps return, or may not ; which perhaps I enjoyed, or which I did not enjoy ; but one thing I can justify to here, and that is, that when we were accosted concerning farm-business, we became thorough farmers ourselves. It is *un peu d'ailleurs ;* like all politicians, whether at an election, or at the head of a department, they are always more or less farmers. Those who are so practically have one advantage over the others ; they work in what is called

"la politique du beurre." We tried to work "la politique du beurre"; those who are not farmers practicaliy, are contented with making butter by politics : it is not quite the same thing. (1)

If our butter-policy has turned out well, we are very glad, for we all know that in this country, as the Minister from Ottawa said, real politics consist in Agriculture, and I think that the source of the riches of Agriculture lies in the breeding of herds of cattle and in the milch-cow.

In coming hither, our object is to rejoice over the labours of your Association, which already has reached its 18th anniversary; 18 years of work, of effort, of devotion, followed by the noblest, the grandest reward that patriot-workmen can hope for, the reward of success. You see before you, Mr. Presidont, the élite of the agricultural class of the province of Quebec. They constitute our nobility; the only nobility we have; for in our democratic country, there is only one kind of nobility : that of work and success. (Cheers.) This species of nobility you possess, Messieurs the farmers, and deserve to possess, after 18 years of hard work, successfully carried on, by the introduction into the country of a business that is a source of wealth.

The Minister said just now something that gave us all much pleasure, that we, in the province of Quebec, have succeeded in making the best butter that is made in Canada. (Cheers.) This is the grandest testimonial that you can seek for. Mr. President accept my most sincere congratulation. As long as we make the best butter, we shall have a word to say in the affairs of the country, for true policy has for its object the fortune, the wealth, the prosperity of a country. Now, the richest countries are those that produce not only the most butter, but the best butter. For what more can you hope? What better eulogium can be paid to you than that certification that has just fallen from the lips of a Minister.

Another reason on account of which I am glad to have come hither, is that I remember the first lectures on butter-making that were given, in a regular place, in the province of Quebec. At that time, no one dreamed of founding a Dairymen's Association at St-Hyacinthe; some one may have been dreaming of it, perhaps, but we were not aware of it. But there was a man who, in himself alone was worth nearly a whole association : the Curé Labelle, (Cheers,) who did not wait for the institution of an Association to do the work, but who, himself, lectured, as from the elevation of the pulpit, and who told you : "if you want to make money, make butter, good butter; instead of carrying your oats, hay, &c., to market, transform them into butter, and you will only have one tub to carry to Montreal, the freightage of which will not cost you nearly so much."

This was indeed a grand truth that he told them ; you put it into practice, and the prediction has been realized to the letter. St-Jérôme has not remained in the rear of this movement. I can truly say that the poor parishes of the North that used to be spoken of as barren, have become wealthy settlements

(1) I must confess that the allusions are dark to me. A. R J. F.

I call to mind now Sir Adolphe Chapleau, when he said: "I mean to base my policy on the manufacture of butter." The reply was: "You are promising more butter than bread." At present, we produce all the butter we need, even some we can spare for England; only the other part of the prediction is found to be false, for if we do produce all the butter weneed, we have also succeded in growing all the wheat we want to make our bread, and even to send millions' worth of dollars abroad. The West now gives all the bread we need, and the East all the butter. Can any one conceive a grander policy than this that supplies as much butter as bread and as much bread as butter.

Gentlemen, I should like to conclude with a word or two on the importance of your Association. The results that your former president has just enumerated are due to the spirit of association which, especially in England, is the secret, the pledge of the strength, the power of that country. England's importance is due to the innumerable Associations which do the work of so many governments. If there is a greater country than England, I should like to know which it is? Associatien does the work of the government. Association, that is, private initiative, whilst among other nations the government has to do all the work. Now, the government is incapable of becoming the state farmer, the state-teacher, etc; it can simply govern and direct public affairs. Thus have you acted, Mr. President: yon have founded an Association. And if, instead of one Association, we have several for the different branches of farming and the other industries, the success we see in dairying would be produced in all the various branches or agriculture, mines, manufactures, forestry, and others. When we, in this country, shall have learned the importance of gathering into one bundle the twigs of our scattered forces, we shall have made an immense stride, comparable in all those branches to the stride we have made in dairying. Your Association has made its way by work, power of its reasoning; it has issued its command to the government, and there is no government able to resist your efforts. Great then is this power of association. Suppose all the farmers were to join in one association; I should like to know if there could be found on earth a government that could resist it! It has always been one of my dreams to see an immense agricultural syndicate established. Barristers unite for their own protection; not that they really need protection,—when the law is not on their side, they dispense with it—; every body joins a union, even the barbers; it is only the farmers that do not get up a union. Still, they have plenty of power, there are 200,000 of them! Now, Gentlemen, in order once more to have a real policy of butter or of of agriculture, an army of 200,000 farmers might issue its orders to any power in the world.

An association like yours has then given proof of what it is capable of doing. Well, Mr. President, your exertions, your industry, your energy, all that is well known; you will continue to be a living example to the whole agricultural class, an example that will teach them the importance that there is in gathering themselves into a general association, I will go so far as to say into an almost imperial confederation.

And of that body I am absolutely a part ; it will suit Canada as well as it suits England. I am here to talk to you about that subject. You farmers must take it home with you to ponder it, it is an absolute matter of necessity ; and when we have against us the free competition of the States, of Ontario, the province of Quebec has no right to neglect anything that may help to keep it in the stream at the height of the circomstances in order to compete fairly in labour, in all peaceful acts, and in agriculture. The province of Quebec must not allow itself to be out-run ; it has made vast progress, of which we are all proud, during the twenty years, and it gives me great pleasure to quote your Association as the example we must follow if we desire to make further progress during the future.

We have the pleasure of seeing among us the Minister of Agriculture, an Englishman from the Eastern-Townships, who is here to talk to us about farming ; about its progress, in French, and in very good French, too. (Cheers.) We listened to him with pleasure, for there is one thing for which we cannot forgive the English, that is, to excel us in farming. Apart from that, we love them as much as we can love the superiority of our neighbour. They give us valuable lessons in farming as, indeed, they do to all the world. First of all, their practical minds want to know the reason for everything ; then, in order to find it, they seek for instruction everywhere. The farmer, more perhaps than any one else, is obliged to account for everything that occurs throughout the world ; we have to look to it that we produce the greatest possible returns with as little trouble as is possible : this we can do by study. It has been said that one good head is worth a hundred arms ; and in farming that is true. Farming, to day, is no longer a trade but a science, which needs as much knowledge as any other science. Why, Gentlemen ? Because the farmer is obliged to enter into competition, not with his neighbour alone, not in his parish, not in his county, not even in his province, but with the entire world ; a competition of terrible efforts between different nations who are waging it with all the powers of industry and science. It is for that that Canada, that the province of Quebec must prepare herself, investigate things on her own account, that she may bear her part in this competition ; and if some day we are outrun by the success of our neighbours, the province of Quebec will fall back, and a province that falls back can never regain the time it has lost

Once more I congratulate you on the work you have done, and on having kept out of politics. When the interests of agriculture are concerned, there should no politics be allowed to intervene, there should only be between the two parties a legitimate struggle to know which of the two shall do the best for it. Up to the present time, I think it is our party ; you may think otherwise, and yet this must not make us worse friends. (Cheers.)

M. NÉMÉNE GARNEAU, M. P. P.

Mr. President, Mr. Minister, Gentlemen,

We have been told that all the world's a stage and "all the men and women in it merely players." Never did I so appreciate this truth so well as this evening, since I have a part to play and am on the stage to play it. I only regret that we have not followed the usual rule of the stage, which is to let the second-rate actors play their parts first, so that the ears of the audience be not made too fastidious before the turn of the greater artists comes. The parts have been inverted, this evening, and not at all to my advantage.

I thank you, Mr. President, for having invited me to speak here this evening. I would profit by it to congratulate the farmers of this district on having come hither in such numbers to testify to their great interest in agricultural matters.

I see there are some of the fair sex present; to them I offer my most special congratulations. When women interest themselves in anything, it is sure to turn out well. Not very long ago, I saw in the papers that a benevolent association of ladies had been founded to aid in the affairs of colonisation, and I feel sure that those affairs will be prosperous.

I am a farmer myself, and it is with unfeigned satisfaction that I find myself in this meeting, with the view to meet other farmers like myself, and to inquire into the present state of agriculture in our country, the progress made by the year just expiring, and to study at the same time the best method of procedure to further our interests.

After having listened to what fell from the Minister of Agriculture, we can only say that the position of agriculture in our country is very satisfactory. In reply to the remarks M. Nantel made, saying that we did not know which was the better carried on now, the policy of butter, or the butter of politics, I believe I may say that, at the Dominion Department of Agriculture, there has been a policy of butter without pouring politics into the butter, (1) since cheese has brought us in $14,000,000 a year and butter only $6,000,000.

Gentlemen, it may be perhaps a good thing, on this occasion, to ask ourselves what would be the position of agriculture if we had continued in the road in which we were travelling before this Association was founded. If we had nothing more now than the revenue derived from the crops of grain and fodder, I think the position of the province would be precarious. If we are to day in such a favorable position, we owe it to the exertions that this Association has made to develop the various branches of agriculture. For this good fortune we are indebted to the trade in butter, cheese, and bacon, which last is only at its commencement, and which is intimately connected with the other two.

(1) I have not the slightest idea what this very recondite joke means. A. R. J. F.

I want to speak to you this evening about another and a new trade that might be developed here because of your paper-mill; it is the manufacture of starch of which great quantities are used in making paper. I have here a few notes from a trustworthy source which I will read to you :

ON THE CULTIVATION OF POTATOES FOR MAKING STARCH.

The farmer who devotes himself to dairying, or indeed to any other branch of farming, must always establish a rational system of rotation of crops on his farm.

Rotation of crops involves the return in due season of manured and hoed crops.

These crops must be maintained not only for the sake of the improvement and the clearing of the land, but for the sake too of the profit the farmer may get from them. From this point of view, the potatoes are the most profitable of the cleaning and improving crops.

Indeed, potatoes may give a profit to the farmer in two ways, if he have the good luck to grow them to supply a starch-factory.

Every one knows that starch is an article that is always saleable, especially in districts where there are paper-mills, in which large quantities are always consumed.

Good starch is always worth nearly $3.00 a cental.

On an average, a bushel of potatoes—60 lbs.—will yield 10 lbs. of starch, 16.6 %. These ten pounds of starch yielded by a bushel of potatoes of 60 lbs. weight represent 30 cents. A residue, called *pulp*, remains which contains the greater part of the protein and others mattersof the tubers, apart from the starch,and which is considered as worth, for cattle-food, especially for cows and hogs, one-third of the original bushel of potatoes.

When potatoes are not worth more than 25 cents at market, it will pay to sell them to the starchery, provided one lives within a reasonable distance so that the pulp can be taken back. The farmer that sells 300 bushels of potatoes to the starchery and carts back the pulp, has then the value in food for stock of one hundred bushels.

If the starchery is established on the cooperative system as practised in dairying, and as the farmers of La Baie du Febvre, Yamaska, are now doing, the farmer brings back from the starchery the pulp just as he brings back his skim milk from the cooperative creamery, and, beside the profit he makes by his starch, cost of making deducted. he has in addition that from the pulp.

To make it pay to send potatoes to the starchery, they must not be saleable for more than 25 cents a bushel.

As all the tubers, little and big, and even those that are slightly damaged, go to the starchery, while potatoes that fetch 25 cents must be all sound and at least

middling size, it is clear that when they are worth no more in the market than the above price, it will pay better to send them to the starchery.

In order to make the most out of a cooperative starchery, the farmer must aim at growing such sorts of potatoes as yield well and are at the same time rich in starch. Potatoes that yield largely are unfit for market because they are ill-shaped, and their eyes or germs are deeply sunk into the tubers. This does not matters a jot for their conversion into starch.

These heavily yielding, potatoes are to be had, first by choosing the varieties that particularly possess that qualification, such as the "Richter Imperator, the Chancellor, the Non-pareil Giant," by preparing the land carefully, selecting that commonly called potato-soil, etc., and above all by using chemical manures strong in potash with a half-coat of dung.

Potatoes rich in starch are secured by, first of all, using for seed such as possesses that special qualification, such as the three kinds mentioned above, then by treating them to both chemical and farm-yard manures, but on condition that the dung be not used in a fresh state, and lastly, by only growing potatoes on sandy soils, especially in such as are composed of good, brown moist sand, and never on clays or pure peat.

The difference of yield in bushels between common potatoes and those mentioned above, runs from 200 to 450 bushels.

The difference in yield of starch varies from 10% to 28%, according as the potatoes are of such varieties as are rich in starch and have been grown in proper soil.

M. JOS. GIRARD, M. P. P.

Mr President, Mr. Minister,

Gentlemen,

Pray do not look for a speech like the one to which you have been listening, for it is not without a good deal of hesitation and embarra-sment that I accepted the invitation to address you this evening.

A long time ago, I heard from M. Nantel and Dr. Grignon, that in the counties near Montreal were to be seen the finest and most advanced parishes, as to farming and trade. I see that I was not deceived, as regards St-Jérôme especially, for I find it to be one of the finest parishes in the province. The President observed just now that we were so fortunate, in my county, to have another St Jérôme; that is true, and although I cannot say that, as regards trade, St-Jérôme du Lac St-Jean is comparable to St-

Jérôme de Terrebonne, it is, at least, as regards agriculture, one of the most advanced spots of the province.

For the last eight years, I have assiduously followed the labours of this Association, and I return every year to attend with pleasure its meetings; but I am one of your brothers, Messrs. Farmers, and I not so fortunate as to be able to make a grand speech, like M. Chauvin (1) for instance, but as simple habitant, i. e. a simple settler.

The progress of dairying has been prosecuted in earnest by our farmers. As soon as we had railways in our parts, we took advantage of the movement, and made it our own. I trust that, before long, we shall also have, at St-Jérôme du Lac St-Jean, a manufactory of pulp and paper like those you have here

I shall not talk of this at greater length, Gentlemen, for I came here not to teach but to learn. I see that farmers have assembled here in crowds to listen to the discussions that are carried on, and I am glad to see it, Discussions were to be heard here this morning which were worthy of the attention of every farmer in this country. I learned this day, both for my own benefit and for that of the settlers whose interests I have the honor to represent, lessons about dairying that, before I came here, I knew nothing about. I only wish all the people of my parish had been here that they might have learned with me the things that were taught us.

M. Nantel said that farming is no longer a trade, but a science; I think he was quite right, and I agree with him that it must be studied, and one of the best ways of becoming acquainted with it, is to belong to this Association, to which I belong and to which you all ought to belong, the Dairymen's Association. (Cheers).

THE SLIDES OF THE MAGIC LANTERN

The session was adjourned to the next day.

SECOND DAY, DECEMBER 6TH, MORNING SESSION.

The session opened at 10 A. M., M. J. A. Vaillancourt, in the chair.

ELECTION OF DIRECTORS.

M. J. A. Vaillancourt.—I confess, gentlemen, that I have no speech prepared to thank you for the honor you have done me by electing me, a second time, as President of your association, I did not think, while I was here, that I should be elected; but, I ought to have expeeted it, seeing that it is the custom of our Society to leave the

(1) This speech, the text of which was sent in too late, will be found at the end of this volume.

President two years in office. I have been dealt with like my predecessor, and for that reason I do not protest against my reelection.

It is a great honour conferred upon me, and I am heartily sensible of it. I heard it said, at Valleyfield, last year, that the farmer occupied a very lofty position ; our Association belongs to the class of farmers ; it is then a very great honour to be its president, and I accept it with pleasure. I will do all in my power, with the aid of the Board of Directors, to forward the progress of dairying . I will always devote myself to each individual members as well as to the Society, and my assistance may always be reckoned upon when it is in my power to do anything for one of the members.

M. J. B. Richard.—As the only new director elected, I too will do myself the honour of thanking you. The association has not made a great acquisition, but I, like the rest of the Board, will do my best. I assure you that I will with pleasure do all in my power to do.

The President.—I accept M. Richard's thanks with pleasure ; I am glad to see him enter the Board, but I am sory to see that M. Chagnon has resigned ; he was one of our best directors, and the Association regrets him greatly. I propose, then, a vote of thanks to M. Chagnon, and to Mr. McGowan as well.

M. l'abbé Charest.—The entrance of M. Richard, will mark an aera of prosperity, for we shall have a richard (in French *richard* is a rich man—*a pun.*—) with us.

M Chauvin.—They are worse than the lawyers, these Members of the Dairymen's Association ; they think of nothing but money !

M. Richard.—They have learnt it from the lawyers ; it is a thing that it does not take long to learn. (Cheers.)

LECTURE BY M. GRISDALE.

Mr. President and gentlemen.

It is a great pleasure to me, on my first visit to St.-Jérôme, to appear before so important a body as the Dairymen's Association.

The production of bacon, the subject on which I have been requested to deliver a lecture and to enter into a discussion with you, is of great moment, to judge of it by its value in dollars and cents.

Although the whole of Canada has made great progress in this business, I regret to have to say that our fine and fertile province has done but little in this sense ; still, its climate its soil, and its other agricultural products, render it capable of turning out a

vast quantity of bacon, and if farmers choose, it will occupy, and that before long, a preeminent position in the bacon-trade.

The farmers of our fertile province are industrious, ingenious, liberal, and careful. There are all the qualification needed to make, as the English say, a good stockman, that is, a good breeder of stock.

We have the population, the food, we have the features which lead to success, moreover, we have the market for all the bacon, and even more, that we can produce.

My voice is not needed to assure you that the demand for bacon will become more and more important: for many years, the quantity annually sent to Great Britain, our natural market, has been gradually increasing up to last year, when we dispatched thither bacon to the value of $10,000,000 or there abouts.

As the modes of curing has been improved, bacon has become a dish thoroughly appreciated by the epicure, while it, at the same time, forms the larger part of the breakfast of the great body of our working-men. The markets of our province require annually thousands of dollars' worth of pork more than we now produce. The greater part of this comes from Ontario.

Why, I ask myself, do we not produce it here? Why try is it not we who send millions of dollars' worth of bacon to Great Britain?

Let us send, next season, some good Canadian pea fed bacon to the foreign markets; but if we cannot hope to make so much progress of that, let us at least supply our home-market, the market of Montreal and Quebec, those grand cities that adorn the banks of our noble river, the majestic St-Lawrence.

It is with this view that I beg you to afford me your attention for a few minutes. We at the experiment farm, have learnt something about the *bacon hog*. Besides, I have traversed the whole of Ontario from one end to the other, studying the same animal. At the Experiment-farm, we fatten every year about 200 hogs. Allow me to relate to you a little of what I have learnt by study and experiments.

The first thing, in every trade, is to begin by knowing what it is we want to produce. It is not enough to think "we will turn out so many fat hogs", we must know exactly what sort of a hog is wanted, that is, what type of pig, what sort or kind. Observe that I do not say what breed, but what sort, what type.

Allow me to set before you, in a few words, the picture of a bacon-hog, all ready for the bacon factor, as well as for our local leading markets.

Figure to yourselves a hog long in the body, deep in the sides, square behind, and on the back and belly, carrying plenty of flesh within and without, extending down, to the hock, with the thigh straight rather than bent. There, that is our bacon-hog. But stop a moment, there are some features of which I have not spoken. Our hog, intended for bacon, is not fat; he is not thick on the back, neither has he a lot of fat on the

shoulder ; but, and this is very common and very serious error, do not fancy he is poor, thin : he is not so. He has just the look of a hog of which one should say : "he is just fit to be put up to fat". He weighs from 160 to 220 pounds, and is much more remarkable for his well developed muscles, than for the quantity of fat and lard he carries.

You ask me about their colour ; I cannot say. You want to know the breed ; I do not know. Where shall we find that sort of hog ? you ask ; that, I will tell you : we can get at it by selection in breeding. Allow me to offer you some advice on this subject. Select as breeders long framed sows, deep-sided, healthy and stout in the bone ; see that they have twelve good abdominal teats ; pick such as come from parents that have good litters. The boar, too, should be of the form as that given above ; besides, he should be hardy and be strong on the leg with long bones. I will not try to prejudice you in favour of any particular breed for each breed has its particular utility ; but you will find hogs, with the traits which I have described, amongs the Yorkshire, the Tamworth, and the Berkshire. If you have Berkshire blood in your herd, you had better get a boar of another breed : Berkshires are often coarse on the shoulder, one of the defects, you will remember, that I warned you against. A Yorkshire boar, or a Tamworth, crossed with common sows, will give pigs which can possibly be made into "singers", or "straights", that is, the best of all bacon hog. Thus, with good sows, you will have the largest litters and the best pigs.

But it is not sufficient, Gentlemen, to select good boars, good sows, the pigs must be reared and fed in a special manner. The boar must be kept in good breeding condition and have as much exercise as possible, that he may not get fat. The sow must be kept in good condition, neither fat nor poor ; in summer, she will do well grazing in clover, and in winter, let her run loose in the farm yard ; but she should have a good stye, where she will be guarded from the wind, and plenty of litter. Half grain and half roots, is a good ration for breeding pigs. Potatoes may be used, but they *must* be boiled, for, raw, they are not worth much ; these tubers are pretty nearly the only article of food that pays for cooking. When the time of pasturation is approaching, the roots ration must be reduced and the grain ration increased.

To prevent the sow from crushing her pigs, it will be useful to fix a board horizontally, flat, about eight inches from the floor. A little enclosed pen, in a corner of the stye, kept perfectly clean and well littered, is also of use in protecting the young, as they will naturally retreat thither to sleep.

A few days after littering, the sow should receive a liberal ration, very rich in protein, bran, wheat pollards, ground oats and milk, if it can be had.

The pigs must be taught to eat very soon after birth ; this is done by putting a small trough, in the pen above mentioned, containing, at first, a little warm milk, and later, skim milk at about the temperature of the blood. In two or three weeks, or perhaps sooner, a trifle of pollard or oatmeal may be added to the milk. Great care

must be taken to keep the trough clean : it must be washed out thoroughly every day.

If the sow litter in winter, the pigs should have, in their private pen, a few clods of earth to pull about. Roots and earth seem to be useful in supplying the pigs with vegetable and mineral matters so necessary to the health and for the development of young animals.

By this manner of feeding, or something like it, the pig will be fit for weaning between seven and nine weeks after birth. At that time the sow's ration must be reduced, especially as to the bran, pollard, oats, and milk.

A great deal of the trouble people have in breeding pigs arises from the way in which the sow is treated and fed. If the food and care have been that which they ought to be, there is not much danger of sickness among the pigs. A variety of food helps digestion, so it is not well to keep on with the same mixture of food to either the dam or the piglings.

When once weaned and doing well as to growth, there are not many risks likely to occur until they get to weigh 125 lbs. ; they may have as much green-stuff as they will eat ; a good clover pasture, another of rape, a small piece of fall-rye, into which they can be turned as soon as the snow is gone or shortly after ; lastly, a field of mixed pease, oats, and barley for the last of spring and the early summer will answer well.

If the best quality of pork is wanted, green-stuff must not be given to the pigs after they reach 125 pounds; the best food for them then, is a liberal ration of a mixture of pease, oats, barley, maize or corn, equal weights of each ; a mixture of grains of different kinds make much more improvement in pigs than any one of them given alone.

As, generally speaking, it takes 4½ lbs. of grain to make a pound of increase, and as the price of pork is usually 4½ cents a pound live-weight, it is clear that every thing must be turned to account to produce pork as cheaply as possible. For that purpose, we must turn to pasture. People persist in saying that the flesh of pigs reared or fattened on pasture is soft when made into pork ; but if the above precautions are adopted, there will not be much danger of that.

We made the following experiment at Ottawa ;

Taking eleven pigs, we turned them into a field of rape about one-tenth of an acre in extent. They were there 60 days, and found enough rape to eat. After the end of September, they got rape taken to them from another field, and, for some weeks, a lot of old cabbages. During the same time the pigs ate 3,837 lbs. of mixed grain, at a cost of $38.37, or nearly so.

In the 120 days, they gained 1828 lbs., that is, nearly a pound a day a pig.

These pigs we sold for 4½ cents a pound live-weight, which makes in ready money for the 1828 lbs. of increase, $82.04. Deducting the cost of the grain, there remains the sum of $43.67, which may be called what you please, and about one-half of which, was produced by one-tenth of an acre of rape!

We must allow, however, that the pork of these hogs was classified as soft ; i. e. that after the hogs were killed, neither the flesh nor the fat would become firm.

At the Experiment farm, experiments on feeding with every ordinary kind of cereals were tried, given in différent forms, and in varie l mixtures, in order to find out the quantity of each required to make a pound of pork whether given separately or combined with other cereals.

I will not give you an abstract of this, for there is now in the press a bulletin entitled " Experiments in the production of pork ", in which will be found abstracts of all the experiments made at the Farm since the year 1890 ; this bulletin you can have at the trifling trouble of asking for it, or writing for it to the Experiment-farm. All our reports and bulletins are sent with pleasure gratuitously to all those who ask for them.

It will be highly à propos, before that Association, to make a few remarks on the value of skim-milk for pigs,

From experiments made in 1892-93-94 and 99, it appears that when a small quantity of skim milk —about 3 lbs. a head a day,—is given to pigs, better effects are produced than when greater quantities are given, say, 15 lbs. a day, a head, or more.

NUMBER OF PIGS	SKIM MILK PER HEAD	EQUIVALENT IN GRAIN
4	2	1 lb of grain=1 4/5 lbs of milk
31	3	1 " " =3 1/4 " "
4	5.4	1 " " =5 1/3 " "
2	17.1	1 " " =8 4/5 " "
2	23.7	1 " " =7 3/4 " "

From these trials and from our experiments on feeding young pigs, it appears that :

1. Skim-milk may be economically used as the greater part of the food of young growing pigs.

2. The pigs that received skim-milk as part of their ration, were more lively, more lusty, and seemed to be more healthy than those which had nothing but grain.

3. It is when it forms a comparatively small part of the total quantity of the food that skim-milk does the most good.

4. The value of skim-milk may be set down at 1/6 or 1/5 of the value of mixed grain.

Whey is worth about half as much.

Curiously enough, we found at Guelph, that pigs did better on sour than on sweet skim milk. (1)

Allow me now to show you an abstract of an experiment that is just completed

Many feeders maintain that it pays better to give hogs full feeding during the whole of the time they are being fattened, while others affirm that a comparatively slight ration is preferable. By a full ration is meant all that the hog will eat without leaving any, and by a slender ration a quantity considerably less. Very few experiments have been made on the Farm on this point, and it does not appear that any other experiment stations have done much of any importance on this subject. The importance of investigation along the line was, formerly, less great than it is at present, and, in no part of this continent does it deserve to be studied more than here.

The cost of producing hogs of from 160 to 200 pounds, with 1½ inch of fat along the back, as compared with the production of hogs with a thickness of from 1½ inch to 2½ inches, is at present a question of very great importance, on account of its connection with the same production of bacon of which I am speaking.

No conclusive deduction can be made from our enquiries on this question; but I will give you the report of an experiment, which we have recently finished, on twelve hogs.

They were divided into three lots. Lot 1 received a mixture of pease, oats, and barley, all unground; lot 2 had the same mixture *ground* night and morning, but unground at noon; for lot 3 the entire mixed food was ground. The hogs of lot 1 and 2 received each, to begin with, three pound of grain or meal daily, and this quantity was increased by degrees up to the end of the fattening period, when they got. each, 4.25 lbs. The pigs of lot 3 began with 5 lbs. of meal each daily, this being the greatest quantity they would eat without leaving any. To each pig was given a daily ration of 3 lbs. of skim milk.

It was far easier to feed the pigs of lots 1 and 2 for they showed no signs of loss of appetite and fattened well.

Those of lot 3, about a month after the fattening began, were eating 5¼ lbs of meal a-piece; but this did not last long, and during the last month they could not manage more than 3½ lbs. of meal a day.

The hogs of lot 3, a short time after the commencement of the experiment, had a dull look, while those of the first lot were much more lively and seemed to be in better condition:

To sum up:

The pigs of lot 1 gained each 1.08 lbs. aday, and ate 3.60 lbs. of grain and 3.09 of skim-milk for each gain of a pound, live-weight

Those of lot 2 gained 1.17 lbs. each a day, and ate 3.48 lbs. of grain and 2.85 lbs. of skim-milk for each gain of a pound, live weight.

(1) Just what Arthur Young found about 110 years ago. A. R. J. F.

The pigs of lot 3 gained 1.11 lbs. each a day and ate 3 84 lbs. of grain a day each and 2.99 lbs of skim-milk for each gain of a pound live-weight.

It will be observed that to produce a pound of pork, very much less food was required when a small ration was given than in the case of a full ration; 0.24 lbs. less with whole grain, and 0.41 when the grain was ground.

The flesh of all these hogs was of good quality, i. e., it was *not soft*.

DISCUSSION.

A delegate.—You told us that sour milk was better than fresh?

Mr. Grisdale.—It was found to be so at Guelph.

A delegate.—Was it sour when skimmed or allowed to turn sour after skimming?

Mr. Grisdale.—After skimming.

A delegate.—Is there no danger in allowing milk to get stale?

Mr. Grisdale.—No.

A delegate.—How do you feed your hogs in winter?

Mr. Grisdale.—Pollard and very finely ground oats.

A delegate.—Do you advise giving them potatoes?

Mr. Grisdale.—Not to the little pigs; a few may be given provided they are boiled; and a few raw; it is good for their health.

A delegate.—At what age should they have potatoes?

Mr. Grisdale.—Not before they are three months old.

M. Chapais.—You said that maize should form part of the ration; you mean a very small quantity I suppose?

Mr. Grisdale.—We do not yet know. Some say that maize makes soft pork, but in reality we know nothing accurately about it. Some hogs fed on maize have made good pork. If you give it alone, the pork will be soft, but mixed with other grain, half maize and half pease, oats, and barley, the pork will be all right. But there is no certainty about it. We are now experimenting, at the Farm, on 160 hogs to which all sorts of grain are being given, and some deduction may be drawn from these experiments as to the question of soft pork. Whey is wortn about half as much as butter-milk for pigs. Skim-milk and bntter-milk are of equal value.

M. l'abbé Charest.—What should be done when a hog up fatting refuses his food, when it is, as they say, choked with food (*houillé de la nourriture?*)

Mr. Grisdale.—I have just been speaking about an experiment on that point. We had three lots of hogs; to one all they would eat was given, the food of the other was limited. Those that had all they wanted did not feed so well after a month, the others

that got only three pounds a day had good appetites all the time and fattened well. There is the solution of the problem ; do not feed too copiously at first.

M. Chapais.—But if you have given them too much food, what is the cure ?

A delegate.—I will answer that question. I thoroughly clean a trough into which I put a meal composed of barley, oats, and pease salted, making a mash, not too thick ; I stint them for some days, and give them this mash at each meal. I have bred pigs for 25 years, and have always given salt not only to fatting hogs but to a sow with young ones. You will always have lively, strong pigs, if you give them salt in their water, less than a handful to a pail, if you find it makes them too thirsty. Salt is a very important thing in pig-breeding.

Mr. Grisdale.—That I have not remarked. At the Farm we always have a mixture of dry pease and salt in a small trough, in a corner of the stye.

M. Girard, M. P. P.—This is a very important question. Last winter, before the Committee on Agriculture, at Ottawa, it was given in evidence that the cheapest way of making plenty of pork is to feed the hogs on dry unground grain. If this was well settled, the farmer would be saved many a journey to the mill.

Mr. Grisdale.—To this I would say, that by steeping the grain in water for a few hours, almost the same effect is product as by grinding it.

A voice.—I think it is better for the pigs.

M. Girard, M. P. P.—Do you think you can now advise the farmers to feed their grain unground ?

Mr. Grisdale.—Yes, I am prepared to advise them so.

A delegate.—Would it be better to give it hot or cold ?

Mr. Grisdale.—Hot in winter ; cold in summer.

M. Jubinville.—Should the grain be steeped in milk or in water.

Mr. Grisdale.—Steep it in water, and give the milk afterwards.

M. J. C. Chapais replaced M. Vaillancourt in the chair, and invited M. Henry to deliver his lecture.

LECTURE BY M. HENRY.

Mr Chairman and Gentlemen,

The question I am to treat before you to day is that of ripening-rooms.

At Valleyfield, last year, when I had the honour to address you on this subject, I only did so from the point of view regarding the general view that should be followed in the construction of these rooms. Since that time, trials have been made along that

line ; the provincial governement has granted a bonus with a view to the erection of rooms on a given plan, a certain number of good rooms have been built on that plan, more are now being built, a certain amount of experience has been acquired, and I intend to-day to touch on certain particular objections made to the practical use of the general rules laid down last year, as well as to elucidate several points not as yet well understood.

First of all, many proprietors of factories and many makers object to the employment of as many as five ranks of boards in the building of the walls, as being too costly ; they do not think it necessary, and assert that a good interior temperature can be secured with much more simply constructed walls. This thing must be thorougly agreed on, and, first of all, we must come to an understanding as to what is really a proper temperature for a ripening-room.

If we understand by that an average temperature of 66° to 68°, rising possibly, in great heat, to 75° and falling below 60° in cool weather, ventilation taking place naturally through the cracks in the building, through the doors and windows less or more well fitting, then I am bound to acknowledge that, in such conditions, three ranks of boards and two linings of papers may be quite enough. But I hold that such conditions of temperature and ventilation are not those that ought nowadays to be sought for to improve the quality of our cheese, and that by contenting ourselves with such, we are travelling along a bad road.

If we mean to maintain a temperature averaging 64° with possible variation of 4° to 6°, up or down, that is varying from 60° to 70° according to the outside temperature, thus, two thicknesses of boards separated by two thicknesses of paper, and that on each side of the studding, that is, altogether, four thicknesses may do, provided that the room is quite stanch and not permeable to the air in very cold or very hot weather ; and yet, the experiments of this past year in some rooms on this plan showed that, to insure this result, it is necessary to have underground conduits in which the air can get cold before it penetrates into the room when it is being ventilated, and at the same time, to use a great deal of ice ; and yet, this year was a comparatively cool one !

But a temperature varying 6°, up or down the scale, is not yet perfection, and, according to the opinion of experts in cheese, to gain the best results, not only is a sufficiently low temperature required, but, beside that, the temperature must be as constant as possible : let us say, varying, up or down, 2°, and that is where the trouble comes in ; besides, according to them, it is necessary that ventilation should be possible in almost all weathers. In order to obtain these two results, the walls must of necessity be made as impermeable as possible.

We will take it for granted then, as a basis to our calculations, that a temperature always kept between 60° and 65°, together with thorough ventilation in almost all weathers, must be ensured. I think that this being the case, and experience already acquired proves it, that we must have five thicknesses of board and five thicknesses of

paper, besides avoiding ventilating the room in great heats of long duration, and, in many cases, taking means to cool the air before introducing it into the room.

Here we are far from that with which the makers of whom I was speaking are satisfied, whether as to temperature, ventilation, and, consequently, as regards the walls.

Still, the number of thicknesses of boards and paper, used in the construction of a wall, cannot alone give a clear idea of the impermeability by heat of such a wall; we must also know, to be able to form an opinion, how these thicknesses are arranged. Thus, if they are simply laid one upon another, they will let much more heat pass than if they were separated by narrow air filled spaces. The sheets of air in walls are indeed a great impediment to the passage of heat, but on condition that the air in them can neither eddy nor gyrate.

This is the way in which walls with five thicknesses of boards should be built: to the outside of the studding begin by nailing a thickness of well fitted boards; on this spread two layers of paper, crossing each other, finishing with a clap board. On the inside of the studding nail another thickness of board, on these boards lay a thickness of paper kept in place by upright laths an inch thick, separated by a $1\frac{1}{2}$ foot to 2 feet, which will make a sheet of air an inch thick; on these laths nail another thickness of boards, then two layers of paper, one across the other, and finish off with one thickness of boards.

I may say here that certain proprietors, having in their walls employed as many as 6 thicknesses of boards, three on each side of the studdings, with paper between them, have failed to grasp the part played by the sheets of air. One of these ranks of boards might well have been replaced by a sheet of air, and would have been at the same time a saving of outlay.

Now let us turn our attention to the flooring. We of course suppose that the ripening room is banked-up all round, making the air beneath the boards relatively cool and at no very great cost, the heat not finding it very easy to enter the room by that road. So it will be sufficient for the flooring to have two thicknesses of boards, separated by two thicknesses of paper crossed one over another. The upper boards should be thicker than the lower, say $1\frac{1}{2}$ inch.

As to the ceiling, which is never exposed to the sun, or to the hot or cold winds like the outer walls, it may be built more simply One thickness of tongue-and-grooved boards below the joists will do; then a space of one inch, made by laths $1\frac{1}{2}$ to 2 feet apart, as for the wall, one layer of paper and one thickness of boards to finish up with. Between the joists, a bed of sawdust may be put, and above that a flooring, if required.

The windows must be double, for a square foot of single window-frame will let in ten time as much heat as a square foot of glass. A room, with the walls, flooring, ceiling and double windows thus constructed, will I believe answer the conditions mentioned above.

Another thing I would call your attention to is the effect of ventilation on the maintenance of the interior temperature. The room being at 64°, for instance, if the wall, windows, and doors are impenetrable by the air, and if all the ventilators are shut, the interior air can only get warm through the heat that traverses the walls by conduction. If, for instance, two equal volumes of air, one at 60° and the other at 80° are mixed, as soon as the mixture is completed, the temperature of the whole will be 70°, and it does not take long to make the mixture. For this reason, one of the first conditions to be carried out in a good ripening room is to have the walls, doors and windows impermeable by the air, or as nearly as possible. The paper where the walls meet the floor and ceiling must be folded down instead of being cut off, and the frame of the doors and windows caulked; in a word, the room must be made to resemble a very closely shut box into which no air can penetrate except through the ventilators just when the maker wants it, for the ventilators are to be furnished with registers that enable the maker to open or shut them when he pleases and as much as he pleases. And, there should be a porch with two doors, one of which, the one in the wall, should be made like the wall, and shaped like the door of a safe, so as to close hermetically; this for the purpose of excluding the hot air every time the ripening-room is entered.

Ventilation, too, is another thing that is as yet by no means well understood.

When a room is tightly closed and the temperature therein is lower than it is outside, a shaft, even when divided in two by a perpendicular partition, as it is in some factories, is of no use, for that the air shall enter the shaft the first condition is that its temperature be higher than that of the exterior air. If the interior air is colder than the exterior air and there are cracks at the base of the walls and in the floor, the cold air will escape through the cracks, the warm air will descend through the shaft, and, if that is divided into two it will descend as easily by one side as by the other. Many makers say that these shafts ventilate well, for the very reason that they have noticed the ventilation when it was colder outside than inside, and they concluded that the ventilation acted thus in all weather, which is a mistake; for if they had removed the partition in the shaft things would have gone on in the same way. It is thus that the popularity of these shafts in a certain part of this province is explained; but this explanation is based upon a false interpretation; that partition has but little to do with the effect.

Lastly, if the air being warmer inside than outside, there were cracks at the base of the walls, the cold air would reenter by these cracks and the hot air would ascend through the shaft, and if the shaft in question was divided, the hot air would ascend as well by one side as by the other.

It is easy to see then that when there is only one shaft the ventilation takes effect in a different manner according to whether the air is hotter or cold outside, and according to whether there are cracks in the building or not, in other words, whether the room is or is not air-tight. And it is clear that there can be no real ventilation except when

the air is cooler outside than inside ; but it is when it is hot that the room must be ventilated and not when it is cool.

To get the better of all these bothers and become perfectly master of the ventilation this is what is needed : first a well closed room ; then two shafts, one through which the exterior air, whether it be hot or cold, can be introduced by force, the other through which an equivalent bulk of the interior air can escape, for to be able to introduce into a closely shut up room a certain bulk of air an equal bulk must be first expelled. I once met a maker who used to shut his exit shaft and open his ventilator, and then complained that the latter did not work ! Assuredly, he had not given a thought to what precedes.

I said just now that air must be forced into the room because, even with two chimneys, if force, of some kind or other, were not employed to compel the air to descend by one of them, there would be no ventilation, if the air inside were colder than outside and if the rooms were quite tight. To compel the outside air to enter the room, a vane like a funnel is used with an attached tail. The opening of this funnel is always directed to the side from which the wind is blowing and the motion of the wind drives the air into the shaft. The larger the opening of the funnel, the greater the bulk of air it gathers, and, consequently, the more powerful the ventilator.

For a room of 600 to 800 square feet of floor-surface, a 12-inch ventilator is usually made, with a funnel of 2½ feet opening. For a room of 800 to 1,000 square feet a ventilator of at least 14 inches diameter and 3 to 3½ opening.

The ventilator should *vent* at one end of the room and the shaft or shafts, for the exit of the air, at the other end. As to the dimensions to be given to the shaft or shafts, for the air-exit, they are calculated on the fact that their section, or the sum of their sections, must be equal to that of the shaft or ventilator. For a 12 inch ventilator, the diameter of the exit-shaft, at the other end of the room, should be 10 or 12 inches to each side of interior admeasurement ; for one of 14 inches, the exit-shaft should be 12 to 13 inches.

Instead of having only one exit-shaft, it is often better to have two ; they should, in that case, be set in the two corners of the room opposite to the ventilator ; for a ventilator of 12 inches, there should be two exit-shaft of 8 inches ; for a 14 inch ventilator two air-shafts of 9 inches.

By having two shafts the whole length of the room will be traversed by the air and the ventilation will be improved by its being forced to spread over the sides at the same time.

Another point : Some makers object to ventilation by ventilators, and say that it is better to ventilate by opening the windows on opposite sides. I am well aware that, when the wind strikes on one side of a building, if a window on that side and another on the opposite side be opened, it is quite possible to ventilate without either ventilator

or air shaft, but I think that this is not so sure or so handy a way. When the wind changes, the ventilation is altered ; and more, by this plan the quantity of air introduced is difficult to measure, and the room is frequently cooled down more that is needed ; lastly, with this system alone in use, there is always a tendency to too much ventilation. Moreover, double-windows cannot be used, and we know that through a foot square of glass in a single window, more heat can enter than through ten square feet of a good wall. But, you will say, small openings on each side of the walls and close up to the ceiling can be used. That is true, but with such openings as well as with windows that can be opened, the air penetrates more directly and with greater force into the room. A more intense current of air is produced, which might injure the cheese and might convert the room into a regular drying-room, the cheeses of course would lose more weight. Still, if a series of small openings were made, furnished with wire-screens and slides (*grille ge et tirette*) to regulate accurately the quantity of air introduced, I see no great objection to this plan, were it not that, whatever the direction of the wind, the ventilation would not be so good as with a ventilator, that the quality of the air introduced, being taken below the roof, might not be so good, and that it could not be cooled down, if that was needed, so well as when a ventilator is used. Lastly, I do not think a ventilator would cost more than these openings of which I have been speaking.

Now let us talk about what takes place in the room when air is introduced.

If the orifice of the ventilating shaft opens close to the ceiling, and is open moderately wide, this is what happens : the air enters slowly ; as it is lighter than the cold interior air it spreads itself in a sheet, of more or less thickness, against the ceiling under which it works until it reachs the exit-orifices of the opposite side of the room ; in this way, the exterior hot air does not reach the lower part of the room where the cheeses are, the air there does not acquire much heat and the cheeses are kept cool. This phenomenon is all the more marked the higher the room ; and it is for that reason that it is recommended that ripening-rooms, furnished with ventilator, should be made at least 10 feet high, for the higher the room the more marked is this phenomenom. The room may be ventilated in this way without getting heated, and a strict economy in ice may be secured.

But, you will repeat, we understand that in this way the top of the room will be ventilated and not the bottom. One might reply, yes, for here steps in a phenomenon known as diffusion. I define, for our needs, diffusion thus : a mixture that is produced between two layers of air without any apparent movement of the air of one layer towards the other. This definition is not exact, but it is sufficiently so to answer our purpose here. Thus, by diffusion, the bad gases of the lower layer of the room pass into the upper warm layer, and the good gases of the upper layer into the lower layer, and the result is the purification of the lower layer. The part played by these phenomena of diffusion in the ventilation of building has been studiously investigated of late years, and that part cannot be mistaken. At any rate, if one is determined to be able to renew completely the lower layers, nothing is more simple than to lower the

air-shaft to the level of the floor and to make in the shaft two holes, one near the floor and the other near the ceiling, each furnished with a register.

Now let us turn to the question of the cooling of these rooms. We have just seen that the quantity of heat that enters it by the hour can be greatly diminished: 1. by making the walls sufficiently heat-tight, and 2, by lessening the ventilation and working it as I have just explained; but we have also seen that, in spite of all, the heat will still get in.

With good walls and well arranged ventilation, a room may keep relatively cool for a day or more; but if the outdoor temperature does not get lower at night, if the heat lasts several days and nights, the room may get heated and recourse must be had to a source of cold, the best and the most economical source being ice in cylindrical receptacles. In small rooms, two or three cylinders filled with ice during hot weather will suffice. In extensive rooms, it would be better enclose them in a cupboard and to make the air introduced by the ventilator to pass through them; that air will be cooled and then spread through the room and cool it. These cylinders and cupboards are described in the bulletin published by the Department of Agriculture at Quebec, and to it I refer those interested in the subject.

I do not lay much stress on this question of cooling, because if the walls are good there will not be much reason to trouble ourselves about it, at least as long as the practice of ripening cheese at low temperatures shall not be adopted.

But to possess a good ripening room, furnished with all the apparatus needed for the maintenance of a regular temperature, is not every thing; the room will heat up if the proper management of these apparatus and ventilation-registers is not understood. This is an apprenticeship to be undergone by the makers, and they must be requested not to abuse these apparatus, before they have tried to work them properly, under the pretext that the results they produce are nothing worth, and their working is bad. With these apparatus, as with tools and machinery, he who knows not how to use them can do no good work with them.

The question of warming the ripening-room in spring and fall is important but easy to answer, if the walls are good and such as I have described. A steam pipe round the room will do it; this pipe being warmed every morning by the boiler, sufficient heat will remain till the following morning. I may observe that the result would be different if the room were not built after the plans I have pointed out; but the walls being good heat will remain as well as cold.

Many proprietors grudge the proper number of joists for the floorings and ceilings and of the studdings for the walls, and a very foolish economy it is, for a ceiling, a floor or a wall, built on too light a scale, falls to pieces rapidly and lets in the air, all the benefit expected from the walls of 5 thicknesses of boards and paper vanishing. For the sake of a few dollars, every chance of success is compromised; it is really marvellous that the attention of makers has to be called to this point.

Here is another question: Those walls that are exposed to the sun and to the predominant wind of the place allow more than three or four times as much heat to enter as do those who are sheltered from sun and wind. To cure this defect, it would be well to plant round the factory, especially on the sides exposed to sun and predominant winds, a belt of trees that would shield the building from both. I recommend this plan because it is very efficient, costs merely a trifle, and yields good results.

I now turn to the subject of mould. From the experience acquired in this province, in Ontario, and in States, it is now ascertained as a positive, definite fact, once and for ever, that the mould develops very much more easily on cheese enclosed in a room kept at 60° than in one kept at 70°. This, doubtless, will astonish many people. Let us take two rooms, both well ventilated and well furnished with germs, the one kept at 60° and the other at 70°. As long as the air is dry, nothing will be seen in either of them, at most a slight tendency to mould in the room at 64°. But let a day's rain supervene, and the mould will be developed rapidly on the cheeses at 64°, and but a trifle, or perhaps not at all on those at 70°. Would mould develop more easily or less easily at 60° than at 64°. This is not yet ascertained, no experiment having been tried on that point, The part played on ventilation on the mould is not yet understood, but experiments on both these points will be carried out next season.

Of course, when the partisan of quick ripening at 70° hear this, they will triumph boastfully over those who hold with slow ripening at a low temperature; but I think it will not be difficult to reduce their triumph to a mere nothing.

Here we have a man who owns large orchards, and who, up to the present, was in the habit of growing common apples, that sold for low prices. Some friends advise him to plant other sorts, that bear largely more than those he now has, and finer fruits too, but, unfortunately, they are subject to the attacks of caterpillars. What will this man do, if he has his senses about him? He will of course, grow the good trees and fight the caterpillars; but if he is a man following old routine ways, he will hold on to his old apple-trees. It is just the same with the cheese ripened at a low temperature and subject to the mould. They sell higher, pay the maker better, reflect more credit on the province in the foreign market, but there is the mould to fight. For that we have several means :1. put a shallow dish of quick-lime in the ripening-room, or spread a little of it on the floor; 2. hang about rags dipped in solutions of powerful antiseptics, such as formaline, boric acid, fluoride of soda, &c. If these solutions penetrate the rind of the cheese no developpement of the mould can occur. 3. If, in spite of that, the mould takes, of which I doubt the possibility, smear the cheeses with that solution. 4. Disinfect the room thoroughly at the opening of each season according to the rules recommended for the disinfection of houses. 5. Never ventilate in damp weather.

The above are good means of prevention, and it is to be hoped more powerful ones will be discover, but those mentioned may be said to answer all purposes.

I must make one more remark here, the result of personal experience: cheese

intended for ripening in a low temperature should be made firmer than those to be ripened at 70°. A soft cheese deteriorates in a low temperature and a firm cheese improves ; this point must not be forgotten, and there are makers who have abused the novel ripening-rooms because they have tried to ripen soft cheese in them : an impossibility.

One observation remains for me to make. The provincial government has made a grant for the erection of ripening-rooms, but it must be thoroughly understood that this grant by no means covers the whole cost of them ; and the object of the government in granting the bonus must not be misunderstood ; it is this : to encourage the construction in different parts of the province of model ripening-room, after not this or the other plan, good as they may be, but a specified plan selected as the best among the good ones.

The owner of a factory desires to lay out a certain room in the construction or improvement of a room. The government says to him : instead of building your room in accordance with your own ideas, are you willing to make a model-room after our system ? We will give you a bonus that will meet all the extra outlay there will be in following our own plans.

This bonus applies to a special system adopted to the ripening-room, not to any vague system, and it is desirable that it be thoroughly understood once for all.

I may as well say that the government insists above all on the thoroughly good construction of the walls, the floors, and the ceilings ; for these once made cannot be altered without great expense, while ventilation, doors, &c., can be improved at a trifling cost. Besides, the walls, once suitably erected, lead to a great saving in ice, and it is better to invest money in a building of permanent character than in an improvement of only temporary character.

As to the advantages of the ripening of cheese, at a low temperature, and of good ripening-rooms, they have been so often set forth that I think it useless to return to the subject.

Nothing remains, then, Mr. President and Gentlemen, but that I should thank you for your kind attention.

DISCUSSION

M. Trudel. — May we reckon upon the government grant in factories already built ? There is a clause in these regulations that insists upon the ripening rooms being in the basement. In buildings already up ; if the room is higher up will the grant be accorded.

M. Henry.—This question I cannot answer. In each case I make a report to the Department who decides what is to be done. I think it is better to place the room in the basement than higher up.

M. Bourbeau.—In my opinion, it would be a bad example to set if the Minister were to accept ripening-rooms built high up, however well they might be constructed. I am absolutely opposed to the grant of any sum for the erection of ripening-rooms in the upper part of a factory because the room would necessarily be too warm.

M. Henry.—I think that as regards a newly erected factory the grant would be refused. As to the old ones, I do not know what would be done, but it is not the custom to grant any thing for them.

The session adjourned to 2 P. M.

AFTERNOON SESSION OF DECEMBER 6th.

The session opend at 2 P. M., M. J. C. Chapais in the chair.

LECTURE BY M. GIGAULT.

DEPUTY-COMMISSIONER OF AGRICULTURE AT QUEBEC.

ON AGRICULTURAL ASSOCIATIONS

In selecting the working of our "Agricultural Associations" as the subject of my address, I intended to treat on Farmer's Clubs and Agricultural Societies.

I might mention the Dairymen's Association, but solely for the purpose of sounding its praises, and of mentioning the services it has rendered, and is still rendering, to the country by its successful development and improvement of our great agricultural industry, the leading source of our national prosperity.

My object is to traverse the field of action that lies before the agricultural societies and farmer's clubs, and to ascertain the means by which they may arrive most directly at the diffusion of agricultural knowledge, at the improvement of farming in general, and, above all, at the advancement towards perfection of the industry your society exists but to promote.

These societies are in a position to cause to be put in practice the valuable theories heralded in your meetings.

Every year, more than $50,000.00 are handed over to these societies by the government; a pretty large amount; and this sum, judiciously spent, ought to contribute greatly to the increased yield of our farms.

That they are useful, productive of good to all around us, is admitted by every one.

They have already done much to second the efforts of the Dairymen's Association. The establishment of many creameries and cheeseries is due to their initiative. They have, too, greatly promoted the success of this industry by their competitions of green- and root-crops, milch-cows, standing grain-crops, and by all the competitions that incline farmers to maintain and increase the fertility of their land. The increased production of milk is partly due to the improvement brought about by the competitions and the exertions of these different associations. Their efforts to improve our farming have not neglected the increasing of agricultural exports. The grain-dealers declare, that during the last few years, their sales of grass-seeds have tripled and more, which clearly shows that milch-cows are better fed and the yield of milk greater.

But, if many of these societies have worked earnestly and successfully for the development of our agriculture, there are, unfortunately, others whose action has been sluggish, and whose operations have not been sufficiently varied ; they prefer following a dull routine, and do not serve their agricultural brethren as earnestly as could be wished

The law points out the methods that should be pursued by the farm societies to develop, not an isolated branch, but every branch of farming. Competitions of standing grain-crops, of the best cultivated farms, the purchase of breeding stock, experiments, agricultural publications, these are the means suggested by the law.

Some societies there are that only interest themselves in exhibitions ; others devote a trivial share of their funds to the holding of competitions of farms and crops, while others encourage exhibitions and competitions The Clubs do not hold exhibitions. Which are the societies that renders the greatest services to the farmers ? In reply to this question, I will lay before you the opinion of several agronomes.

In a report presented, in 1878, in the name of the agricultural societies of Belgium, to the International Agricultural Congress at Paris, we find the following : "Nothing is more decisively settled to-day than the superiority of competitions, held on the spot, over exhibitions."

Speaking of the competitions of the best cultivated farms, the editor of the pamphlet observes : "The intelligent and well reasoned application of the laws of agricultural production is by no means an easy thing, still, by no other means can we at present realise perfection in that art."

In his Dictionary of Agriculture, A. Richard makes the following reflection : Prizes given to animals are only prices given to an *effect*, without any consideration of the *cause* that produces that effect The cattle, indeed, are only the *consequence* of the production, of the increase of fodder crops. Were prizes given to encourage that increase, it would, to my miud, be more logical than the giving of prizes to animals that are only the results of that increased production.

At page 100 of the same work, we find : "Permanent improvements, as we observed, are the source whence flow the other improvements on a farm. One sees at once that a soil well-drained, well manured, well-worked, must yield heavier crops. But does not this increased production naturally bring in its train the improvement of the cattle that consume it? Consider the case of cattle reared in a fertile district ; they are in good condition well developed, healthy and numerous. In poor districts,on the contrary, where the land, out of order, barren and badly farmed, only yields trifling crops of bad quality you only meet with sorry crops of bad quality there you find a scarcity of cattle, and such as they are, lean and stunted in growth."

As regards prizes for the best cultivated farms, Mathieu de Dombasle makes the following observation : "It seems to me that if this system were properly managed, it would be the best way of exciting emulation among farmers, and hastening the introduction of the most important improvements into a district."

In a report, dated May 20th, 1851, presented to parliament by the Agricultvral Society of Lower-Canada, we find at page 14, the following remark :

"The Directors of the Agricultural Society of Lower-Canada believe that in addition to the prizes for these important objects, there is one that is already offered by some counties, and which is the most necessary of all, because the influence it would exercise would be of the most useful and advantageous kind to the farming of Lower-Canada ; it is the offering of one or more prizes for the best cultivated farms. Doubtless, the prize should be the leading prize of all, for it often happens, in Canada as well as elsewhere, that a farmer who wins one, two, or even three prizes for a few fat beasts, or for a bushel of fine grain, has the worst cultivated farm in his parish ; thus these prizes produce by no means the result expected from them by the legislature, while on the contrary, suitable rewards offered for the best cultivated farms, would arouse among our farmers a spirit of emulation, a spirit it is so desirable to see possessed and preserved by them."

It was in 1785, under the auspices of Lord Dorchester, that the first Agricultural Society was established in Canada.

In its first report, its object was stated to be "the judicious cultivation of the land." That should be the aim and object of every Agricultural Association.

The association of the Farmers of France, composed of the best agronomes of that country, gives prizes every year to the farmers of the best cultivated farms. (1)

Thus the best judges, while admitting the usefulness of exhibitions, declare that competitions of the best cultivated farms, and of standing-crops, are as useful, if not more necessary to the improvement of farming.

To insure success to a farmer, it is clear that his farm must be well cultivated, and

(1) So does the R. A. S. of England, to the best cultivated farms in the four or five countries in the neighbourhood of the town in which its annual meeting is held. Ed.

the competitions favouring such a result, must evidently be the best means of securing the interests of agriculture.

Experiments.—There is another means of improving our system of farming, namely, experiments in the growth of crops. This is what was instituted by the first agricultural society established in the province ; for it stated in its earliest report, published in 1789, that its intention was, above all things, to promulgate in its annual publications the results of experiments made by its mêmbers, or by others, with a view to the improvement of farming in this country.

In the same report, you will find information on the cultivation of wheat, buck wheat, on the use of plaster as a manure, and on divers other subjects.

In Ontario, many experiments are being carried on by the farmers ; experiments productive of the best results, if we are to trust the reports published by the department of agriculture of that province.

In Britain, and especially in Scotland, many societies are having experiments made by farmers on the growing of potatoes, on the improvement of meadows and pastures, and on other crops.

The *Agricultural Gazette* and the *Farmer's Gazette*, both papers published in the United-Kingdom, constantly bring these experiments before their readers. These experiments are, emphatically, practical experiments, their teachings cannot possibly be deceptive, and great importance seems to be attached to them.

The farmers of this province, too, have been making many experiments, of late, under the supervision of the clubs. The reports we received of them are, almost all of them, interesting. For instance : A report by M. Cléophas Gagné, a competitor in the experiments organised by the Farmer's Clubs of Cap St. Ignace, Montmagny, for the encouragement of the improvement of meadows :

" For the improvement of an *arpent* of three-years old meadow on heavy land, well-ditched and water-furrowed, I began by cross harrowing it ; I gave it 22 bushels of ashes (*probably lixiviated*), and a barrel of plaster, which dressing I spread by a stroke of the harrows lengthwise, and this harrowing so pulverised the land, that I thought it would answer to sow a mixture of clover and timothy over it.

After sowiug the seed, I rolled it, the roller weighing about 500 lbs. The work was finished by the end of April. The crop of timothy was clean and abundant, while that of the neighbouring plots yielded one-third less, their hay being full of weeds, as fox-tail, (1) wild mustard, (charlock), etc.

So well pleased am with the success of this experiment, that I intênd to renew this practice in future on my other meadows."

Cap St-Ignace, Oct., 6th, 1896.

(Signed) CDÉOPHAS GAGNÉ.

(1) This cannot mean the grass so called. Ed.

This report is confirmed by the Judges, who assigned the first prize to M. Gagné.

The second prize fell to the lot of M. Olivier Bernier, who, at the end of his report, says, like M. Gagné. "I am so pleased with the results, that I mean, next spring, to put as much of my meadow land as I can manage through the same treatment."

Such examples set by farmers must have great influence on the improvement of the meadows of the districts in which they live.

Since the Department has instituted these experiments in the use of wood ashes, and the results have been published in the JOURNAL D'AGRICULTURE, farmers seem to have paid more attention to the preservation and purchase of that manure; they appreciate its effects more highly, and its use tends to become more general. In my opinion, these trials are one of the best means to insure the adoption of the best systems of cultivation, and they cannot, I am convinced, be too earnestly encouraged by prizes offered by the Agricultural societies. No more judicious use of their funds can be suggested.

Competition of milch-cows.—Another competition that ought to be especially encouraged by the agricultural societies is that of milch-cows, the same that was organised last year by the Hon. the Commissioner of Agriculture. In these, not only should the quantity of milk be reckoned, but, if possible, its richness as well.

It is with pleasure I observe that the Dairymen's Association highly approves of these competitions. In an article it has just published in the JOURNAL D'AGRICULTURE it prays that greater extension be given to this organisation, since it points out the best cows, from whom heifers should be raised, to keep up the herd in its original profitable state, a practice indispensable to the success of dairying in general.

One of the last bulletins from Belgium tell us that, in that country, too, the greatest pains are taken to find out the best milkers. Syndicates are organised there for the improvement of cattle. This is what the bulletin says on the subject:

"The movement in favour of the improvement of our cattle by means of selection is only of recent date. Almost all the societies mentioned in the following list were got together in 1897 and 1898. The number, relatively great, of societies created in such a short time, and the number, already so considerable, of animals entered into their herd-books, testify to the confidence placed by breeders in this plan so highly to be recommended."

The number of syndicates in Belgium is 187, and 14,792 head of cattle are entered in their books. By means of competitions of milch-cows and of registers kept for that purpose, Farmer's Clubs, and Agricultural Societies can perform the same functions as well as these syndicates.

Competitions of standing-crops.—As useful, too, to farmers are the competitions of standing crops, as are also those for green-fodder and roots to dairymen. Other like competitions, fitted to encourage improvements as much needed as those above mentioned, might be opened.

Pastures.—It is frequently stated, in your meetings, that good pastures are indispensable to successful dairying. The importance of having superior pastures was demonstrated by Mr. James Fletcher, in a lecture given by him in Montreal, in 1894, and M. J. C Chapais expressed the same opinion, in an instructive address before the Agricultural Missioners at Oka, in 1896, describing, at the same time, the preparation of the land and the best mixtures of grass-seeds needed to secure the permanence of such pastures. The Societies and Clubs ought to take greater pains to cause the sound theories of these lecturers to be put in practice Even if there are some good pastures, there are indisputably many bad ones, and dairying is suffering in consequence. In England, the agricultural papers pay a great deal of attention to this point, and almost every week articles appear in them recommending the best methoes of improving pastures.

The most prosperous agricultural countries are those that keep the most numerous herds of cattle. After Ireland, Denmark feeds the greatest number of head to the square mile,

Plenty of stock, plenty of dung: those are the conditions on which profitable farming depends. To secure these, we must increase our fodder-crops and improve our pastures and meadows.

The effects of increasing our herds are already perceptible in this province. The cultivation of the wheat-crop was nearly given up, on account of the trifling yields obtained, but, latterly, it is reviving, and the yields are greater because our land is being more highly manured.

If we keep on in this way, our farms will, like those of Denmark, become covered with abundant crops of grain, while the dairy industry will grow more and more prosperous, and this result we shall surely realise, provided all our societies combine in its pursuit.

Variety of products.—In all their operations, particularly in their programmes, the societies must be guided by the demands of the market and by the needs of agriculture in the localities whose interests they are charged with the duty of promoting. A variety of products being desirable, the societies should in consequence vary their programmes and operations. Should clover be the crop neglected in a certain parish, it should be encouraged; in another parish, perhaps, it may be pastures and meadows that need stimulation; here, the improvement of the breed of hogs or of cattle, wants encouragement. Everywhere, those methods and crops that tend to keep up the productiveness of the land should be encouraged.

In the days where our farmers grew nothing but grain-crops, they were not nearly so prosperous as they are to-day. By varying his products, by producing more butter and cheese, the Canadian farmer has succeded in making his land pay better; and a great share of this progress may fairly be attributed to the Dairymen's Association.

It will not be long, perhaps, before it will be advisable to vary our dairy products, if there is a prospect of a super-abundance of butter and Cheddar-cheese

In the States, dairymen are beginning to make divers kinds of cheese, which find a ready sale on the local market at good prices.

The necessity of varying farm-products is well described in the report of a show of the French Pomological Association, held at Alençon, this year. The writer lays stress on the necessity of having fruits and ciders of different qualities for the supply of the market both local and foreign. He aims at preventing England and Germany from occupying the place of France in the market for these goods.

Included in this show were several samples of cider prepared for exportation ; and a lecture was given on the best way of making *champagne* cider.

A rule was observed at this show that might be usefully followed here.

It was determined that, attached to the fruit exhibited, there should be a statement of the qualities of the fruit shown, as well as of the tree that produced it.

The Association organised a commission to examine the fruit, in order to establish a list of the varieties whose merits are the best recognised. At Alençon, this commission presented the work of its investigation on a score of varieties.

One feels intuitively that a genuine public spirit reigns over this association, and that it neglects nothing that can conduce to the greater development of all the industries that are connected with fruit-growing.

Let it be our endeavour to instil the same public spirit into all our agricultural societies. You, Gentlemen, who are assembled here, can do much in this way ; you belong to the higher rank of the farming class, and, through the great influence you exercise on your neighbours, you are in a position to do much towards forwarding the improvements and facilitating the progress to the advancement of which our attention is now devoted.

In conclusion, I would earnestly pray you to interest yourselves earnestly in the dexterous working of the societies of which you are members, in order to ensure their effecting the greatest amount of good. By acting thus, you will be doing a great service both to agriculture and to the province.

Dr. J. A. COUTURE.

Mr. President and Gentlemen,

The Dairymen's Association has done me the honor to invite me to address them for 20 minutes on the subject of the progress that has been made during the past 20 years in the breeding of Canadian cattle.

In order to place this progress in high relief, we must cast a rapid glance backward and look at the state of the question. Do not be afraid, Gentlemen, I will not be long about it, and I hope to be able to confine myself within the allotted 20 minutes.

Toward the year 1860, when the first Chamber of Agriculture had just been formed, the province felt a great desire to improve the then existent state of affairs. It was who should show the most zeal for the improvement of every thing connected with the farm. The Chamber of Agriculture, then composed of all that was most eminent in farming, most of them wealthy people, set to work with a zeal worthy of admiration. They began to preach and to teach that all the cattle we then had were not worth much, if any thing, and that all those who were in favour of progress, all who desire the advance of agriculture, ought to substitute for the cattle we then had cattle from the foreigner. About the same time, the (afterwards) Honorable Matthews Cochrane, among others, and two or three wealthy farmers, began to exhibit at all the shows in the country those splendid Shorthorn (Durham) that you all know so well. The difference between the newly imported cattle and those we had was so great that it was, to those who knew no better, a confirmation of the teaching of the Chamber of Agriculture, to wit, that the recently imported cattle must take the place of our stock. You all know that this Shorthorn breed is the finest breed in the world, and that the Ayrshires, which are beginning to increase in numbers, present a far greater bulk and a more splendid appearance than the stock we then possessed. The contrast was too great for the mass of farmers. All the Agricultural Societies were pressed to provide themselves with bulls of these foreign breeds, by way of beginning the renovation of our herds. This teaching was erroneous from the very foundation ; people forgot to say, perhaps they did not know, that if the Shorthorn and Ayrshire are two breeds profitable to those who knew how to make a proper use of them, they required at the same time an improved style of farming, suitable to the need and the bulk of these cattle, and this did not exist at that time. Still, many of the Agricultural Societies began to buy stock and to practice crossing. This practice was greatly encouraged by the Council of Agriculture, which in 1887 was put in the place of the Chamber of Agriculture. The agricultural papers of the day, which were inspired by the Council of Agriculture, kept up a continuous preaching on this subject. From 1867 to 1882 this was the teaching that was given everywhere, with a few exceptions which I will cite directly. Papers, lectures, Agricultural Schools, Council of Agriculture, all authorities were at one in giving these same counsels.

These connsels, coming from all sides, were followed over a great part of the province by those who aimed at the improvement of the then existent state of things. So much so that, in about 1880, authorities in the subject were in a position to say that the improvement of our herds was going on well, and replied to those who wanted to know what became of the Canadian cattle, that there were none in existence ! That which I just said is so true that, in 1882, the Council of Agriculture, met in public assembly, proclaimed that there were no longer any Canadian cattle. However, anxious perhaps to preserve as curiosities the few subjects that might remain of them, a commission was appointed to visit l'Isle-aux-Coudres, to see if it were possible to find there a few lots of Canadian Cattle.

Were I to say that all who were authorised to judge in this matter proclaimed the doctrine I have just cited, I should be exaggerating ;' there were exceptions ; among others. the late Mr. Barnard, who taught every where he could get the chance, that, in spite of all that had been said and written, the Canadian stock, that he was well acquainted with, all other things being equal, paid the Canadian farmers as well as, if not better than, any of the foreign breeds. From 1876 to 1880, Mr. Barnard, in his numerous lecture and writings, never ceased not only justifying the existence of this breed, but praised highly their good qualities. This behaviour won for him, as did his conduct in many an occasion, plenty of annoyance and a host of enemies, but it also won for him three disciples : M. Lesage, Assistant-Commissioner of Agriculture, M. J. C. Chapais, whom we see present here, and myself.

In 1883, commenced a new aera, the second phase of our history. The 14th October, at the Convention held at St-Hyacinthe, I was honoured, as I have been on this occasion, by being requested to speak on some subject connected with dairying. I drew out a comparison between the various breeds of cattle we had in the country. I was a recent convert. I had only just then been convinced that M. Barnard's theory was the right one. I had had occasion to convince myself in a practical manner in the establishment I, then as now, managed, and it was not until several tests and much investigation that I came to the conclusion that the teaching of Mr. Barnard was the only correct one. I then related what I thought of the question to the convention, and I must tell you, Gentlemen, that I made such an impression on the meeting that the Association, immediately after my lecture, voted, unanimously and enthusiastically, that in future it would do anything in its power to re establish the reputation of the Canadian breed of cattle. The success of the movement in favour of this was a settled thing as soon as the Association took it in hand, and I will show you shortly that what the Association then undertook has been fully realised, and that much more rapidly than we used to hope.

In order to put in practice the resolution the Association had just passed, and to get to work at once, it got up a competition for that year, which did not a little contribute to make known the fine dairy qualifications of our Canadian cow, and, in many

places, proved to be a perfect revelation to the public. A similar competition was held in 1884, corroborating the results obtained.

In 1885, in another lecture delivered in the government buildings at Quebec, before the Dairymen's Association and in the presence of Dr Ross, then Prime Minister and Commissioner of Agriculture, I asked leave to labour for the establishment of a herd-book for this breed. The idea pleased the Premier, who promised, during the meeting, to amend the law on agriculture so as to permit of his authorising the opening of such herd-books. That very year, during the session of the Legislature, the law was amended and permission given to open the necessary herd-books.

In 1886, after pretty trouble some preliminary work, the books were opened in Decemoer. The rules of these books were published, and all those who thought they were owners of Canadian cattle were invited to make a declaration to that effect to the committee of management of these books in order to cause their herds to be inspected, to prove that they were pure-bred Canadians, and, in that case, to register them.

From 1886 to 1892, the rehabilitation of Canadian cattle made but little progress. The requests for entry were few, but visits to herds, in different parts of the province, were but too frequently made in opposition to the wishes of the owners. We met with all kinds of opposition from those for whose benefit we were working. Instead of trying to help us, to encourage us, to give us a helping hand, it was just they who created all the obstacles possible, who turned the movement into ridicule, and hoped we should break down : to such a point was this carried that one of our most devoted men, M. Tarte, who was helping us, said one day to us : " All this work that you are doing is hopeless, you will become bankrupts".

There were three sorts of obstacles thrown in our way : First, the usual apathy of people ; we had to go to their farms and almost forced them to enter their herds. I call to mind the names of two persons into whose places we had penetrated against their will, and whose cattle we entered in the herd-book in spite of their protests. These men would now give a good deal to get their herds into the book had it not been done in their despite long ago.

Another source of obstacles was the exclusion from competition of Canadian cattle. Those who had the management of affairs before 1882, had got a rule, passed by the Council of Agriculture, ordering that no prizes should be offered for Canadian cattle. In 1892, the Herd-book committee got the Council of Agriculture to pass a rule ordering that at every exhibition there should be a special place for Canadian cattle.

A third obstacle, the most serious we had to upset, was the ridicule law upon the movement. Ridicule was heaped upon all those who wished to have their stock registered, and especially upon those who were trying to form herds with a view to the future. To these persons were shown a Shorthorn and an Ayrshire, and then a Canadian, the ugliest and poorest that could be found, and they were told they must be mad to attempt to get up a herd with such animals as the last when they might have such as the two

first. This was the most formidable obstacle of all those with which we met, the most difficult to vanquish; fortunately, Providence extricated us from our embarrassment, and I will presently tell you how.

About 1892-'93, in consequence of the articles that were published almost incessantly in every paper and review, as the result of numerous lectures delivered on the subject by five or six persons devoted to the cause, as a sequel to the incessant work that had been undertaken during the first ten years, the apathy of the public began to melt, to decrease. Exclusion from competition vanished; ridicule was about to vanish too.

Such was the state of affairs in 1892-'93, when two Canadians, one of whom is with you, who had followed the advice they had received, adopted that idea, had put it into practice, and who had been forming during the previous ten years herds that they could show with pleasure, had the audacity to exhibit them at Montreal; they were M. Arsène Denis, one of your members, and M. Alfred Roch. They arrived with two herds, not exactly perfect but well selected; capital beasts, not fat enough for an exhibition, but in sufficiently good condition to attract the attention of good judges, like Mrs. Jones, for instance, who on seeing them exclaimed: Their owners have every right to be as proud of those herds as I am of mine!

Ridicule began to disappear, and then vanished altogether rapidly. From that date, '93, '94, '95, Canadian cattle began to appear at the great exhibitions, and it was a question who should be the first to enter them in the herd-book. The requests for entry became so numerous that we could not keep up with them all. During the above three years, a visiting tour was gone through with each year, many head were entered, and we no longer had to creep into the farms against the will of the proprietors.

In 1895, seeing that the work we had been doing for thirteen years was sufficiently advanced, and that an important number of cattle had been entered, I and my friends consulted together and decided to form an Association of Breeders. The government, that up to that time had patronised the enterprise, had aided it with grants of money, had to give way to private initiative; that being the only way, at that stage of the affair, to give the undertaking its greatest chance of success.

In 1895, then, the Breeders' Association was formed. At once 250 members were enrolled The herd-books were closed, the Association declaring that it would enter for the future only the issue of registered parents. There was a general outcry at Quebec. What a triumph for us, for us who had been a laughing-stock for fifteen years! From all parts of the country letters reached us seeking entry for cattle. Seeing the numbers of requests for entry, the Society decided to re-open the books for one year in order to allow the tardy ones to remedy their mistake. A fresh general tour of inspection was made in 1896, and the books were definitively closed on the 31st december 1896. We now enter on the third phase of the question.

The books were then closed, and the Association of Canadian Breeders were

entrusted with the management of the books and with the duty of promoting the interests generally affecting Canadian cattle. Entered in the books were 4,500 females and 900 males. There were breeders, as there are now, from all parts of the province. As they are to day, Canadian cattle were scattered over almost all the provinces of the Dominion, except British-Columbia. Some were to be found in Manitoba, some in New-Brunswick, in Prince Edward's Island, and before long in Anticosti. Canadian cattle were to be met with in the yards of some of the English, and I rejoice at being able to state, to the honour of these Gentlemen, that the first entry in the Canadian herd-book was of the stock belonging to Mr. Blackwood, of West-Shefford. The first exhibitor of Canadian cattle was an Englishman too, Mr. Karr, of Compton. Thus, they were both Englishmen, the two who took the first steps, one in the entry in the herd-book, the other in the exhibition of these cattle.

Thus the Canadian herd made its way into English farms. Many an English farmer now has registered Canadians, and does not feel any the worst for it. The present situation then is pretty favorable ; Canadian cattle are admitted to all the great exhibitions ; there is a class for them, with prizes equal to those offered for all other stock, and they figure with honour there. I invoke the testimony of my best friend, Mr. Robert Ness, here present, who does not breed Canadians, but who thoroughly understands what good stock is, and he will tell you that which he told me in 1897, with Mr. McIntosh, President of the Sherbrooke show, whom he met on the show-grounds at Trois-Rivières, where they had been judges of Canadians : " We are proud of the cattle we have been judging ; we are delighted to find that you have succeeded in showing to the public so numerous and so fine a collection of cattle as those we judged yesterday. The cattle we saw will favorably bear comparison with those of the others breeds, and we congratulate you and their breeders ! "

One place remained in which we were anxious to see our Canadians figure, but where we did not expect to see them for a long time, I mean the United States. Three years ago, however, there were cattle of our breed there, and, had I the time, I should be glad to relate the success met with the owner of the first herd of Canadians in the States, Mr. C. E. Colburn, of New-York. Mr. Colburn used to keep Jerseys, but he has replaced them by Canadians, and is delighted with them. He finds them very profitable, not only from the sale of their calves, but from the prizes awarded to them at the Exhibition, for, after his return from a exhibition tour in his neighbourhood, he found himself a gainer of $700.00 from prizes awarded to his lot.

Another has followed his example, Mr. Abell, who has a herd of 40 head. A third, three months ago, followed their example, and came to the Eastern Townships to buy 33 head of these cattle. These persons intend to combine in some way or other to introduce this breed into the States, so that it may be properly appreciated, and to this end they will exhibit them at every show in the neighbouring States. They are men of business, and mean to make a profit out of the Canadians.

And now for a piece of news that will vastly please the breeders of Canadians;

Professor Shaw, who is professor of breeding in the University of Minnesota, wrote to me four months ago, that, having read many things about Canadian cattle, he wished me to send him information about them, to be inserted in the notes of a book he was preparing concerning all the breeds of stock in the States and Canada, a book that will be used as text-book in all the Agricultural Schools in the States. (Cheers). Of course I made the notes with great care, and added engravings, from photographs, of portraits of several of the leading cows. He, in return, advised me that the whole would form part of his book. I expect a good deal from Prof. Shaw's book ; for it will be a great recommendation (*réclame*), one that we had no right to expect ; and the fortunate results of which will make themselves felt before long, results that could have been obtained in no other way. It will be especially addressed to well educated people.

In order to profit as much as possible by the favourable opportunity that professor Shaw afforded me, I have published this essay, in English, with engravings, and I sent it, a few days ago, to nearly 300 agricultural and breeding papers in the States. The intention of this work is to make our cattle known there, for I am certain there is in that country a rich mine awaiting exploitation by the Canadian breeder. There are, of course, some obstacles to be removed, the greatest of which is that the Government of the States does not recognise the herd and stud-books of foreign countries ; not our book alone, but no book of pedigrees at all. That is done for the protection of American interests. In the States, there are herd-books for every breed, except the Canadian. To this, we replied, in an official letter, to the Washington government, that their argument had no effect in the position we occupy, seeing that Canadian cattle are aboriginal and consequently not foreigners, and that a law, passed at Washington, refusing recognition to the herd-books of foreign herds, could not apply to our stock. The correspondence, that passed between Ottawa and Washington, lasted some time, and I am in hopes that this obstacle, that prevents our entrance to that market, will be removed in a short time, that is to say, that the government of the United States will recognise our herd-book of Canadian cattle and admit them free. This would be the disappearance of the greatest obstacle that hinders the Canadian farmer, and we may hope that before long it will vanish. This then is the position of things to-day. You will agree with me that it does not look so bad, and that we may face the future without much discouragement. Not that we must fold our arms and say that the work done since 1882 has been so great that things can now be trusted to run alone.

Is the Society of Canadian Breeders to repose on its laurels or to continue its labours? It must not cease to work. As a friend said to me this morning : nothing goes of itself, it must be made to go ; and if the future presents itself to us in so brilliant a manner the success that we have the right to expect will not be gained unless the Society continues perseveringly in its work. The Society, the people who compose it, and the breeders of Canadians must work for the attainment of two things : the first is to round off a little the form of our cattle and increase their size a little by feeding them better. These two modifications can be easily arrived at by feeding our stock as they ought to be fed. Were Canadians fed as the other breeds are fed, the Ayrshires

for instance, their size would be sufficiently increased by the third generation, and their form rounded off. It is their abrupt angles that disfigure our cattle. That is the first thing to be done, to feed better for the improvement of size and form. This feeding, I will not say extra but necessary feeding, will bring in profits to the proprietor that will sufficiently repay him for the rather greater outlay that it will cost him.

The second object of the breeders and of the Society is to establish families. I will explain what I mean : Many Canadian breeders call my attention to this ; that in spite of all their efforts they cannot get uniformity of colour, form, and size impressed upon their herd. The reason of this is very simple, they change the bull too often. I must here again bring before you, as a model, a man who, perhaps without knowing it possesses all the qualifications of the most renowned breeders of England, and who, putting these into practice, has succeeded in creating a herd perfectly uniform, and is now certain of always breeding cattle bearing a distinct character already recognisable by those who have made a study of these things : I speak of M. Denis. I like to bring forward M. Denis' name, as a model for Canadian breeders to follow, because he is the only one who has seized the idea that to create a stable, unvarying stamp in his herd, he must choose a bull the very type of the ideal animal he has formed to himself and stick to him. Begin by finding a bull possessing all the qualifications, or as nearly as possible, that you desire to obtain, of the ideal that you have in your idea, and keep to him. Managed in this way, in seven or eight years your herd will have become permanently fixed in accordance with your type ; your cattle will all have the same form, the same colour, the same horns ; they will all be excellent animals, and give the same yield of milk. There will be a family created, the characteristics of which will be distinguishable among all other families. In a few years, the herd of M. Denis will be easily recognised by those who are interested in this question ; he will have established a family : let each one do his best to succeed as he has done.

Thus, Gentlemen, that is what I have to say on this question. I have been much longer than I meant to be, for which I hope you will forgive me (Cheers.)

M. Chapais —I am glad enough to see the progress made by our good little Canadian cow. We are far from asserting that she is the greatest of milk producers, but we do say that she is the cow best suited to the province of Quebec. All things being equal, she yields the richest milk at the least cost, which is the ideal for all men of business M. Couture just now called Mr. Ness as a witness ; I should like to hear Mr. Grisdale appreciation of this breed that he has so frequently judged at the exhibitions.

Mr. Grisdale.—I cannot say much about them. I saw a few here last year. If it were not for the colour, they might be taken for Ayrshires. I was told that M. Arsène Denis had exhibited a herd this year that had given 40 lbs. of milk a day. Well ! when a man has a herd like that, he need not go hunting after another breed. That is my opinion. The cow we want in our country, is the cow that brings in the most money at the least outlay. Where I to change my cows, I would leave the Ayrshire and fill my cowhouse with Canadians. (Cheers.)

M. l'abbé Charrest.—Would M. Couture be good enough to tell us from what place have sprung the male and female subjects which have formed a branch (*fait souche*) in the province of Quebec; since the researches made in the province and in l'Ile-aux-Coudres had not discovered any individual of the Canadian breed? In what parish was the Canadian breed re discovered: Where had it been preserved pure?

Dr. Couture.—It is clear, Mr. Chairman that I did not express myself well. If I had not obscured my meaning, M. l'abbé would not have asked me that question.

M. l'abbé Charrest.—Perhaps I failed to understand you.

Dr. Couture.—I meant to say that from 1860 to 1882, all those who were teaching us asserted that Canadian cattle were not worth much, and they should be replaced by others. So well did they labour to replace them in certain places that they nearly abolished them altogether; but those who exercised authority in those days had every temptation to convince the public that Shorthorns and Ayrshires were the cattle of the future, that they were making rapid progress, that the Canadian cattle was bound to disappear before long, and that, in fact, they were rapidly disappearing. Those who spoke thus took their wishes for realised facts, and did their best, not that I say malevolent y, but all the same as blind partisans, to make people share in their belief. They had succeeded in persuading themselves that the Canadian cow had vanished out of the Province of Quebec, and they nearly succeeded in persuading the public as well. But I never said that Canadians had really disappeared. It was said by interested people, who told the public so, and were believed, while in true the four-fifths of the cattle of the province were really Canadian.

M. Latour.—Is the Canadian cow registered in the herd book, of whom you are speaking, free from any cross or is she mixed with other breeds.

Dr. Couture.—These things are always done in the same way. To answer your question fully, I should have to speak of all the herd-books of Canada and of Europe. A book is opened, all the types that approach nearest to the ideal are chosen, these subjects are entered by the same man in order that the same ideal may predominate, and, when a certain number of subjects has been entered, and that number is considered sufficient, the book is closed and no more entries are made except of those subjects descended from already registered parents. This is the way in which all herd books have been managed.

Now, I will answer your question in the most emphatic manner possible. In certain parts of the province we know positively that not one single drop of foreign blood exists in the stock we have registered, and we lean upon this; there has never been any foreign-bred animal in that part of the province, for instance at Kamouraska *en bas*: How then can the cattle help being pure-bred? In these places we selected the types that pleased us most, that resembled most the animal we wished to make, our ideal in fact, and we registered them. Even near Quebec, there are places into which foreign cattle have never penetrated, as for instance, the county of Lévis, where there-

has never been any foreign blood. Except in the town of Levis itself, there has never, within the memory of man, been any foreign cattle, so much so, that on going to any farm in that county one is sure to find pure bred Canadian Cattle.

M. Latour.—There are some that have been registered here and who are of Jersey descent, surely these must be of mixed blood; that is why I asked you that question.

Dr. Couture.—We never registered as a Canadian a single animal that had Jersey blood in its veins; of course we have entered many Jersey-Canadians.

M. Latour.—I tell you that animals have been entered whose dam and grand-dam were thoroughbred Jerseys, and it can be proved.

Dr. Couture.—Nobody denies it; we tell you that these animals you speak of are Jersey-Canadians.

M Latour.—I tell you that they were entered as Canadians. I understand all about the registration thoroughly. Moreover in 1896, there were lecturers who encouraged the farmers to put their Canadian Cows to Jersey bulls.

Dr. Couture.—I am glad to see that you have brought up this question for I am in a position to defy you to prove that we ever entered as a Canadian any animal with foreign blood in its veins. Mr. Welsh, after having gone through some district sent us his report,and we only entered as Canadians those that were pure-bred; and I defy you to prove that we have entered in the herd-book as a Canadian a single head of cattle that had any foreign blood in it. We have not in our book a single animal registered as Canadian coming from the Northern-Townships. They are all Jersey-Canadians.

A delegate. -Allow me, please, to close this discussion. I, too, had a passion for Canadians, and I succeeded in getting registered some head of Jersey Canadians. I had one in particular whom I especially fancied; she had a perfect Canadian form; I knew she had foreign blood in her; I should have liked to pass her off as a Canadian, the inspector would not have it, but registered her as a Jersey-Canadian. That is the way in which herd-books are managed in our parts. Pure-bred Canadians and Jersey Canadians are entered; hence, I fancy, arises M. Latour's error.

M. Labelle.—I should like to know if, in reality, there are animals entered as Canadians that are Jersey-Canadians. It has been said that at Saint-Adèle there are instances of that.

Dr. Couture.—I can reply to this question that in all the townships of the North from Ste-Thérèse, there is not a single animal registered as a Canadian.

M. J. B. A. RICHARD.

Mr. Chairman and Gentlemen,

As there are plenty of persons present who are much better able to address you than I, I will be as concise as possible in the few remarks the Directors of this Society have asked me to lay before you. I was entered on the programme of to-day as about to deliver a lecture on agriculture. That would embrace a crowd of subjects, and I, for my part, only know one ; I will then chose that subject on which I am best able to talk to you. Since this convention began, we have heard a great many fine speeches, listened to many fine things. The Hon. Sydney Fisher and the Assistant-Commissioner from Quebec, each in turn gave eloquent addresses, and, speaking in the name of their respective governments, they told us that they were disposed to continue that beneficent policy that has made our fortune. We have listened with great interest to the reports of the Inspectors of the Association pointing out our mistakes, telling us of the progress we have made, and of the high place we occupy on the market. They advise us to do better still, and all who have spoken concur in speaking in the same line, and especially in one point that appeared to me to be a capital point. We have made some progress, but every one agrees in saying that we ought to do better still. Dr. Couture tells us to feed our stock better. It seems to-day that we have got to that point that our herds are nearly perfect. But we must increase their food to increase our products and at the same time lessen the cost. We can increase our products by increasing both the quantity and the quality of the milk and consequently making more butter and cheese.

In support of that which I have just said, I will relate to you the history of a small farmer who used to live in a small parish near Joliette. This young man set out for himself, in 1890, with five cows that he picked up in the neighbourhood. One with the other, he got them to give, in 1890, an average of 146 lbs. of butter ; in 1891, 161 lbs, ; in 1892, 153 lbs. ; in 1894, 175 lbs. ; in 1895, 168 lbs. ; in 1897, 151 lbs. To him I then said, you are falling off ! True, he replied ; the grasshoppers are devouring my crops. In 1898, he got 222 lbs. ; and in 1899, 285 lbs. from each cow. And this is attested under oath. The cows however are still the same ; he has improved his herd without going to a great expenditure ; he has selected, sold, bred ; he began with 5 cows, he got to 6, 8, 9, and, at last, has only 7. This man sells his butter for 20 cents a pound, and, as you see, that brings him in plenty of money. At 285 lbs. a cow, the total amount received for butter is $400.00. This is a proof in my opinion, that we can increase our dairy-products without being obliged to change the breed of our cows. Like M. Denis, who has succeeded in creating so splendid a herd, it is in the power of any one, by improving his stock, to have animals that will yield him enormous profits. M. Marion, the man, of whom I have been speaking, told me that he should never rest satisfied until he has made all his cows give 300 lbs., or nearly that, a year a-piece.

And what is the best way of thus improving one's herd. I only know of one. I am not a scientific man. I am an ordinary farmer, I believed that in dairying as in everything else, the great secret is to produce much with little outlay. The man of whom I spoke began in a modest manner ; he fed his cows well ; He took advice, made experiments, and he arrived at the conclusion that every thing he could make his farm produce must cause to be eaten by the smallest number of cow possible who would in return give him very much greater yield of milk. When he began, he used to sow half his farms in oats, the rest being in pasture. He has changed all that now, and grows hoed-crops. He grows roots, and plenty of them.

There are many present here who have often heard me speak and will say : he will be at it again with his deep-ploughing, broad ridges, &c., In truth I only can speak about those things ; I who have been farming all my life and have only learnt within the last few years what farming really means, I can never get tired of relating the things that I have done. There are farmers in the province of Quebec that have taken other means than those I have pursued and have arrived at most satisfactory results, as has been recounted here where the élite of our farmers meet. Those who need no advice, those who for the most part farm as well or better than I, to those men I shall not have the advantage of teaching much ; one does not add water to the sea. But were there no more than two or three who need my advice, to me that would be a sufficient excuse for speaking.

To grow great crops, the land must be drained and deeply ploughed. In my opinion, that is the whole secret. The perfect drainage of land is a main point. Many will reply : my land is well drained. In the learned remarks of M. Gigault mention was made of a man who had done wonders in his meadows by making ditches and drawing-out water-furrows. This is a most imperfect means ; I will try to prove it to you by showing you what sort are the ditches and water-furrows generally made. I am not speaking of the land in the rear of the montains, but of the level, even country, where the ditches are dug six or seven inches deep, never deeper. The water-furrows are drains not more than two or three inches deeper than the furrows between the ridges. This system can only benefit your land by carrying off the surface water, by draining the upper layer of six or seven inches, though that is not without a certain degree of benefit. But the moisture that, with my system, the sun carries off in a few days, remains with the other system in the land. It is the subsoil that need drainage; it is a layer of soil as great at least as deep as the plough-furrow. This it is that needs draining, since it is this that receives and imbibes the rain. It is in it that the water will spread itself and the roots must be freed from the incumbrance of that water.

And now let us talk about dairying. Well, here again perfect drainage is beneficial to meadows ; for hoed crops it is indispensable, particularly for roots which, for the most part, penetrate deep into the ground. If you have only a layer five or six inches of well worked soil, how can you expect that roots 18 inches long, like carrots, can do

well? You cannot succeed and experience proves it. I often meet farmers and give them advice; I tell them to farm better and to grow roots. But four times out of five they reply; in this country we cannot grow such things; the land is too hard, it needs a lighter soil and a deeper: and that is unfortunately what is the case. Lately, I was taking a trip in a certain part of the country; I saw fine farms as I looked about me; I should like to have seen some instances of root-crops, of corn, potatoes, carrots, &c., and on going over miles of road in hopes of finding these, I came upon nothing but a quarter-acre of potatoes!..The cattle of those men must come short of food. How can they follow the advice given to them, as to others, to feed their cattle better! They may be seen returning from the village with two or three sacks of bran or shorts for their cattle. That is better than nothing, but it cost money which comes out of our pocket, and when one has money one leaves it there.

I will not leave off without saying a word about potato-growing; people do not take enough pains about this; the occasion to talk about this crop is propitious. M. Garneau told us all about starch-making and the use of potatoes for that purpose. I do not know if he is going to start a factory here for that purpose; but this I know, it is that for farmers who complain that they have neither labour nor means sufficient to grow carrots or mangels, there are always means of at least growing potatoes. I think it my duty to tell you, and every one ought to know it, that it is one of the most profitable crops grown, if it is properly done by. Of all crops it is the most improving, the least costly, and returns the most profit when it is carried out as it ought to be. A little advice now. People complain of the potato-rot; nine times out of ten, potatoes rot in the fields by your own fault, and I know that by experience. Plant them properly and there will be no rot; those intended to be dug in the fall are planted too thickly. I am not talking of those grown for the Montreal market that are dug early. The great point then is to get as large a crop as possible; but I mean those that are not to be got up till the autumn, for the winter market. Manuring is easy enough: potatoes require less than any crop. Then, the tubers must not be set at the bottom of the rows, 8 inches deep, but set on the surface and covered with soil taken from the side. Capital food for cows is the potato. People say raw ones are good for nothing. I assert, from experience, that from the moment the potato is dug to the present time, the potato is most valuable; after that time it is worth nothing; but, if it is bad raw, it is easy enough to cook it. It is not difficult to grow 450 bushels to the *arpent* (1), but say 300 to the arpent; the cultivation costs next to nothing, it will save the cost of many bags of bran, it will bring in many pounds of milk and butter, and consequently many dollars into your pocket.

There are many other hoed-crops that pay well, and I would tell you about them if I had time.

(1) Five hundred and twenty five to the imperial acre! Average crop in the P. Q. under 90 bushels. A. R. J. F.

I thank you heartily, gentlemen, for your attention, and I pray you to forgive me for having detained you so long over such a desultory speech. (Cheers.)

The session was ajourned to 8 P. M.

DECEMBER 6th, EVENING SESSION.

Mr. Vaillancourt in the chair.

LECTURE BY DR. W. GRIGNON.

THROUGH THE EASTERN TOWNSHIPS

Mr. Chairman and Gentlemen,

You do not, I presume, expect in a lecture from me a deep study on the Roads. That is not my specialty neither it is my mission ; but, all the same, I appreciate good roads better than bad ones, and to know the distinction well, one must have tasted both kinds. After having practised medecine for 20 years and travelled 7 years through the province, I need not say that I know how to tell the difference between good and bad roads, and you must per force agree with me that I have been obliged to travel by more bad roads than good ones, for I must say, at the risk of wounding our national pride, that for one mile of good roads there are a hundred of bad !

Were it not clear that there is a great movement in favour of improving our roads, I should not have made this compromising confession.

With repentance and a firm resolution our past may perhaps be made to pass into oblivion and we may reach the happiness of having good roads.

Never have I met any one who told me that he did not like good roads ; though I have met a man who said, with an indifferent air, that this question he regarded as of no consequence. He was an independent man who lived within a few hundred yards of the church—we are not all so fortunate, if independence is a blessing. What, if I were to tell you that during the 20 years I have known him, I have never once seen him in a carriage, and even less frequently in the cars ! He is in such a dread of carriage accidents that he has never cared to come to St-Jérôme, or to go elsewhere by any other conveyance than the " marrowbone stage." I need not tell you how I explain the indifference of this man to the operations in favour of good roads.

If in some parts of the province I met with lots of apathy about the roads, in others I found an excess of zeal.

Some people would like to see our roads as fine as those of France, and that the Government should make them without imposing taxes. This is utterly impossible. Others desire that the Government should take entire charge of the roads and impose a tax on the people for the improvement of the country-roads, but it seems taxation is not popular in the province of Quebec.

And lastly, the moderates are in favour of the improvement of the roads without imposing too much taxation on the people, by means of time, good will, and a very little money,

I rather agree with these last. I have been in a position to see that without too great an outlay good roads have been made, which in reality need more good intention and sound sense than money.

On November 1st, last, I was lecturing at Wotton and St-Adrien, Wolfe county. It had rained all day, and at night there was an Arctic frost. November 2nd, I left St Adrien for South-Ham.

As long as we were in St-Adrien we had great trouble from the state of the roads : holes here, steep-pitches there, ruts and *galops* pretty well everywhere. The state of the roads I attribute to the heavy rain of the day before and the frost at night.

After an hour and a half of driving, we came out into the South-Ham road. No more holes, no steep-pitches, neither ruts nor *galops* : a fine level road all along. But whence this difference, thought I ? Why, it rained here yesterday, and last night it froze ! Looking on this rounded road, level and well made, I said to the driver : "This road was made with the machine with the reversible plough ?" "Yes, Sir," replied he, "the Corporation of South-Ham has a road-plough."

At the lecture I met MM. Phil. Auger, the present Mayor, and L. O. Dion, the ex-Mayor, both honoured citizen, and the whole audience declared that the reversible plough was giving full and entire satisfaction.

Still, at the first trials, several grumbled and were dissatisfied with it. That depended on their want of experience. Thinking to facilitate and hasten the work, in a turfy road, they ploughed up the turf on each side of the road. This was such a blunder that they had to replace the turf with fork and shovel.

On another occasion the coulter broke ; the conductor did not observe it. So he said the implement worked badly. At present, these troubles do not occur, as they have acquired experience.

MM. Auger and Dion think that the road machine should be controled by one man at $1.50 a day as wages.

At South-Ham, a general tax is levied for the support of the roads and wells, the schools and the municipal council. The rate is 90 cts. per $100.

From South-Ham to St-Camille, the roads are equally good. At Dudswell, Mar-

bleton, and Weedon, the same. In honest sincerity, I hardly could believe that I was in Canada when I saw such enchantingly good roads.

In the county of Wolfe alone there are ten reversible ploughs, and, of all the counties I visited, it was in Wolfe that I found the most extensive stretch of admirable roads.

In all the parishes of South-Ham, St-Camille, Dudswell, Marbleton, Weedon, and Lake-Weedon, in which the municipal councils impose a special tax for the keeping up of the roads, I did not meet with a single grumbler. There is no dread of taxation here, so their roads are capital. And yet the people do not seem to me poorer than the inhabitants of other places, I even found them more energetic than the people in other parts of the county.

At St-Camille, a road-machine, costing $225 00, was bought in 1893. The Mayor, M. J. H. Crépeau, and Dr. Thibault, the Secretary-Treasurer, are firmly persuaded that the reversible plough is essential to the keeping up of good roads in a parish

I was much struck with their road-system.

This municipality, which is very large, is divide into three sections, each under the control of an inspector. Here, at any rate, the inspector is of some consequence, and has an important duty to discharge ; he is neither more nor less than a "Commissioner of the High roads", if I may so express myself.

Every year, he looks over his division, calculates closely the approximate days' work it will take to improve and repair the roads and bridges, presents his reports to the council, by whom it is necessarily accepted. The Secretary treasurer makes an apportionment of the days' work to be given by each rate-payer, places it in the hands of the inspector, who compels the rate-payers to do their fair share of work or to pay an equivalent in money. The inspector is paid ten cents an hour for his work of superintendence. The day-wage here is a dollar. Every man is at liberty to pay his road-tax either in lab ur o n money.

"Well, you will say, "here we are with the statute-labour (*corvée*) for the repair of the roads that M Camirand, the Lecturer on Agriculture, dislikes so much." I certainly will not controvert the opinion of so eminent a specialist as he ; but, on the other hand, I think the leap is dangerous from an absolute inactivity to the imposition of a money-tax. With M. Camirand, I will confess that it would be better to exact the payment of the road tax in ready money and to abolish the system of statute-labour, in order to buy road machines and to employ at all times the same men and the same horses ; worked on these lines, I am convinced that roads would be more uniform and better made. On the other hand, it must not be forgotten that there are parishes where taxes are held in honor. In these parishes, though some are wealthy, there are neither days' work nor money-tax for the roads. Each keeps up his own front-road, his share of the high-road ; consequently, they are in a deplorable state.

To put all of a sudden a money-tax on them would astonish them as much as if you threw lumps of snow in their faces ; while to insist on statute-labour would be

considered an approach to a money-tax thereafter. And this is what Mr. A. W. Campbell, the prominent road-instructor, foresaw, when he said in his speech at Bedford, January 6th, 1898 : " If the system of statute-labour is to be organised on a business-basis, a superintendent should be appointed for the township, who should have the entire direction of the work. The roads should be classified and divided into sections of at least six miles each (precisely what was done in the parish of Ste-Famille.) To this Mr. Campbell added : " A contractor should have the superintendence of each of the sections ; his position should be secured to him, the work should be employed as if it were wage paid work, and care should be taken that the plans and specifications be strictly adhered to."

" What you do, do well ; see that perfect and durable work is always kept in view, and get the people to take as much interest as possible in their work."

I must allow that statute-labour is best suited to municipalities that have no road machines. But as soon as they have reversible ploughs, it would be better to levy the rate in money so as to ensure the continuous employment of the same lot of men and horses. For as MM. Dion and Auger, of South-Ham, Crépeau and Dr. Thibault pointed to me, where six unaccustomed horses are put to the machine, they have to be broken in. Not being used to it, they take fright and the work is badly done. The least that can be done, as Dr. Thibault said, is this : the two last horses harnessed to the machine should always be the same.

Thanks to the machines, the tax have been diminished. Here is a striking instance : The cost of keeping up a certain bye-road at St-Camille used to cost, every year, at least $30.00. This year, with the plough, the repairs were perfectly well done, the road-bed was raised, the ditches deepened, the road rounded up, and that from one end to another, for $15 00. The inspector told me that, next year, he would make a perfect road of it for $8 00. There, then, we have a saving of $15.00 this year, next year of $22.00, or a total of $37.00 out of $60.00 !

It was here, at St-Camille, that I had an opportunity of admiring at my ease the good effects of good roads, and here it is that we shall see the connection that must exist between dairying and the keeping up of good roads. Every one deplores the competition between creameries. Would you abolish this trouble ? Make and keep-up good roads. What a number of petty factories have been started in the province on account of our bad roads.

There are none of these petty factories at St-Camille. First, because their roads being good, none of the farmers dread travelling distances of five miles to take their milk to the village creamery ; secondly, because, all the patrons being shareholders, they are interested in making their factory pay. This cooperative creamery has been 8 years at work. It cost $2,500.00 and has paid for itself, out of profits realised alone. In 1896,'97 $600.00 were paid to the shareholders, and there are $1,000.00 in the bank as a reserve-fund.

Last May, the building was burned, and 30 days afterwards, a new creamery, costing $3,000.00, was at work. Suppose for a moment that the St-Camille roads had been in bad order. What would have happened? There would have been petty factories started every three miles and no magnificent creamery to admire, a creamery that took in from May 9th to November 13th, 1,397,354 lbs. of milk, an average of 9,075 lbs. a day, and turned out 63,017 lbs. of butter. The maker was paid, for himself, and his men, ¾ cent a pound for butter made. The patrons were paid according to the richness of their milk, a system with which every one was satisfied. It took 22 lbs. of milk to make 1 lb. of butter; the milk brought the patrons 65 cents per 100 lbs. The creamery is managed by 5 directors, who are elected in the last week in December. There are 97 patrons.

At Lake-Weedon, the reversible plough gives every satisfaction. Two have been bought for that municipality at a cost of $215.00 each. More than 15 miles of roads have been repaired.

A day's work of a horse is calculated at 50 cts; of a man $1.00. In 1898, only 6 horses were used in the plough; this year eight.

The road-tax this year was 50 cts. per $100.00, but, thanks to the great amount of work done by the machine, next year it will be only 25 cts.

In a single day three miles of road were repaired!

In heavy land, the work must be done after rain; or, better still, in early spring.

Jos. Gendron, a municipal councillor, says that thanks, to the machine, the road-tax will be reduced by one-half, and that the roads will be in much better order.

Two miles long of road were repaired in 7 hours with this machine. It was used where there were rocks, and in places over which people said the machine could not travel.

As to the winter-roads, they are much improved and now are generally good. Several have invented snow-ploughs, among others, L. A. Dion, of South-Ham, the Revd. M. Chapman, of Marbleton; and P. Gervais, of Lawrenceville, Shefford. At every county exhibition, snow-ploughs are shown which make capital roads in a very short time.

At South-Ham, after every snow-storm, up to the end of January, the inspector has the road rolled. For this he has $3.00 a day.

At St-Camille, the inspectors keep the roads in order during the winter, as they need attention, and are paid by the council. At Marbleton, there are 20 snow-ploughs.

After each snow-storm, the inspectors open the front-roads and the high-roads. If they cannot do all the work they hire help. They send in their accounts to the

council twice a year. Those whose valuations (for rates?) are the highest are chosen as inspectors.

At d'Israëli, I asked the farmers who came to my lecture who looked after the front roads. "Every proprietor attends to his own," replied they. "Just as at our place," said I. "Who keeps up the high-roads?" "There is a small post set to indicate our share, and we work in it when we think fit, or when we are afraid of being fined." "Just the same as with us," said I again. "You pay no special rate for the roads?" "No sir," "Just the same, always just the same as our parish" "And what sort of roads have you?" "Very bad ones, M. le Conférencier." "Then, they are exactly like ours," replied I, again, with a roar of laugher.

I had just come from visiting six municipalities where the roads were in capital order, thanks to the special tax-system and the road-machines. On entering the municipality of d'Israëli, where the old-fashioned way is adhered to, I again came upon bad roads, so that I had, clear before my eyes, a striking proof that, first, the special tax, second, the road machine, and third, the roads being under the control of the municipality, are the true and only means by which good roads can be secured.

I know well, Gentlemen, how hard it is to relinquish old habits, but it must be confessed that, looking at the demands of trade, of business, and of our personal interests, it is of pressing importance that some changes in our present system should be made. That is the reason why I have taken the liberty to point out to you that which is being done in other municipalities in our province, and the means which have been succesful there in providing good roads.

If you will allow me, Gentlemen, I will read to you some suggestions I made, last 12th of October, to M. Sylvestre, Secretary to the Department of Agriculture at Quebec. They are merely my personal opinions, and I do not try to force them on any one.

To think and to express my thoughts ought to be permissible to me as to others. I am a lecturer, it is true, but, above all things, I am a citizen, and it is as such that I adress you in explanation to-day. Therefore, I represent here neither government, nor Minister, nor Member, but only Dr. Grignon, and if my opinions are not in accordance with every body's taste, I beg that those who disagree with them will not throw the blame on any one else than on me.

This is what I wrote : I have just come from St-Maurice, in which county I lectured on Agriculture at Pointe du Lac, Yamachiche, St-Barnabé, and St-Etienne des-Grès. At Yamachiche and St-Barnabé, the roads are in a most shameful condition.

Some roads are a disgrace to the proprietors of these roads, to the parish, to the county, and to the whole province.

What must strangers who pass over such roads think of us? Besides, does not it affect our profits? Still, I do think there must be some means of improvement.

First of all, in looking into such a question, all political feelings must be utterly

banished. The Members themselves should set the example. If a Member, for the sake of popularity, profits by the quarrels caused in a parish by the purchase of a road-machine whose work at starting has not answered, that parish, as regards the question of roads, is thrown back a generation. It is all over: by obstinacy, by political fanaticism, the system of improved roads will be pushed no further.

No one has any idea of the damage occasioned by rabid politics or municipal divisions. In some parts I have observed that politics invade everything, even the salt-cellar. Every one looks out for a baker, a blacksmith, a doctor of his political way of thinking, or else, things do not go on well. So, beware of a mayor who buy a road-machine, particularly if it does not work miracles! And this machine, even if it works well, will have fault found with it, anyhow, and it will all be because of whigs and tories—red and blue. How many mayors, dreading the sarcasms and reproaches of their political or municipal opponents, have been deterred from doing anything for the improvement of the roads in their municipalities! How many mayors and councillors, for the sake of retaining their popularity and their titles, are inclined to put up with bad roads for ever and a day rather than lose their seats.

Not with such feelings as these shall we succeed in improving our roads. It needs the work of all, curé and beadle, mayor, councillors, shopkeepers, workingmen, professional men, and above all, farmers; people must not fancy they can do just as they please or give way in face of a difficulty, an objection, an obstacle. On the contrary, everything must be boldly faced, the attack turned aside, pierced through, as an arrow pierces a kite.

At St Barnabé, when I advised the people to buy a road machine, they replied: "you want us to buy a road-machine, but that implement is worthless; look at the one at Ste-Anne de la Pérade; it is no longer used; there it lies behind the barn, rusting away in all sorts of weather."

"That may be," said I in reply, "but that is caused by a petty quarrel, by some trifling jealousy. Go and look at St-Maurice, where the roads were as difficult to repair as at Ste-Anne; every one there is satisfied; for I asked more than 50 farmers, and they were all agreed that the reversible plough was very satisfactory, and that in order to keep it in good condition, they had built a shed on purpose for it!

If there are road-ploughs thrown neglected away behind barns, it is because people neither knew how to use them nor desired to learn, for in the municipalities where their use was understood, care has been taken not to let them rust but to put them under proper shelter.

When a horse weighing 800 lbs. is put alongside of a horse of 1800 lbs., a free-goer alongside of a slug, when there are ten "bosses" all holloaing out at once, when the driver is changed every half-hour, is it astonishing that the work done is not satisfactory?

I have witnessed all these things; I have seen mayors, treated with contempt,

driven from office, because they favoured the purchase of these ploughs. Is this nice? Is it polite? No! A hundred times, no!

We must then exercise a little forbearance, a little patience.

In some municipalities, I found the people well inclined towards improving the roads, providing government would give them road-plough In the eyes of many rate-payers, the expenditure of $200.00 for the purchase of a road-machine is a pretty big affair. This does not surprise me, for we are accustomed to run to the government for help for all kinds of entreprises, and that at all seasons. There are still old rich parishes that depend upon government to build their bridges and keep their roads in repair. It is a misfortune, up to a certain point, since if one is deceived in the hope of government aid, people remain inactive, putting off till later pressing and necessary improvements, without reckoning that we may be plunging the government into difficulties and deficits.

All the same, must this question of road-improvement be left to the people under the pretext of renewing their education? If so, we should run the risk of having bad roads for many a long day.

On the other hand, can the Government be expected to take up the heavy burden of making all the roads in the province? That would be absurd, unless a special tax were imposed, and Quebec is not fond of special or, indeed, of any taxes.

However, it seems to me that there might be a means of providing our municipalities with road-machines, without running either the government or the rate-payers into debt.

How?

1. The suspension of county exhibitions for 4 or 5 years.

2. The devotion of the money intended for the Agricultural Societies to the purchase of reversible ploughs.

Let us be fair! Is it not time to confess that our county-shows have lost a good deal of their attraction? Would they not gain a little, aye, a good deal, by being allowed to be still for 4 or 5 years?

Let us look at the list of prizes at the county-shows. To how many of the rate-payers are they profitable? To some 4 or 5 only. Not per parish, but per 3 or 4 parishes out of the 10 or 12 in a county. To whom are they profitable? Always to the same people. And how much does this cost the province? $600.00 or $700.00 a year while if the roads were repaired, who would profit by that? Every one.

This objection is made: And the breeders, who have expended large sums in the purchase of good stock, what are they to do with their cattle? Are there to be no Farmers' clubs to keep up the improvement of herds?

How does it come about that, when there is an idea of suspending the annual agricultural shows, every one has thoroughbreed stock for sale, while one sees so very few at the show?

I do not accuse all the Agricultural Societies of holding inferior exhibitions but I say that you might count on your fingers all of them that hold annual exhibitions worth mentioning.

When you see one Society holding its exhibition in the court-yard of a tavern, and another only registering 14 visitors on its show day, one may well wish for other ways of spending the $600.00 that these shows cost the Public.

The sole tavern-keeper at St-Barnabé told me that instead of giving, on the exhibition-day, 400 meals as they used to give, this year (1899) there were only 15 given.

If the provincial exhibitions, like those held at Montreal and Quebec, have lost, as every one knows, much of their importance, how can you expect that the county shows should not have equally degenerated in the public estimation?

When the county of Verchères is seen to ask for the abolition of regional exhibitions, what must one think of the county-shows?

Besides, I do not seek to do away with county shows, only to suspend them for a time, to permit the municipalities to equip themselves with a reversible plough, at a cost of $200.00, without expending a cent, and without its costing the government a cent.

For instance: Suppose we take the county of Two Mountains, containing 13 parishes. To each county Government grants a sum of $300.00 towards the purchase of ploughs, and an annual sum of $600.00 for its Agricultural Society.

1. Towards the purchase of ploughs	$ 300.00
2. Grant for 4 years to the Agricultural Society	$2,400.00
	$2,700.00

Now $2,700.00 divided by 200, would give 13 reversible ploughs, leaving a balance to good of $100.00. There, then, we have each municipality furnished with an implement for road-making that will profit every one, and which will represent a permanent value of $200.00, or a value by no means ephemeral and perishable as are the prizes at the shows.

Very good, say some of you, but how is the Society to be kept together? Under such conditions, who will become a subscriber? Let the Society enjoy the power of giving back in clover and timothy seed the full amount of the subcriptions and there will soon be crowds of members

But, and simpler still, let all the Agricultural Societies entirely suspend their operations during the period needed to allow the government to furnish each of the municipalities of a county with one of these road-machines out of the grant allowed to them.

The reason I have to hope for the execution of this project is that I find my suggestion approved by M. T. E. Boily, Secretary-Treasurer of the Society of Agriculture of l'Isle d'Orléans, and M. Michel Bourassa, of St-Barnabé, President of the Society of Agriculture of St-Maurice. These Gentlemen, however, have an interest in keeping up the annual shows, for M. Bourassa won, in 1898, $150.00 in prizes in his own county and Three-Rivers.

In spite of everything, he would feel inclined to suspend the annual shows in his county for 4 or 5 years, in order to provide each parish in the county with a road-plough, free of cost. I therefore cordially congratulate these two men of progress, who have a far greater right to the applause of the public than certain gabies who puff the annual shows without any notion of their real value, and without ever having had anything in their hands than a sheet of paper and a pen.

The reason for my having determined to treat on the road question is, a discussion at which I was present between a partisan of annual exhibitions and a partisan of the movement in favour of good roads. The former had just said how hard, how sad the suspension of the annual shows would be to him; that only thinking of it gave him a frightful pain. "True," replied the partisan of good roads, "it would make you sick at heart to see the shows suspended; but there would be a cure for that in time, since in three or four years your shows would be revived; while it is not so with the roads; if the chance of mending them is lost, it will be all over with them, we shall always have bad roads; that gives one a horrid pain, too, when on account of bad roads we cannot take our goods to market, our milk to the factory; when we have to pay the carriage-builder and the blacksmith large bills for the keeping up of our horses and waggons, fabulous sums to the doctor, and that, at times, we have to die without the consolations of the church."

Finding the arguments of the latter disputant the most convincing, I embraced his cause.

Thanks, Gentlemen.

M. Castel read the following letter which he has lately received from France.

Dear Monsieur Castel,

I have looked over with the liveliest interest the three last annual reports that you sent to the Farm-school of Ducey. As to the little pamphlet sent with them, I cannot express my opinion, as it never reached me.

Pray receive, dear Sir, my sincere thanks for the reports and excuse me for having so long delayed to satisfy the wish you imparted to me to possess some information concerning our secondary course of practical agriculture. This involuntary delay was

caused by my numerous avocations, which are also the reason for my being obliged to give only an abstract of the information for which you ask.

Primary agricultural teaching existed in several of the "Christian Schools" in La Manche. Monsieur Garnot, a man devoted to and zealous for all kinds of good works, and President of the Syndicate of farmers of La Manche, had organised that teaching there in conformity with the course of 42 lessons of the Rev. Frère Abel, now general Superior of the Congregation of the Frères de Ploërmel, a certain number of whom are in Canada, and to which society the Director and teachers of this house have the good fortune to belong.

Satisfied with such good results, M. Garnot, in concert with the syndicate of the farmers of La Manche and others, resolved, in 1897, to do more, and to allow certain of our young folk to satisfy their desire of diving more deeply into a science the beauty and advantages of which they had already caught a glimpse.

These gentlemen decided then to establish in La Manche a special course, a secondary course of practical agriculture destined particularly for the sons of small proprietors and of large farmers.

This course was to be so organised as to permit all youg men : 1. to continue their agricultural studies, while their general education was not being neglected; 2. to acquire special information which would enable them to prosper in their line of life, while embuing it with that Christian spirit that would sustain their courage and attach them to the discharge of their duty ; to go through a rational and practical apprenticeship to the noble profession in which, after they have gone through the course, they will continue to improve by intelligent and continuous work.

Ducey was chosen for the new establishment. The secondary course was to be annexed to the free-school and to a prosperous boarding-school that was already there.

But a special situation was requisite. The curé, Dean of Ducey, a priest of well-known zeal supported by an ardent faith, and who had hardly finished the work of the first foundation, trusting in Providence, caused the enlargement of some of the halls and the building of two new rooms intended for the agricultural pupils.

To endow this secondary course of practical agriculture with only a few lots of land would have been unwise, for it would have been to condemn the pupils to grow crops in small pots, by no means a practical procedure, and consequently valueless ; to ta[illegible] a fully equipped farm, to be worked by the teachers and pupils alone, was then out of the question.

The curé of Ducey and Monsieur Garnot, enlightened by the advice of the Rev. Frère Abel, overcame the difficulty. They found a farm of 70 hectares (171½ acres imperial nearly), sufficiently near to the secondary course of agriculture, and carried on by M. Baisnée, an intelligent and pious man, to which the pupils could repair, as often

as the course and the lectures required, to apply immediately the instruction received when fresh in their minds.

You understand, my dear Sir, that on this farm our pupils enjoy all the advantages offered by a large business, and can practise on a large scale, working under the same conditions under which they will have to work later.

The farmer is so kind that he gives up to us certain parts of the farm where we wish to make experiments, researches, and trials.

Lastly, a staff, sufficient in number and prepared to carry out a course so complex and so practical as ours, required considerable outlay. It was decided that the Director of the boarding school, Frère Salonas, most advantageously known and very popular over the whole district, should take, with Monsieur Garnot, the direction of the secondary course of agriculture. The "supérieurs majeurs" of our Congregation selected me and another brother as teachers in the course; then, united with us, came specialists, men of good will and men of action, knowing, how to expend their lives and show by their actions their love for God, for society, for our dear farmers.

These distinguished lecturers, 7 in number, deeply touched by the dangers incurred by the youth of our rural parts by rushing into the towns, as well as by the terrible crisis through which our national agriculture is passing, take upon themselves, as I said, real fatigues, and once, sometimes even twice a week, come to us and deliver to the pupils of the agricultural secondary course clear, precise, and, above all, practical lectures.

There, dear sir, you have a description, written in a hurry, but clear enough I hope of the way in which our secondary course of agriculture came into existence. Fifty-five pupils, on an average, of this and the neighbouring departments follow it every year. The pupils are generally from 13 to 18 years old, and work in such a satisfactory manner that one is justified in hoping for good results in the future.

The prospectus I send you with this notice will also supply you with some of the regulations you wish to have. You will see, for instance, that our course consists of two years. All the pupils present, of the same year, follow the same course at least as far as agriculture is concerned.

The first year, they study: 1. Every thing connected with agriculture in general. 2. Horticulture, arboriculture, especially fruit-growing and all belonging to it.

The second year, they follow the course of zootechnie, farm-account rural economy, and rural law.

Every year, the courses are invigorated by numerous lectures on various subjects: hygiene, farm-industries, &c., or on parts of the course that need special and peculiar development.

Besides the studies, almost exclusively agricultural, the pupils in order to

strengthen their general requirements, study every year, according to their needs, French, applied mathematics, drawing, and the sciences.

Practical farm work is carried on as mentioned in the prospectus, and as I remarked in tracing the origin of the secondary course, on a large farm worked by an intelligent man, and placed with its entire equipment at our full command.

The work is carried on in accordance with the requirements of the season ; at one time of the year we pass three half-days and even four at the farm ; more frequently two half-days ; sometimes, in winter, only one half-day.

The horticultural, arboricultural and fruit growing work is practised in the large garden of the establishment.

The practical work to which we devote ourselves is very varied, and includes all the work demanded by the good management of a farm : planting fruit-trees, pruning, grafting, garden-work, cider-making, care of manure (the pupils themselves have set up, all except the cement-work, on the farm where they work, two dung-stances and two liquid manure tanks, worked by a Faule pump). Drainage of meadows, liquid-manuring, spreading of ashes, hay-making, salting of hay, dunging land, ploughing with the Brabant-plough, harrowing, rolling, thorough cultivation of all kinds of roots and tubers, thrashing by machine, stacking of cereal crops, the growing of lucerne, cleaning grain with the sieve and winnowing machine.

Practical study, under the direction of the veterinary-surgeon, of the farm-stock, the horses, and specially of the cows : Signs of health, signs of sickness—good conformation—Age—Good points—Defects—Blemishes—Vices that are breaches of warranty—Paces and carriage—Grooming—Rations—Shoeing—Harness and harnessing of the horse to all sorts of carriages, implements, &c.

The Thursday walks are utilised for farm-excursions, visits to divers trades, and, during fine summer weather, for herborising.

As a programme of the secondary course of practical agriculture, here follows, with some detail, about what we teach :

Religious Instructions.

Diocesan catechism (revision)—Abstract of the lectures on religion delivered by the Dean—The most important passages in ecclesiastical history—Abridgement of the proofs of Religion.

The French Language.

Revision of grammatical difficulties—Ideas of etymology, style, and composition—Study of some passages selected from the best French writers—Dictation, once a week—A criticism of the different sorts of compositions, also once a week—Abstracts of lectures and of the duties of the farmer.

General Agriculture.

Agriculture is an art and the first of all trades—Of the soil,its formation—Full study of each of the elements which compose it—Its nature—Its fertility—Will plants characteristic of different soils—Cultivated plants which suit themselves to certain soils—Agricultural qualities of a good farm—Different means of recognising the nature of the soil—Its richness—Of the subsoil—Its influence on the soil.

Of the curing of land by water furrowing, drainage—Different sorts of irrigation—Value of irrigation water—At what season to irrigate—'Mendments, as liming and *tanguage*—Practising these operations—Multiplied forms of action of lime on soil and plants—Injury by injudicious liming—Of stimulants.

On manures: Difference between manures and 'mendments, (1)—Value of manures—Needs of manuring—Difference between organic and inorganic manures—Poudrette—Its composition (2)—Price and use—Practical working—Some ideas for the other manures as hen and pigeon's-dung, guano, animal-black—Value of all animal ordure—On green manures—Cases in which they are really useful—On ashes—Soot—Damaged oil-cakes—Dungs—Constituent elements—Richness—Contents by analysis—Value of urine—Care and use of dung—Chemical manures, their importance as assistants—Phosphatic, nitrogenous, and potassic manures—Whence these are derived—Analysis of each, value, use—Best means of spreading—Precautions to be taken in buying, so as to get only *good* chemical manures.

On clearing-up land—Ploughing—Importance of good ploughing—Surface-cultivation.

On tools, implements and machinery of the farm—Ploughs—Scarifiers—Harrows, &c.

Rotations—Rotations practised in France—Faults in them—Rational rotation—General things about plants—Matters they use to build-up their tissues—How they assimilate food—Climate—Choice of seed and grass seed—How to keep them—Must be buried as soon as sown.

On the principal agricultural plants—Wheat—Best varieties for our districts—Land suitable to them—Preparation—Sulphuring grass-seeds and grain for seed—Care of wheat while growing—Diseases—Remedies—Harvesting—Yield—Value—Use of—(and the same for all other crops).

On meadows—Different sorts—Establishing a meadow—Choice of land—Preparation—Time for sowing—Choice of seeds—How much to the hectare—Sowing—Care of the meadow—Dung good for meadows—Mowing—Making hay—Preservation of fodder

(1) Just the same word as "amendments" in French, with the inital letter omitted. A. R, J. F.

(2) Dried night-soil. A. R. J. F,

—Care peculiar to grass-lands—Artificial meadows—Advantages of sheaves in harvesting leguminous crops as well as grain-crops.

Principal medicinal plants—Their properties—How to keep and use them.

Plants characteristic of: 1. Clays—2. Sands—3. Calcareous soils—4. Turf—5. Land deprived of lime—6. Fertile land—7. Infertile land—8. Poisonous plants—9. Parisitical plants—10. Plants injurious to grain crops—11. Do. injurious to meadows natural and artificial—How to destroy them.

Horticulture and Arboriculture.

Making a farm-garden—Rotation—Growing vegetables—Making an orchard—Care of it—Planting trees, especially apple-trees—Grafting and pruning: the apple after the first year or two, the pear, the vine—Diseases of the apple-tree—Remedies—Care of the apple-tree—Vintage—Cider-making—Its diseases—Remedies—Distilling.

Zootechnie.

Definition—The economic function of animals not observed for ages, the farmer must pay great attention to it—Reasons for selecting such or such an animal.

Food of animals—Composition of the animal's body—Importance of oxygen in the combustion of food—Force and value of a fodder—Its digestibility—Why fodders vary—Different ways of preparing food and their importance—Different groups of foods—Rations—A good ration—Model-rations—Distribution of foods—Watering.

On the horse—Principal races of horse—Why a farmer should or should not devote his farm to horse-breeding—Care of the mare after foaling—Care of the foal—Weaning—Breaking-in according to the destination of the horse—Horse-foods—Rations for different sorts of horses—Grooming—Questions and answers of a good driver.

Proportions of the horse—Carriage—Study of the horse in detail—Good and bad points in the horse according to his stamp or character—Age—Coat—Description—Position—Paces—Characteristics of the horse according to his intended use—Precautions to be taken by buyer or seller—Dodges of the horse-coper (1)—Blemishes—Vices that break sales—Immediate guarantee—See that everything is in order (*mise en règle*)—Signs of good health—Signs of disease in the horse—Contagious diseases—Formalities to be fulfilled—Precautions to be taken.

Same method for all other farm-stock: calves, cows, bullocks, sheep, pigs.

Of milk—The Dairy—Butter—Cheese—Fattening cattle, &c.

On poultry—Fowls, ducks, geese, turkeys, pigeons—The hen-house—The sitting-hen—Artificial breeding—Fattening all sorts of poultry.

(1) Coper, though used in this phrase in a sense derogatory to the dealer, is the old Danish word for merchant; Cf. *Copenhagen*, *Cheapside*, the Kentish (Eng.) plebeian family name Coppinger, &c. A. R. J. F.

Agriculture—Hives with frames—Necessary apparatus—Care of bees—Harvesting honey—Diseases of bees, their remedies.

Useful insects—Injurious insects—Birds the best destroyers of the latter—Shame and misfortune on those who do not protect the little birds.

Farm-Book-Keeping.

Its importance—Different forms of accounts—Books and blotters (*carnets*)—Book-keeping—Numerous examples and exercises.

Rural-Economy.

Selection of a farm—Proper arrangement and construction of the buildings—Markets—Means of transport—Valuations—Organisation of a farm &c.—Labour—Stocking—Management.

Rural Legislation.

The different powers (?) in France—Privileges of each—The different councils—Taxes—Law of movable and immovable property—Light and windows—Servitudes—Party-right (*mitoyenneté*)—Boundaries—Contracts, and especially contracts for lettings and farm-leases.

Mathematics.

Arithmetic in its entirety—Its numerous applications to farming—Algebra—Reductions—Making examples—Equations of the first degree with numerous examples—Equations of the second degree with examples.

Geometry.

Definitions—Geometric surfaces and solids—Volume of bodies—Simpson's formulle for the valuation of common bodies such as cart-loads of stones, of dung, tuns (liquids)—Numerous examples.

Land-Measuring or Surveying.

Measuring by chain alone—by the chain and the cross or square, by the graphometer—Measuring inaccessible heights and distances—Different methods—Levelling, numerous examples—Construction of a scale—Geometrie plan of different buildings: elevation, section.

Physical and Natural Sciences.

Natural history—Physiology—Zoology—Botany—Geology—especially such parts of the above as affect agriculture.

Physics—Difference between weight and weightiness (*poids et pesanteur*) (1) —Different sorts of weights—Scales—Different conditions of matter.

Communicating vases—Pressures in the side of the vases—Archimedes' principle—Capillarity—Endosmosis and Exosmosis—Atmospheric pressure—Barometer—Mariotte's Manometer—Gazometer—Pumps—Siphons—Balloons—Centesimal alcoholmeter—Dilatation—Its effects—Examples—Thermometers—Emission power of bodies—Absorptive power—Reflective power—Athermanes (?) diatermanes (?)—Glass-houses—Bell-glasses—hot-beds and cold-frames—Fusion—Solidification—Vaporisation—Evaporation—Ebullition—Distillation—Practical notes on steam engines—Fogs—Snow—Rains—Dews—White-frost—Clouds—Hygrometers—Winds—Thunder—Lightning rods—Telegraph—Sound—Its rate of motion—Its intensity—Transmission—echoes.

Light—Its diffusion and speed—Laws of refraction and reflection—Lens—Microscope.

Chemistry—Definition—Simple bodies—Complex bodies—Metalloïdes—Metals—Cohesion—Affinity—Combination—Mixtures—Analysis—Synthesis—Acids—Bases—Salts—Nomenclature—Notation—Laws of combination—Atomic Weights—Dissolvents.

Hydrogen—Oxygen—Nitrogen—Chlorine—Iodine—Sulphur—Phosphorus—Carbon—Air—Water—Boric acid—Fluoric acid, &c., &c.

Potassium—Sodium—Ammonium-salts—Lime—Iron—Cast-iron—Steel—tin—Sheet iron—Pewter—Lead—Copper—Zinc—Gold—Silver—Platinum—Mercury—Clay—Pottery—Glass-making—Petrolium—Acetylene.

Wax-tapers—Soaps—Phenic, acetic, tannic acids—Benzine—Turpentine—Varnish—Caoutchouc—Sugar—Alcohol—Paper—Manufacture of bread, wine, beer—Making preserves, jams, &c.

All our pupils have a liking for this programme which completes their instruction and enables them at the same time to prepare themselves for a farmer's life.

On the practical farm, they have themselves, this year, planted apple-trees, grafted them in various manners, limed and sulphured some of them; they have learned how to cultivate root-crops, hitherto almost unknown here, and of which we have taken great pains to show the value; they have built two dung stances, dug out two liquid-manure tanks, which were cemented by the mason, and set up a Faule pump; besides levelling the entrance of the whole part of the yard in front of the principal farm-buildings, a yard into which previously the manure was thrown, giving a bad appearance to the farm and making the surrounding air by no means healthy.

As school-matter of instruction we possess; 1 a good collection of plants divided into the following categories:

(1) "*Pesanteur* is an abstract quality inherent in all corporal matter; *poids* is a relative term indicating the measure of this quality."—A. R. J. F., from Surenne's Dictionary.

A.—Plants characteristic of clay soils.
B.— " " sandy "
C.— " " calcareous "
D.— " " turfy "
E.— " " limeless "
F.— " " fertile "
G.— " " infertile "
H.—Plants especially injurious among grain-crops.
I.— " " " in natural and artificial meadows.
J.—Poisonous plants.
K.—Parasitical "
L.—Medicinal "
M.—Principal grasses.

2.—Geometrical tables for the study of surfaces and volumes.

3.—Several solids for the study of the volumes: prism, cylinder, cone, frustrum of a cone, pyramid, frustrum of a pyramid, sphere, &c.

4.—All the apparatus needed for surveying, making plans, divisions of land, measurement of inaccessible heights and distances, and levelling.

5.—Everything needed for drawing as suited to farmers.

6.—The twenty pictures of national history from M. E. Deyrolle's collection.

7.—A collection of insects, useful and injurious to crops.

8.—A collection of rocks and minerals for the study of geology especially of the different soils.

9.—Several physical apparatus.

10.—All the apparatus, acids, salts and other ingredients needed for the experiments demanded by the course.

11. The museum of agricultural industries for the use of schools, by C. Dérangeon.

12.—Several plates for the study of animal physiology and anatomy, and pictures for the study of different animals on the farm (from the collection of E. Deyrolle,) for agricultural schools.

13.—Private drawings, considerably enlarged for the study of the parasites of animals and vegetables, including microbes.

14.—A complete collection of the jawbones of the horse, enabling one to study the age of that animal from six months to twenty-two years of age.

15.—A collection of horses' hooves for studying the hoof and shoeing.

16.—A collection of horse-shoes and nails, for the study of shoeing.

17.—For the study of horticulture and arboriculture, we have at our disposal all the tools needed for the large and splendid garden of the school.

18.—For the study of harness, harnessing, yoking to all sorts of farm-implements, and all sorts of vehicles; for the study of all kinds of ploughs and their management; for the study of driving and all sorts of carriage-work, we have entirely at our service the whole outfit of the farm of 170 imperial acres on which,

with the aid of the farmer, we grow our crops, and on which, assisted by the veterinary-surgeon, M. Goubin, we study thoroughly all the stock of the farm, especially the horse, the ox, and the cow; on the farm, too, directed by M. Garnot, we study the different buildings of the farm, deciding, according to the faults and good qualities in them, how to make those we may have to build of the most service to us.

19.—Moreover, we visit for the purpose of studying on the spot the raw-materials and the finished product of certain trades: oil manufactories, mills, distilleries, steam-engines, &c. These expeditions allow us to make use, for the instruction of our pupils, of working stock that we cannot get for ourselves, but which is invariably placed most readily at our service whenever we require it.

Acquaintance with this supplementary machinery and its manipulation is not needed by all our pupils; but it may be of use to some and can injure none. Besides, these supplementary studies occupy only the hours devoted to the Thursday and extra holiday walks (sortie).

You see, dear Monsieur Castel, by these hurried notes a proof of my good will and of the lively interest I take in agricultural matters and in all that can be beneficial to the farmer especially in France and in Canada, the country that treats so kindly our French sailors when they are lucky enough to set foot on its hospitable soil or to touch at one of its ports.

How many moving tales on this subject have I listened to from the chaplains of squadron in the Antilles, during the twelve years I passed in Fort-de-France. The remembrance of these tales has always been particularly dear to me, and I have always felt an earnest desire to show you, in closing my chat, that your good and liberal country occupies a large place in the memory and regard of your correspondent.

Pray receive, dear Sir, with the earnest expression of my respectful sentiments, the heartfelt assurance of my entire devotion in Jesus-Christ,

FRÈRE ROGATIEN,

Professor of the secondary course of agriculture,

DUCEY, (Manche).

LECTURE, BY M. J. DE L. TACHÉ, ON THE LAWS CONNECTFD WITH DAIRYING.

Our laws, so far as they apply to the furnishing by the farmers of milk to the creameries, cheeseries and other dairy-establishments, must have the object:

1. Of preventing dishonest patrons from robbing their neighbours, or other interested parties, and the public in general, by punishing the authors of the different frauds that are being practised.

2. Of preventing negligent or ignorant patrons from compromising the good making and the good qualities of the products of milk, by punishing dirtiness and neglect of care to be taken of the milk.

3. Of protecting the public health by prescribing for the production and management of milk, the rigorous observance of certain hygienic precautions.

Do our present laws answer fully to the demands of the triple aim to be reached?

And as regards the public, which has cause to seek for their application, is it easy to get the tribunals to punish the offenders?

This is what I have undertaken to examine shortly with you in this convention.

First of all, let us see if our laws are sufficiently expansive, and then we will see what precaution are to be observed when interested parties wish to have recourse to their protection.

I

We have two native laws, which regulate the supplying of milk to the factories:

Quebec, 33 Vict. Cap. XXX.

Ottawa, 52 Vict. Cap. 53.

The tribunals at Ottawa have already declared to be *ultra-vires* a law of this province nearly resembling our provincial law. We must therefore consider our law to be doubtful and follow the advice given by the reports of our Association, to carry on prosecutions under the empire of the Dominion law. For this reason I leave aside this Quebec law, which, by the bye, goes back to 1870.

The Dominion law is insufficient in so much as it does not wholly reach the triple object we explained at starting.

1. Repression of Frauds—The Ottawa law, French version, declares that no one shall deliver at the factories:

1. Milk in any way adulterated.

2 Any *diluted* milk, which must mean, according to the English version, milk to which water has been added.

3. Any skimmed milk.

4. Any milk the *strippings* of which have been reserved.

This would appear, at first sight, to be fairly complete, but it must be observed that our laws have not yet established the *Standard of Richness* for the milk to be supplied to the factories.

Consequently, every patron, greedy after his receipts, has been able, up to the present, in places where milk is not paid for according to its richness, to cull out his herd, and only keep such cows as give large quantities of milk without troubling himself about its richness, or, again, to keep back the milk of certain of his cows, without hinderance from the law.

And yet I have heard inspectors report cases of the milk of a whole herd not showing more than 2.80% of fat at the end of June! I myself, in a competition, took a sample of a milking of 32 lbs., from a single cow, which only showed 2.20%.

Is it fair to set a limit to this supplying of poor milk?

It would seem that the establishment of a standard of quality, of richness, is needed against the supplies of poor milk. In the States, at least fifteen States have fixed upon the standard of quality, which runs from 3 to 3½ p. c. of fat, and 12 to 13 p. c. of total solids, and we must conclude that it is beneficial. The New-Zealand law of 1898 settles the definition of that which constitutes "pure milk" as follows:

"The phrase "pure milk" means to convey the idea of the entirety of the milk drawn at the moment of milking, but it must not be understood of milk that contains less than 3% of fat."

Another thing: The Dominion law has only in view the punishment of frauds, that is of *the delivery of fraudulent milk with the knowledge of the proprietor and with the intention to deceive.* Now, you charge a patron before the bench of having delivered milk either skimmed or diluted with water, and prove the charge; if the accused—and this often happens—while admitting the truth of the charge, brings forwards compliant witnesses to prove that the thing came about *without his knowledge*, you lose your case, in spite of having been able to prove that the factory had been robbed.

The New Zealand law, and the laws of many States of the Union consider nothing but the *naked fact*; if the factory has been badly served, the punishment is pronounceable against the supplier of the milk, whether he knew of it or not.

Here intervenes the question of a conflict of jurisdiction between Ottawa and Quebec, but there must be means of reconciling the Dominion and Provincial authorities by asking the Ottawa parliament to enact a law on these cases of substantial fraud, and by amending the provincial law in such a fashion that can only apply to the exemplary liquidation of damage suffered by the factory, proportional at least to the inferiority of the milk furnished to the factory, as estimated by the tribunal. This modification of the law becomes all the more necessary in proportion as the civil

actions for damages are disgracefully difficult to bring to a sound conclusion, and often cost pretty well enough to ruin a factory.

II. THE CHECKING OF UNCLEANNESS AND OF NEGLIGENCE IN THE CARE OF MILK.—This is doubtless a very important point, if we consider the real and undeniable fact that much more money is lost by the inferior quality of the milk delivered at factories than by skimming, the addition of water and all other frauds united.

And it is on this vital point that our Dominion law is weakest It declares that no person shall supply :

1. Any *lait altéré* (the French text), and this word *altéré* is a bad translation of (English text) "tainted", which means rather corrupted, bad smelling, or suffering from any infection whatever.

2. Any milk partially sour. Why partially ?

And that is all. A patron delivers you, regularly, milk full of cows' hairs, dust, and that has never been strained ; in cans thickly crusted with old dirt, rusty or coming from a cow under a course of medicine, or insufficiently fed, or on dangerous food ? you can only reach him by the law if his milk is bad enough to be *tainted* or *partially sour*.

In this respect many of the American laws are better framed than ours ; they proscribe unclean milk ; milk that is unmerchantable ; milk kept in dirty or infected vessels ; the milk of cows 15 days before calving or 4 days after ; the milk of cows not properly cared for, or fed on food on the road to decomposition, grains, town-rubbish, the residues of distilleries and breweries ; milk exposed to unhealthy conditions either of atmosphere or of situation.

The New-Zealand law contains analogous dispositions ; but it enacts the following in addition : I translate it word for word to gratify the honest patrons, inspectors, and makers who feel the absolute necessity of milk being in good condition if a good make is to ensue.

"No one shall deliver or supply to dairymen or factories, any milk that has not been properly cooled by passing it over an aerator or cooler immediately after it leaves the cow." This clause in the New-Zealand laws, should be inserted in our laws, with the adition of the word *coulé* (strained) between the words *properly* and *cooled*, so that the straining, aeration, and cooling may become practically obligatory with all the patrons. The reformation of several patrons in each district is necessary. Since milk was first sent to the factories, people have been led to forget the minute cleanliness required if they expect to ensure products of the best quality. I should rather say that some patrons or their wives have *unlearned* the most elementary lessons of former days ; when butter was made at home, the milk used to be strained, it was kept in clean vessels, in a cool dairy, wherein were no bad smells, in order to make good butter. These things are still necessary, and it is with perfect justice and reason that they are

recognised by our laws, and that one should have the means of accomplishing them in at least an ordinary degree.

Want of cleanliness and the carelesness of the patrons have also consequences as regards health, and this brings us to our third point.

III. PROTECTION OF THE PUBLIC HEALTH.—I ask myself if we are in general sufficiently conscious of the possible, nay the even probable consequences of the trade in milk and its products to the public health. Let us see : It is clearly proved that typhoid fever, diphtheria, scarlet fever, Asiatic cholera, anthrax, and certain diseases common to both man and beast, especially the dire tuberculosis or consumption, are transmitted freely through milk. Hart, an English statistician and a Dr. Freeman, of New-York, has observed epidemics of all kinds, especially of scarlatina, typhoid, and measles, embracing thousands of cases, in which the infection had been directly caused by the delivery of milk coming from infected houses or farms. Dr. Virchow, one of the greatest *savants* of the day, declares that milk is one of the *greatest propagators* of tuberculosis or consumption, in every one of its forms.

Our law dates back to a rather early period in which people were more indifferent than they are now to the subject of infectious diseases ; this is explained by the discoveries that are being made every day in the special investigations of the higher medicine.

Clause 4 of our law enacts that no one shall supply to a factory the milk of a cow that he knows to be ill at the time of milking. And that is all !

Infection or the communication of germs dangerous to the public health or morbid elements may proceed :

1. From the animals themselves, directly by their milk, or indirectly by everything that comes in contact with them and afterwards with the milk.

2. From persons who have charge of the animals directly or indirectly.

3. From places through which the milk passes or in which it is kept, and from the utensils, vessels, or vehicles, with which it comes in contact.

It is therefore clearly necessary that the law be extended, if it be desirable that it give guarantees even a little satisfying to the public that consumes our products. I think that the needed modifications must not be limited to the proscription in general terms, of all unhealthy or dangerous milk, but should rather define and order clearly and thoroughly the precautions that are feasible and that the public has a right to exact from the patrons ; and, besides, our laws ought to give a practical sanction to these prescriptions and supply the means of putting them into execution. I will give you an illustration of what I understand by the word *practical.*

Our present law forbids the sale of a sick cow's milk to factories ; suppose that it should also forbid the sale of dirty milk. You detect a patron in flagrant infraction of the law ; the sole remedies you have at present, is to preach a sermon on cleanliness

and hygiene to him, or to hale him before the bench. In the one case, he will laugh at you; in the other, if you do not lose your suit, you run a very good chance of losing the patron and to have to pay the whole or part of the costs of the counsel; the patron, too, will go to his old work again with renewed vigour. That is, in your factory or elsewhere, the present state of things.

Now let us compare to this the law of New-Zealand, 1898, and its operation in a similar case.

The prohibition to supply the milk of a diseased cow exists there, as well as the clause against supplying unclean milk, and the dispositions as to that subject are *very thorough*.

There, right to summon the delinquent before the tribunals is also enacted, and the fine may amount to as much as $250.00! But there is this in addition: the special *inspectors* established by the law are empowered where they find breaches of it:

1. To order the putting into quarantine or to slaughter the diseased cow whose milk has been delivered.

2. To order the cleansing or disinfection at once of every foul vessel, or *any other appropriate remedy*.

3. To order,—observe this carefully,—that no more milk leave the farm of the guilty or careless patron, until the Inspector has satisfied himself that the infringement of the rule will not be repeated.

These discretionary powers of the inspectors are stern, but the interests, of the public are concerned, as well as the health and even the life of the people, and it is no more unfair to impose efficacious means of recalling to proper ideas guilty or careless patrons, than to allow them to expose the health of the people to constant dangers, much more serious than hitherto they have been supposed to be.

11

Now, taking our laws as they exist, is it easy for a proprietor or an inspector to induce the magistrate to punish the criminals?

If one is to judge by the number of causes that turn against the prosecutor, one must arrive at the conclusion that it is difficult to get a fraudulent person punished.

Upon what does this depend? On the law or difficulty of proof.

That which I said above on the subject of certain insufficiencies of the demands of the law, explains itself, and I shall not return to it. As to the purely legal point of view, your counsel will be your guide; but if he does not seem to be quite sure about your case, proceed no further in it: the ground is neither too sure nor too pleasant.

The proof that one is in a position to bring forward is always the principal thing in a suit What proof ought one to offer?

You accuse a man of having watered his milk, or of having skimmed it, or of having kept back the strippings. The proof direct of the fact by witnesses who saw the water added or the skimming in operation, is of course admissible, and is the best of all proofs, but it is not always attainable. And, on that account, the Ottawa law says that to establish the guilt of the accused it shall suffice to show "that the milk supplied is *really* inferior in quality to pure milk (the English version says: *substantially* inferior, which is quite a different thing to *really*), provided that the test be made by means of an instrument fitted for the making of such test and that it be made by a competent person."

Here, then, is that which the proof requires:

1. To establish the inferiority of the milk supplied as compared with pure milk. As the law does not define what is "pure milk," and as skimming and other frauds are forbidden, one must suppose that the "pure milk" in this case, means the normal milk of the accused's herd, such as it ought to be honestly delivered at the factory. The prosecutor then ought to have tested the skimmed or watered milk, and besides that, the "pure milk" of the herd. The latter may be done in two ways: at the patron's cow-house after the milking, witnesses being present, and night and morning if possible; or at the factory by daily tests, frequently repeated so as to succeed in establishing the normal richness of the milk in question.

2. The test must be made by a competent person. Here lies the difficulty:

Is the maker a *competent* person? The question at issue is, not so much to know if the maker has known the business long enough to bring no ill-founded charges, as to get him accepted by the tribunal as having a sufficient acquaintance with the testing instruments and a sufficient experience in their use. I am forced to confess that many makers are but poor witnessess when they are entangled by a skilful counsel; and that a good many, especially among those who have never attended a dairy-school or belonged to a syndicate, know but little about testing milk as it must be practised to day. If, then, you have an ordinairy maker as witness, the ground is a hazardous one: do not go into it without due consideration.

Is the inspector of the syndicate a competent person? Barring possible exceptions, he is. His studies, the tests he is constantly making all through the season and the experience he acquires, qualify him in earnest in the eyes of the tribunal. Still, the inspector, because he is an inspector, must not neglect any precaution to make the proof strong. Our laws, just the opposite to the New-Zealand law and to some laws in the United-States, have not as yet accredited any one to the tribunals, neither our inspectors, nor our dairy school teachers, nor our laboratory directors, nor our public analysts; this however ought to be done in order to clear up the question of competence.

3, Again, the instruments used in the tests must be fit ones. The law mentions the lactometer and the creamometer; the use of the former is still in vogue, but the Babcock has long ago replaced the latter. *Proper* instruments means *appropriate*

instruments but it also means exact instruments. For that, all the testing instruments should be verified : lacto-densimeters, or lactometers, pipettes, measures and bottles of the Babcock, and the same acid used in the tests. A certificate of verification from the Dairy-school, from the Director of our Provincial laboratory, or any other competent officer, would easily regulate this point.

Such, then, are the great lines on which the proof must travel, those that are of the greatest importance. Next comes the "details of the operations" of the test that you may be called upon to explain, and the slightest omission may cause the whole proof to fall to the ground. A zealous counsel will take up a treatise on testing milk, will mark all the little pieces of advice given therein as essential ; if he finds out a weak point in your evidence, he will not fail to fall upon you, if, while thoroughly convinced that you have forgotten nothing in the process, your memory is not so precise as to permit you to swear that such or such detail was not omitted.

The magistrates are not all able to resist the enticing eloquence of a counsel who has thus embarassed and overwhelmed you with his skill. A doubt may perchance arise in their minds and your cause is lost. Therefore, take complete notes of all your tests, and keep them, in writing, that you may have them to refer to before the court.

I trust that in these few remarks something may be found tending to the improvement of our dairy-laws ; and I also trust that these remarks will cause it to be easier to seize the bearing, of our legislation as it exist at present.

Before closing, I must not leave any one under the impression that the patrons are the only people to be found worthy of blame.

In preparing these notes, I found that certain provisions on the care of factories ought to be in our laws, because a good many makers and proprietors are as habitually guilty as the patrons of infractions of the laws of cleanliness, health, and even of honesty. The law of New-Zealand, and some of the laws of the States, contain on this subject a crowd of regulations or of interesting rules that I will only point out, hoping to return to them on another occasion.

There is everything to be gained by placing the dairy-trade of our country under complete and clearly expressed laws.

M. Jubinville.—Does M. Taché think that the law of New-Zealand, applied here, would be an improvement on our own law ?

M. Taché.—It would facilitate the improvement of our products by improving the quality of the milk sent to our factories. M. Castel has sent me a number of notes, published by the Department at Washington, on this subject. I am convinced that our

legislation is not such as can give us at present the protection we need ; and the milk is so far from being good that if you were to offer it to the patrons that supply it, they would refuse to put it on their tables. Now, this New-Zealand law ought to be an improvement ; it is not the first law for the dairy in that country ; there was one passed in 1894, and another in 1898, the latter extending the powers given to the inspectors by the former. Experience must have shown the people that the line of conduct pursued was a good one.

M. Jubinville—Could you tell us the best means of compelling the government to give us a law that would protect us more efficiently? Should we address ourselves to the Dairymen's Association, to the Farmers' Clubs, or to the Agricultural Associations, to gain our ends the most rapidly ?

M. Taché.—You know that the members make the laws, and that every county has its members. If every proprietor of a factory, every inspector, every patron of a cheesery or creamery would see these members and induce them to amend our laws, we should very soon reach the alteration we need. The Dairymen's Association, now in convention here, might pass a resolution, in general terms, drawing the attention of the government to the importance of modifying the laws relating to the dairy-industry. You might even pass this resolution this evening.

M. Vaillancourt.—We mean, before long, to go as a deputation to the Quebec Ministers, and talk to them. If we can make them feel that the trouble is as great as it really is, there is no doubt that they will of their own accord take the initiative, and bring in a bill to improve our condition. This, I think would be the best way of gaining our ends.

M. Jubinville.—Here we are, 50 or 60 proprietors of creameries and their makers, met together, and we agree that there are perhaps no more than 5 or 10 per cent, of the farmers who bring to our factories milk such as they would like to drink themselves. If we want the dairy-trade to flourish, we must take the shortest cut to gain our end : that is, we must break the windows.(1) I think that it is for the good of every one that the law should be passed to protect both the proprietors of the factories and the farmers ; therefore, *I propose that this question of legislation be taken up by the Association in order to secure the passing of a law as soon as possible, by both the Federal and Provincial governments.*

M. S. Roy.—I am ready to second this motion : I think the Dairymen's Association should take the initiative and prepare a bill, and it ought to have no dificulty in finding a member to present that bill. I think a motion of this kind is very à propos.

The motion was carried.

M. Vaillancourt.—The two great days of this meeting have been well employed. We have done our best to interest you in the points that we think are most neglected

1. Casser les vitres : to let in air ? A. R. J. F.

by the farmers, and I trust you will agree with us that your time has not been wasted. We have had a capital meeting, and I think that the Director of your society, M. Louis Labelle, has every reason to congratulate himself on its success.

And, now, I must thank the Musicians who have been kind enough to let us hear their tuneful notes both yesterday and to-day.

I must also thank the lecturers for having accepted our invitation to address us, for it must not be supposed that their lectures are paid for.

The press, too, and the news-papers which have been represented here, especially the "Presse" and the "Gazette", deserve our thanks.

We thank you, too, Mr. Mayor, and the Councillors, for the kind hospitality you have evinced in allowing us to use this splendid hall for our meetings.

To the audience our thanks are also due for their great attention to our addressess and discussions. Many of you are natives of this county of Terrebonne, which has every reason to be proud of you. I trust that the lessons you have received here you will put into practice, and derive your benefit from them. Thank you, Gentlemen (Cheers.)

The session was then adjourned.

ADDRESS OF M. L. A. CHAUVIN, M. P.

Mr. President and Gentlemen,

The county of Terrebonne is well deserving of the honour of the visit you are now paying it, because it has always been devoted to the policy of encouraging the dairy-industry. It was M. Chapleau, member for Terrebonne, the most eloquent of all men, who, in 1878, inaugurated the policy of encouraging dairying, by the province of Quebec, and it was a curé of St-Jérôme, the regretted Curé Labelle, who seconded the views of the illustrious statesman by becoming the apostle of that national industry.

In order to speak of the living alone, let us run over the history of dairying in the county of Terrebonne. Honour be to whom honour is due; and it is you whom I salute, Mr. President, Janvier A. Vaillancourt, as a worthy son of the county of Terrebonne.

I salute, in the person of M. J. Damien Leclair, superintendent of, and professor at, the Dairy-school at St-Hyacinthe, a citizen of the parish of St-Jérôme; and, in the person of Dr. Grignon, a distinguished lecturer and writer on farming, I salute the devoted representative, both by pen and speech, of the dairy-interest in the north of the same county.

In a word, I salute all the makers of butter and cheese in that county; M. Brosseau of St-Sauveur; Mr. Kimpton, the first man to win a gold-medal at the provincial exhibition for the best butter; Messrs. Garth and Leclair of Ste-Thérèse; Mr. Moody of Terrebonne, and, last, though by no means the least, Mr. Geo. Bennett of New-Glasgow.

The county of Terrebonne presents a soil favourable to the development of dairying. A land of mountains and slopes, watered by clear brooks and limpid streams, full of lakes and gushing springs; with shady pastures full of grasses of every kind and of marvellous quality, this land is above all a field full of promise for dairying and for herds of all kinds.

As regards the general welfare of the county, dairying is the leading part, and it cannot receive too much encouragement from our governments.

Statistics show that butter and cheese have returned in sales in 1899 fourteen times as much as they did in 1894.

Such splendid results are due to the establishment, in 1895, of refrigerators, on the railways and on the seagoing steamers, which has favoured the transport of butter in a fresh state into foreign countries.

The encouragement given to the building of cold storage in creameries which the Minister of Agriculture at Ottawa has continued for another year (a grant of $100.00 to each creamery) has enabled 200 creameries in this province, out of 300 in the whole Dominion, to provide themselves with this admirable improvement.

The lecturers on agriculture have enlightened our people on the new industries springing from dairying, and I made it my duty to accompany in my county the agricultural lecturers of the Ottawa government, at the head of whom I observe here, this evening, M. J. C. Chapais. In this presence, I declare that politics should have no place in questions concerning the agricultural interest. For my part, when the Minister of Agriculture rises in the House, it is not as the chief of a party that I regard him, but as the representative of the great body of farmers, and behind him I descry the most numerous and most useful class of our people, the consecrated batalions of the grand army of agricultural industry:

Battalions, that are looking for victory in their noble exertions, far less from the policy of man than from the providence of the Almighty.

Battalions, that march to the conquest of the territory, increasing the domain of the country, not by the destructive weapons of the soldiers, but with the fertilising share of the plough;

Battalions, that seek for and find liberty and independence, not on the burning pavement of the town, or in the agitation of the workman's club, but which find it, in the pure and free air of the mountain, of those mountains of which the poet has said:

She is there, that holy freedom, on the hills,
It is there that at every step man sees her approach,
Or, if his heart includes her, he feel her quivering therein.

Battalions, that sow neither ruins of cities nor the blood of men, but which spread the seed of harvest and crops to come ;

Battalions, that have only one flag, one programme ; let us seize upon the land ; the land is our country.

Welcome then be ye to this county, ye members of the Association of Dairymen, messengers that ye are of the agricultural gospel, knights of the holy crusade in favour of agriculture and colonisation ; welcome be ye to this town of St-Jérôme, heart and home of the colonising movement of the North of this Province.

Was the apostle of the colonising movement, the regretted curé Labelle, in life, he would be among you to night, and with his voice full of patriotic fervour he would exhort you to :

"People your mountains of the North with flocks of goats and sheep, and with herds of milch cows.

"Build creameries along the colonisation-roads, on the banks of those health giving springs near which I so loved to recline, and may honesty and cleanliness, the leading virtues in dairying, sit for ever at the hearth of our dear settlers, and bring with them the assurance of peace, wealth, and security.

REPORT OF M. H. PIHIER.

I have the honour to offer my report of work done at the dairy-school of St-Hyacinthe from May to the 5th of July, the time when the "Salenius Radiator" was set up, with a view to the studying of the effect of acidity in the yield at skimming and churning.

This study included ; for the first part : determinations :
of the fat and acidity of the whole milk,
" " " of the fresh cream,
" " " of the skim-mik.
And for the second part :
of the fat and acidity of the ripened cream,
" " " of the butter-milk,
" " (by calculation) of the butter.

First of all, I had to attend to the obtaining of results worthy of entire confidence, and able to serve as a firm basis to the intervening conclusions.

Fat.—It would have been desirable, for the determinations of the fat, to employ the typical method of the chemist; but the absence from the School of any apparatus for its application, and the material and financial impossibility of placing one there, obliged me to have recourse to one of the ordinary methods.

Babcock or Gerber ?—Of the two, Babcock and Gerber, both of which were at my disposal, I chose the former: first, because its use, much more general on this continent, leads to results more open to appreciation; besides, in the comparative experiments, it seemed to me that the indications of the Gerber erred more above the truth than the Babcock did below it.

The Gerber-test with the Babcock materials.—These experiments led me to try the Gerber-test with the Babcock methods: I found no appreciable difference between the indications taken in this way and the normal Gerber test.

The following is the process (*technique*) that succeeded with me:

Introduce into a Babcock phial 15 cc. of sulphuric acid at 1.830 (Babcock), and then 1 cc. of water without mixing them, which can be easily done by letting the water glide gently along the neck of the phial held in a slightly inclined position; then 1 cc., 5 of amylic alcohol, taking the same precaution; lastly, 17 cc. 6 of milk at 60° F. or thereabouts. Mix by a gyrating movement; a liquid of almost perfect limpidity should result, in colour of a not very deep rose-violet. Turn the machine for 5 minutes, at 1.200 turn to the minute, fill the phial with very hot water, and turn again for 2 minutes. A very limpid column of fat will be seen floating on the subjacent liquid which will now be of a deep violet colour, and the figures will be read off with marvellous facility. The acid may be previously diluted in the proportion of 15 to 1 in volume; but the acid at 1 830 constantly gives provoking results, on account of the too powerful reaction which produces a partial carbonisation.

Crystals of ? ? ?—In the course of these experiments, I observed the formation in the phials, after cooling and a long rest, of some fine crystals, in long needle-like form, and colourless, remarkable for their insolubility in most of the re-agents. These crystals were sent to M. l'abbé Choquette and their nature still remains indeterminate; but they will be studied more seriously during the coming winter. At any rate, they have been carefully observed, and they appear not to form except after the addition of amylic alcohol.

Another remark.—I have also observed another fact, up to the present utterly inexplicable, but constant: when the 24 phial turbine in two concentric ranks is used, the separation is invariably more distinct, or at least the column of fat was more limpid in the phials of the inner row. Therefore, when there are only a few tests to be made, it would be well to whirl them round in that rank; and when there are more than 12

as when there are tests of 15 composite samples, we must, after having added the water, change the phials from one rank to the other and whirl them again for 5 minutes. Thanks to this "dodge", equality is re-established in the two ranks. This remark applies as well, or even better, to the Babcock test as to the Gerber.

Novel modification of the Babcock test.—Having definitively made choice of the Babcock system, I followed it with all the precautions prescribed by the "Bulletin 36 of the Wisconsin school." But the results, although commonly satisfactory, sometimes failed in clearness, notably by the formation of blackish flocculent matter at the base or of froth at the top of the column of fat; the cause of this I was unable to discover.

I fancied that the addition of the acid in-equal quantities at twice, might help, and I thus obtained as clear results as with the Gerber; no more flocculent lumps either black or white, no more froth; it became useless even to trouble oneself about the strength of the acid, which might be a little stronger, or about the temperature of the milk or of the acid, at least within the limits of the atmospheric variations; useless too to add the water at twice; the only necessary precaution is to allow an interval of half a dozen minutes between the two additions of water, and to stir twice or thrice during that time.

Verification of the graduated glass-ware.—To secure exactitude of results, the glass-ware had to be graduated with exactitude. The verification I made of it enabled me to select, from a lot of 3 or 4 dozen, the few phials I needed; but I must confess that they were exceptional. It was easier to find pipettes and thermometers properly graduated.

Precautions.—It is not enough to have a method and materials deserving of all confidence; they must be used in the best possible manner.

The first determinations of acidity had given, between skimmed milk and whey, differences that I at first assigned to the phenomena stated by Lézé of the decrease of acidity caused by brisk agitation. But as this difference, very perceptible when it left the separator, grew less and less in time, becoming nothing at all at last, it seemed probable that it results from the interposition of air, which, in tiny bubbles, assembles by degrees on the surface of the skim-milk till it becomes a thick moss. At the end of half an hour, this separation is complete, and the acidity of the skimmed milk and the whey becomes perceptibly equal. To make the Babcock test, then, with skim-milk and also with butter milk, to which the same considerations apply, we must allow the same time to expire.

But it is better, and this has been my regular habit, to wait a whole hour for the cream, for its viscosity makes the escape of the interposed air slower; moreover, it is as well to take the sample from the lower part of the pan after having caused a moderate movement there by means of the blowing through the pipette of a few air-bubbles.

The samples, both for the fat as well as for the acidity, were taken thrice during the skimming, i. e., at the beginning, towards the middle, and at the end, so as to

represent, an average as nearly as possible. The samples were brought to a pretty uniform temperature of 75° F,, by immersion in water in the aqueduct which was then at that temperature.

Acidity.—Precautions.—The determinations of acidity must be made with the same precaution as those of the fat as regards the temperature and the time of repose. Moreover, it is important that they be made quickly, and with the least possible interval, to allow of the acidity sensibly increasing during the course of the manipulation. Unless these things are attended to the results cannot be comparable. I have always proceeded as follows : after an hour at rest in the aqueduct water, determination of the acidity of the whole-milk ; immediately afterwards, of the cream, and lastly, of the skim-milk ; after I had left every thing for the tests with the Babcock.

Farrington or Dornic ?—For acidity-test I had to choose between the tablets of Farrington and the acidimeter of Dornic. A preparatory verification of the former, with the acid of a fibros (?) solution of sulphuric acid, which showed in their contents (*dosage*) differences of as much as 12% made me give them up at once.

I also found that the Dornic wanted sensitiveness, the appearance of the rose-tint being with difficulty appreciable in a liquid so opaque as milk.

Modification of the Dornic test.—But by adopting the practice known and applied in analytical Chemistry under the name of method of *touches*, the greatest accuracy may be obtained. Instead of mixing with the milk the solution of phenal-phtaleïne, a few drops of it are placed on the rim and the bottom of a porcelain plate (butter-plate) ; as soon as we judge that the point of saturation is near, which may be judged off by a preparatory trial after the ordinary method, a tiny drop of milk is to be frequently mixed, by means of a glass-rod, with one of the drops on the plate. The appearance of the rose-tint invading the white bottom of the plate, with the unaltered tint of the drops previously touched, takes place suddenly, and leaves no room for hesitation. With a little practice, each analysis needs only from 4 to 6 touches, and if care is taken to arrange everything beforehand, 3 or 4 analyses can be made in 5 minutes, which is quite enough to secure the comparison of the results.

Necessary corrections. — The results, besides, are not always immediately comparable one with the other. Acidity does not develop itself and does not reside anywhere but in the *plasma* of the milk, or the cream to the exclusion of the fatty matter that takes no part in it. The acidity determined experimentally in the milk or cream is always less than that which would be shown by quantity of *plasma* intercepted by the pipette : a quantity of slight importance as to the milk and which may be neglected when we want to compare the proportion of acidity of different milks *between themselves*, but much greater as regards cream and varying enough with the different concentrations to forbid its being neglected when comparing the different creams *among themselves ;* still more when we are comparing milk with cream. You will therefore find in the subjoined tables by the side of the numerical results supplied

direc'ly by experiment, these numbers corrected, from the point of view I have just indicated, for the whole milk and for cream. The feeble contents in fat of the skim-milk and the buttermilk make, as regards them, this work utterly useless.

Having thus described the processes that have supplied me with the results I have transcribed, each of you may settle how much confidence he can place in them.

Conclusions.—As to drawing deductions from this relating to points that were to be elucidated, it seems to me that, considering the small number of elements comparables, it is absolutely impossible.

As to skimming, it would be necessary, in order to disengage the influence of the acidity, that all the other elements (the separator used, temperature, pace of rotation, concentration of the cream, &c.), should remain invariable. Now, as we learn from the "Record of manufacture", they varied from day to day in considerable proportions. And so it is with the differences relating to the churning (temperature, time occupied, addition of water, &c.)

It cannot be otherwise in an establishment where the trade-result is the chief and principal object, scientific research being often considered as a burdensome accessary. It is only in an experimental station where the object is, on the contrary, scientific research, with trade exploitation as a means, that in such a relatively short time, labour like the above can lead to conclusions that one cannot hope for from elsewhere, that patient observations pursued long enough to furnish, in spite of numerous and inevitable daily variations, a sufficient number of elements capable of being compared with one another.

Independently of the investigations of which I have just given an account, I have daily during the same p'riod, a'd from time to time afterwards, tested the curd of the milk of all the patrons by weekly series of 16.

These tests have shown nothing remarkable except the unequal condition of the milk on a given day and of the milk of each pa'ron during the series of tests. Rather rare were the cases of bad milk, as the patrons were kept on the look out by their knowledge that tests were being made.

From the end of April up to to-day. I made with the Babcock all the bi-monthly tests of composite samples, successfully applying the modification which is, I believe, my own personal possession.

Lastly, as a sequel to the lecture on the test of water as regards organic matter that I gave at the end of April to the inspector-pupils, I determined the formula for tablets of an easily managed technique, wich will render this test very practical ; and, in default of a Canadian firm competent to undertake it, I have arranged with a manufacturer in the States to make them.

REPORT OF MR. GEO. W. FERGUSON.

To the members of syndicate No. 2 of Creameries and Cheeseries,

of the county of Shefford.

Gentlemen,

It is with pleasure that I present to you my seventh annual report as Inspector of your syndicate. On the first day of May I began my work, and closed in October 31st: 154 days. On an average, I tested the milk in each factory twice a month. The number of samples tested was, in round numbers, 11,000, a great increase on former years. On this point I may state that the milk was of superior quality. The patrons in general taking a great deal of care of the milk. There has been a great improvement in this respect, and the patrons deserved to be congratulated upon it. The season for the making of butter and cheese was favorable, and I am happy to say that I never saw goods of better quality than those of this season. In spite of the high prices, there has been practically no "cutting" for inferiority of quality, and hardly any friction between buyer and seller.

The syndicate was composed of 13 cheeseries producing 360 tons of cheese, and 6 creameries turning out 332 tons of butter, during 6 months, from May to October inclusive. The market for these goods opened satisfactorily in the spring and kept rising throughout the season, the prices being higher than at any preceding epoch, and the profits realised by the farmers the greatest for many a year. All the makers of butter and cheese I found up to their work, and full of a desire to obtain for their patrons the best possible results. The facts that there was neither "cutting" nor complaints on the part of the buyers and that the highest prices were received, prove that their efforts were crowned with success. All the factories, creameries as well as cheeseries, paid their patrons by the Babcock test, a system that gave perfect satisfaction. It prevents any suspicion of added water or partial skimming, creates mutual confidence between the patrons, and, by permitting the farmers to know just how much their cows are yielding, has led to a considerable increase in the production of many of the herds. Thus the Babcock has caused a material gain, as well as a moral improvement.

In conclusion, I wish to bear witness to the pleasant reception I met with from both patrons and makers, and to thank them for the assistance they afforded me in the discharge of my duty as Inspector.

The whole respectfully submitted.

GEO. W. FERGUSON,

Inspector.

Waterloo, Nov. 3rd, 1899.

LETTER FROM MR. ARTHUR HODGSON.

To M. Vaillancourt,

President of the Dairymen's Association.

Dear sir,

I regret very much that I cannot accept your kind invitation to attend the meeting of the Association. I regret it all the more because I should have had great pleasure in meeting the Minister of Agriculture who is to be with you.

As president of the Butter and Cheese Association of Montreal I take with pleasure this opportunity of sending the Minister of Agriculture my sincere appreciation of his efforts to improve and forward the interests of dairying in this province. Our Association is well aware that the improvements in the means of transport, by the establishment of refrigerating chambers on the cars and steamers, has done much to increase the quality and value of the dairy-products of Canada. It has made it practicable for our Canadian makers and exporters to deliver their goods in England in as good a condition as our competitors of Denmark or any other country. The result is, that to-day there is no doubt about the products of Canada occupying as good a position as the goods of any country.

It is a pleasure too for me to be able to assure you that, according to our experience, a great improvement is visible throughout Canada in the quality of both butter and cheese. At the same time, it would be a mistake for us to rest satisfied with our present success, and, in my opinion, there is still more room for a great stride in advance; wherefore, I beg leave to make the following suggestions, in the hope that the Association will take them into consideration.

First, the province of Quebec is far behind the province of Ontario in the system of boxing the cheese. In these days of active competition it is of the greatest importance that the boxes intended for export-cheese should be of the best quality and as clean and tidy outside as inside. More than 75% of the Quebec cheese is badly boxed when it reaches the market In many cases, the box is too large for the cheese, and in consequence, the cheese being shaken about in the box, it is broken; hence, we frequently receive large numbers of cheeses the boxes of which are too much damaged even to be mended. It would be easy to cure that defect by selecting boxes of such dimensions that the cheese cannot be shaken about in them. The maker, too, ought to take care that the boxes be properly trimmed, so that the top be as high as the top of the cheese. The covers should then be carefully nailed on to the boxes and for that purpose we advise makers to use nails 1 to 1¼ inch long. We have seen cheese arriving from

Québec nailed with nails four inches long, and they had been driven into the cheese itself, to the great danger of fermentation being set up.

I wish, too, to impress upon the minds of our people that cheeseries should be fitted up with cold ripening-rooms. This is a point that cannot be too strongly insisted on. The best cheese made can be easily spoiled by insufficient or badly planned ripening-rooms. Our association has been convinced of this in a very striking manner by the experiments made by the Minister of Agriculture. Not long ago, it was asked to appoint a committee to examine cheeses that had been ripened in a temperature of 65° F., and to compare it with cheeses ripened in the usual manner. The cheeses in question had all been made from the same milk and by the same maker; one-half of them were ripened in a temperature of 65° and the rest were placed in a common ripening-room where the temperature varies naturally a good deal, according to the exterior temperature. The Dairy-Commission and our committee,—of which I was one—began at once to examine the cheese, and we were unanimous in declaring that cheese ripened at a low temperature was easily worth from $\frac{1}{2}$ to $\frac{3}{4}$ of a cent more per lb. than cheese ripened in an ordinary way. Our committee was kept perfectly ignorant as to which cheeses had ripened in a low temperature, but the difference of quality was so distinct that no doubt could exist in the minds of those present as to which system should be preferred. We were also told that the cheese ripened at a low temperature lost less weight than did those ripened in the usual way. I am convinced that if our makers could be persuaded to adopt some means of lowering the temperature of their cold chambers during the hot weather, it would bring about an increase in the price of their goods.

I have another suggestion to make: cheese ought not to be sent off from the factory before it is properly ripe. I know that it has frequently happened this season that cheese has been sent out that only had 5 days of ripening-time. No cheeses hould be allowed to leave the factory until it has been ripening for at least 14 or 15 days. Too much stress cannot be laid on this point. Cheese sent to England before it is ripe reaches that country in the same condition, and when the buyer there complains that it is too hard, too poor, and too highly cooked, (*cuit*), these defects are generally attributable not to the cheese having been too highly "cooked", but to its having been sent out before it had properly ripened.

A propos of butter.—The following suggestions relating to butter may be of some use to our farmers. Last season saw a marked improvement in the quality of our butter. Butter from Quebec now sells on the English market at from 3 to 6 cents a pound higher than the best butter from the States. This is in a great measure due to the refrigerator-chambers with which the government has supplied the cars and steamers; this enables the exporters to deliver their butter in England in perfect condition. The makers of butter and cheese ought to profit by these advantages as much as possible by sending the butter out as soon as it is made, packing it in a square box holding just 56 pounds, and covering the butter with parchment paper: weight not less than 40 pounds to the ream. This paper should be soaked

before being used in water highly salted ; this water should be pure spring-water. To prevent the taste of wood, the butter ought to be covered all over, ends and all, with a double lining of this paper, The nailed covers are preferable to covers screwed on, but cramped covers are now in favour. It is highly desirable that the boxes be uniform in shape, and of Canadian manufacture. We have too many manufactories turning out different sorts of boxes.

In conclusion I must congratulate the members of your Association on the fact that the best Quebec butter is now by no means inferior to any other in the opinion of the English buyer. Exporters find no difficulty in getting a higher price for the best Quebec butter than is paid for the best Ontario butter. If your cheese makers would take some pains in the making and packing for export of their cheese, there is no reason why Quebec cheese should not stand as high in the English market and sell for as high a price as the Ontario cheese.

With the warmest wishes for the prosperity of your Association.

Pray believe me to be

Your obedient servant,

ARTHUR HODGSON,

President of the Butter and Cheese Association.

REPORT OF M. WILLIAM PARENT.

M. E. Castel, S. D. Ass.

Mr. Secretary,

I have the honour to submit to you my ninth report as Inspector of the cheesery-syndicate No. 1 of the county of Yamaska, division 5 of the Province of Quebec, for the year 1899. I begun my inspections May 3rd, and finished them November 13th, a period of more than 6 months, during which I had 23 factories to visit and the makers to teach.

The numbers of patrons who supplied milk to the factories was 1,099 ; cows, 6,936. I visited the factories, made the tests, and the cheese during 137 days. I also paid 131 short visits, giving advice to all who needed it. The number of tests made with the lacto-densimeter was 3,949, and the average density 31.8. I also wrote 12 letters to patrons on the care to be taken of the milk.

This season, there were six cases of fraud consisting in adding water to the milk. The fines paid for these frauds were, respectfully : $50,00, $25.00, $10.00, $7,00, $5.00, $3.00, forming a total of $100.00.

These cases of fraud were more numerous this year than those in preceding seasons. The majority were discovered in factories that had for some years left the syndicate and had returned to it on account of some trouble with their patrons. I think, too, that the high prices paid for dairy-products has created, among some of the patrons, a kind of dishonest ambition which needs a constant watchfulness on the part of the inspectors.

The total quantity of milk supplied to the syndicated factories this season is 19,322,711 lbs., which produced, at the rate of 9.71 lbs. of milk to the pound of cheese, 1,990,150 lbs. of cheese, which, averaging 9.82 cts. a pound, gave the sum of $196,523,-89, leaving as net profit to the patrons, $169,695.89, the cost of making and the sale-expenses having been $26,828,00. The average prices paid for milk was 87.82 cents. The number of cows being 6,936, this gives an average of $24,47 a cow. These results show a very great increase over those of 1896, '97 when the average was only $13.00 to $14.00 a cow, and we have a right to be proud of it.

I examined 12,552 cheeses, of which 9,870 were of the first class, and 2,662 of the second class in quality. The following table shows the classification of these cheeses :

	Flavour.	Body.	Texture.	Colour.	Appearance.	Factories and Out buildings, Drainage, etc.	Material and Installation inside and outside.	General condition of the fatory.	Method of making.	Ripening-room.
1st class.....	9608	9870	8947	9440	9439	13	26	11	19	10
2nd class.....	2379	2321	2662	2317	2448	15	6	17	9	18

ALPMABETICAL TABLE

OF LECTURERS, SPEAKERS, REPORTERS, AND PERSONS HAVING TAKEN PART IN THE DISCUSSIONS.

ANALYTICAL TABLE OF CONTENTS.

TABLE OF CONTENTS

Statement of Receipts and Expenditure of the Association.

(From July 1st 1898 to June 30th 1899).

			Dr.				Cr.
ASSOCIATION :				Balance to 1st July '98		$297.33	
Stationery, stamps, &c.				Sale of Reports, &c.		50.89	
By Cash.....	$299 55			Subscriptions '97	25.00		
" Grant.....	7.31	306.86		" '98	973.00	998.00	
				" life		40.00	
Printing, Cash...	$294.86			Quebec Gov. Grant,		2000.00	3386.22
By Grant	558.11	852.97					
Trav'g exp. of Directors, Csh		51.26					
Exp. of Meeting,							
By Cash.....	200.59						
" Grant.. ..	86.55	287.14					
Purch of books & papers							
By Cash	68.54						
By Grant.....	296.40	364.94					
Salaries.....		1051.63					
Ext. Exp. Cash..		53.80	2968.60				
Balance in hand.....		417.62					
SYNDICATES :							
E. Bourbeau, I G. Trav. Exp.				Test boxes,		25.00	
By Cash.....	$17.41			Quebec Govt. Grant,		2600.00	2625.00
By Grant.....	400.34	417.75		*Excess of expenditures*,		12.41	
J. A. Plamondon, Ass. I. G. Trav Exp Grant		385.06					
Sal. E. Bourbeau, Csh	20.00						
By Grant.....	600.00	620.00					
Sal. J. A. Plamondon, Grant.		460.00					
Trav. exp' local Inspect. "		259.55					
Printing, "		375.05					
Test-Boxes "		120.00	2637.41				
DAIRY-SCHOOL :							
Brought over from July 1st '98,		670.66		Federal Grant (icehouse)		50.00	
Supplies to factory, Cash..		196.49		" " training,			
Water, coal, &c....	463.45			" " "	1000.00		
By Grant.....	81.13	544.58		" " "	1000.00	2000.00	
Washing, clean'g, &c.				Balance summer 1898,		98.29	
By Cash.....	349.66			Making winter 1899,		66.71	
By Grant.....	40.41	390.07		Quebec Gov't Grant,		3000.00	5215.00
Office expen's Cash	136.21			*Excess of expenditures*,		286.98	
By Grant.	98.02	234.23					
Salaries ....Grant,		2029.10					
Rent of College "		679.34					
Annual charges "		173.00					
Utensils, &c "		502.88					
Freight & cart. of milk, "		81.63	5501.98				
General balance.....			118.23				
			$11226.22				$11226.22

Examined and found correct,

SAUL TALBOT,
Auditor.

St-Hyacinthe, Nov. 27th '99.

STATEMENT OF RECEIPTS AND EXPENDITURE

(From July 1st to November 27th 1899).

ASSOCIATION :						
Stationery, stamps, &c				Bal. from July 1st '99	$417.62	
By Cash,.....	$230.15			Subscriptions 1898...	23.00	
By Grant.....	19.80	249.95		" 1899...	947.00	970.00
Printing, Cash...	48.13			" life		10.00
Grant..	353.05	401.18		Sale of Reports, &c.....		20.43
Trav. exp. Directors				Quebec Gov. Grant, on acct....		861.50 **2279.55**
By Cash.....	49.74					
By Grant.....	20.00	69.74				
Exp. of meeting						
By Cash.....		296.40				
Books and papers,						
By Cash.....	36.79					
By Grant.....	2.00	38.79				
Salaries, by Grant		466.65	**1522.71**			
Balance.....		756.84				
SYNDICATES :				Quebec, Gov. Grant, on acct.		**1421.96**
Def. July 1st '99	——	12,41		Excess of expenses,	45.91	
E. Bourbeau, travel.						
By Grant,	290.72					
J. A. Plamondon, "						
By Grant,	361.24	651.96				
E. Bourbeau, salary,						
By Grant,	400.00					
J. A. Plamondon, "						
By Grant,	360.00	760.00				
Trav. exp. local Insp.						
By Grant,		10.00				
Text-boxes, Grant,		33.50	**1467.87**			
DAIRY SCHOOL :				Making, Summer 1899....		**1161.17**
Brought for July 1st						
1899, Cash,		286.98		Excess of expenses....	185.87	
Salaries, "		390.00				
Utensils, &c., "		51.67				
Supplies to fact'y "		162.49				
Water, Fuel, &c. "		389.27				
Washing, clean-						
ing, &c , "		53.63				
Office expenses. "		13.00	**1347.04**			
General balance.....			525.06			
			$4862.68			**$4862.68**

Examined and found correct,

SAUL TALBOT,
Auditor.

St-Hyacinthe, Nov. 27th 1899.