

ELEVENTH REPORT
OF THE
DAIRYMEN'S ASSOCIATION

OF THE
PROVINCE OF QUEBEC

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

1892

PRINTED BY ORDER OF THE LEGISLATURE



QUEBEC
PRINTED BY CHARLES-FRANÇOIS LANGLOIS
PRINTER TO HER MOST EXCELLENT MAJESTY THE QUEEN

1893

DAIRY

To

SIR,

The Board of
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during the year
Blainville 13th

THE SECRETARY

St. Hyacinthe, M

ELEVENTH ANNUAL REPORT
OF THE
DAIRYMEN'S ASSOCIATION
OF THE
PROVINCE OF QUEBEC

To the Hon. Commissioner of Agriculture and Colonisation,

Quebec.

SIR,

The Board of Directors of the Dairymen's Association of the Province of Quebec has the honour to offer you the following report of its operations during the year 1892, and of the Annual Meeting held at St. Therese de Blainville 13th and 14th of December 1892.

THE SECRETARY-TREASURER OF THE DAIRYMEN'S

ASSOCIATION OF THE PROVINCE OF QUEBEC,

EMILE CASTEL.

St. Hyacinthe, March, 1893.

OFFICERS

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Beauce.....
Beauharnois.....
Bedford.....
Charlevoix.....
Chicoutimi et Sag
Iberville.....
Joliette.....
Kamouraska.....
Montmagny.....
Montreal.....
Quebec.....
Richelieu.....
Rimouski.....
St-François.....
St-Hyacinthe.....
Terrebonne.....
Trois-Rivières.....

OFFICERS AND DIRECTORS OF THE DAIRYMEN'S ASSOCIATION

FOR 1893.

Honorary President : THE HON. P. B. DE LABRÈRE, St-Hyacinthe.
 Honorary Vice-President : M. N. BERNATCHEZ, M. P. P., Montmagny
 President : L'ABBÉ T. MONTMINY, St-Georges de Beauce.
 Vice-President : S. A. FISHER, Knowlton.
 Secretary-Treasurer : EMILE CASTEL, St-Hyacinthe.

DIRECTORS :

Arthabaska.....	T. C. CARTIER.....	Kingsey-French-Village.
Beauce.....	PHILIAS VEILLEUX.....	St-François-Beauce.
Beauharnois.....	ROBERT NESS.....	Howick.
Bedford.....	J. A. HAYES.....	Sheffington.
Charlevoix.....	ED. A. BARNARD.....	Québec.
Chicoutimi et Saguenay..	F. PARADIS.....	Bagotville.
Iberville.....	M. MONAT.....	Mount Johnson.
Joliette.....	I. J. A. MARSAN.....	L'Assomption.
Kamouraska	J. C. CHAPAIS.....	St-Denis-en-bas.
Montmagny	N. BERNATCHEZ.....	Montmagny.
Montreal.....	ALEXIS CHICOINE.....	St-Marc.
Quebec.....	L. P. BERNARD.....	Cap Santé.
Richelieu.....	J. L. LEMIRE	La Baie du Febvre.
Rimouski.....	J. DE L. TACHÉ.....	St-Hyacinthe.
St-François.....	D. O. BOURBEAU.....	Victoriaville.
St-Hyacinthe.....	L. T. BRODEUR	St-Hugues.
Terrebonne.....	FRS. DION.....	Ste-Thérèse.
Trois-Rivières.....	L'ABBÉ GÉRIN	St-Justin.

LEGISLATION.

REVISED STATUTES, QUEBEC, SEC. XIII.

DAIRY ASSOCIATION OF THE PROVINCE OF QUEBEC.

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 thing connected therewith, under the name of the "Dairy Association of the Province of Quebec," 45 v. c. 66, 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 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 Québec Official Gazette, 45 v. c. 66, s. 3; 50 v. c. 7, s. 12.

1752. From and after the publication, in the Québec Official Gazette of the notice of the formation of the association, it will become and shall be a body politic and corporate, for the purposes of this section, and may possess 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 affairs and property, 45, v., c. 66, s. 5. (1)

(1) Articles 1753, a, b, c, d and e, were added to the charter of the association, by chap. xx passed last session, which received assent on December 30th, and is given below. In the course of the report, our readers will find the discussion that took place at Sorel on the proposed syndicates of factories, and at the end of the report, every information regarding their working.

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54 VICT., 1890, CAP. XX.

AN ACT TO AMEND THE LAW RESPECTING THE INDUSTRIAL DAIRY ASSOCIATION OF THE PROVINCE OF QUÉBEC.

(Assented to 30th December, 1890.)

Whereas, under the provisions of article 749 of the Revised Statutes, the Industrial Dairy Association of the Province of Quebec was organised ;

Whereas the said association has recommended the formation of syndicates for the purpose of securing a more prompt and complete diffusion of the best methods to be adopted for the production of milk, the fabrication of dairy produce and, in general, the advancement of the dairy industry.

And whereas the said recommendation was approved by the Committee on Agriculture and Colonisation in a report which was adopted, by the Legislative Assembly on the 23d December instant :

Therefore, Her Majesty, by and with the advice and consent of the Legislature of Quebec, enacts as follows :

1. The following articles are added after article 1753 of the Revised Statutes of the Province of Quebec ;

“ **1753a.** 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, 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 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 organised 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.

“ **1753b.** 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 1753d.

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.

" **1753c.** 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.

1753d. 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 approved by the Lieutenant-Governor in Council.

" **1753e.** 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.

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

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 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 Québec, 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 respec-

lives names, and Association.

AN ACT TO PROVIDE

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45, V., c. 66, Schedule.

52 VICT., 1889 CAP. XXII.

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

(Assented to 21st March, 1889.)

HER MAJESTY, by and with the advice and consent of the Legislature of Quebec, enacts as follow :

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 ASSOCIATION.

" 1755a. The Lieutenant-Governor in Council may authorise the formation, in each judicial district of the Province, of an association, having for its object the promotion of agriculture, the improvement in 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

" 1755b. 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.

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

" **1755d.** 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.

1755e. 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.

" **1755f.** 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 employes, and, generally, the management of its affairs and property, for the purpose of carrying out the objects of the association.

" **1755g.** The first meeting of the association 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 the formation of the association is published in the Quebec Official Gazette.

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

" **1755i.** 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 said counties, who shall constitute the board of directors of the association.

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

" **1755k.** 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 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

We, the undersigned, do hereby certify that the provisions of section 54.77 of the Revised Statutes of the Province of Quebec, relating to Associations, and we do hereby certify that we are annually, while we are respectively named, and the said association.

R. S.

SOCIETIES FOR THE

54.77. When in a declaration, that they be or cheese (or of both, designated as their printer in the hands of the society intends to do thereafter become mem

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

SCHEDULE

MENTIONED IN ARTICLE 1755b.

We, the undersigned, agree to form ourselves into an association under the provisions of section fourteenth of chapter seventh of the 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-treasurer, 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.

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R. S. Q., TITLE XI, CAP. IV, SECT. III.

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

§ 1.—Formation of such Societies.

5477. When in any part of the Province, five or more persons 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 intends to do business, such persons and all such other persons as may thereafter become member of such society, their heirs, executors, curators, admi-

nistrators, 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 where 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 provisions 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, c. 65. s. 9.

§ 2.—*General Powers and Duties.*

5479. Every such society so formed, for the purposes for which it as 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 for the 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 shareholders, by at least two shareholders of the said society, which notice shall be given 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 meeting 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 this section, 45 V., c. 65, s. 7 ; 50 V., c. 7, s. 12.

AN ACT TO PROHIBIT

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SCHEDULE

49 VICT., CAP. XLII, 1886, 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.

52 VICT., CAP. XLIII, 1889, 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 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 condensed 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 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 this Act.

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 so 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 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 the 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 purposes of establishing the guilt of any person charged with the violation 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 causes 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 affected elsewhere.

9. No appeal shall lie from any conviction under this Act except 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 recognisance entered upon conviction, and shall be in the intervention of a justice of the peace, or the same appoints, with or without the court or judge extended, and in all other respects as in the Summary Convictions Act.

10. Any person who is the wife of such person shall be liable.

11. Any pecuniary liability shall be payable one-half by the owner, treasurer or manager, or supplied for any person under this Act, to be divided in respect of their respective interest.

CONSTITUTION

INCORPORATION

1. The Association of the Province of

2. The object of the manufacture of butter.

3. To become a dollar (\$1.00) a year.

4. The affairs of a vice-president, and with the act of incorporation of the Association, and the annual general meeting.

5. The election of a general meeting, the right of voting at the meeting to be requisite.

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 offence 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 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 THE STATUTE 45 VICT., CHAP. 66, P. Q.

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 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 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 or 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 registrar, minutes of all meetings of the association as well as of 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 and 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 directors' approbation.

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

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

Rules and Regulations of the 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 general meeting of the board of directors: the call shall be in the form mentioned above.

3. At the meetings 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 others 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 place before the secretary-treasurer.

7. The secrets of \$400.00, which

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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 DAIRY INDUSTRY 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 the 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 of the duties of inspectors :

I

DIVISION OF THE PROVINCE.

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

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

No. of the

Division.

Counties comprised in the division

1. Gaspé, Bonaventure, Matane, Rimouski, Témiscouata.
2. Kamouraska, L'Islet, Montmagny, Bellechasse.
3. Dorchester, Levis, 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, Quebec, Montmorency.
16. Three-Rivers, Champlain, St. Maurice, Maskinonge.
17. Montcalm, Joliette, Berthier, L'Assomption.

18. Hochelaga
19. Argenteuil
20. Vaudreuil

b. Syndicates of
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18. Hochelaga, Jacques-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 will 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 specially 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 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 representative of the syndicates of the factories syndicated.

3. The association does not pretend to exercise any control over the interior management of the financial arrangements 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 book-keeping, sufficient to insure the exactness and integrity of the operations 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, other dairy-establishments, to the number of not fewer than (15) fifteen, or more than (30) thirty ; it shall have for its aim the spreading 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 the 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 the syndicate shall conform to the present regulations.

2. The syndicates 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 factories of a division provided that the former division.

9. The representative a president, a vice of the syndicate, correspondence shall

10. At the expense certified by its secretary and other expense carriages, railway instruments for the

11. As the grant in no case shall alone just mentioned dollars (\$250.00) ; dairy-season, after made to the association

12. A subscription of each factory to the directors may shall forward to the operations of their tion ; which shall interested.

OF THE INSPECTOR

1. The Inspector the Lieutenant-Governor appointed until he shall establish his qualifications The Inspector-General by the syndicates.

2. The duties of the best methods of the manufacture of dairy the factories, these with which their duties factories, between the

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 address 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 relation 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, &c., &c.

11. As the government grant is given specially for 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 provincial 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 association; moreover, they shall forward to the provincial 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 the other inspectors by the syndicates.

2. The duties of the inspectors belonging exclusively to the teaching of the best methods of 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 carefully 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 dismissal, observe 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 days alternately with each of them, to ascertain the efficiency of their services, their attention to instructions given, and the good management of the factories they have in charge. In these visits, the Inspector-General will 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 of 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 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; this report shall be in two parts; one containing matters interesting to the public, the other, private notes on the work of each of the inspectors.

§ 2.—OF THE INSPECTORS OF SYNDICATES.

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tions 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 as to make a regular routine journey from factory to factory.

8. After or about the 1st 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, communications, or other hinderances, 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 over 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 a *résumé* 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 may, if he desire it, 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, the maker, or 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 party or 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 the 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 very 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, or to be re-examined, or to be examined specially.

4. 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.

5. Even the board of directors shall be subject to the same rules as the board of examiners in case of a serious breach of duty, or of being unfit to discharge their duties.

6. If the number of candidates for the examinations is small, the board of examiners may allot for the purpose a number of the more distant factories.

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 examinations in more than one place, the association may, out of the funds allotted for the purposes of the syndicate, pay the half of the travelling expenses of the more distant candidates from their homes to the place of examination.

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REPORT " IN EXTENSO "

OF THE

ELEVENTH ANNUAL MEETING

OF THE

DAIRYMEN'S ASSOCIATION

HELD AT SAINTE-THERESE DE BLAINVILLE
THE 13th AND 14th OF DECEMBER, 1892.

Tuesday, December 13th, 1892, at 10.30 a. m., the Reverend M. T. Montminy, president, declared the convention opened.

APPOINTMENT OF THE COMMITTEES.

The following were named members of the committees :

For the examination of silage-samples : MM. J. C. Chapais, S. A. Fisher, and Ch. D. Tylee ;

For the examination of butter-samples : MM. Alexis Chiccoine, J. Aug. Hayes, and Aimé Lord ;

For the examination of dairy-utensils and machinery : MM. Marsan, J. Leclair, and Peter Macfarlane.

REPORT OF THE AUDITORS.

M. J. C. Chapais presented the following report of the auditors :

We, the undersigned, certify that having carefully examined the accounts of M. J. de L. Taché, Secretary-Treasurer of the Dairymen's Association and having investigated all the documents thereunto relating, we find everything in perfect order.

Still, the auditors think it their duty to mention the fact that the necessary expenditure of the Association has increased above its income ; but at the same time they must state that the progress caused by the labours of the Association must, in spite of the economy practised by the direction, have a tendency to increase rather than to diminish.

Consequently, we feel that we ought to draw the attention of the members of the Association now met in convention, to the necessity of searching for a source of revenue sufficient to meet all the expenditure which we consider as absolutely necessary for the accomplishment of the objects the Association has in view.

Ste-Thérèse, December 13th, 1892.

SYDNEY FISHER, }
J. C. CHAPAIS. } *Auditors.*

Mr. Ed. A. Barnard.—I have the pleasure of informing the members of the Dairymen's Association that the *Journal of Agriculture* will be sent to them, as usual, this year. From the 1st January, the *Journal* will appear in a *format* of double the size, will contain twice the amount of matter, and will have a department specially devoted to the dairy-industry. There will be several departments under the direction of competent men, the most competent we can find in the province; and I trust that people will profit by the fact of our having a little more room in our columns to send us "questions and answers": one desirous of information will send the questions; others, the most able, will furnish the answers; and, thus we shall be able to exchange our views with one another, and confer a benefit on the whole province by the information conveyed. It is highly desirable that we should make an effort in the province to enable all to benefit by the work accomplished by the Dairymen's Association, and by the sacrifices made by the government in favour of all those interested in agriculture.

You know, as well as I, that a new organisation, recognised by the law, has been recently established. Last year, about this time, a committee was formed to study the utility that might be found in a "Farmers' Syndicate" of the Province of Quebec, a syndicate having for its object the completion of the work which is being done here for the dairy-industry. This industry covers, so to speak, a considerable department of agriculture; still, these are agricultural questions that the dairy-industry cannot deal with.

To pass from great to small matter, alongside the dairy-industry there is another which may be easily connected with it, and which to those who know how to manage it may be the parent of great profit, although in appearance it is, to the unreflective mind, but a trifling pursuit: I mean the poultry-industry. We export annually \$2,000,000 worth of eggs and fowls. It is certain that by giving them skim-milk as part of their food, the hens would lay many more eggs than if we neglect to employ profitably the residue of the manufacture of dairy goods. This I say only as an instance; but there are crowds of other subjects, that I need not enumerate here, that are only connected in an indirect manner with the dairy-industry; and you understand that if a "Farmers' Syndicate" were to rest satisfied with treating only these subjects, it would be able to give a good reason for its existence.

One part of the work of the syndicate I should like to submit to you: its action

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on the choice of the market and the connection between producers and consumers. Every one knows how important it is to us that we should secure the best markets for our goods : you have heard of the misfortunes that, in some parts of our province, befell the cheese-makers and their patrons. Those who met with losses know about them better than I. But, by the side of this, there is a fact : there is a kind of cheese that is known by the name of *French-cheese*, especially in England and the States, but partially everywhere where commerce is carried on. This *French-cheese* is not the production of France, of Normandy or other parts of that country, but it comes from Quebec. And what is its character on the market? It is reputed the worst cheese sold in Europe. And, a strange thing ! the *best* cheese sold in Europe is the *French cheese* and the *English cheese* of the province of Quebec !

This is an intolerable state of things : that the province that marches side by side with the countries the most advanced in the dairy-industry, should have the reputation of turning out the worst goods ! Never mind whence it really comes ; from the States or from Ontario, if it is bad, it is certain it comes from the province of Quebec !

This is a question that the Farmers' Syndicate, uniting its efforts to those of the Dairymen's Association, must set to rights as soon as possible.

I will say no more ; this is sufficient to enable you to perceive how many questions a syndicate, recruited from among the principal members of your association, could deal with, what vast services it could render, and how fully it could develop the splendid work of this society : the Dairymen's Association of the province of Quebec .

The President.—I beg to remind all present that the subscription to our association is only a dollar a year, and for that trifling sum they may enjoy all the advantages our membership affords. The report they receive is certainly worth more than the subscription, and as Mr. Barnard has just told us, they will receive, gratuitously, the *Journal of Agriculture* for one year.

You must positively, be of my opinion, that the farmer of Canada does not read enough. This reproach falls harmless on the heads of those intelligent persons who with great exertions come from the furthest districts of the country to be present at our meetings.

These are indubitably intelligent, and are well acquainted with the benefits derived from books. But we are labouring for the general good of the province of Quebec.

And so, if we resolve, during the present convention, to work, each according to his powers ; if, on our return home, we start a sort of propaganda in our neighbourhood, I do not say in favour of this our association, but a propaganda among the farmers who never read, and persuade them to take in the *Journal of Agriculture*, and to read our reports attentively—we shall be doing a thoroughly good work.

The farmers of Canada do not read ; some of them read, but very few. If we could teach our farmers to read more than they do, they would alter their mode of farming ; they would acquire more extensive knowledge of things, and would understand them better.

And with a wise, intelligent system of cultivation, the *Canadian habitant* can make a fortune ! He need not emigrate to foreign parts, there too often to become an object of contempt, a discouraged pauper. Our country is rich ; it enjoys privileges ; we have only to cultivate it properly ; and thus improving our situation, we shall have no reason to envy the land of the foreigner.

Let us take a firm resolve to diffuse among the farmers, among our friends and relations, both the taste for and the habit of good reading and we shall have done a great deal towards the advancement of agriculture in the province of Quebec.

M. Chapais.—We have—when I say *we*, I am speaking of all those who are actively employed in agricultural pursuits, not only as concerns the direct cultivation of the soil, but from the standpoint of the great interest of farming in general—we, I say, have satisfied ourselves that the working of certain organisations that exist in the province is not all that it ought to be.

Blame, is always easier than approval ; but I think that in the case I am about to submit to you, blame may be rightly applied. Almost every one admits that our agricultural societies, such as they have been for a certain number of years, have not produced, in proportion to the sums expended on them, the result that they were expected to produce ; and it is one of the most difficult problems to solve, one that we have had to study for some years, viz., how to bring these societies to so discharge their duties as to satisfy the public, and above all produce the results we expect from them when we consider the sums expended in their support.

We believe that, in what are called Farmers' Clubs our real remedy is to be found. I will read a resolution containing a series of articles which make the situation clear enough. If the convention, after hearing it, and especially after listening to the lectures that will be given on this subject, as soon as I have finished ; if, I say, the convention think fit to adopt the principle laid down in the motion I am about to read, the affair shall be put into operation.

MOTION OF M. J. C. CHAPAIS IN FAVOUR OF FARMERS' CLUBS.

Considering : -- 1. That by article 1640 S. P. Q., the agricultural societies were formed with a view to the encouragement of the improvement of agriculture, of horticulture, of forestry, etc.

1. By the holding of meetings to discuss and listen to lectures on matters connected with the theory and practice of improved farming ;
2. By encouraging the circulation of the agricultural journals ;
3. By offering prizes for essays on the theory or the practice of agriculture ;
4. By importing or obtaining in some way or another well-bred cattle, new varieties of plants, and seeds and seed-grain of the best kinds ;
5. By organising ploughing-matches, competitions for standing-crops, and competition for the best cultivated farms.
6. By holding exhibitions."

2. That the major competitions or exhibitions mission entrusted to the progress of ag

3. That the agricultural difficulty in getting the farming matters ;

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5. That for all the half of our parish agricultural societies ;

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2. That the majority of the agricultural societies have only held annually competitions or exhibitions, and have thus neglected to discharge the greater part of the mission entrusted to them by government, with a view of contribute efficaciously to the progress of agriculture ;

3. That the agricultural societies cover too vast an extent of territory and have difficulty in getting their members to meet together with a view to hear lectures on farming matters ;

4. That in many places, questions of interests or of opinions in opposition to each other have left whole parishes outside the influence of the agricultural societies ;

5. That for all these reasons, in our present organisation, a great many if not the half of our parishes receive no benefit of importance from the grants to the agricultural societies ;

6. That, in several counties, in order to avoid the defects of our system, the formation of agricultural clubs has been legalised simultaneousty with the agricultural societies ; and that, in practice, these different organisations answered the wants of each locality desirous of advancing along the road of progress :

7. That the farmers' clubs, in our country, without any government aid, have rendered considerable service, and that they have been in a great degree the best agents in developing the dairy-industry, the principal agricultural industry of the country.

8. That it is just and desirable to grant the greatest facilities for the formation of parochial agricultural associations ;

9. That in the distribution of government grants to the agricultural societies of the country, it is fair to act as in the distribution of grants for the encouragement of primary instruction, where every organised school is assisted, so that the people at large are placed in a position to profit by the grants of public money ;

Considering all these things, this meeting is of opinion that the law ought to permit the government :

1. To assist every farmers' club that the farmers wish to form ;

2. To divide the annual grant to each county between the clubs and the agricultural society, *pro rata* of the respective subscription of each association.

I devote myself to the promotion of this idea: it is backed by Dr. Grignon who, as you know, has taken great interest in the establishment of these clubs.

I may say here, in few words, what the case is; a few years ago, when I was requested to make a special inspection of the different agricultural societies, I found that evils existed, and I laid bare, in an official report published in the blue-books of the department of agriculture of this province, all the defects that I had discovered. And, unfortunately, I had to expose so many defects; the defects so far exceeded the good effects, that the good effects may be put down as zero, the total summation consisting of the defects.

There are exceptions to this rule, but to show how far the working of the societies is, in general, defective, I may say that there is only one society in the

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whole province to which I was able to assign full marks : one solitary society followed the path of conduct laid down by the law !

It is eight years since I made this tour, and the defects have grown worse and worse. In view of this state of things, we have thought fit to create a new organisation, to pour fresh blood into the old veins. We have found in the establishment of *farmers' clubs* the remedy we were in search of.

In M. l'abbé Montminy, we have the champion of farmers' clubs. He has caused marvels to be seen in the parishes by means of these clubs. Those parishes that have been lucky enough to enjoy his superintendence have benefited by his labours and his zeal for agriculture. You, too, can see in the reports of this association what M. Montminy has done in this connection. Every one may convince himself of the great good done by these associations, and, consequently, I feel sure that in inducing this convention to try to obtain from the government the demands of the present motion, I shall have no opponent, but that, on the contrary, many backers will rise to support a movement like this.

Dr. Grignon is about to deliver a lecture on farmers' clubs, and when you have heard it, I feel sure that, in the discussion that follows, ideas will flow pointing out the means we wish to pursue for the advancement of agriculture, in every point of view, especially from the point of view of the dairy-industry, which is, to-day, our special object.

LECTURE BY DR GRIGNON.

THE WORKING UP OF THE AGRICULTURAL SOCIETIES BY THE FARMERS' CLUBS.

Mr. President and Gentlemen,

Before entering upon the subject I have been requested to treat : "The working up of the agricultural societies by the farmers' clubs," I must offer a tribute of respect and gratitude to those who have endowed our province with a Dairymen's Association, as well as to those who are now striving to propel it along the path of progress. Of course, all the makers of butter and cheese form part of it, and every farmer should hasten to become a zealous member of it, for it is easy to see that the more this association grows in prosperity and power, the more signal will be the services it can render, by attracting toward us, the *habitans* of Quebec, the attention, and especially the money, of the foreign consumer, always eager after good butter and cheese. I most earnestly pray for the success and prosperity of this great association.

Since have been invited by the Dairymen's Association to treat before you of the *fonctionnement* of the agricultural societies by the farmers' clubs, it must be because the Association considers that the bond of relationship exists between them.

In fact, let farmers' clubs be everywhere established, let discussions be held, and

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lectures given : the farmer will soon see that he cannot possibly be financially successful without devoting himself to the dairy-industry.

In May, 1888, the farmer's business was in a bad way in the North of the province, where, in the previous seasons, the worn-out soil had, at harvest, hardly repaid the grain sown in spring. At the sight of several families, wholly discouraged, who were making their way, bag and baggage, towards the factories of Montreal or of the States, M. F. X. Boileau, the schoolmaster of our village, but a schoolmaster devoted to the farmer-class, M. Boileau, I say, with a few farmers and myself, began to seek for means to be taken to put a stop to this emigration, a thing, up to that time, unknown in the North. We all came to the same conclusion : that our farms having been worn out by, a bad system of cropping, the mode of cultivation must be changed, the growing of grain must be abandoned in favour of the breeding of stock, and especially of the making of cheese and butter : that the stock of our farms must be improved, the pastures regenerated by the sewing of plenty of clover, particularly of white-clover in the rock-pastures where the land is unploughable ; that we must mutually instruct each other by means of discussions on different agricultural matters, and in a word, must unite together by the formation of a *farmers' club*. I communicated my impressions to the good, the regretted curé Labelle ; he in the following, autumn, sent us that eminent man who consecrates every instant of his life and the fruits of his studies to the benefit of the farmer, Mr. Ed. A. Barnard, to establish in the neighbouring parishes the bases of farmers' clubs like the one at Ste. Adèle. In the journey, Mr. Barnard did a heroic work, since in less than a fortnight, he, in spite of tempests, snow, and rain, which vainly attempted to bar his way, established twelve prosperous farmers' clubs, in the North of the county of Terrebonne, and 4 in Ottawa county. These clubs are established on such a firm foundation, that I defy you, my good friends, to upset them.

But what is the use of these farmers' clubs ?

It is on this question especially that I should like to meet my opponents.

Before 1888, by the confession of the shopkeepers themselves, there were hardly 500 lbs. of clover sold in spring in the parish of Ste. Adèle ; to-day, the sale amounts to from 3,500 lbs. to 4,000 lbs. I can speak boldly on this, since I myself have bought it, sold it, and weighed it for the last three years. According to the farmers' own statements, from 60,000 to 70,000 more bundles of hay are saved now every year than in the years preceding 1888. One man alone, M. Latour, has given me an order, for next season, for 100 lbs. of Vermont and Rawdon clover, and 100 lbs. of white clover. Of course, he has fine meadows and pastures, and makes money with his butter and fat stock. Previous to 1888, we used to buy clover of the shopkeepers, paying for it 18, 20, 25 and 40 cts. a pound ; now we get it for 10, 11, 15 and 16 cts. pound, with 3 or 4 months credit. The advantage of buying clover at this cheap rate, with 3 or 4 months credit, was soon understood by our farmers, who delight in taking advantage of the chance offered them, more in hand than in prospect.

By thus uniting and making a common purse of our subscriptions and the government grant, we bought Jersey bulls, boars and rams of the best blood, and these have greatly improved our stock. Thus, our cattle are worth more now than they were in 1888.

As sheep sell for 40 or 50 cents ahead higher than in 1888, we are gaining, on this point alone, from \$800 to \$1,000, for we sell yearly nearly 2,000 sheep. What then must be the profit made out of our cows and pigs?

Our cattle are better cared for, our cowhouses cleaner, weeds are destroyed; it must be so; for, during the last four years, we have held our second competition of the farms of the parish, and the judges from the next parish having to look over our farms, we should be ashamed to show them one in bad order. And when one has made a good beginning, it is so easy to keep on in same way.

We have only awarded nominal prizes to the winners in the competition of the best cultivated farms, preferring to keep our money for the purchase of thoroughbred stock.

The members of our farmers' clubs, besides the advantage they enjoy in being allowed the use of the bulls, rams, &c., *gratis*, have also at their service a certain number of agricultural implements. At Ste-Adèle, for instance, we have in every range, 2 horse-hoes for potatoes that earth up at the same time. This implement, doing the work of 10 men, for it is very light and yet does its work well, has the effect of inducing our farmers to plant more potatoes: and what a fine district for vegetables are our mountains. We have also two horse-shovels, stump-extractors, potato-extractors, seed-barrows, &c.

Of rams, we have 15, 6 of which are Shropshires, to replace the Cotswolds, and these are distributed here and there throughout the parish. The members take turns to fetch the ram, which they keep at their place two or three days. In other parts of the parish, the ewes are taken to the ram. He who has charge of the ram keeps it for two years, having the wool for his pains; the ram is then sold by auction, the price returning to the club. This is not much, you will say, for the man who keeps the animal; still, on these conditions, we could let out 100 rams, if we had them.

As to boars, we buy 3 or 4 every year. This year, we have 58, all registered, distributed about in the parish. We buy them at 4 weeks old, and thus get them cheaper.

The services of these breeding-animals do not cost the members a cent. The guardian, at the end of the season, gets the boar for his own, as a recompense for his trouble.

From 15 to 20 dollars are paid to the owner of a fine bull for its gratuitous services.

I have adopted the principle of making the members pay as little as possible and reap as many advantages as possible.

To encourage the expensive, as I make to which establishments receive samples of oil Terrebonne, in April, members. These oat bushels of very heavy selling at St-Jovite for price, while my neighbour This good neighbour member of the club.

At Ste-Agathe, a neighbour, a member, from his two little boys heartily ashamed of his might profit by the ad "The Prize Cluster." potatoes called "Red-I tive and not subject to got, on an average, 1 bushel. Here, then, are about 1 since they do not rot, unless it be the cost of of these potatoes, which some of these owed their

To the prizes given each member I gave 3 cents each, from M. Aug I spread through the parish in those for which we use for 5 years. There will they have cost \$60, and the due to their children that to To this I added an wheat; the name of which years, we shall have some \$6.00.

To each member, also a farmer to give green-m rays of the August sun. try and sow more than a the making of butter in v

To encourage the farmers to join the clubs, I award them prizes, and this is not expensive, as I make these presents at the cost of the Experiment-station at Ottawa, to which establishment I forward the names of my members, and from which they receive samples of oats, wheat, barley, or potatoes. The 8 clubs of the North of Terrebonne, in April, 1891, got two small bags of oats, 6 lbs. each, for every one of their members. These oats, if the yield is like that of last year, will yield us nearly 8,000 bushels of very heavy oats, quality fine, and very productive. These oats are now selling at St-Jovite for \$1.00 a bag. In fact, last year, I myself sold all I had at that price, while my neighbour, who offered his at 70 cents, could not find a purchaser. This good neighbour was convinced by the evidence of the market, and is now a member of the club.

At Ste-Agathe, a farmer, too clever to become a member of the club, offered his neighbour, a member, \$2.00 a bushel for the 4 bushels of oats that he had harvested from his two little bags. The member refused the offer, and our learned friend, heartily ashamed of his folly, gave in his name to the club, that he, like his neighbour, might profit by the advantages offered to intelligent farmers. These oats are called "The Prize Cluster." Last year, I also gave as prizes to each of the members 3 potatoes called "Red-Dacotah," proved at the Experiment station to be very productive and not subject to the disease. From each of these potatoes, the 126 members got, on an average, 1 bushel. This year, they got 10 bushels each from their bushel. Here, then, are about 1260 bushels of potatoes of a precious and exceptional quality, since they do not rot, spread over the parish, without their costing any one a cent, unless it be the cost of 6 bushels of potatoes = \$2.40. Out of a crop of 300 bushels of these potatoes, which I grew this year, I only had half a bushel of rotten ones, and some of these owed their defects to having partly stood out of the ground.

To the prizes given by the Ottawa government, I, this year, added others. To each member I gave 3 small apple-trees, grafted on Siberian stocks; they cost 3 cents each, from M. Auguste Dupuis, of P'Islet. Thus, for the trifling sum of \$11.34, I spread through the parish 378 apple-trees, in which I have greater confidence than in those for which we used to pay 50 cents a piece. I intend to repeat these prizes yearly for 5 years. There will then be nearly 2,000 apple-trees in the parish, which will only have cost \$60, and the delicious fruit of which will surely recall to the members and to their children that to belong to a farmers' club is a good thing.

To this I added another prize; I gave 3 lbs. of a very fine kind of buckwheat; the name of which I could not learn, even at the Experiment-Station. In 2 years, we shall have some to sell; and all the cost will have been the trifling sum of \$6.00.

To each member, also, I gave 5 lbs. of Western corn, to show them that it pays a farmer to give green-meat to his cows when their pasture is burnt up by the fierce rays of the August sun. I feel sure that next year many of them, perhaps all, will try and sow more than a bushel. This will lead by degrees to the silo, and that to the making of butter in winter.

Next year, I intend to give them strawberry-plants, as prizes : *Sharpless* especially ; and thus, year by year, I shall have something to give them that will pay well and yet cost the club but little. I profit by this occasion to suggest to the Minister of Agriculture at Ottawa that it would be fair to offer the good things supplied by the station only to those who belong to some one or other of the Agricultural Associations.

Thanks to the establishment of our farmers' clubs, wherein we can so easily reach the masses, we have set up, in two years, 5 creameries and one cheesery, all on the road to prosperity. And how well these fine mountains of ours, covered with a thick, verdurous turf, through which flow abundant streams of pure and limpid water, adapt themselves to the breeding of stock and the manufacture of butter and cheese ! I am delighted to tell you that Mr. Kimpton, who won the 1st prizes at Montreal and Sherbrooke, two years running, for creamery butter, told me, positively, that no spot in the Dominion was better suited to the manufacture of butter, than our Laurentides ; with their springs of cold water, he said, we require no ice, and that butter was more quickly made here and had a finer flavour than that made in the lower regions. And this is easy of comprehension, if we consider that in the low-lands cows have but too often foul and muddy water to drink, and milk contains $\frac{1}{2}$ of its bulk of water.

I beg then the Dairymen's Association to put itself into communication with our farmers' clubs, and to turn their eyes towards our mountains. In this way, you will establish a certain stream of emigration towards this fine part of the province and prevent thousands of our fellow-citizens from leaving their country.

What I have just said about the farmers' club of Ste-Adèle applies equally to the clubs of the vicinity, but in a less extended sense. Do you ask, why ? Because the members are not numerous enough. But this has been quickly understood. We had 210 members in 1883, now we have 333.

The Agricultural Society No. 2 of Terrebonne is composed of 8 parishes, or rather of 8 farmers' club comprised in the following parishes :

St. Jovite.....	21	members
St. Faustin.....	19	"
Ste. Lucie.....	22	"
St. Hypolite.....	15	"
Ste. Marguerite.....	20	"
St. Sauveur.....	25	"
Ste. Agathe.....	85	"
Ste. Adèle.....	126	"
Total.....	333	

The entrance-fee is \$1.00, but our sessions are open to the public, and anybody may take part in the discussions. Each member has a right to receive 50 cts. in

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NAMES OF CLUBS.

Ste. Adèle.....	1
Ste. Agathe.....	1
St. Sauveur.....	1
Ste. Lucie.....	1
St. Jovite.....	1
Ste. Marguerite.....	1
St. Faustin.....	1
St. Hypolite.....	1

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clover-seed, he receives the Journal free, which is worth 30 cts., so that for the balance, 20 cts, a member participates in all the advantages mentioned above.

In order to establish a competition among the clubs, to incite them to add to the number of their members, we divide the grant *pro rata* of the subscription of each club. In the general expenses, such as the salary of the secretary-treasurers, printing, etc., the clubs having the largest membership cooperate *pro rata* of their subscriptions, so that the clubs having most members pay in proportion to that which they have received. Here is a table, in 8 columns showing the share which accrues to each farmers' clubs.

A table showing the share of the Government grant that accrues to each farmers' club in the Agricultural Society, No 2, of the County of Terrebonne. The grant is \$328, the Government having retained 18% on the amount of the grant, \$400 ; and this, added to the sum of \$5.00, balance in cash, forms an amount of \$333 to be divided among the farmers' clubs.

NAMES OF CLUBS.	Amount subscribed by each club.		Amount paid in the course of the year.		Balance of subscription due to each club.		Share of the grant due to each club.		Total due to each club.		Deduction for general expenses.		Definite balance due to each club.		REMARKS.
	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	
Ste. Adèle.....	126	00	126	00	0	00	126	00	126	00	25	40	100	60	
Ste. Agathe.....	85	00	85	00	0	00	85	00	85	00	17	00	68	00	
St. Sauveur.....	25	00	25	00	0	00	25	00	25	00	5	00	20	00	
Ste. Lucie.....	22	00	22	00	0	00	22	00	22	00	4	40	17	60	
St. Jovite.....	21	00	21	00	0	00	21	00	21	00	4	20	16	80	
Ste. Marguerite.....	20	00	20	00	0	00	20	00	20	00	4	00	16	00	
St. Faustin.....	19	00	19	00	0	00	19	00	19	00	3	60	15	40	
St. Hypolite.....	15	00	15	00	0	00	15	00	15	00	3	00	12	00	
	333	00	333	00	0	00	333	00	333	00	66	60	266	40	

Every year, in the second week in December, after notice given by the secretary-treasurer of the farmers' club, there is an election of the president of the club, who is *ex-officio* a director of the Agricultural Society, which assembles at Ste. Agathe, to meet its colleagues, on the 3rd Wednesday in December. And there, if it appear that the clubs have omitted to name a director, the nomination of one is proceeded with, and the secretary-treasurer delivers the accounts he has received for each farmers' club. In January, all the directors meet to draw up the programme of operations for the current year, a copy of which is handed to each of the secretary-treasurers of the clubs by the secretary-treasurer of the Agricultural

public, and anybody
receive 50 cts. in

Society. The duty of the directors is to see that the programme is in conformity with the wishes of the Council of Agriculture, and to cause its regulations to be obeyed.

In the course of the year, the 8 clubs hold a convention, which has the character of a fête both civil and religious. In the forenoon, there is High Mass with a sermon a propos of the circumstance; and, in the afternoon, a meeting of the members, where the wants of each club, the progress made or to be made, are discussed. This fête takes place in each parish by turns; and I attach much importance to it. This year, 6 of our good curés were present at the fête, and took an active part in the deliberations of the delegates.

Before concluding, allow me to offer my thanks to Mgr Fabre for the kindness he shows towards the farmers of the country in asking our good curés to engage actively in the formation of the clubs. The main object is attained; thanks to the influence of our devoted clergy, the clubs are about to spring everywhere into life as if by enchantment; and this will have the effect of causing a healthy change in the agricultural body, and will erase the evils of emigration so injurious to the prosperity of our noble province.

Thanks, Gentlemen, for your attention.

DISCUSSION ON THE LECTURE OF DR GRIGNON.

The President.—It is the custom of those who have remarks to make on the lectures given here to make them as soon as the lecturer has finished, so that he may reply if necessary. Dr Grignon tells me that he expects to meet with opposition, and that he is ready to meet both friends and foe. He seems to be pretty well built; and if you choose to attack him, he is ready to meet you.

Mr. Barnard.—Were I opposed to the Dr, I should be afraid to meet him; but I feel that, to-day, he has given us an evident proof of the utility of the clubs, and of the changes that they are likely to bring about over the whole of the province. I am glad to offer him my thanks, and I think it is my duty to thank him the more, since he deserves the success he has met with. This success is his due.

You have heard him report the results of his work which are really marvellous. But, on the other hand, we must not forget that these results are due to constant efforts, to persevering labour, to exertions that may well be called heroic. And, Gentlemen, if we mean to succeed, if we desire that our farmers shall adhere to the soil of the province of Quebec, their brow loftily erect, and with as much success as their children meet with in the liberal professions, we must study how to open their road for them, by organising ourselves in the different parishes, and by appealing to the devoted assistance of all.

Dr Grignon showed us what has been accomplished since 1888. At that time the discouragement was complete, and now, in only a few years, if we have not

stirred up the whole creating in favour of to the province.

I will not enlarge the thorough discussion created and developed promoters of the clubs what have the clubs c

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I will not detain yo the agricultural societies question the Dr. He ca society No. 2 of the c amazingly. The exampl exertions he has made, w useful work of Dr Grign system and societies that

Mr. D. O. Bourbeau.

Mr. Barnard.—Mr. I district, the Eastern Tow will be interesting to hear of the club; I fancy there

Mr. Bourbeau.—Whe to be called upon to speak us about.

stirred up the whole country, we have at least, by our organisation succeeded in creating in favour of colonisation a movement that is worth many a thousand dollars to the province.

I will not enlarge any more on this subject, but I think the time has arrived for the thorough discussion of the questions concerning the agricultural societies, as created and developed by the farmers' clubs. In some places it was supposed that the promoters of the clubs wished to destroy the societies. Instead of killing the societies, what have the clubs done in Terrebonne ?

We are now in that county : the majority of the audience probably comes from the neighbourhood, and will remember what I am about to say.

Formerly, there was in this part of the county of Terrebonne a solitary society. Belonging to it were men devoted to the work, men capable of self-sacrifice, giving up their time to the cause of agricultural progress ; but, as it was the only society in this large county, it arrived at no result ; every member used to say : " We cannot do the good there is to be done, and if each draws back or pulls toward his own side, you know how things go." What was the upshot of this state of things ? It was this : in spite of the members for the county subscribing \$30 apiece, and the seminary of Ste. Thérèse making, for its part, great efforts, the society had hardly 55 or 60 members, who enrolled themselves in order to get the government grant, and the whole of the North of the county remained excluded from the society. No means of getting there ; it was too far off, and the people were as yet too poor. And the results ? There was hardly any result in the county.

It has been said that the clubs would destroy the society ! The society has been divided into two parts ; the organisation has been carried out in accordance with the law ; clubs have been formed, and what is the consequence ?

This : in the old parishes, it has been thought wise to imitate the young ones.

I will not detain you longer on this point, but I must tell those who imagine that the agricultural societies will be injured by the new clubs that they should rise and question the Dr. He can give the best replies ; as the secretary of the agricultural society No. 2 of the county of Terbonne, he has succeeded in helping it along amazingly. The example he has given, the papers he has published, in a word, the exertions he has made, we know throughout the province of Quebec ; and it is on this useful work of Dr Grignon that, over the entire province, we are about to found a system and societies that we believe will prove more useful than those of the past.

Mr. D. O. Bourbeau.—I rise in support of the remarks just made by Mr. Barnard.

Mr. Barnard.—Mr. Bourbeau has formed a farmers' club ; he has done for his district, the Eastern Townships, what Dr Grignon has done in his county ; and it will be interesting to hear what he has accomplished in his neighbourhood by means of the club ; I fancy there is no agricultural society where he lives.

Mr. Bourbeau.—When I rose to support Mr. Barnard's remarks, I did not expect to be called upon to speak at length on the question Dr Grignon has been addressing us about.

For, indeed, he must have had very great trouble in organising the farmers' clubs in Terrebonne, if I am to judge by what happened with us. No such apathy exists, perhaps, here, as with us, about attending the lectures at the farmers' clubs. Farmers, in general, think themselves too well informed to be present at the meetings of the clubs organised in their parishes. In general, there is too much apathy; the means that Dr Grignon, in the excellent lecture he has just delivered, proposed, seem to me to be thoroughly practical, and we ought to adopt them with eagerness, in order to stimulate the farmers, and induce them to frequent more regularly and in greater numbers the meetings of the farmers' clubs.

There are doubtless in the province men devoted to the interests of the farmer; men who, though not having all the special interests he has, devote themselves to his aid, perceiving clearly that there is something deficient in this class, whether it be want of proper information, or the requisite encouragement.

These persons, I say, seeing that the farmer class is in need of stimulants, form clubs, and, to their deep regret, find that the farmers will not attend the meetings in sufficient numbers. I fancy this apathy is pretty prevalent everywhere. The fact is, farmers have not, as a rule, enough confidence in themselves; and when they are told that they are members of the noblest class of all in the social band, they only half believe the statement.

A few days ago, I was reading, in the *Country Gentleman*, about a certain club which might properly be called a *farmers' club*; people had been trying to get farmers of the neighbourhood to meet together, just as those gentlemen who are at the head of our clubs do. They had tried to get the farmers together, but being, not catholics but protestants, they had not the good fortune to have at their head the members of the clergy to lead them and inaugurate the sessions by a solemn mass.

Therefore, in the States, it was a protestant fête, a festival of farmers. The president introduced a lecturer, who had come a long journey for the purpose of addressing the audience; he was a distinguished professor; but, to his great regret, he found the attendance very slight. He spoke thus: "I am deeply sorry that the members of the agricultural population do not show more ardour in attending these meetings which ought to interest them greatly. Had it been instead of an agricultural meeting, a theatrical company or a circus, the audience would certainly have been more numerous and much more deeply interested in the proceedings. I regret this infinitely; because like many others who have come hither to communicate their knowledge to the farmer, I find myself addressing a vacant hall."

It is then not only the farmers of the province of Quebec who are justly reproached with neglecting to attend agricultural meetings. But I trust that the farmers' clubs, such as they have been described in the lecture just delivered, will render us great service, and, for my part, I am determined to support them in the different counties with every energetic means in my power.

Each member of these clubs has to subscribe \$1.00; but all know that they will receive in return double the amount of this subscription, for the government grants

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I will say no more so interesting as it is the sessions, taking I There is much to be I am one of those who do their best to of the province of Quebec firmly believe that it that they will arrive must arrest the tide of grieve over.

Pray receive my to address you at such patiently.

The motion proposed put to the vote.

M. T. Brodeur.— with farmers' clubs, such not be able to co-exist. means he has used to see them adopted by the agricultural government grant should retain at least half of it

an aid of as much. Having paid their subscription, farmers should compel themselves to attend the meetings, for at these meetings there is always something new, something useful, to be learnt.

I have attended some meetings of clubs in which I have been greatly interested, and where I have seen put in practice a proceeding that is very well adapted to diffuse agricultural information : it was a system of questions and answers. By this means, men of science communicated their knowledge to those who have never had the advantage of instruction ; and, at the same time, the farmers could communicate to their neighbours the results of their experience ; and all this costs but a trifle.

I remark with pleasure how Dr Grignon deals with his different clubs. The means he takes to stimulate the farmers is efficacious, and costs nobody anything. He has had the seeds and seed-grain from the Experiment-Station at Ottawa, and distributed them to the farmers, the members of the clubs. Thus, he not only encourages the farmer, but he changes the seed by means of the varieties that have been tested and approved at the Experiment-Station.

What are wanted in the province of Quebec, what will be accepted and welcomed, are things that do not cost much. Dr Grignon has thoroughly appreciated this, and hence his success.

I will say no more, gentlemen, for the present ; I trust that during this convention, so interesting as it must be to the Terrebonne farmers, we shall see them attending the sessions, taking part in the discussions, asking questions, and giving information. There is much to be learnt here ; not that I can teach you, for I am no farmer ; but I am one of those who are devoted to the service of the farming class, one of those who do their best to assist the farmer, and who see with pleasure the Canadian farmers of the province of Quebec becoming successful, and growing better crops. And I firmly believe that it is by frequenting these meetings, by trying to gather knowledge, that they will arrive at better results, win for themselves greater revenues, and this must arrest the tide of emigration to the States, a sore which we have at present to grieve over.

Pray receive my thanks, Mr. President, for your goodness in having allowed me to address you at such a length. I also thank the audience for listening to me so patiently.

The motion proposed by Mr. Chapais, and seconded by Dr Grignon, was again put to the vote.

M. T. Brodeur.—I will take upon myself to make a few remarks. I fear that with farmers' clubs, such as are intended to be formed, the agricultural societies will not be able to co-exist. On many points, I agree with the lecturer ; I applaud the means he has used to stimulate farmers in their business, and I should be glad to see them adopted by the agricultural societies. But I do not think the whole of the government grant should be taken away from the societies : I think they ought to retain at least half of it.

It would be a misfortune were the societies to disappear. I hope every good work will be encouraged, but I should prefer good being done through the agricultural societies and not at the price of their injury. If you believe that the result arrived at can be secured without the societies being abolished, I have nothing to say against the motion.

Dr. Grignon.—I think we can satisfy you : you may have both the societies and the farmers' clubs. All parishes do not want the same thing. By allowing the grant to be divided between them, each can apply its own share in accordance with its own wants.

People seem to fear that there will be no more exhibitions, if the motion is carried. At our place, we do not feel as if we wanted an exhibition : we have nothing to show. We must first improve our stock, and, then, in four or five years, we shall hold a county exhibition which will be as effective as the present county shows.

In the Society, No. 1 of Terrebonne, comprising the richest 8 parishes of the county : Ste. Thérèse, St. Janvier, St. Jérôme, Glasgow, Ste. Sophie, Terrebonne, &c., there are only 53 members.

The members of this society have always complained that the same men invariably profited by the funds, and many left the society, because they found that they derived no benefit from it. On the contrary, in each club, there is a president, vice-president, a committee, and the accounts are investigated every year : it is ascertained whither the money goes and whence it was derived. The secretary-treasurer of each sends his accounts to the general-secretary-treasurer of the society, whose accounts, in their turn, are submitted to the auditors.

The president of each club is also a director, *ex-officio*, of the society, and protects its general interests. Then, too, each club looks after its own affairs. It is thus that we succeed in satisfying the demands of each parish ; and this by no means excludes the county exhibitions, which can be held from time to time, say every 5th or 6th year, and which would answer the same purpose as they do to-day. The funds economised by the clubs and societies would furnish the prizes for the exhibitors.

M. Beauchamp, M.P.P.—The session is about to close, and I see that we are approaching a long discussion. Still as I have this opportunity, I will say a few words in support of what has fallen from my friend M. Brodeur.

When my friend Dr. Grignon, was speaking of the encouragement to be given to the farmers' clubs, I was quite on his side, and I even rose to support the resolution ; for I had not heard the whole of the lecture, and when I heard him ask for part of the public grant, I understood he was asking for a share of the sum voted by government ; and the government might add to this sum. But I, by no means understood that he desired a share of the grant assigned to the agricultural societies. For, I do not hesitate for a moment to say that, if farmers' clubs are allowed to be got up in certain counties, where the parishes ask for them, and that, if by this fact itself, these clubs have a right to a share of the \$656 granted by government to the agri-

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Farmers are well aware of one thing: the centralisation of the agricultural societies has often been discussed of late; permanent buildings are proposed to be erected in a fixed spot in the county, so that the exhibition may always be held in the same place. And why? To make visitors pay 10 cents for entrance, and thus increase the prize-fund. Do you think this would be very encouraging to you, to fatten your cattle and take them to the show, with all the expenses and no little damage done to your animals, and all for the chance of getting a prize of \$2 or \$3? The farmer says to his son: "My boy, don't take your cow there; two or three dollars! What's that?" You know that money is the sinews of war; prosperity depends upon its possession; and I, who have taken a great deal of interest in the agricultural society of my county, have always especially worked towards this end: the increase of the value of the prizes, so that they be more remunerative.

What, do you ask, would be the effect of these prizes being more valuable? This: the son, seeing by the programme of his society that a prize of \$15 would be offered for, say, the best Ayrshire calf, would say: "We shall win the \$15, and the calf won't cost as much; I'll go and buy one." He hopes to win the prize; perhaps he will not, but, all the same, the main object will have been attained.

I heartily congratulate Dr. Grignon on what he has done for his part of this county; it is well done; cannot be better. But circumstances are not everywhere the same. In his district there is no competition; there, the clubs answer the purpose. In other districts it is different.

He says that exhibitions may be held every 5th or 6th year. He has only been a secretary for 3 or 4 years. When he has been longer in office he will see what it is: he will find what a trouble it is to get in the subscriptions. This is so difficult that the law authorises the secretary-treasurer to retain the annual subscription to the society out of the prizes that may be won. And yet, this subscription is only a dollar and it confers the right to receive the *Journal of Agriculture* for 30 cents: and even this is refused. My county is a rich one: the county of *Deux-Montagnes*; there, we have always been able to collect, with a good deal of trouble, though, sufficient to entitle us to the grant; therefore, I thank Mr. Brodeur for having asked that the grant to the societies be not touched.

It has been asked: Do we get enough in return for the money we give to the societies? Were you to calculate the immediate profits, to reckon, year by year, the \$656 given by government, the question might be answered in the negative. But if you look at the whole results, during the 30 years this work has been in operation, or if you figure it to yourself as having never existed, you will find that we should be a century behind hand compared with Upper-Canada.

Agriculture is more advanced in Upper-Canada than here; and yet they do not hint at reducing the grants to the societies.

I hope, then, that the clubs will be encouraged and that farmers will make it a duty to attend the meetings. My great fear is that they will not attend.—Men as earnest, as zealous as Dr Grignon are not to be found everywhere. If they were, we should feel more confident. In other districts, this is what is said: "Pierre, you come here to deliver lectures: you had better go and mend your fences." "No one is a prophet in his own country."

There is no better way of obtaining instruction than by meetings and discussions. There is one thing I regret: we farmers, and I am a farmer, do not understand our own business. I hope we shall learn it before long; I have brought a good many with me to attend these sessions, and I feel that we shall not regret having come.

Mr. Barnard.—I believe our meeting to-day is the largest our association has ever held. We are discussing one of the most important of all questions, and I would suggest that it be renewed immediately after dinner.

13th December, 2 P. M.

AFTERNOON SESSION

DISCUSSION OF THE SUBJECT OF FARMERS' CLUBS.

Dr Grignon.—One of my adversaries—but, I forget, there are no "adversaries" here, in farming affairs,—one of the members of the association has asked me to request the Assistant-Commissioner of agriculture to close the discussion by giving his opinion on the motion now before us.

The President.—As this motion is of very great importance, and must deeply interest every farmer; and as it is by acquainting ourselves with both sides of a question that a right judgment may be formed as to the measures proper to be taken, no doubt, the Assistant-Commissioner will be good enough to give us some information on the subject. If there be a man here capable of, I do not say of settling the question but of advancing it towards a conclusion, he is certainly that man. I, therefore, in the name of the Convention, request Mr. Gigault to give us his views on this matter.

SPEECH OF MR. G. A. GIGAULT, ASSISTANT-COMMISSIONER OF AGRICULTURE.

Mr. President and Gentlemen,

Until yesterday morning, I was in hopes that a more authoritative, a more eloquent voice than mine would be heard here to-day: I mean the voice of the Hon. Louis Beaubien, the Commissioner of Agriculture and Colonisation, whom unfortunately, uncontrollable circumstances have prevented from being present. Yesterday, at 11 a.m., he requested me to come hither as the representative of the department of agriculture, adding, that it was fitting that this department be represented at a

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meeting held under the auspices of an association so important as the Dairymen's Association, an association that has rendered such signal services to the cause of agriculture. Your association has only been in existence for ten years, and the results it has produced for the interests of agriculture are immense. The Dairy-industry is important on account of its products, as well as on account of the very considerable influence it has on agriculture in general; and I am not surprised to see, to-day, that not only the subjects connected directly with the dairy-industry are discussed here, but questions the solutions of which interest the farmer-class in general.

The good done by your Association shows the importance, to a province, of having its institutions well organized. If we can boast of the superiority of our political institutions, let us put ourselves also in this position, when agriculture is concerned, when an industry that is the foundation of the national prosperity is concerned; let us put ourselves, I say, in the position of being able to affirm that we possess institutions the best adapted to develop our agricultural resources, and to maintain our province in the state it ought to occupy, by reason of the fertility of its soil.

By means of the Dairymen's Association, we have laid under contribution the intelligence, the devotion, and the spirit of self-sacrifice of its members; and they have shown by their exertions that they thoroughly understand the subject they are engaged in.

In obedience, gentlemen, to my superior, the Hon. Commissioner of Agriculture, and, also, to gain such information as shall enable me to fittingly discharge the important duties I have been entrusted with, of which charge I feel myself unworthy, I have briefly studied the agricultural laws, not only of the different provinces of Canada, but also of foreign countries, as well as the working of their agricultural institutions, in order to make a comparison between them and those we ourselves possess. We should always try to profit by the experience, the knowledge and lights acquired by foreigners. This is so much work done ready to our hand, and which we may turn to account without imposing on ourselves any great amount of trouble.

The resolution before you involves one of the most important subjects. One of the first "considerants" is that, in virtue of article 1640 of the Revised Statutes of Lower-Canada, the agricultural societies were established for the purpose of assisting agriculture by the holding of meetings for discussion, and for the delivery of lectures, on subjects connected with the theory and practice of improved agriculture. This first "considerant" clearly shows the object to which the agricultural institutions owe their existence.

If this Dairymen's Association had limited itself to the holding of exhibitions of butter and cheese, it would certainly never have obtained the success that has crowned its efforts. Exhibitions have for their aim to make people admire the effect, the product of knowledge and skill, not to show the cause whence these things spring. And the first thing we ought to endeavour to show is the cause. Well, Gentlemen, if the Dairymen's Association, I repeat, had rested satisfied with holding exhibitions of

butter and cheese, if it had not held important conventions, like the one we are attending, inventions that permit skilled workmen and distinguished agriculturists to diffuse useful knowledge among the agricultural class, to enable them to manufacture goods whose quality will allow of our farmers competing with advantage against the foreign farmer, this association would never have obtained the results it is so proud of.

The legislature, too, when passing the laws regulating the agricultural societies, laid down for the first condition, that they should contribute to the diffusion of agricultural information.

Have these societies discharged the duties for which they were established? It is for you, Gentlemen, for you who are farmers, you who have so often witnessed their operations, to say if, in good truth, they have endeavoured to diffuse the knowledge required for the production of goods, whose quality would permit you to sustain, advantageously, competition with the products of other countries.

Above all things, I am anxious that there be associations useful to the farming population. The name they bear is of no importance; be they clubs, committees, or societies. We must strive to gain the object, the legislature pointed out in the article 1640, when it required that, in the first place of all, these associations should endeavour to diffuse information on agricultural matters.

Before a workman can construct a masterpiece of art, he must serve his apprenticeship. If agricultural instruction be considered necessary, we must especially try to secure institutions that shall cause the idea of progress to penetrate into all parts of the province, and to place every one on an equal footing with all his fellow countrymen.

Dr Grignon, in the admirable lecture we have just listened to, spoke of the limpid springs that exists in his district. Of what use would be these springs, did they not collect in little streams, spreading over the fields, irrigating and fertilising them? Well, sirs, we too have equally beneficent springs: we have our schools of agriculture, our experiment-farms; we have our Journal of agriculture, conducted by capable editors. But to possess these sources (1) of instruction is not enough; the knowledge acquired by the directors of these institutions must be diffused over the whole country. There must be associations to serve as the vehicles of these acquirements, and cause the idea of progress to penetrate everywhere, throughout the most "landward" parts of the province of Quebec. (Cheers.)

In a report I have just seen, mention is made of the fact that, formerly, the cheese made in the province of Quebec used to be inferior to the cheese made in Ontario. The reproach, that Quebec is behindhand and that her agricultural products are inferior, has often been brought against her. In reply to these malevolent remarks, let us endow our province with institutions that shall show that we are trying to gain instruction in farming as well as in all other arts. It is much to be desired that all

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our agricultural institutions were as useful as this of yours. Thanks to the instruction you have spread abroad, our dairy-products do us credit on foreign markets. You have borne in mind the advice of Dombasle, when that distinguished *agronome* said : *when at work, always keep your eyes fixed on the market.*

Such is the advice we must give to the farmers. Now-a-days, because of the development of the railroads and navigation, we may say that we have the universe for our market, wherein the Quebec farmer has for competitors nearly all the farmers of the world.

For, in truth, Gentlemen, who is the producer whom you meet with to-day on the English market ? Not only French, Danish, American producers, but even the Australian. In spite of the vast distance that separates England from Australia, the latter country exports to England a greater quantity of butter than we do. And, yet, compared with Australia, we are at the very door of England.

I am, therefore, right in saying that the development of railroads and navigation have altered the circumstances in which agriculture is placed. Formerly, you had a confined market; but, now, you have to sustain a very lively competition, and that with the farmers of many countries. A nation, that to-day governs the market, thanks to the superiority of its goods, may, perhaps, to-morrow be supplanted by its neighbour, because the latter, having improved, has succeeded in increasing the yield of its land, and in amending the quality of its goods.

Denmark has possession of the English market, because it produces an article of superior quality. That country, with a population of only two millions, exports to England twenty-three million dollars worth of butter; while we, Canadians, who reckon five millions of souls, only send her butter worth one million dollars.

Here is certainly an improvement to be made. Monsieur Beaubien, the Commissioner of Agriculture, sees it clearly. That is the reason why he is offering a prize for winter-butter-making, and in following out such a policy, he is indisputably coming to the assistance of the farmer.

I said, just now, that for the purpose of properly discharging the duties that have fallen to my lot, I have had to study the agricultural laws of other provinces and of other countries. Mention was made of Ontario just now: I have on my table the laws that regulate the organisation of her agricultural societies. The farmers of that province enjoy, to the fullest extent, the liberty of association. There, not only is the organisation of county agricultural societies allowed, but also the formation of township agricultural societies. Fifty, or more persons, in a township may organise themselves and get up an agricultural society, and this society has a share of the annual grant. Seven hundred dollars are granted by the Ontario government to each county society, and the law decrees that $\frac{2}{3}$ of the seven hundred dollars shall be divided between the county and the township societies.

Last summer, I visited the Maritime provinces. I felt it to be my duty to visit all the departments of agriculture, and to examine the laws that regulate the organisation of agricultural societies. There, too, I found the most perfect freedom

allowed in the formation of these associations. In every county, the farmers may get up as many as they care to have.

There are counties, Lunenburg for instance, in which there are eight agricultural societies. Their government is not so liberal as ours; it only grants \$200 a county, where there is only one society, and \$400 when there are several. This \$400 is divided between the different societies, as many as the farmers choose to form.

In the report of the agricultural department of agriculture of Nova-Scotia, you will find that each society there carries on intelligent and well directed operations. Many of them spend ten, fifteen, and even twenty dollars a year for the best books on farming.

In Europe, what do we see? Consult the laws and reports of Belgium, and you will find there a great number of agricultural committees, of agricultural and horticultural societies. No restriction as to numbers.

In France, one of the most advanced countries from an agricultural point of view, there are both agricultural societies and committees. The law of the 20th March, 1851, confers the right of organising in each township (*arrondissement*) as many agricultural committees as the farmers may desire. Besides these associations, there are in France more than 800 syndicates, which employ themselves in diffusing the information required by the agriculturist.

Latterly, the government having shown an inclination to confine the powers of the syndicates, the Société des Agriculteurs de France, one of the most enlightened bodies in the world, met and passed resolutions protesting in the name of Liberty against the intention of the government. If there be a class for whom this liberty should exist, it is clearly the class of farmers, who only ask permission to meet for the purpose of mutual instruction. The Association of French farmers was therefore right in protesting, in the most strenuous manner, against the assault the government was meditating against the liberty of association among farmers.

In Austria, too, agricultural associations are numerous.

In almost every country, the greatest freedom in forming associations is accorded to the farmer. Call them: agricultural societies, farmers' clubs, committees, syndicates, what you will; the name is of no consequence, provided that they do not hinder progress, that they allow people who are devoted to their duty, people who have made a study of agriculture, to meet and contribute to the progressive movement which is increasing in power more and more, in proportion to the increase in numbers and influence of the agricultural associations. (Cheers.)

I must tell you, gentlemen, that I have not come here to express the opinions of the Quebec government, or the opinions of the Honorable Commissioner of Agriculture. He is in no way bound by what I have just said. I simply express my personal opinion; and if I ask for certain modifications, it is because I am convinced that the system governing our agricultural societies is defective; I appeal to the intelligence of those who are present, that they may find means to improve these institutions, and

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The clergy, too, take sides with us, as they always do when we are engaged in any useful work. In order to put a stop to emigration, which is decimating our population, the clergy are contributing to the diffusion of agricultural knowledge, and with this object in view, they are encouraging farmers in their endeavours to get up farmers' clubs.

These, Gentlemen, are the few remarks I felt I ought to make on the important subject we have been discussing. Let us try to establish agricultural associations that shall do as much good as this of yours has done. What was the case in 1881? The United-States exported, in that year, more than 16 million dollars worth of cheese, while Canada's export of the same only equalled 5 millions! To-day, the parts are changed. We have succeeded in making a better article, and, last year, we sent abroad cheese to the value of \$9,000,000; the States only exported \$8,000,000; and, according to the interesting report I have just been quoting, our exports of cheese this year will exceed \$12,000,000.

This progress you owe, emphatically, to the members of the Dairymen's Association. You owe it to the inspectors of syndicates, who, by their visits of inspection to the factories and the good advice they have given to the makers, have succeeded in causing the latter to make a finer quality of cheese.

This result is due to the zeal and devotion of the officers who have managed and still manage your association. And, Sirs, in speaking of the officers of your association, I must be allowed to mention the name of Monsieur Taché, your worthy and indefatigable secretary. (Cheers.) If the Association has been successful, we owe its success in great measure to this man, who, for ten years has unremittingly given up his time and labour to your society, and who may, up to a certain point, be justly called the soul of the Dairymen's Association. I learn with regret that M. Taché has been forced by circumstances to resign his post, but, at the same time, I have the pleasure of telling you that he is incited by patriotic feelings to remain a member of your society, and that, in future as in the past, we may rely upon the aid of his intelligence and devotion.

As to the agricultural societies, we are told:

"You are about to destroy the agricultural societies." That is not my intention: far from it. The agricultural societies, if they are doing good, ought to be able to sustain the competition of other associations, as well as you, farmers, are sustaining the competition of the farmers of Ontario and the States. (Cheers.) You have shown that you can sustain this competition. And so, if the agricultural societies are really doing good work, they will prove strong enough to endure the competition of the farmers' clubs.

In Ontario, in Nova-Scotia, in New-Brunswick, in almost every part, the liberty of association prevails. Everywhere, farmers are allowed to form themselves into as many associations as they please. The Province of Quebec alone, by its legislation,

smothers this spirit of association, and, if we continue to submit to this system of repression, the outward march of progress among us will be delayed.

If you do not want farmers' clubs, found if you like agricultural societies, agricultural committies; but at least put life and emulation into these institutions. Try to keep yourselves up to the level of the progress scientific agriculture is making everywhere; try to keep well informed on what is being done in other countries, so as not to retain the province of Quebec in a state of inferiority to other parts of the world.

Gentlemen, I submit the above few remarks to your notice. I know well that you have come here moved by good intentions, and that you desire, above everything, that agriculture should flourish. The increase of agricultural products, and their improvement in quality, those are your objects. Aided by the devotion, of which you give so many proofs, I doubt not but that you will elevate our province to that rank which, thanks to its immense resources, it justly deserves to occupy. (*Cheers*).

Mr. J. C. Chapais' motion (see p.) was carried unanimously.

REPORT OF MR. PETER MACFARLANE.

Inspector General of Syndicates.

To the President, Directors,

and Members of the Dairymen's Association.

Gentlemen.

I have the honour to submit to you my annual report on the operations of the Creameries and Cheeseries for the season 1892.

It is, I must confess, neither as extended nor as complete I could wish, but I have done my best under the circumstances. One reason, why I have not been able to make it fuller is that many factories kept open this later year than usual, a thing to be helped and encouraged, one which I have much pleasure in stating that the Hon. the Commissioner of Agriculture has seen fit to aid; and I trust the farmers and patrons will so lay their plans as to help themselves, too.

I commenced my labors on the 10th of April by paying a visit to several of the leading factories in Ontario. Let me here say that the factories in Ontario are many of them better fitted up than any in this Province; they have a larger patronage and of course can afford to fit them up better and pay a higher salary to good makers.

My labors ended last week in getting our new-model Dairy School completed at St. Hyacinthe. I can hardly express to you my feelings in regard to that School, we have marked a new era altogether, each and every member

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No of Division	
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should feel proud of such an institution. All aspirants for Inspectorships will have to attend College, as it were, before they can present themselves for examination. Older Inspectors can get brightened up, and all who wish to conform to the rules can receive benefit from it.

The Hon. the Commissioner of Agriculture and Colonisation, recommended the following gentlemen as Inspectors, and they were approved by the Lieutenant-Governor :

No of Division	No of Syndicate	Names	Address
4	1	P. O. Drouin	Somerset.
4	2	Germain St. Pierre	St. Norbert.
5	1	Wm. Parent	St. Elphège
5	2	B. A. Pothier	St. Monique
10	1	Arth. Marsan	St. Valérien
10	2	Rob. Wherry	Iroquois, (Ont.)
10	3	A. B. MacDonald	Dewittville
10	4	Art. MacFarlane	Sutton Junction
13	1	A. U. Ferguson	Huntingdon
14	1	Firmin Paradis	Bagotville
15-16	1	F. X. O. Trudel	St. Prosper
16	2	A. S. Lloyd	Dundee
7	1	John Kincaid	Martintown, (Ont).

There are 4 more syndicates this year than last, an advance in that line; one more in the Bedford district, one more in each of the following districts, Arthabaska and St. Francis, and 3 in the district of Three Rivers; while last year in the District of St. Hyacinthe there were two; this year there are none! This is rather a retrograde movement; but I hope and trust that it will be amended in the coming season. The cheese that were sent to Toronto from the Sherbrooke Exhibition and all those that took prizes (7 out of 10) at the Montreal Exhibition from this Province, were all from the District of Bedford, where there are no less than 4 inspectors; this, in itself, should be proof positive of the benefits to be derived from inspectors. I hope there will be no less than 20 inspectors for the season of 1893. We have brought the cheese of the Province nearly up to a par with Ontario cheese, while in some cases, ours are even better. There must be no going back, now, nor even standing still. "Excelsior" must be our *Motto*. "Onward and upward," must be our "Battle Cry." My visits to the Inspectors and my relations with them were very cordial. I visited each Inspector twice during the season and some I saw even more frequently than that. During my second visit, especially in the new syndicates, I found a very marked improvement. I might here mention that I visited 238 Butter and Cheese factories

and examined 1181 tubs of butter and rather more than 18,000 boxes of cheese which I classed as follows :

Butter	80 Extra fine	1,093 fine and	8 poor.
Cheese	4472 " "	12,049 " "	1,520 "

I found the majority of makers were well skilled in their business. The Greatest cause of neglect and complaint now is the patron. Some patrons are very careless and indifferent as to how they treat their milk, while others, knowing their responsibility, take a just pride in taking care of their milk and delivering it in the best condition for the manufacture of both cheese and butter. The Travelling Dairy-School did a good work during the past year. About 235 pupils attended in the different sections, the usual weekly public meeting offering a splendid chance of giving the patrons advice on the production of milk, its care, and the feeding and care of cows. I attended each week for one or more days at the school and was present at all but three stations : I assisted Mr. Coté the Director of the school at the public meetings and gave 30 lectures in all. The amount of good that these lectures did will only tell in future years. I see that, where there were inspectors last year, the amount of fines and frauds is greatly diminished. There are about only one-fourth of the factories in this Province inspected. How can we reach the other three-fourths? The benefits of inspection are like rays of sunshine; they fall on the good and evil. The only thing possible is to increase those rays. Three years ago the dairymen of Ontario were complaining that the bad cheese we were making here in Quebec was hurting them, and that they got fully half a cent per lb. more for their cheese than we got for ours. Well, happily, that day has gone by. Some of them feel a little sore that we have won the race; but we must not be contented with this. Our milk is richer in butter fat, many portions of this Province are well watered, and the grass is rich and abundant. Let us try now in the next three years and see if we cannot beat the Ontario men by half a cent a pound. Some dairymen are afraid that we shall thus overdo the business, but there is no fear of that. We never made and exported nearly so much cheese as this year, and still it has sold better than for many years.

We furnish less than 40 per cent of the cheese that is wanted in Great Britain, from the whole of Canada, and less than 10 per cent of the butter. The time will soon arrive when we shall get started to make butter in Canada in winter. Then we shall make cheese for, say, about 5 months in summer, and the rest of the year will be devoted to butter making.

To show you the enormous proportions the dairy business of Canada has assumed, allow me to give you a few statistics :

There were exported from Canada during the present year 1,648,353 boxes of cheese and 103,139 packages of butter, this is the largest export of cheese on record, 295,683, or nearly in round numbers 300,000 boxes more than last year, a total of

over 10 millions. butter is the large dollars, making a than 2 millions more than double were then. I am Inspector General factories in any o tories, while, last Trusting you work, knowing it

St. Hyacinthe, 7th

over 10 millions of dollars for cheese. The shipment of 103,139 packages of butter is the largest since 1884. This brought nearly a million and a half of dollars, making a grand total of a little over 11½ millions of money, or rather more than 2 millions more than last year. Since the year 1880 our exports in cheese have more than doubled, while our butter exports are little more than half what they were then. I am glad to be in a position to report that the advice of Mr Coté, Inspector General for last year, was taken with regard to not have too many factories in any one syndicate. Only 2 syndicates out of 14 having over 25 factories, while, last year, over half of the inspectors had more that number.

Trusting you will overlook all my shortcomings and faults, I rejoice in the work, knowing it is the only one that pays the farmers of this fair Canada of ours.

Yours faithfully,

PETER MacFARLANE,

General Inspector.

St. Hyacinthe, 7th December 1892.

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NAMES OF SYNDICATES.	Number of factories.	Number of patrons.	Number of cows.	QUANTITY OF			Money received.	Days in which work was done	Short visits.	Tests of milk.	Letters written.	Fines imposed.	
				Milk received.	Cheese made, in lbs.	Butter made.							
	No.	Div.											
Megantic	4	18	478	3,290	6,580,107	678,707	62,723 00	126	19	2609		26	
Arthabaska.	4	28	889	5,784	11,568,000	1,200,000	114,672 00	108	28	3220	78	3	
Yamaska.....	5	25	1,191	7,747	17,818,100	1,843,251	179,102 00	129	108	5270	30	10	
Nicolet.....	5	23	1,098	7,064	14,128,000	1,464,044	141,084 00	120	52	3652	52	12	
Stanstead.....	7	18	500	3,500	7,291,785	736,544	69,971 00	126	45	2200	100	18	
Shefford.....	10	19	721	6,059	12,119,932	1,230,450	116,892 00	132	39	3750	44	16	
Brome.....	2	29	"										
Shefford.....	3	20	578	5,880	11,760,000	1,200,000	115,500 00	130	114	3093	67	11	
Missisquoi.....	4	24	678	7,870	17,314,000	1,732,460	166,749 00						
Huntingdon.....	1	29	972	8,120	20,300,267	1,964,542	186,000 00	137	67	5949	193	10	
Chicoutimi.....	1	16											
Champlain.....	1	15-16	25	975	5,850	11,700,000	1,218,750	115,781 00	115	48	5378	54	7
Maskinongé.....	2	16	16	604	3,900	7,800,000	804,124	76,391 00	145	50	3500	85	4
Region Est, Québec.....	17		"	5,400	12,577,478		562,366½	116,103 43					
Totals { Except Brome and Chicoutimi.	307		8684	70,464	150,957,669	12,072,872	562,366½	1461068 43	1268	570	38621	703	117

From the above information. We act syndicates w

COUNTIES.

Megantic

Arthabaska.....

Yamaska.....

Nicolet.....

Shefford.....

Brome.....

Shefford.....

Missisquoi.....

Huntingdon.....

Chicoutimi.....

Champlain.....

Maskinongé.....

Stanstead.....

Region East Québec (Crémeries).....

General average.....

To the members of Province of Q

Gentlemen,

I have the honor
 Traveling Dairy-School
 The school was held
 localities; starting at
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 Mr. Peter Macfarlan
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From the above table, we have deduced the following average, for general information. We advise makers to take pains, next year, to supply the inspectors of syndicates with the most precise informations. E. C.

COUNTIES.	Average of milk supplied.		Average.		Average of money received. Cost of making to be deducted.		
	By patron.	By cow.	of cheese made by patron.	of milk to lb. of cheese.	By patron.	By cow.	By 100 lbs. of milk.
Megantic	13760	2000	1420	9.69	131 21	19.05	0.95
Arthabaska.....	13001	2000	1347	9.64	128 98	19.83	0.99
Yamaska.....	14960	2300	1547	9.66	151 21	23.11	1.01
Nicolet.....	12896	2000	1121	9.71	128 49	19.98	0.996
Shefford.....	15422	2000	1700	9.81	162 12	19.29	1.05
Brôme	"	"	"	"	"	"	"
Shefford	20346	2000	2093	9.80	200 00	19.65	0.91
Missisquoi	25684	2200	2555	9.99	249 94	21.19	0.957
Huntingdon	20885	2500	2021	10.33	191 35	22.90	0.916
Chicoutimi.....	"	"	"	"	"	"	"
Champlain	12000	2000	1250	9.51	119 77	19.82	0.998
Maskinongé	13079	2000	1331	9.69	126 42	19.58	0.966
Stanstead.....	14583	2083	1473	9.90	139 94	19.99	0.959
Region East Quebec (Creameries.)		2329		22.37		21.50	0.98
General average.....	16056	2119.	1653.5	9.79	156 86	20.49	0.979

REPORT OF MR. SAUL COTE,

Director of the Travelling Dairy-School.

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

Gentlemen,

I have the honour to send you the report of my work as director of the Travelling Dairy-School.

The school was held, from the 20th of April to the 15th of October last, in 26 localities; starting at St. Hugues de Bagot, and closing at Ste. Cécile, Milton. The change of place was intended to give the advantage of easily acquiring information to a greater number of makers than could otherwise obtain it.

Mr. Peter Macfarlane, the Inspector-general of the creamery and cheesery syndicates, spent one day in almost every week at the school, in order to give it the advantage of his great acquaintance with the business.

Maskinongé.....2	16	16	3,900	7,800,000	804,124	10,331 00	143	570	38621	703	417
Region Est, Québec	17		5,400	12,577,478		116,103 43					
Totals { Except Brôme and Chicoutimi.	307		70,464	150,957,669	1,072,872	1461068 43					
			8684			562,366½					
			604			562,366½					

The annexed table shows ;

1. The different places in which the school was held
2. The dates at which it was held.
3. The number of tests made with the Lactodensimeter.
4. The average gravity obtained.
5. The number of tests made with the Babcock.
6. The highest rate, the lowest rate, and the average of fatty matter.
7. The quantity of milk used for a pound of cheese.
8. The number of makers who attended the school.

PLACES.	Month.	Date.	Tests of milk with the Lactodensimeter.	Average gravity obtained.	Babcock tests of milk.	Highest rate of fatty matter.	Lowest rate of fatty matter.	Average rate of fatty matter.	Quantity of milk to the lb. of cheese.	Number of makers who attended the school.
St-Hugues, Bagot.....	April.	20 to 30	152	31.5	107	4.10	2.70	3.40	10.19	30
La Baie du Febvre.....	May...	2 " 7	114	31.6	90	3.80	2.00	3.20	10.90	33
St-Cuthbert, Perthier.....	"	9 " 14	200	30.9	25	4.00	3.00	3.35	10.72	12
St-Denis, Rivière Richelieu.	"	16 " 21	88	30.3	89	4.00	2.00	3.45	11.44	8
St-Hermas, 2 Montagnes....	"	23 " 28	129	31.0	63	4.00	2.30	3.48	10.11	4
Ste-Anne de la Pérade.....	June...	30 " 4	202	31.1	75	5.00	2.80	3.90	10.66	16
St-Prime, Lac St-Jean.....	"	6 " 8	80	32.2	.....	.....	.....	.....	9.65	4
St-Jérôme, Lac St-Jean.....	"	9 " 11	85	31.3	15	4.40	3.80	4.00	9.32	5
Bagotville, Chicoutimi.....	"	13 " 18	48	31.3	37	4.40	3.00	3.70	9.98	5
Baie St-Paul, Charlevoix...	"	20 " 25	132	31.5	62	5.00	2.80	4.40	9.55	5
Ste-Anne Lapocatière.....	July...	27 " 2	222	32.2	71	4.60	2.40	3.55	9.50	3
St-Joseph de Beauce.....	"	4 " 9	156	31.4	60	4.90	3.20	4.43	9.25	19
Somerset, Mégantic.....	"	11 " 16	189	31.2	78	4.90	3.00	3.75	10.09	7
Warwick, Arthabaska.....	"	18 " 23	204	31.1	78	5.00	2.60	3.90	9.54	5
Coaticook, Compton.....	"	25 " 30	100	31.4	63	4.60	3.40	3.90	9.79	7
Lawrenceville, Shefford....	Aug....	1 " 6	225	30.5	115	4.50	2.40	3.87	10.20	12
St-Liboire, Bagot.....	"	8 " 13	317	30.6	92	5.20	2.60	4.01	9.84	13
L'Ange-Gardien, Rouville...	"	15 " 20	150	30.7	63	5.10	3.50	4.03	10.04	8
Ste-Martine, Chateauguay..	"	22 " 27	166	30.9	79	4.60	3.20	3.80	10.19	2
French Village, Drummond	"	29 " 3	89	30.1	55	4.80	3.30	4.14	9.97	4
Ste-Béatrice, Joliette.....	Sept...	5 " 10	88	31.2	60	5.40	3.00	4.42	9.49	14
Ste-Ursule, Maskinongé....	"	12 " 17	65	30.9	48	5.40	3.60	4.36	9.07	12
Ste-Croix, Lotbinière.....	"	19 " 24	94	30.9	87	5.50	3.40	4.44	8.96	9
St-Ferdinand, Mégantic.....	"	26 " 1	31	30.8	31	5.20	3.90	4.42	8.88	12
St-George de Windsor.....	Oct....	3 " 8	48	30.7	48	5.90	3.80	4.51	8.68	8
Ste-Cécile de Milton.....	"	10 " 15	56	31.5	56	5.40	3.80	4.46	8.49	9
Totals and average.....			3430	31.1	1647	4.79	3.04	3.95	9.79	266

This table shows once more that the butter-fat varies greatly more, in quantity, in the milk yielded by different herds in the same spot, than in the milk derived from different localities in the province.

We find that, varies from 3.20% La Baie St. Paul, 4.43%. It is in the we bear in mind the

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Although the nu than the number that the above table will co higher. It will be se where the school was l leave one's factory for since the table proves

We find that, from April 20th to August 6th, the average of fat in the milk varies from 3.20% to 3.90%; three places excepted: St. Jérôme at Lake St. John, La Baie St. Paul, and St. Joseph de Beauce, where we found an average of 4.0% to 4.43%. It is in the last place that the milk was found to be the richest in butter, if we bear in mind that the tests were made at the beginning of July.

In three other places, the milk gave an average above 4.43%, but this was between the 19th September and the 15th October.

It was at St. Joseph de Beauce, too, in the heat of summer, that the least milk was required to make a pound of cheese.

From August the 8th to October the 15th, the average of fat was 4.01% to 4.51% except at Ste. Martine de Chateauguay, where we only found 3.80%. This, it is true, happened at the end of August, and the weather was pretty hot.

We met with some patrons who, the first day we came to the factory, brought milk that only held hardly half the fat that the milk they brought the next day contained. This shows that there was more than negligence at work. However, convinced as we were that there had been fraud committed, we did not think fit to inform these patrons of what we had discovered, but preferred leaving the maker, after we left, to continue the testing of the milk, that no person might be accused without a thorough investigation, and without an understanding having been arrived at with the directors of the factory, as to the mode to be adopted of proceeding against the delinquents.

To facilitate the task of the makers in continuing the tests, we gave them a copy of those we had ourselves made, pointing out to them the dubious cases.

In one factory—the maker being an intelligent man—when we had shown him some dubious cases, it happened that two patrons whom we had strongly suspected of fraud,—one of adding water to his milk and the other of partially skimming his,—said to themselves: Since they have not discovered our dishonesty, we can, without fear of detection, rob with impunity. But they were trapped, for the maker accused them, and they had to confess their guilt. One of them even owned to having added 31% of water to his milk.

The quantity of milk we found required for a pound of cheese is perhaps, on the average, more than generally used by the makers. But this was because we desired to instil into their minds the necessity of having more regard to quality than to quantity.

Although the number of makers that attended the school was much greater than the number that attended in former years, when it was stationary, a glance at the above table will convince any one that the number might well have been much higher. It will be seen that in some places no others but the staff of the factory where the school was held attended. And it is no use saying that it is difficult to leave one's factory for this reason or for that, in the heat of summer for instance, since the table proves the contrary.

Average rate of fatty matter.	Quantity of milk to the lb. of cheese.	Number of makers who attended the school.
3.40	10.19	30
3.20	10.90	33
3.35	10.72	12
3.45	11.44	8
3.48	10.11	4
3.90	10.66	16
.....	9.65	4
4.00	9.32	5
3.70	9.98	5
4.40	9.55	5
3.55	9.50	3
4.43	9.25	19
3.75	10.09	7
3.90	9.54	5
3.90	9.79	7
3.87	10.20	12
4.01	9.84	13
4.03	10.04	8
3.80	10.19	2
4.14	9.97	4
4.42	9.49	14
4.36	9.07	12
4.44	8.96	9
4.42	8.88	12
4.51	8.68	8
4.46	8.49	9
3.95	9.79	266

more, in quantity, milk derived from

In two places, among others, Ste-Anne de la Pocatière and St-Joseph de Beauce, visited immediately in succession from July 29th to August 9th, remark the difference. At Ste-Anne's, we only found the three men employed at the factory, while at St-Joseph, 17 makers, besides those of the establishment, met us.

Nevertheless, we had taken measures that all those interested in both districts should be informed of the date of the school's opening.

I by no means, however, think that the makers of Kamouraska are in less need of instruction than the makers of Beauce.

I have no wish to hurt the feelings of those who will read these words, but I desire to impress upon the minds of those interested the usefulness of these meetings with their fellow-workmen. For, besides the instruction given by those whose duty it is to do so, a great deal of good may be derived from the interchange of observations between the makers, who return to their own factories inspired with the ambition of excelling their fellows.

In a circular addressed to the makers, to give notice of the holding of the School, at the places and hours arranged, there is a paragraph saying: "On Thursday, at 7 p.m., at the factory, there will be a lecture addressed to the farmers who supply milk to the factories of the district; get your patrons to attend; it would be well for your establishment to be represented by one or two of its directors."

When I accepted the duty of organising these lectures, it was, I confess, with hopes of obtaining authorised lecturers. But, except in one or two instances, I could get none, as every body was busy elsewhere. These lectures, however, had to be given, as they had been announced; so, in spite of my incompetence, I had to give them myself. Fortunately, my friend, Mr. Macfarlane, was good enough to assist me, by giving almost every week a lecture in what, to him, is a foreign language. I had only to urge the force of what Mr. Macfarlane said, and to interpret faithfully what he said to those less accustomed than I to listen to him.

The subjects were: the production of milk, and the care to be given to it to fit it for the manufacture of butter and cheese.

I always found that these lectures were appreciated by the numerous audiences present at them. For, with the exception of three or four cases, they attracted a great many people. On five occasions, we were obliged to give lectures in other parishes than that in which the School was being held, as as not to disoblige certain persons, friends of progress, who were very anxious to hear them. But, I must add, we had, for important reasons, to refuse more than once to deliver the lecture.

In my opinion, they were the best part of the Travelling-Dairy, because the most important point that concerns our cheese-industry is the increased production.

I trust, Gentlemen, that this report, imperfect as it is, will lead you to decide that the Travelling-Dairy deserves to be continued.

In my humble opinion, it may be of very great service, especially if those who are entrusted with its management have an opportunity of profiting by the exper-

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iments about to be made at the Dairy-School and Experiment-Station with which our province has just been endowed.

In this way, the Travelling-Dairy would become a true branch of the School and Experiment-Station, and would benefit all the willing makers of this province by the instruction derived from the latter establishment.

The whole humbly submitted,

SAUL COTE.

St. Flavien, December 8th, 1892.

DISCUSSION OF THE REPORTS OF MESSRS. MACFARLANE AND COTE.

Mr. Barnard.—We have listened to two well written reports, and from them we learn that the milk sent to the factories is not always as pure as it ought to be. I ask the two inspectors and the meeting to say if there is not now a certain means of completely putting a stop to these robberies, if you have not in your hands an instrument, the Babcock, which enables you to pay for milk according to its richness? We have this instrument, and after investigation, I am convinced it is perfect. I know that in Ontario, in the States, at the school-factory at Ottawa, milk is paid for according to its richness. The consequence is, that when a patron comes with 30 lbs. of milk and 15 lbs. of water, all the good he reaps from it is his reputation as a thief: not very satisfactory for him! In consequence, the theft is not often repeated, when the habit is once begun of paying exactly for what he supplies, that is, in accordance with the richness of his milk.

I ask the inspectors if I delude myself in saying that we have now a certain means of proving the richness of milk and of paying for it according to its true value?

M. Saül Côté.—It is perfectly true that we have an instrument, the Babcock, that determines the richness of milk; no need to go to the States to prove that. One of my friends, Mr. Lord, a butter-maker, and another of the same trade, both pay for their milk according to its value. I have even heard to-day that Mr. Gareau, proprietor of a cheesery in Ottawa county, paid there for milk supplied in proportion to its richness. I name two out of the trade; there must be others.

Mr. Barnard.—Am I wrong in saying that the Federal-Government at its school-factory, pays for milk according to its richness?

Mr. Sidney Fisher.—No, it does not do so for cheese-making.

M. J. C. Chapais.—If I do not deceive myself, I fancy I heard, at one of our meetings, three years or so ago, that the Rev. Father Trappists, at Oka, paid for milk according to its richness.

Mr. Barnard.—True, but theirs is a creamery.

M. Côté.—And it is not the Babcock they use.

M. J. C. Chapais.—Still, it shows that the idea is not a novel one.

 DISTRIBUTION OF THE DIPLOMAS OF INSPECTORS.

The Secretary then distributed the diplomas of Inspectors of creameries and cheeseries to the laureates whose names follow :

INSPECTOR OF CREAMERIES.—Mr. Aimé Lord, L'Assomption.

INSPECTORS OF CHEESERIES.—MM. A. Marsan, Shefford ; M. B. A. Pothier, Nicolet ; F. X. O. Trudel, Champlain ; Jos. Lemonde, St. Liboire ; A. B. Macdonald, Waterloo. (Cheers.)

The President.—Allow me to congratulate the laureates on their success. I trust their example will be followed by a crowd of young men who intend to become makers, and that next year many youths will leave our school-factory with diplomas.

M. Chapais.—I have been asked to explain a little in detail, for the information of those who were not present at our last meeting, the real value of the diplomas. The inspectors who have just received them, have undergone a severe examination before a board of examiners, named by the Dairymen's Associations, and authorised by the government. The examination bears on everything connected with the creameries or cheeseries, whichever the candidate who presents himself intends to serve. If he intend to follow both industries, than he has to submit to an examination on both subjects.

Those who receive these diplomas are placed at the head of the syndicates. They it is who are entrusted, under the direction of the inspector-general, to go into the parish to inspect the milk, and to give instruction to the makers, if requisite, so as to bring about a uniform system of manufacturing dairy-goods throughout the province. And it is due to the influence exerted by these inspectors, whose skill is attested by the diplomas they have received, that we have succeeded in obtaining such great success in the syndicates.

So, these diplomas are a great honour to those who receive them, and must inspire great confidence in those who are connected in business with them, whether in the syndicates, or simply as regard the manufacture. If the diploma is a good certificate for an inspector, it is so, too, for a maker ; and even if those who obtain them cannot at once become inspectors, the diplomas will always help them to get the highest salaries during the season as makers. On both accounts, then, I think makers throughout the province should take pains to acquire these diplomas.

Mr. Barnard.—We had makers whose reputation was established through the whole province, men of merit ; still, these very men came before the board, passed their examinations, and acquitted themselves to their great honour. I should like to cite a few facts to you. When you have men like Mr. Macfarlane, who has been a maker for many years, a maker enjoying a great reputation, and yet presents himself before the board, passing his examination like an ordinary person, it seems to me that no maker in the province should think himself too grand to be the possessor of a certificate.

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M. E. Castel.—I
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When you see Mr. Aimé Lord, who has been an instructor in the dairy-industry for many years, take the trouble of obtaining a diploma, first at Burlington, U.S.A., and then here, you may be sure that the diploma conferred by the Association is useful to every one.

And, Gentlemen, it is not only a personal advantage, it is a local, a provincial interest which these diplomas represent. It is a matter of importance that we should show in a public way what is the value of those who direct the factories and syndicates. And, I trust that, before long, the men who are at present at work as makers will, up to a certain point, feel themselves bound to take out diplomas, so that, having received them, they may become veritable acquisitions in their respective localities.

The President.—I must add a word to what Mr. Barnard has just said. These certificates, proofs of their capacity, will only be granted to those youths who shall pass at least a week or ten days at the school of dairy-industry at St. Hyacinthe. This school will be under the guidance of the men who are most distinguished in the province for their knowledge of the business.

Mr. Barnard.—I rise too often; but, in my position as a journalist, I am obliged to ask all sorts of questions, and to get these questions solved as often as possible. Exceptions, Mr. President, present themselves, perhaps, to the rule you have just laid down, or which appears to have been laid down by your association. Thus, for instance, the other day, I received a letter from a Norwegian or Swedish maker, who had passed through the colleges and universities, and afterwards through the European special institutions, and had obtained all his diplomas. He came here as director of an exhibition; it was he who managed it, and he managed it well. Still, he did us the honour to seek one of our local diplomas. It might, perhaps, be too much to ask, in the case of diplomas of the highest class regularly won, that bearer, pass ten days at the school, like ordinary pupils. I think an exception might be made as is done by all the great universities and other bodies in the case of advocates and physicians of distinction, and only demand an appearance before the board of examiners, and the passing of a strict examination. I believe our examiners are perfectly qualified for their duties, and can make their examinations a thorough test. I think that, in such a case as the above, there might be an exception to the rule of obligatory attendance at the school. This measure would be favourable to any foreigners, who might come to the province with excellent diplomas, and wishing to settle here, and who might be useful to us in the future.

M. E. Castel.—In reply to a remark made by Mr. Barnard a moment ago, about the diplomas, I am glad that to say that among the requests which have already arrived at the school, are many from makers who have been at work for six, seven, and eight years, who wish to come and pass as much as two months at the school this winter.

M. l'abbé F. P. Côté.—At my place, I insist upon the cheese-makers having past at least some time at the school-factory. They are only engaged on that condition.

M. J. de L. Taché.—As regards the remarks made about the inspectors, bearers of diplomas, it may be as well to add that the law on syndicates exacts that the syndicate-inspectors be diplomed. Consequently, no one can aspire to the position of inspector of syndicates and receive the salary of the office, without being diplomed; so, if the makers be not satisfied with the salary they are now receiving they may aim higher, and try to get the pay given to the inspectors. There is, then, an interest, besides the honor of the position, a pecuniary interest, in presenting oneself at the school and in passing the examination that entitles one to the diploma.

I am asked to state the salary of the inspectors of syndicates: I believe they vary between \$300 and \$600. But the prices are a matter of dispute between the syndicates and the inspectors. This is a personal question, and must be settled between the syndicates and the inspectors.

LECTURE BY M. J. DAMIEN LECLAIR.

Superintendent of the Experiment Station and School at St. Hyacinthe.

BUTTER-MAKING.

Mr President and Gentlemen,

The art of butter-making is governed by a series of rules and principles that, in their application, require a great deal of tact, of experience and of judgment. It is easy enough to make butter, but to make it always of superior quality, to give it invariably the same taste, the same aroma, is an art.

If the milk always reached the maker in the same condition, if he had only to deal with fresh milk, just drawn from the cow, I should lay down the following rule as invariable: Cool your cream, on leaving the separator, down to 45°, churn after 24 hours, at a temperature varying from 56° to 60°, according to the time of year; have a good thermometer, and you will be a perfect butter-maker.

But, as the heat, the cold, the humidity, varying from day to day, produce changes in the milk, it follows that the treatment of the cream must be varied too, and that it would therefore, be useless to seek for fixed rules for the making of butter. And I have, for a long time, relegated my thermometer into a secondary position, preferring to place more dependence on taste and scent. These two senses, well employed, are excellent guides, and are, besides, the only ones the maker has to depend upon in ascertaining the degree of ripeness of his cream. Indeed, it is only by tasting that I can follow the working of my cream, and this working must be followed if we want to control it. For, a good maker must thoroughly understand his cream, as a baker understands his dough, a blacksmith his iron. At one time, the development of acidity wants encouragement, at another

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it needs checking, or it must even be quite stopped, that, at churning time, the cream may have attained the desired degree of maturity.

Experience teaches us that if the milk has suffered from cold, the cream must be warmed higher; if, on the other hand, the milk has got a little acid from too high a temperature, the cream must be cooled in proportion.

The grand secret in butter-making is to find just the proper point of maturity for the cream, to get it always and never to exceed it. If there is a rock to be avoided, it is not to make the cream too sour, for the butter takes and keeps the flavour of the cream whence it comes. I will go further, and say that the butter takes and keeps the flavour of the ferment the maker adds to his cream. Watch, therefore, your ferment; if it turn bad, make another. Anyhow, it is as well to make it fresh every week.

If, at churning, your cream was very ripe, the separation of the butter proceeds easily, the buttermilk adheres less to the grains, and the washing is easy. Very little water is needed to wash butter; too much carries off the aroma.

In cold weather, take care that this water have the chill taken off, to prevent hardening the butter, for butter when too hard spreads into too thin layers under the worker, crumbles and becomes greasy. There, Gentlemen, this is what I have to add to the essay I had the honour to submit to your association in 1889.

DISCUSSION.

M. Chapais.—Would M. Leclair explain, for the benefit of some persons who probably may not know, what is this ferment he speaks of.

M. Leclair.—There are two methods of making butter; one, when the cream is allowed to acetify itself; and the other when a ferment is used to acetify it.

M. Chapais.—What I ask you is, to explain what the ferment used is.

M. Leclair.—It is either buttermilk which, as you know, is always sour; or skimmilk, which has previously curdled or been made sour, and is placed in the fresh cream as soon as it is gathered.

Mr. Barnard.—And you keep it in the fresh cream for a certain number of hours, don't you?

M. Leclair.—Yes, according to the time that intervenes between skimming and churning.

Mr. Barnard.—Which time varies according to the temperature?

M. Leclair.—Certainly.

M. Taché.—What proportion of ferment do you add to ordinary cream?

M. Leclair.—It is difficult to say precisely; for it depends upon the temperature at the time the ferment is added.

M. Taché.—But what proportion do you use? Ten, fifteen, or twenty per cent?

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M. Leclair.—I cannot tell you the proportion exactly ; but, with a little experience, one soon gets to know the proportion required.

M. Taché.—Is it five per cent ?

M. Leclair.—I cannot tell you ; it depends upon too many conditions : quality and strength of the ferment, state of the cream, &c. &c.

Mr. Barnard.—Does not the nature of your ferment alter, from day to day, as it gets older.

M. Leclair.—It changes a good deal.

Mr. Barnard.—It becomes stronger with age, and less is required, does it not ?

M. Leclair.—Not only does it grow stronger, but it acquires a bad taste, which it would communicate to the butter. That is the reason I advise that it be changed once a week.

Mr. Barnard.—If I understand, the object of using the ferment is to produce a fermentative action in the cream, and this action produces the result sought for. In all these fermentations, there are germs, and these develop themselves and multiply. Consequently, the more numerous the germs, the more active they are, and the more power they exert. It is a very recondite question, this of ferments. M. Nagant, who is present, has made a special study of them. He is a distinguished chemist, who has been several years in Canada, and interests himself greatly in agricultural chemistry. If you desire information on this point, I believe M. Nagant is going to treat the question.

M. Paquette.—Will you tell me, M. Leclair, if it is better in a creamery to keep the cream in the pans or in a vat.

M. Leclair.—For my part, I prefer keeping all the cream in the same vessel : because in this one vessel the cream all ripens more equally, than it would if kept in several vessels.

M. Paquette.—Have you ever tried putting ice in the cream ?

M. Leclair.—I never encourage that plan, but have always opposed it as much as possible.

M. Paquette.—Does it not colour the butter too much ?

M. Leclair.—I think ice put on the butter might change its colour ; but I do not think that putting it into the cream would alter the colour of the butter. This is only my opinion ; I have never tried it, so I cannot advance any proofs that I am right.

Mr. Barnard.—You know, perhaps, that there is butter made without any fermentation, or, at least, any apparent fermentation. The Normandy butters, for instance, that are made with perfectly fresh cream, without salt, for the English market, are not made after your principle. Is not this so ?

M. Leclair.—No ; our method is with ripe cream. Aiming at having our cream ripe, we assure ourselves of the quantity of acidity we need to produce a proper degree of ripeness.

Mr. Barnard.—Canada, on account of unfermented cream.

M. Leclair.—

Mr. Barnard.

warm milk. The vessel that produces is taken to be in the American rich, educated class, sweet cream are

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M. Paquette.—narrow ?

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M. Leclair.—Yes, producing lumps, makes brings with it lots of

wasted, because that is rest.

Mr. Barnard.—There is still another process, which is less employed in Canada, on account of the market, and which consists of making butter with unfermented cream ?

M. Leclair.—There is.

Mr. Barnard.—There are machines that extract the butter directly from the warm milk. The milk is taken, separated in the centrifuge, placed in another vessel that produces the same result as the separator, and, in two minutes more than is taken to get the cream, butter is made. On the European market, or even in the American market (for there are to-day, in the States, many tourists, and rich, educated classes have acquired European tastes), these butters made from sweet cream are those that fetch the higher prices.

This is why I thought it a propos to draw your attention to the fact that there are two kinds of butter : the one made from cream ripened by fermentation or acidulation, and the other from sweet cream, extracted from warm new milk.

M. Paquette.—Is it better for the pans that hold the cream to be wide or narrow ?

M. Leclair.—Provided you have all the arrangements required to control your cream, I think it makes very little difference whether your pans be wide and shallow or deep and narrow.

M. Paquette.—You think there is no difference ?

M. Leclair.—If you can perfectly control the ripening of your cream it can make no difference.

M. Paquette.—Can it not be more easily controled in a wider vessel ? It strikes me that a crock with plenty of surface would be superior to one of narrower dimension.

M. Leclair.—I think you are right, for many authors say that it is the absorption of the oxygen of the air that determines the aroma. Modern authors in general, however, do not seem to hold with this. Still, if it were the case, it is certain that a larger surface would better encourage the absorption of oxygen. If there be an exception to the use of wide, shallow pans, it is that it would be more difficult to control in them the ripening of the cream, for the precise reason that there is in them a more extensive contact with the air ; and this trouble would be much more perceptible in the great heats of summer.

Mr. Barnard.—Besides, more cream would harden at the surface.

M. Leclair.—Just so.

Mr. Barnard.—Whilst in deep crocks, you stir it ; and in your method stirring is very necessary.

M. Leclair.—Yes, that it may ripen equally all over, and that no froth or foam, producing lumps, may rest upon it. Cream, when it leaves the separator, always brings with it lots of froth or "brou" (*patois*), which must absolutely be wasted, because that part of the cream never works in the same way as the rest.

M. F. X. Thibault.—Can you give us any means of knowing when the cream is fit? It is very difficult, particularly if you do not use the thermometer as you said in your address.

M. Leclair.—I think experience alone can teach you that.

Mr. Barnard.—Are we to understand that you do not use the thermometer, or only that you assign it a position of secondary importance?

M. Leclair.—I assign a secondary position.

M. Thibault.—If I understand you, you hold that the thermometer has nothing at all to do with ascertaining the degree of ripeness of the cream. Its only use is to indicate the temperature. It has nothing to do with the judging of the state of the cream, with the determination of the most favorable moment for churning.

M. Leclair.—You are right. This is how I use the thermometer: as soon as the cream is gathered, it is as well to see what its temperature is; and in proportion as the milk was more or less warm, the temperature to be given to the cream will vary. And this is how the thermometer may help you in the determination of the ascertained degree that you have decided upon as being the best to ripen your cream by the time you intend to churn. But, of course, the thermometer cannot possibly be of the least use in telling you whether the cream is ripe enough, acid enough—certainly it cannot.

M. Paquette.—Is there much difference in the yield of the milk if it is left in the pans?

M. Leclair.—This is a thing I have had no experience in.

M. Lalonde.—Would you tell us to what causes you attribute the *white stripes* in butter?

M. Leclair.—They may depend upon the careless washing of the butter, or they may come from allowing the cream to harden. It may be, that the butter was badly worked, and that parts of the cream remain unconverted into butter, or, sometimes, from small lumps of curd that get into the butter. It is recommended to stir the cream vigorously till these lumps disappear. It is precisely because these bits are subject to remain unbroken that you find them again in your butter after salting. Generally, when this depends solely on careless washing, it will disappear in time; but the butter is injured by this little quantity of buttermilk that has remained too long in it.

M. Saül Coté.—If I may be allowed, I will return to the subject of ferments. Do you not think that it would not be better to have a fresher ferment, even if you had to use more? In making butter, there are two results sought for: first the flavour, and, next the greater possible yield. If the ferment used is stale enough to ripen the cream, but at the same time gives a bad taste to the butter, the result is not satisfactory. Wherefore, I hold that it would be better to have a fresher ferment, and to use a greater percentage of it. The older the ferment is, the worse the flavour it would give: is it not so?

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M. Leclair.—Decidedly so.

M. Saül Coté.—Then, I think we might put as much as 4 o/10 or 5 o/10 of ferment, and that in a fresher state.

M. Leclair.—Yes, the weaker it is, the more is needed. But, again, the ferment must be of good quality; for it is certain that the taste of the ferment is imparted to the butter.

M. Saul Coté.—Do you think, Mr. Leclair, that butter made after this fashion, i. e., with ferment, is as good as butter made with cream 48 hours old.

M. Leclair.—After an experiment I made last summer, my opinion, after having arrived at a definite result, and after having only tested the difference of flavour between the two butters immediately after churning, my opinion, I say, is that the butter made from cream with the ferment, is superior to the other.

M. Coté.—Without reckoning the advantages of the dairy not needing to be so large; as the cream-vats need not be so numerous.

M. Leclair.—Yes; that may be in its favour.

Mr. Barnard.—Have you investigated the keeping quality of butter made with ferment? Can you state positively that butters made after this method of yours will keep longer than other butters, made with cream that has not been fermented at all, or *vice-versâ*?

M. Leclair.—I made butter, last summer, with fermented cream, and with cream self-ripened, but not with sweet cream. I requested a Montreal dealer, Mr. Langlois, who is deeply interested in your society, to keep these two butters apart, to see during the winter how both behaved. After examining the two kinds of butter, Mr. Langlois and I decided that the butter made with the fermented cream was in a rather better condition than the other.

Mr. Barnard.—The question of butter from sweet cream may be left to the St-Hyacinthe dairy school. It is asserted by some that the germ in the ferment is not likely to improve anything to which it may be added. The flavour it gives may be agreeable to the taste at first, but this flavour will get stronger daily, weekly, and when your butter reaches the foreign market, it will be bad, when you fancied you had made superior butter. But this is another question I will leave to Mr. Nagant, who, I believe, has made a special study of it.

M. Nagant.—I think that the theory of ripening cream by the aid of a ferment may have both friends and enemies. If the ferment's action could be kept under control, the results might be satisfactory, though Mr. Barnard was quite right when he stated that fermentation is a kind of decomposition. Still, in studying the fermentation that takes place in cream, in producing in consequence ferments like those used by Mr. Leclair, it has been discovered that some of them impart a good flavour to the cream; but that it is necessary to isolate others that are able to impart a bad flavour to the cream, and in a very short time cause it to become putrid. Now, in the ferment prepared by allowing the cream to ripen when exposed to the air, good ferments may be produced, but it is also possible

that a hundred time more bad ones may result from the practice. So that, in employing it, for ripening the cream, the cream is impregnated with *microbes* of unknown kinds, and one is never sure of the results that will be obtained.

Certain bacteriologists in Germany and Denmark say that they have succeeded in isolating the ferment or ferments which ensure to the cream both uniformity and the desired quality. Among others, MM. W. Storch and H. Weigmann have succeeded in preparing ferments that are now used in certain creameries. This ferment is composed of microbes all of the same species; so that, if a little of this ferment is introduced into the cream, the fermentation obtained is always alike. Thus, uniform products ensue.

There are, too, nowadays, men who make a business of isolating such ferments as are thought to impart a good flavour to cream; but the commonly followed process at present, one that will probably last a long time, is to take a ferment prepared from ripe-cream: this is wrong; for if the cream to be churned is thus impregnated with useful ferments, injurious ones also find their way into it.

M. Taché.—Before the subject is closed, I will add a word. It has often happened, during the existence of the Dairymen's Association, that persons reading our reports with a desire to get the greatest amount of good from them, have taken what they find in them too literally. A crowd of novel subjects are discussed before the meetings, not so much to persuade those, to whom they are submitted, to change their methods of working all at once, but for the purpose of drawing their particular attention to changes that may possibly supervene. If, for instance, a maker, who hears us talking about making butter from sweet-cream instead of ripened-cream, take this literally, because he hears the lecturer say that he makes his butter with sweet cream, and if he, from hearing this, change his whole system of butter-making; this is the result he exposes himself to: shopkeepers have customers whose known tastes they consult when they are making their purchases; now, these customers would very likely refuse any novelty. If you want to retain the custom of those, in fact, of all the consumers of the goods you make, you must give them the article they like. Hence, as M. Gigault said just now, after Mathieu de Dombales, "we must always, when working, keep one eye on the market." When, then, you observe some novelty in the dairy-business, you must not change your old methods of working all at once. Should you believe that your method is the better one, continue to follow it; but if you intend to make a change, consult the inspectors or the managers of the dairy-school; consult them before you make the slightest change, for, if you have obtained good results with your usual practice, you would be very wrong indeed to forsake it for any other that you know nothing about.

It is within my knowledge that cheese-makers have completely risked the quality of two or three months' manufacture, after the visit of an inspector, simply because they changed their mode of working all at once. This should

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not be done. The makers should begin by trying experiments on a small scale on the methods recommended to them, and never try practically, without consideration, the advice given them, though, certainly, this was not offered them from a desire to make them lose money.

All that is said here must be carefully weighed. To return to the subject of butter-making and the treatment of the cream, I may state that M. Robertson, after having been engaged for two or three years with the question of creameries, is now on a tour through England, where he is trying to find out the sorts of butter best suited to the different markets of that country. There are the London, the Bristol, the Gloucester, the Liverpool markets; and in these different markets, there are probably five or six different classes of consumers. Some like butter with a high flavour others with little flavour; some like butter without salt, others with 2% of salt, others, again, with 6% or 7% of salt. There will be a most interesting report to be made on his return; and during the winter, at the Dairy-school at St. Hyacinthe, there will be practical illustrations of Mr Robertson's advice as to the demands of the various markets of England.

Our Montreal buyers are capital judges. They know what suits their customers. If they tell you that your butter has not enough flavour, try to give it more. If they say its flavour is too high, try to reduce it, and make use of the means that will produce these results.

Above all, be cautious; because the future of a factory may be risked by one day's bad work; and it is clear that if this bad work take place, it is not that, but many better results that were in view. Above all, be cautious.

REMARKS BY MR. S. A. FISHER, ON THE USE OF THE BABCOCK.

Mr. President and Gentlemen.

I have not prepared an essay on this subject, and I have a good deal of difficulty in addressing you in French, but I am happy to say that, this year, in the Eastern-Townships, two creameries have paid for their milk according to its richness as shown by the "Babcock test."

Mr. Barnard spoke on this subject of paying for milk, according to its richness, at creameries and cheeseries. At present, it is by no means certain that this can be done at the cheese-factories; but I think it is altogether settled that it can at the creameries: at these, it is not only possible but a great deal more just, to pay for milk according to its richness.

Mr. Hayes, a young man, went to Burlington, last year, where he learnt to apply the "Babcock test," and he is convinced that the method of testing the milk and paying for it according to its quality, is the method that ought to be followed in all creameries.

At the opening of the creamery this year, the patrons were asked if they would accept this mode of payment. At first, the novelty of the thing made them

refuse. During May, Mr. Hayes tested the patrons' milk, and showed them the difference there was in the quality of different lots of milk. They then agreed to accept the new process.

From June, throughout the season, the creamery was carried on by this proceeding. The plan, Gentlemen, succeeded perfectly.

In this part of the Dominion our milk is rich. I can give you some figures on the results of this experiment : during the season, Mr. Hayes received 1,600,000 lbs. of milk, out of which he made 73,000 lbs. of butter; that is, a pound of butter from 22 to 23 pounds of milk. A good result, this; but, perhaps, other creameries can give different figures, more or less high.

The richness of the milk has not been equal all through the season : it has varied in different months. The average richness of the milk during the season was 40% of fat. This is satisfactory enough. The highest test of the milk of one patron for the season was 5.60% of fat; and the lowest test was 3.50%. This variation is considerable, and it is in this that we find the greatest reason in favour of adopting the new process. Had the milks of the different patrons had all the same average richness of 40% of fat, there would be no reason for recommending the testing of the milk. But with a variation as great as from 3.5 to 5.6, it becomes necessary to establish a different rule for the payment of milk.

Here is another remark : Mr. Hayes succeeded in making 113 lbs. of butter from each 100 lbs. of fat contained in the milk; that is, nearly a pound and one-eighth of butter for each pound of fat. In the butter itself, there are certainly 12 0% of matters other than fat. These other matters are principally water. This result, in practice, corresponds nearly with those furnished by several analyses of butter. Different analyses of butter show that there are always present in this substance from 120% to 130% of water.

During the season, Mr. Hayes gave his patrons, all expenses paid, an average of 81 cents for the 100 lbs. of milk. I think this is a pretty fair return to the patrons, and in the county of Brome, I have not met with any cheesery that paid so much. Mr. Hayes' creamery paid more to the patrons for the 100 lbs. of milk than was paid by any cheesery in Brome.

Mr. Barnard.—What was the difference ?

Mr. Fisher.—The cheeseries, whose figures I have been able to collect, those, that is, that paid the most, paid the patrons 2 cents less than did Mr. Hayes' creamery : 79 cents for the 100 lbs. of milk. Other cheeseries paid still less : 75 to 76 cents per 100 lbs.

Mr. Barnard.—There is then a difference of 2 cents; that is, the creamery of Mr. Hayes paid 81 cents and the cheesery 79 cents per 100 lbs ?

Mr. Fisher.—Yes; but I do not think the average payment of the cheeseries reached 79 cents; or rather, I am sure that the average was not so high.

M. J. L. Allard.—What was the cost of making ?

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Mr. Fisher.— $2\frac{1}{2}$ cents a pound of butter; but this was hardly enough; the maker was not sufficiently well paid.

M. Allard.—About 12 %, this was?

Mr. Fisher.—About 10 %: the butter fetched an average of 20.7 cents a pound throughout the season.

M. Allard.—What was the cheesemaker paid for his work?

Mr. Fisher.— $1\frac{1}{2}$ or $1\frac{1}{4}$ cent; this is much lower than with you.

Mr. Barnard.—But the quantity of milk received at the factory is much greater.

Mr. Fisher.—True; Mr. Hayes received during the whole season, 1,648,000 lbs. of milk. It is a pretty large factory.

I was asked to-day if milk could be paid for after its richness, in cheeseries. I have studied this question earnestly, and I may say that, from a letter I lately received from Mr. Robertson, the Dairy-Commissioner of the Dominion, I find he is not yet entirely certain that the percentage of fat in milk would be a perfectly just measure of its value at a cheese-factory. Mr. Robertson tells me that if, on being tested, milk invariably gave a percentage of 3 to 4 per cent of fat, the payment for milk according to richness might be adopted with justice at the cheeseries. But as soon as milk shows a higher percentage than 4, or a lower percentage than 3, the proportion is neither quite certain, nor quite just. But, at the same time, Mr. Robertson told me: *I am, nevertheless, convinced that the richness of the milk is a more just measure of its value than its weight. The method of only weighing the milk, is not so correct as the method of testing its richness.*

And more; by testing the milk we have the advantage of finding out those who water it. If one of the patrons puts lots of water to his milk, he will not get a cent the more for it. This must be equally advantageous to both creameries and cheeseries.

I should like to speak more at length, but, as you see, I have some difficulty in expressing myself in French, and there are others here more capable of interesting you than I am.

Mr. Barnard.—Mr. Robertson, in his letter to Mr. Fisher, points out a very important matter for consideration, and what I have seen in the U. S. papers corroborates his statement. Thus, for instance, Mr. Hoard, of "Hoard's Dairyman," has affirmed for several years that we cannot pay for milk, at cheeseries, according to its richness. But the point I would press upon your attention is that, at above 40% of fat, there would be a great objection to the cheesemakers paying for the overplus of fat.

This must be made clear: according to Mr. Hoard and other authorities, no maker is skilful enough to incorporate more than 4 0% of fat in his cheese, and to make good use of it. If your milk has 5 0%, and you send it to the cheesery, you may be perfectly certain you will lose 1 0% out of the 5 0%.

You have Jersey cows,—they, you know, are first cousins to the Canadians, —the month is, September, your cows are giving milk with 5 0% of fat in it, and

you send the milk to the cheesery. Of two things, one must happen : either your neighbour's milk must be poor enough to absorb the excess of richness of yours, or this excess, if there is any, will go into the whey-tub. I would draw your attention to this. Unfortunately, I made many people very angry in speaking of this some years ago ; but, whatever the cost, truth must prevail, and if sacrifices must be made in the struggle to cause it to win, they must be made. As MM. Gigault and Taché said, the eye must be kept on the market ; but, on the road to market, if we go there with badly tied sacks, we must look out lest the sacks empty themselves on the road.

If you have milk testing 5 o/o of fat, and send it to the cheese-factory, no maker I ever heard of or met with can incorporate in his cheese more than 4 o/o out of the 5 o/o, or, if he can do it, his cheese will not be so good. On the other hand, if the excess is not worked into the cheese, the whey-tub will receive it. Pray think of this: you may support me or oppose me on this point, as you please.

Mr. Fisher.—I am not prepared to support all Mr. Barnard has just said ; but I think the best plan to settle the point would be, if your cows give milk testing more than 4 o/o of fat, to advise you to make butter of it. Among the cows of our *Canadian* fellow countrymen, there are a great many whose milk is very rich. Such milk, I am convinced, ought to be made into butter.

I am by no means opposed to the cheese factories, for I believe cheeseries have been productive of great good to the farmers of the Province of Quebec. But as some one, Mr. Gigault, I think, said to-day, it would be judicious were we send much more butter to England from Canada than we now send. Canada, already sends to England nearly half her consumption of cheese, but only, I believe, about 2 o/o of her consumption of butter ; and yet, what an immense market for our butters is open to us there, and we have almost the whole of it at command if we choose to occupy it, as it is the duty of the Province of Quebec to do. We cannot, of course, do all this at once, but with our Canadian cows and their rich milk, it is my belief that in places where there are no cheeseries, creameries ought to be established. I would not in any degree injure the cheeseries, but everywhere where no cheeseries exist, it would be to our advantage to create creameries and to make butter.

Mr. Barnard.— Mr. President, the Dairymen's Association having invited me to speak on any subject I might choose, I have asked leave to make notes and to take part in the discussions. I am not in order in rising again, but I believe that asking questions is for the public good. If you think I am too often on my legs, Mr. President, you should call me to order.

Mr. Fisher advises you, with much reason, to set up more creameries and to make more butter ; but this does not obviate the difficulty for a man who has Canadian cows, well fed, whose milk contain 5 per cent of fat, and is obliged to send it to a cheese-factory. Mr. Robertson very sensibly says that when the milk does

not contain 3 per cent of fat, the milk of the cows themselves, if well kept the pasture be no (I am not speaking of the milk of the cows) per cent of fat. they deliver at the

The figures show the eloquence. A fair price for the milk is 2.1 cent; another takes 2.1 cent; and paying the one will take that is, of 2.1, or 1 cent, give it to my neighbor. From all I know, it is simple where good milk can be had, we can with ease get it, not lost by reason.

On the other hand, more than 4 per cent of fat introduced and the price do as Mr. Fisher advised. I was in a controversy. I was told that a pound of butter in the market is a great pity to fatten

M. Taché.—I know the Townships well, and in the last two years, the season where, the milk contains more fat. I says that at this season in summer. In summer even with the Babcock method only indicating that is $\frac{2.0}{100}$ of one per cent, a difficult task, because to find fat the quantity of one division of the milk one has 100 lbs. of milk would correspond with

not contain 3 per cent of fat, it is difficult to apply the test at a cheesery. Well, Gentlemen, in the province of Quebec, when no robbery is being committed, the cows themselves settle the question at once. Our Canadian and our Ayrshire cows, if well kept, give milk that invariably tests over 3 per cent; and, provided the pasture be not too poor, it is certain that it would be difficult to find a herd (I am not speaking about an accidental cow in bad health) that would not give 3 per cent of fat. I believe, then, that it is possible to pay farmers for the milk they deliver at the factories in proportion to its richness.

The figures quoted by Mr. Fisher are not without a certain amount of eloquence. A farm takes to the factory milk the average of fat in which is $3\frac{1}{2}$ per cent; another take milk testing an average of 5.6. Well, if means of equalising things and paying each according to the quality of his deliveries be not invented, the one will take from the other the difference between 3.5 and 5.6, the half, that is, of 2.1, or $1\frac{1}{5}$, or else the maker will take a pound and $\frac{1}{10}$ of my fat and give it to my neighbour. ($2\frac{1}{2} \times 1 = 1.02$ Trans.) Is this right?

From all I read, and I have been at it for many years, the thing is very simple where good cows are concerned. As soon as normal cows are in question, we can with ease pay for milk according to its richness, provided this richness be not lost by reason of the incompetence of the maker.

On the other hand, if it is ascertained—there is no doubt about it,—that no more than 4 per cent of fat can be introduced into the cheese, or if more be introduced and thereby an inferior cheese to that less fat be made, in such a case, do as Mr. Fisher advises, and make butter. This brings me into the midst of the controversy. I would rather see a pound of butter in the butter-tub than a pound of butter in the whey-tub; every one must acknowledge that it would be a great pity to fatten hogs on butter at 25 cents a pound.

M. Taché.—I have just asked Mr. Macfarlane, who knows the Eastern Townships well, a question connected with the subject we are discussing. For the last two years, he has made tests of whey in the fall at cheeseries, that is, at the season where, in the French-Canadian region of the province of Quebec, the milk contains more than 4 lbs. of fat in the 100 lbs. of milk. Mr. Macfarlane says that at this season the loss of butter in the whey is certainly greater than in summer. In summer with well made cheese, the presence of fat in the whey, even with the Babcock test, is hardly appreciable, the subdivisions of that implement only indicating *fifths* of degrees. A fifth of a degree is $\frac{20}{1000}$ of a degree, that is $\frac{20}{1000}$ of one %, and when one has to show the hundredths of 1 %, it is a difficult task, because it must be done by estimation. When we say that we find fat the quantity of which we cannot estimate, this quantity may vary, for one division of the Babcock, from 1 to 20 hundredths of one percent. Supposing one has 100 lbs. of whey, the presence of the fifth of a degree of fat in this whey would correspond with the lost of $\frac{1}{5}$ of fat.

I do not want to bring any charge against Mr. Barnard, but he said—I do not think he meant it—that the excess of fat beyond 4% could not be incorporated with the cheese.

Mr. Barnard.—Excuse me; I said it would not increase the value of your cheese; on the contrary, it would lessen it; consequently, if you make cheese with 5% in it instead of 4, you are making cheese that will sell for less money and you will be losing 1%.

M. Taché.—This assertion is certainly open to argument: since the finest cheese that is made is made in September and in the beginning of October, if the season is favourable. It is at that season that the cheese is the finest, and then it is that it contains the greatest amount of fat. You, Mr. Barnard, may be right, but I cannot admit it.

Mr. Barnard.—That the Association show in its report the opinions on this matter of men like you, M. Taché, and Mr. Macfarlane, is very important. If you affirm that the maker can incorporate more than 4% of fat with his cheese, then, you put yourselves in opposition to the most distinguished men of the United States: still, you may be right.

M. Taché.—I will not allow you to put me into opposition with the best authorities of the States, when I did not use the words you put into my mouth. Mr. Macfarlane, after having proved it by having tried it on the milk of several cheeseries, and because he is acquainted with other factories, says that it is more difficult to get the whole of the fat, at that season, to incorporate with the cheese; or, in other words, the loss in the whey is greater in autumn than in summer; but it is proved that the average of milk in the French country shows more than 4% of fat. I believe this is the opinion of all those who have tested milk with the Babcock, and I believe it is the opinion, too, of Mr. Macfarlane. Mr. Macfarlane, is not the percentage of fat in the whole province during September, more than 4%?

Mr. Macfarlane.—Decidedly so.

Mr. Barnard.—And with it you find that you can make cheese that sells better?

Mr. Macfarlane.—September cheese fetches the highest price.

Mr. Barnard.—What is the proportion of fat (*richesse*) in the best cheese made in Ontario, which is the best in America; I mean a *Standard* cheese?

Mr. Macfarlane.—There is no type or standard for cheese in Canada. It has been proposed to have one, but there is none at present.

Mr. Barnard.—What is the richness (percentage of fat) of good cheese, in Ontario, in August?

Mr. Macfarlane.—Nearly 3½% in Ontario, and more than that here.

Mr. Barnard.—Is it more than 3½% in Ontario?

Mr. Macfarlane.—It is more than that here; we beat Ontario in certain points.

Mr. Barnard.—

The government of years running, I recently, it was pos its extreme limits, 3 Ingersoll could, up that was said to be 3¼ per cent of fat (t cheese of excellent of Quebec make one

M. Taché.—One

Western-Ontario, ve people began to see being carried too fa equal, cheese from r If the Ontario people our mode of making have a weapon in ou not we use it? I do n cheese, by skimming *prejudice*, is supposed

We are improvi methods are being c these researches, bu able to make cheese milk. And there is contested: *that the re is that they would skin*

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M. Taché.—Whe the hands of people w will appreciate the in hold them. At the v must consider as im cheese. It appears th make too firm a chee (Mr. Robertson, the C

Mr. Barnard.—I am glad to know it, for the question is a most important one. The government of the province of Quebec sent me into Ontario, 10, 12, or 13 years running, I forget exactly how many, to study this question, and until recently, it was positively affirmed that the milk sent to the factories there had, in its extreme limits, $3\frac{1}{2}$ to $3\frac{3}{4}$ up to October. Well, if Ontario-West, Stratford and Ingersoll could, up to last year, when we took the prize from them, make cheese that was said to be the best in America, with milk of $3\frac{1}{2}$ and, more commonly, of $3\frac{3}{4}$ per cent of fat (this was asserted by the inspectors), if, I say, a commercial cheese of excellent quality can be made with $3\frac{1}{2}$ to $3\frac{3}{4}$, why should the province of Quebec make one containing 5 % of fat ?

M. Taché.—One fact must not be forgotten : since Mr. Barnard was sent to Western-Ontario, very important phenomena have appeared. In West-Ontario people began to see that the manufacture of cheese of insufficient richness was being carried too far, and they found out in Ontario that, all other things being equal, cheese from rich milk is superior by far to cheese from milk not so rich. If the Ontario people are now afraid of the Quebec folk, it is not on account of our mode of making, but because our raw material is better than theirs. If we have a weapon in our hand that enables us to beat our competitors, why should not we use it ? I do not at all see why we should try to diminish the richness of our cheese, by skimming off the surplus of cream from the milk, which, *through prejudice*, is supposed to be insusceptible of incorporation with the cheese.

We are improving our method of making, yearly ; investigations into these methods are being carried on every year ; we are only at the commencement of these researches, but I believe that, before long, the province of Quebec will be able to make cheese into which will enter the whole of the fatty matters of the milk. And there is a fact that used formerly to be contested, but is no longer contested : *that the reason why the Americans lost their hold on the English market is that they would skim.*

Mr. Barnard.—With milk poorer than ours !

M. Taché.—I admit it, but still it was *skimming*, and if you once begin to coast down a slope, you will not stop till you got to the bottom of the hill.

Mr. Barnard.—That depends upon the management of your toboggan.

M. Taché.—When one has horses one cannot manage, one puts them into the hands of people who know how to drive. I hope that, in this case, people will appreciate the importance of entrusting the reins to those who know how to hold them. At the very present time, there is a state of things existing that we must consider as important to the dairy industry and to the manufacture of cheese. It appears that in Ontario they have taken a wrong turn in trying to make too firm a cheese of long keeping properties ; and the English consumers (Mr. Robertson, the Commissioner, is my authority) no longer require a cheese

from 10 to 12 months old, one that during that time has acquired a rather piquant flavour, but what they do want is a rich cheese, fit to eat 2 months after making, and which at that age is so rich as to melt in one's month.

Our cheese, made with plenty of fat in it, will not keep so long as Ontario cheese, made with less fat, and if both were kept for the same time, ours would be the inferior of the two; but if we sell our cheese at the proper age, we shall find more purchasers for it than the Ontario cheese would find, if that were sold at its own proper age.

Now, comparing our prices with those the Americans get, we have certainly got a cent a pound more than they, the whole season through, and in the district of St. Hyacinthe, we have got Brockville prices, and almost always Ingersoll prices. Oh! depend upon it, the province of Quebec is on the right road.

I do not mean to argue the question angrily; for our discussion is entirely for the public good, and when I am obliged to contradict an opinion of Mr. Barnard, I regret the necessity, not because I am not convinced of the justice of my own opinion, but because I am opposing the views of that gentleman who has rendered such signal services to the province. I should not like M. Barnard to see unkind feelings or presumption where on my part there is only earnestness of purpose.

M. Barnard.—If I may be allowed, this is the point from which we started. Mr. Fisher, in reply to a question, said that Mr. Robertson, speaking of cheese, saw an objection to paying for milk according to its richness, when it was lower than 3 o/o or higher than 4 o/o. But the figures Mr. Fisher gave show that when the richness of the milk was tested by the Babcock, this result was obtained: while some farmers send milk testing 3 o/o of fat, others send milk testing 5.6 o/o of fat. And what is to be done to do justice to each of these two sets of patrons? I suggested that the milk be paid for as it is done in a great number of factories in the States. I say, in a great number,—it is new,—a great number compared with what it used to be, three years ago;—then, there was not one factory that had not adopted the practice,—to-day, there are plenty. It is a point to which I desire to draw your attention. I will not affirm that I am right, but I draw your attention to the fact that the further we go into it, the clearer we see. The fact is clearly established here, that when there is no fraud, when no water is added to the milk, there is such a difference that, while one neighbour delivers milk of 3½, another delivers milk of 5.6 of fat; and if you do not possess an instrument which enables you to do justice to either, one of them loses $\frac{2}{3}$, nearly 40 o/o, of his milk. I beg your attention to this (1),

(1) In reply to this question, Mr. MacFarlane has since made the following calculations: Patron A delivers 300 lbs of milk at 5.6 of fat; Patron B, 300 lbs of milk at 3.5. Total: 600 lbs of

Now, Mr. Taché cheese, ours will be more than theirs. I should prefer doing no interest in the qu has rich and another his due.

But we, the patrons of rich milk, and the who is present, and unique, that is to be fo has been ignored, un prominence. It is im, we take to the factory pleases, let him pay n but, before all, let him

M. Taché.—According appear to have no o ment for milk at chee clear to me, is the re because those who ha would not receive enc that we must encoura they would receive to

milk. Cheese made, 70 lbs for division between the pa

The ordinary dividend wou

The dividend according to r

Or the pound of fat at 22 ce

The 1st solution gives a gives to A \$1.22 and to B \$0 of fat delivered represents ar

Now, Mr. Taché says that if we incorporate all the fat of the milk with the cheese, ours will be as good as the Ontario make, at any rate, it will have cost us more than theirs. I leave him to bear the entire responsibility of his affirmation. I should prefer doing justice to the patrons. The makers of butter and cheese have no interest in the question. They are no poorer and no richer, because one patron has rich and another poor milk; that one receives more, and the other less, than his due.

But we, the patrons, are interested that our cows should give plenty of milk, of rich milk, and that we should receive payment in proportion. As Mr. Chapais, who is present, and as Dr Couture can tell us, we have a race of cows that is unique, that is to be found no where else but in the Province of Quebec, and which has been ignored, until latterly. The Dairymen's Association has brought it into prominence. It is important that we be paid according to the value of the products we take to the factory. Let the maker turn out rich cheese or skim-cheese, as he pleases, let him pay my neighbour for Jersey milk, let him pay for milk of $3\frac{1}{2}$, but, before all, let him behave fairly to us.

M. Taché.—According to Mr. Barnard's statement, Mr. Robertson would appear to have no objection to the employment of the Babcock for the payment for milk at cheeseries, according to its richness. But what does not seem clear to me, is the reason that M. Robertson assigns for this objection: is it because those who have rich milk would receive too much, or because they would not receive enough? If it is because they would receive too much; I say that we must encourage the sending of rich milk to the factory. If it is because they would receive too little, you will find that one day these people, seeing

milk. Cheese made, 70 lbs; price received, 10 cents=\$7.00. Making, at $1\frac{1}{2}$ cent=\$1.05. Balance for division between the patrons, \$5.95.

The ordinary dividend would give.....	A.	300 lbs. =	2.97 $\frac{1}{2}$	
	B.	300 lbs. =	2.97 $\frac{1}{2}$	
				5.95
	Total.....			
The dividend according to richness would give : ...	A.	300 × 5.6 =	16.80	of fat.
	B.	300 × 3.5 =	10.50	
			27.30	“ at 5.95.
Or the pound of fat at 22 cents :	A.	16.80 × 22 =	3.66	
	B.	10.50 × 22 =	2.29	
			5.95	

The 1st solution gives an average price of \$0.91 per 100 lbs of milk to both patrons; the second gives to A \$1.22 and to B \$0.76 $\frac{1}{2}$ per 100 lbs, which is the fairer, it being admitted that such pound of fat delivered represents an almost constant weight of $2\frac{1}{2}$ lbs of cheese.

that butter making pays better, will set to work making it, and we are all aware that making butter is an excellent thing when in certain months the milk is of extra richness.

Mr. Fisher.—It was I who brought Mr. Robertson's name into the discussion, and I have to explain clearly what he said: it is clear that Mr. Barnard misunderstood me. Mr. Robertson told me that, if the fat of milk varied between 3 and 4 0/10 the money dividend, according to the test, would be fair; but, if the milk tested less than 3 or more than 4, the money dividend would not be fair. He said nothing at all about the richness of the cheese; he never said that no more than 4 0/10 of fat could be incorporated with the cheese. I am sure he has often made cheese much richer than 4%; and I am certain that Mr. Robertson would not recommend the skimming of milk in cases where it contains more than 4% of fat.

In my opinion, and I think in M. Robertson's opinion, too, skimming of the cheese-milk is one of the most dangerous practices that could be introduced into this country. As M. Taché said, it was in the States that the skimming of the milk began, and it was the ruin of the reputation of the States' cheese. It is because we, in the province of Quebec, persisted in putting all the fat into our cheese, that we have succeeded in making the best cheese in America; it is because our milk is richer than Ontario milk that we have been able to produce better cheese than that province. I am opposed to the farmers dreaming of skimming the milk intended for the cheese-factories.

Mr. Barnard.—You will kindly insert this question to Mr. Robertson in the report: Does Mr. Robertson advise us, when milk is richer than 4 0/10 of fat, to give up making cheese and to take to butter-making?

I only ask for one thing; that you pay me for the fat I take to the factory, and whether you pay me for it more in the shape of butter or in the shape of cheese, I leave to you; but, at all events, I want to be paid for the value of what I deliver at the factory. And I request, therefore, that M. Robertson be asked to be good enough to give his opinion on this question: when one has milk the richness of which exceeds 4 0/10, is it better to stop making cheese and to turn to the making of butter; and in the case where there is milk delivered testing 5.6, and milk testing 3.5, what is the best way of doing justice to the patrons. (1)

M. l'abbé Côté.—If you will allow me, I will make a remark here. We are at this very time making cheese in our factory, and since All-Saints' day we have tested the milk daily. On or about the 6th November, the milk in the vat tested 4½, and it then took 8 $\frac{57}{100}$ lbs. of milk to make a pound of cheese.

Towards the end of November, the milk tested 4½ of fat by the Babcock, and then, it only took 8 $\frac{37}{100}$ to the pound of cheese. And, now, last Saturday, the

(1) We hope to be able to insert Prof. Robertson's reply to these questions at the end of this volume. E. C.

milk in the vat show to make the pound of itself with the cheese pound of cheese.

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M. Barnard.—If y market for it, still, th man who knows how understand, pray, the any one, but I give fi

What I seek for that ought to protect means to protect the teaching them to und of 3½ 0/10 of fat and hi deliver: as for the on

The misfortune is and we always meet a thieves about. We c They are delightful thieves; at any rate th a cause is lost before gain it. We have a r it at once, but study i or benefit them.

milk in the vat showed 5, or rather more than 5, of fat, and it only required $7\frac{7}{8}\%$ to make the pound of cheese. Therefore, it is clear that the fat does incorporate itself with the cheese, since it takes less milk when so rich in fat to make the pound of cheese.

Now, is there a definite proportion between the increase of the fat in the milk and the diminution of the number of pounds of milk required to make a pound of cheese? Is there a proportion equal to the proportion there would be if butter was being made. This I cannot decide, for I have never made the test. The test I gave above, I gave just as we made it. The weights given are taken just as the cheese left the press; I cannot say whether later, after ripening, they would be the same; but we took the figures after the cheese had been more than 24 hours in press.

M. S. Chagnon.—Last Wednesday, with 2 days' old milk, I got a pound of cheese from only $7\frac{4}{10}\%$ of milk.

M. l'Abbé Côté.—What was the proportion of fat in the milk?

M. Chagnon.—All but $5\frac{1}{2}\%$.

M. l'Abbé Côté.—Then, this, too, supports my statement.

M. Allard.—According to Mr. Barnard, your cheese ought to fetch less money on account of its richness.

M. l'Abbé Côté.—We get 12 cents a pound for ours, and have not enough to supply the demand.

M. Barnard.—If you could make "double-cream" cheese, and had a special market for it, still, these are not the ordinary conditions. And where there is one man who knows how to make such cheese, there are 999 who do not. Now, understand, pray, that I do not discuss the question for the sake of disputing with any one, but I give facts known to all the world: the solution is your part.

What I seek for is the protection of the patron; and if there is an association that ought to protect him it is the Dairymen's Association. Can you not find means to protect the patrons and expel the thieves, not by violent means, but by teaching them to understand common sense. Let both, the man who brings milk of $3\frac{1}{2}\%$ of fat and him who bring milk of 5.60% of fat be paid for the fat they deliver: as for the one who brings milk of $2\frac{1}{2}\%$, detect him and turn him out.

The misfortune is that for the last ten years we have been discussing this question, and we always meet a number of inspectors who tell us that there are a great many thieves about. We can get rid of the thieves without employing the lawyers. They are delightful fellows, these lawyers; even among them there may be thieves; at any rate they are, some of them, very clever men, and, occasionally, a cause is lost before a learned judge, and the good counsel employed could not gain it. We have a more practical way: the Babcock. I do not tell you to use it at once, but study it, and then consider if its use is likely to injure the patrons or benefit them.

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Mr. Fisher advises us to encourage creameries in future. To this there are several objections, especially where in any place there is already a cheesery. Besides, we should be in just the same mess, as long as the maker of butter or cheese does not pay for the milk according to its value. There will be always a crying injustice, and a loophole for robbers, and you all know that "the occasion often makes the thief." Try, then, to abolish the temptation. Let the patron, honest or not, who comes to the factory be paid in proportion to the value of what he takes thither.

M. Chagnon.—My cheese is not cream-cheese; it is the ordinary cheese. And more, I have a way of my own, which I use when one patron's milk is not so rich as his neighbours'. I tell him: your milk only shows 30% of fat, while so and so's gives 4½; shall I come and test your cows? I then go to his farm, and if any one of his cows does not reach the average, I try to persuade him to discard her. This, I think, is a good plan to get farmers to bring us a good average quality of milk.

Mr. Barnard.—It would take a good deal of time.

M. Chagnon.—It answers well with us.

M. Saül Côté.—There is a man present who has paid for milk according to its richness. I hope he will come forward and tell us how he has succeeded.

M. l'Abbé Côté.—I may say that, even in cheese-making, we can pay for milk in proportion to its fat. In a lecture given in the States, and reported in the "Country Gentlemen," it was advised that the patron should be paid for his milk strictly after the showing of the Babcock-test. A cheese-maker present exclaimed: "I can assure you that the Babcock stops thieves better than even the Bible. I have tried both, and I prefer the Babcock." This is, perhaps, a rather exaggerated estimate, but I believe that the use of the Babcock is one of the best ways of scaring thieves and adulterators of milk.

Mr. Fisher.—In the States, the Babcock is used in a great many cheeseries to test the richness of the milk, and payment is made for it accordingly. I believe that even if the result be not strictly exact, it is in general pretty fair. We find by the analysis of a thousand samples, made at different scientific stations, both here and in the States, that, not always exactly but in general, the solid matters increase in milk in the same proportion as the fat increases. I know well enough that this is not exact, but it is exact enough for practical purposes. So, we shall not only have an increase of the fatty matters in the richer samples, but we shall also have a greater quantity of casein, sugar, and other solid matter in the milk. And thus, in common practice, the testing of the richness of the milk is sufficiently exact as regards the quantity of solid matters that are in it; and for this reason, I am convinced that this test of milk is very much to be preferred to paying for it by weight.

M. Taché.—The figures given by Mr. l'abbé Côté teach us this lesson: When the milk contained 4.25 of fat, 11.70 lbs. of cheese were made (from the 100 lbs.

of milk). When contained 5 of fat,

Now, it is clear or in the factory; the two first qualities that is, the second one fifth; the result pound, that is, 5 lbs. the gain made is more of a half-pound of butter.

M. l'abbé Côté.—days old, milk of two between the yield of and the three days' milk; the two day's milk cases, the milk, as follows.

M. Taché.—M. Côté matter; that of the fresher the makers impress upon possible condition; Of these instruments does not think it necessary from 50 cents to \$30.

But it is important lectures to his patron is well ascertained during one summer yield between milk obtained by repeating itself several times.

M. Chagnon.—I have different result. It is milk, to make, every are weighed every day say, that I myself have one day old milk. I think that it depends upon the cheese in the same manner days' milk, I have never was, but small, but I working, so as to make

of milk). When it contained 4.50 of fat, 11.90 lbs. were made; and when it contained 5 of fat, 13 $\frac{1}{10}$ of cheese were made.

Now, it is clear that there is a defect either in the management of the milk or in the factory; for, look at the variations in the yield of the milk. Between the two first qualities tested, 4.25 and 4.50, there is a difference of a quarter-pound that is, the second milk contained a quarter-pound more fat, and the gain is only one fifth; the result is not accurate. When the milk contained an extra half-pound, that is, 5 lbs. the gain is one pound and $\frac{2}{10}$ of cheese, and consequently, the gain made is more than double the quantity of cheese on account of the gain of a half-pound of butter.

M. l'abbé Côté.—We have also made another test. We took milk three days old, milk of two days, and milk of one day old. We found a great difference between the yield of the one day milk (evening and morning), the two days' milk, and the three days' milk. The one day's milk gave a much greater yield than the two day's milk and especially than the three days' milk, although, in all the cases, the milk, as far as appearance went, was well preserved.

M. Taché.—*M. Côté's* remark leads us to the consideration of an important matter; that of the management of milk intended for the factories. We know that the fresher the milk, the greater the yield. Therefore, it is necessary that all makers impress upon their patrons the importance of keeping their milk in the best possible condition; this cannot generally be attained without the use of aerators. Of these instruments, there are several kinds to be found, and the Association does not think it need make a choice; there are plenty to be had at prices varying from 50 cents to \$30.00. Any farmer can be suited in accordance with his means.

But it is important that every maker should get influential men to deliver lectures to his patrons on the utility, the necessity even, of using the aerator. It is well ascertained that this instrument pays for itself, two or three times over, during one summer. The facts mentioned by *M. Côté* show the difference in yield between milk of one day, of two days, and of three days old. This difference, by repeating itself several times in a season, becomes, at last, considerable.

M. Chagnon.—I have made the same test as *M. le Curé*, but I arrived at a different result. It is very difficult, even when working always with the same milk, to make, every time, the same quantity of cheese. It is when both milks are weighed every day, as we do, that the difference is observed. Still, I must say, that I myself have succeeded better with two days' old milk than with any one day old milk. I do not quite know why this is so: I rather think, though, that it depends upon the mode of heating it. I believe that we must not make cheese in the same manner at different times and with different milks. With 3 days' milk, I have never got so good a yield as with 2 days' milk. The difference was, but small, but I should like to know if we could not find out a way of working, so as to make it yield quite as much.

M. l'abbé Côté.—The one day old milk must be warmed, and allowed to stand longer before the rennet is added. Then, when it has arrived at the fit time for receiving the rennet,—which is, in the fall, with us, about 11 a. m., but sometimes later,—my maker rouses his milk from time to time, and when it is fit, he adds the rennet. There is a slight difference in the process.

Mr. Macfarlane.—It is a good plan to warm the milk to get it ripened, and before adding the rennet. I always, at the beginning of autumn, warm the milk up to 88° or 90°. Warm up well the first milk that arrives; and, when the last comes in, lower the temperature to 88°, and keep the milk in the vat at that degree. Take 8 oz. of milk and a teaspoonful of rennet, mix them, and if the milk curdle in 14 or 15 seconds, it is fit to receive the rennet in the vat.

It is far better to let the milk ripen in the vat before adding the rennet, than to keep the curd a long time in the whey. If you keep the curd two hours in the whey, you will find it very bad. And in this way of working, the maker will have finished his work just as quickly.

M. l'abbé Côté.—In support of Mr. Macfarlane, I beg to say that I would recommend the retaining of some of the previous day's milk to advance the bulk of the milk, just as Mr. Leclair advised for butter-making. The day's work may thus be got through as quickly in autumn as in spring. Ask the patrons to help you, you teach them to cool their milk, and you are right; ask them, then, to warm it in autumn, or at least to keep it in places that are not too cold. If you have any milk of the previous day, put in the proper dose of it, so as to invariably get your milk to work in the most desirable time. For, if you wait too long before putting in the rennet, the milk will work very much, and a great deal of cream will be lost.

M. Chagnon.—The reason Mr. Côté gives is the one that makes me prefer in the fall to use two days' old milk. My milk always works as fast as in summer.

M. Saül Côté.—I do not like that: working with stale milk, I think you would do better by ripening your milk yourself than by asking the patrons to ripen it for you.

M. Allard.—I ask Mr. Côté to tell me if it would be better, in order to ripen the milk in hot weather, or at any other time when the milk is advanced, to add more or less rennet?

M. Saül Côté.—I would take less time to make it curdle. I do not mean: more or less rennet, but less time. What I want is, that it curdle more quickly: instead of allowing it in 40 minutes to curdle, give it 30.

M. Bourbeau.—I have followed, with most interest, the discussion we have just had on the making of cheese at different periods of the season. We have heard it said here that different quantities (qualities?) of milk were made into cheese, according to the time of year; and that the quantity (quality?) of cheese was much better in autumn than in summer. I rise, Mr. President, to call your attention, and the attention of those, who are engaged in the cheese-export

trade, to a fact; business of cheese (for in the week all the sea cheese.

And this brings have butter that f and even 25 cents made with poor milk," I do not me we find it in July of July and August even November ch and in the beginning noted by the dealer manufacture longer cheese than we have

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trade, to a fact; are there no means of doing justice to those who carry on the business of cheese-making late in the autumn? I have seen it, while trying cheese (for in the factory near my shop, I have carried on the manufacture 3 days a week all the season), and I can assert that there are many different qualities of cheese.

And this brings me to make a comparison between good and bad butter. We have butter that fetches 10 to 15 cents a pound; while other butter sells for 20 and even 25 cents. There must, I think, exist the same difference between cheese made with poor milk and cheese made with rich milk. Of course, by "poor milk," I do not mean skim-milk; I simply mean cheese made with milk such as we find it in July and August. The difference is very great between the quality of July and August cheese, or even earlier, and September, October, and even November cheese. Cheese made in October at the end of that month, and in the beginning of November is very rich, and such richness ought to be well noted by the dealers, so that justice may be rendered to those who carry on the manufacture longer than usual. I think we ought to get a higher price for such cheese than we have hitherto obtained.

What I want to do is, to draw the attention of those engaged in this business, so important to farmers, to the necessity of finding a market that will do justice to those who make cheese in the autumn. This cheese is very rich, and, so to speak, tastes of cream. It might be called cream-cheese. We have some of it, now, on our counters, and we find it so extremely rich, that it is absurd to sell it for 10 or 12 cents, when it ought to fetch 15 or 20 cents; $2\frac{1}{2}$ or 3 cents more is not enough; I say the difference between July and August cheese, and cheese made in October and November, ought to be 4, 6 or 8 cents.

M. l'Abbé Côté.—I would then advise M. Bourbeau to ask his fellow trademen to have as much conscience as by himself has.

LECTURE BY M. L'ABBÉ CHOQUETTE.

DESPATCH OF MILK-SAMPLES.

M. President and Gentlemen,

I see no traces of fatigue on your countenances. Still, you must be tired, since you, I hear, have been in session since four o'clock. I feel, therefore, that I must not keep you long: besides, I have only a few words to say.

Two years ago, I told the Association of a very simple way of sending milk-samples, intended for analyses, by post. It consists in using wood-cases to hold the sample-bottles, and in sending them by post like common parcels.

Many makers, and patrons too, made use of this simple means of getting analyses made. I believe there are at present about a hundred of these cases in circulation in the province; many of them have arrived at the laboratory more than once.

In this double envelope, the milk is sufficient protected against both mischief and accidents. It may be concluded that it comes into my hands in the same state it was when it was sent off.

Of course these samples are not protected to the same degree that matters for legal decisions by experts are protected : those, I mean, that travel under the guardianship of the Sheriff, and under the care of the Great seal. Such protection it would be childish to ask for.

Still, to obviate all objections, I have sought out a plan to put a stop to all suspicions that may arise as to the identity of the samples. The only one I see at present, as to the cases that are in your hands, is to register them at the post-office.

Take care to fix the registration stamp partly on the case and partly on the cover at the extremity of the case, and I truly feel sure that the sample will reach me as safely as would a registered letter.

The Secretary proposes another plan, that I should have a special seal made, with a perfectly distinctive stamp, to be applied to drops of sealing wax at the extremity of the case. In future, every sample that leaves the laboratory shall bear this stamp, which will, I hope, ensure the inviolability of the sample. I only ask you to take care to write your name on the band of paper on the outside of the package, and to notify me of its despatch.

By the bye, let me earnestly entreat you to warn me by a post-card when you address a sample to me.

The card generally arriving a little before the sample, I shall be able to prepare everything necessary, so as to be able to begin the analysis at once, and so prevent the commencement of the lactic fermentation.

And, pray, observe, besides, that the bottle, enclosed in the case, contains a white powder. Some people have turned out this powder and washed the bottle with clean water. In other cases, this practice might be praiseworthy ; but the powder is put in intentionally : it is an antiseptic intended to keep the milk sweet ; so I beg you to leave it in the bottle, and to pour in the milk without fear.

I also would draw your attention to the Babcock test, of which notice was taken a few minutes before my arrival. It has rendered, and will render again, great service to the Dairy-Industry. Still, you know it is not always easy to arrive at an exact agreement, even with samples taken from the same vessel and submitted to test at exactly the same time. I have experienced these difficulties myself, and I think I have found a remedy for them in certain little precautions in detail, which I will try to show you. You will form your own opinion about them. First, I believe it to be very important to use sulphuric acid of exactly 1.82 density, and this is not easy to get.

But I hope the Secretary will ask the manufacturers at Capelton to prepare, specially for the use of the Babcock, sulphuric acid of 1.82 density.

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Here are some o Secretary :

In attending to the three points, I am about to lay before you, I think you will find that the difficulties will become less numerous and the results more satisfactory.

These points are : the density of the acid, as I have just mentioned, the gentle and slow mixing of both milk and acid together, and at the same time, the thorough pouring out of the milk from the pipette into the bottle, till the very last drop has run out.

Allow me another remark : on the lactometer. The Dairy Industry of the province is no longer in his infancy. According to the expression now in use : it has got there (*elle est arrivée*). Its methods, elaborated in the school-factory as well as in the laboratory, are confirmed by experience. I may be allowed to call it now, a *science*. In consequence, Gentlemen, I have a right to ask you to make use of scientific instruments in the different experiments you may have to make.

Now, the lactometer is not a scientific instrument ; its scale is almost empirical. Starting from zero, it goes up to 100 or 120 ; but it does not give the gravity of the milk.

For a little more money, you can buy the lactodensimeter of Quévenne, which is a scientific instrument, giving the weight of a gallon of milk relatively to the weight of a gallon of water.

From the lactometer to the thermometer the transition is easy, as they are both used simultaneously. I have remarked that in certain factories they use a thermometer protected by a metallic covering (like lace-work, I suppose—*Trans.*) Instruments of this make cannot be thoroughly washed, as all things used in the milk ought to be.

For milk is the most sensitive of all organic substances, it permits the most readily the development of all kinds of *fungi, bacilli, &c.* Thermometers of the class mentioned are very favourable resorts for these malevolent little beasts, and the maker has not the least idea that he holds a terrible foe in his hand—and this foe being hidden, is all the more to be dreaded on that account.

To the presence of these ferments, which swarm in the recesses of these thermometers, I attribute certain diseases of cheese which sometimes even puzzle good judges.

We now have, however, at very moderate prices, small thermometers, cylindrical in form, enclosed in a glass case. These are very easily kept clean.

I have accepted with pleasure an invitation to deliver a course of lectures on chemistry at the dairy school. The course will not be on pure chemistry, but on chemistry as applied particularly to that part that is most interesting to you ; to the Dairy-Industry.

I hope to interest you by offering you the short programme I have adopted ; I need not say that I shall listen to any suggestions that shall be made to me.

Here are some of the lessons, the number of which will be settled by the Secretary :

- Chemical composition of milk ;
- Physical composition of milk ; its appearance under the microscope ;
- Modifications caused by the breed of the cow and the duration of her milking period ;
- Physical properties of milk ;
- Normal and abnormal milk ;
- Milk and microbes or ferments ;
- Chemical composition of butter and cheese ;
- The ripening of cheese ;
- The management of the Babcock-test.

I believe that either the President or the Secretary will address you on the subject of an innovation rather important as regards the dairy-industry of the province. We have among us a manufacturer of condensed milk. I received, last Saturday, from M. Chicoine, the first sample of this milk made on the banks of the Richelieu.

I have not yet made a complete analysis of it ; but I can say that it has the gravity and consistence necessary to ensure its perfect preservation. The Secretary of the Association and the Secretary of the Council of Agriculture tasted it at my house, and they can give you their opinion of it, an opinion which is, I believe, highly favourable.

DISCUSSION.

M. Bourbeau.—You will allow me to point out to you a fact that is very injurious to our makers of butter and cheese : it is very difficult to obtain instruments fit for the making of experiments or tests. I am not speaking of the Babcock, but of lactometers and thermometers. We sometime buy them, and think we have made an acquisition ; we work for a couple of days, and then comes an inspector with an instrument to test the thermometer and lactometer which we have bought, and he finds that the maker has gone wrong, because the instrument itself has led him into error.

It would be to the interest of the makers to patronise a firm where these instruments could be had without its being necessary to test them. In this way, we should not be led wrong by our instruments. I think this is a matter of great importance. It has happened that makers have made cheese that was not of the best quality, precisely because they had used an instrument of their own that was not correct in its indications.

Mr. Barnard.—This is a very important question, but it is one of those questions that belong to the Dairymen's Association and the Syndicate of Farmers equally. There is only one measure to be taken ; it must be part of the duty of each of these associations to furnish their members with strictly guaranteed ins-

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truments, that they may be able to make a first-class article, and to sell them as cheaply as possible.

One thing is certain : we must have instruments of precision, and no one can judge for himself what is the quality of an article the value of which he does not understand. So, we ought to entrust one of your members, M. Choquette for instance, to send for, from the best manufactories, the instruments we require, and to get them at the lowest market-rates. And it would be as well that we should address ourselves directly to the Secretary of the Dairymen's Association, for such instruments as people are not able themselves to appreciate, that the Secretary may judge of their correctness himself, or get M. Choquette or any other expert to determine their accuracy.

And there is another question, Monsieur l'Abbé, which we have touched upon, but without having arrived at any conclusion : that of paying the patrons in accordance with the richness of the milk. You were not here during the discussion of that question. I will condense it for you in two words. We want patrons to be paid the value of what they take to the factory. If they take thither fraudulent milk, let them know that they will be discovered at once ; if they deliver average milk, let them know that they will be paid the value of what they deliver ; and if they deliver rich milk, that they will equally be paid according to its real value.

The maker may object : that to use the Babcock on each sample of milk sent by the patrons would give too much work. I believe that this would, in reality, be the great objection. But I would draw your attention, Mr. Lecturer, to this, because I believe that it is possible to take a sample every day, and by putting some chemical matters into it, to preserve it so that the samples of an entire week may be tested at once by the Babcock. In a machine of sufficient size, the test of 60 samples at once might be made once a week ; so that strict justice might at last be rendered to the patrons throughout the whole summer. If the President would permit it, I should like you to say a few words on this subject.

M. l'Abbé Choquette.—This question has already attracted my attention. I have not, personally, made any experiments ; I see, though, that, in the States, in some factories, this collective analysis is made of six days' milk, but, I am inclined to think, by consideration of the other side of the question, that this must present great difficulties ; for, whatever be the substance added (*préservative ?* Trans.), the volume and weight of the milk must be increased. And the Babcock is so made, that it shows the weight of the butter according to its volume as compared with the volume of the milk ; but whatever be the substance you add, whether bi-chloride of mercury, i. e., corrosive sublimate, or soda, the solid matter that dissolves increases the volume of the milk. So that, when you take the test-sample, instead of having the sum of the daily samples,—say $10 \times 6 = 60$; you will have

62 or 63. Consequently, a correction, for errors, must be made. I do not know if the makers will be competent to make such corrections, for they are rather complex.

Mr. Barnard.—But will not all the samples be in the same condition? Will they not all be between 62 and 63?

M. l'Abbé Choquette.—Yes.

Mr. Barnard.—Than will one lose more than another?

M. l'Abbé Choquette.—The loss would be the same for all the patrons; it would be a mere trifle, but the analyst would not give every one his due, since the percentage, instead of being given by 60, would be given by 63. (1).

It is a question that is worthy of investigation; and it is the only way to introduce the Babcock, practically, into the factories. But makers have not time to test the milk of all the patrons daily. Besides, these tests require minute details that they are not always in a condition to observe. I intend to study the question next summer or in the course of the winter, to see if by simple calculations or by means of tables prepared in advance, precise results cannot be arrived at.

Still, in the majority of cases, it is possible that a single test a week may suffice. The honest patron would neither gain nor lose, for the milk of a herd of 4 or 5 cows varies but little from one week to another. As for the dishonest patron, it is easy to watch him in some special manner, and to repeat the tests, when the practised eye of the maker has noticed some marked change in the appearance or the gravity of his milk.

As to Mr. Bourbeau's question, the secretary doubtless can furnish you apparatus graduated with sufficient accuracy, for, if I do not mistake, he is connected with a French glass firm, the MM. Arsonval. This firm makes to order all the articles required with the greatest precision. The French firms, as you know, deliver their goods with the greatest care.

As to the lacto-densimeter that I mentioned, the seller has to be able to deliver with each instrument a certificate from the maker. So that, for an additional price of, say, 25 cents, one can get an instrument guaranteed by a maker. As these makers are very great firms, and know what honesty means, they will not try to deceive you for a trifle.

With the thermometer the case is less difficult. I will engage to verify all instruments sent to the school: it does not take long.

M. Bourbeau.—There is one more question, Mr. President, that I should like to have answered: it concerns the quality of the rennet used to curdle the milk. I should like to hear some of the makers express an opinion on the quality of the rennet sent, in order that next year we may get some of that quality. We have sometimes had bad rennet; it costs too much as it is not strong enough.

(1) True enough in the case where the maker buys milk on his own account; but this loss can have no influence on the dividends in those factories where the sale price is divided among the patrons. E. C.

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M. Vaillancourt.—I should not be jealous of the Dairymen's Association, even if it did begin to sell thermometers and lactometers; but in justice to my friends who deal in these articles, it seems to me that if the Association enters into that line of business, it will not only be engaging in the dairy-industry but in the commercial industry, too.

Monsieur Bourbeau has just been complaining of the thermometers and lactometers; I have been selling them for the last 15 years. At first, we did not know how to test the thermometers before selling them, but, for the last ten years, in all the firms that deal in them, before a thermometer or lactometer leaves the shop, it is tested.

And if every one of these instruments does not give satisfaction, may it not depend upon the man not knowing how to use it. Besides, we can always get a higher price for thermometers of superior quality. Let them ask for them from the trade. We want to give everything that the trade has to offer, provided we get the price. We are offered 25 cents: we cannot sell a farm for that price!

Monsieur Bourbeau complains of the rennet; there are divers sorts; there is good and bad rennet. I have two or three kinds. If things go on like this, Gentlemen, if M. Bourbeau keeps on complaining of all the articles in the trade, the dairy-industry will no longer be a dairy-industry, but a commercial industry, and we shall have nothing to do but to look on.

M. l'abbé Choquette—Mind and get a maker's warranty send with these instruments; if you get that, the Association will, I believe, be ready to recommend you. It has no wish to seize upon the trade. Personally, I can assure you that if you have the article, you will have the support of the Association to help you to sell it. For my part, I can give you the address of some firms from which you can buy trustworthy instruments.

But, naturally, as you say, they will be dearer. Still, I think the cheese- and butter-makers will be willing to pay more for them.

EVENING SESSION

OFFICIAL OPENING OF THE CONVENTION.

To the members of the "Dairymen's Association,"

Mr. President and Gentlemen,

The citizens of Ste Thérèse have much pleasure in bidding you welcome.

In the members of your Association we salute men distinguished by their talents, by their enlightenment; but, above all, and we like to raise our voices when we say it, by their being the true friends of the Canadian people. This you

prove to us, not by words but by deeds, that you have at heart the progress and the prosperity of that part of our population, the most numerous, the most important of all, the agricultural population.

How can we, farmers, fail to rejoice when we see the interest you take in our cause? Gentlemen, it is to do good that you have come among us. Speak; we listen to your words; instruct us, teach us those reforms, those improvements that will lead us out of the old paths, and guide us onwards and upwards. From you we shall learn to love our vocation, the noblest of all after the vocation of the clergy, since it is that which confers on humanity the nourishment that supports the material life. From you our children will learn that the cultivation of the soil always produces easy circumstances, true happiness, and may eventually bestow riches. They will become attached to the business of their fathers, and, then, will decrease, will perhaps vanish, the tide of emigration to foreign parts and the concentration of our population in the towns. Thus, you, more than any other body, are working both for the good of the individual, and for the greatness of the country.

Mr. President and Gentlemen, be assured that the inhabitants of Ste Thérèse will with pride preserve the remembrance of those days during which they had the honour to offer you hospitality.

E. P. GERMAIN

Mayor of the village of Ste Thérèse.

THE PRESIDENT'S REPLY.

Mr. Mayor and Citizens of Ste-Thérèse,

We did not expect such a demonstration; but we accept your kind reception, and, as president of the Association, I offer Mr. Mayor our sincerest thanks for his good wishes.

For, indeed, you are spoiling us. If this were to continue long, we should become whimsical. Nevertheless, in these proceedings, we only see your liberality, your good intentions, we only hear the compliments you pay us.

Like you, we are acting for the good of the country. We desire to retain our young Canadians in their own grand Canada.

Accept, Mr. Mayor, from my lips, these few words, and you may tell your councillors and fellow-citizens that we feel flattered by their proceedings, and that, to our knowledge, we have never held so fine a convention, either as to the number or as to intelligence and attention of the audience.

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This intelligence, this attention to the discussions prove the superior qualities of your people. Thanks, then, for your kind reception ; and I will profit by the opportunity to offer my sincere thanks to the Superior and all the worthy priests of the College of Ste-Thérèse for the liberal, the graceful hospitality they have so kindly offered us. The whole house has been at our service: the "Rule" must suffer by it! Still, it has been done with a good grace. Thanks, then, in the name of all the members of the Association; thanks in my own name.

OPENING ADDRESS

BY THE REV. M. T. MONTMINY, PRESIDENT.

Gentlemen,

For the eleventh time, the Dairymen's Association of the Province of Quebec calls together its members in annual convention. It is fortunate in this year having been able to accept the thrice repeated invitation of the people of Ste. Thérèse; first, because this reiterated invitation shows how great is the interest the farmers of the district take in the industry that forms the subject of our deliberations, and next, because it is particularly pleasing to us to be the guests of this fine College of Ste. Thérèse, which enjoys justly a solid reputation, and whose praise is so well known among men, that it needs no repetition.

Did I wish to repeat its praise, I should have nothing to add to that which fell, in this very hall, from the lips of one of its pupils who does it the greatest honour, and who did honour to himself by speaking of the college in terms that I cannot refrain from repeating here, so well do they express my own thoughts: "Who dare contend," said he, with an accent that revealed the love his *Alma Mater* had breathed into his soul, "who would dare contend that Ste. Thérèse has not deserved well of the country? And when I say the country, I speak of the whole of Canada.

"Ste. Thérèse has given us bishops, one of whom is to-day the pioneer of civilisation in the West of the former United-Canada. In his strong grasp he holds the vast solitudes that once lay closed to civilisation. For him, space is nothing, and he will soon touch with his long arm the first settlements of the Furthest West, where the destinies of the Canadian people are at stake.

"The English Crown has been represented by one of your pupils at the head of our provincial parliament; again, the bench is proud of another Thérésien, and when Judge Routhier mounts the chair of the professor or the tribune of the lecturer, to speak of religion, the country, or the splendours of the Christian law, he gives voice to accents that remind us of the efforts of the highest eloquence, be it ancient or modern.

"It is a good thing, then, gentlemen, to be entitled to call oneself an old pupil of the Petit Séminaire de Ste-Thérèse.

"You only reached your full development, as it were, yesterday, and every where are to be found your former doctors, *cum maximâ laude*, at the Canadian College at Rome, at the head of collegiate and university education, in the far distant missions of the Great West, on the benches of the assembly, at the head of the liberal professions, as well as in the deserts of the most important and most arduous parishes of the diocese. Are they very common, those institutions, such as the taste of our inexperienced reformers would establish, capable of bringing about such results in so few years?

"And the public ministers, too, proclaim the grandeur of your institution. At the new capital, as well as at the ancient city of Champlain, a Thérésien presides over the vast labour of the improvement of the Dominion and of the province. and these two former pupils relate with affection that it is by no means a subject of regret, after all, to have been at the Petit Séminaire de Ste-Thérèse;"

To this, I, for my part add, that all of us who have been received here to-day in its hall, have a right to consider the College of Ste-Thérèse a matter of pride to all French-Canadians.

For us, more particularly members of the Dairymen's Association, to these titles you unite another, that of being the friends of agriculture. For already a long period have your priests joined us, participating in our attempts to make the dairy-industry successful, the object of our labours. Your house has placed itself at the head of the movement in the county, and your pupils, many of them farmers' sons, see here held in honour not only the flowers of rhetoric and eloquence, but the fruits, more valuable practically, of the soil, the producers of which are their own fathers. We rather feel ourselves at home here. and the more so since our association happens to have for its president a priest who forms a link in the chain that unites those of us that are laymen in the bonds of confraternity with the priests of the College of Ste-Thérèse.

This year's convention, gentlemen, has a special character, in the sense that it marks the tenth anniversary of the founding of our association. On May 1st, 1832, Parliament granted us our act of incorporation, and we began our work with a list of seventy members. On the 28th November of the same year, we held our first meeting at St. Hyacinthe, and since then, we have worked in disseminating the teachings that sprang from our labours, by holding conventions in different districts of the province. In spite of the proverb "A rolling stone gathers no moss." (1) We have rolled up a pretty large snow-ball in our travels, for our small society of 70 members in 1832, so recruited itself at Quebec, Arthabaskaville, Three-Rivers, l'Assomption, Sorel and Montmagny, that it shows now 600

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members on its list, which doubtless will be again increased this year, by absorbing into its ranks all the intelligent and industrious farmers of the fine, fertile county of Terrebonne.

We have a right, Gentlemen, to be proud of our work. As we have not laboured for our own interest, but for the interest of the whole farming-class, and consequently for the interest of our fine province, we have a right to cast an eye of satisfaction on the road we have travelled during the last ten years.

We can say, without fear of contradiction, that our association has had its share in all the progress made in the dairy-industry, since its foundation. From it, our legislators learned what a mine of national wealth this industry contained; it is the same society that suggested the means of developing it; but, let us say at once, that it has always met with, among the governing body, men of good intentions, who have, with enlightened political views, furnished it with the funds necessary to the carrying out of its plans.

Our association, demonstrating at its meetings the profits dairying would bring to the farmers, contributed to the erection of creameries and cheeseries, that become more numerous every year.

By the system of inspection it has organised, it has contributed to the improved methods of manufacture, to the perfecting of the fittings of the factories, and the development of the skill of the makers. By its syndicates, it is on the point of arriving at a regular uniformity in the quality and the appearance of the dairy-goods of the whole province; and, lastly, this year, the tenth anniversary of its foundation, it is celebrating worthily its fête, by opening a great provincial dairy-school, which will give additional vigour to all the progress I have just been talking about.

But, I repeat it once more, if our association has been able to do such a great work, it has found the needed assistance in our governing powers, who have appreciated the advantages that flow from such labours for the prosperity of the province, as much as in the activity of some of our members, who, in a better position than others to work vigorously for the regeneration of our suffering agriculture, have exerted themselves with a zeal and an energy that do them honour, and entitle them to the gratitude of the agricultural class.

For the present convention, we have prepared an elaborate programme, which will require a great deal of work on our part during the two days our meeting is to last. Nineteen lecturers have inscribed their names, and will treat before you almost every question connected with the dairy-industry. The lectures will I doubt not be the objects of animated discussions, and I am sure that, this year as in the past, from these discussions will dart forth a light and a brightness that will show the farmer the course he must follow would he travel surely the road of progress.

In closing this opening address of our eleventh convention, I must conclude, Gentlemen, with a word of regret. There is to day, in the midst of us, a great

void which you have certainly all perceived. This void is caused by the absence of one of the most zealous directors of our association: Dr. Bruneau, of Sorel, whom God recalled to himself on the 22nd of October last.

Since 1889, he had been our assiduous fellow-labourer. You all remember what activity, crowned happily with success, he displayed in organising that fine convention at Sorel. You remember too, the humility with which he refused the post of vice-president of our society, to which it was proposed to elect him; his words, in our discussions and conversations bore the impress of the highest judgment, of the most enlightened good sense. May his words remain in our recollection as a model to be imitated, and let us consign to our archives the memory of this upright citizen and good christian, who was one of our most distinguished, as he will certainly be one of our most deeply regretted members.

RESOLUTION OF CONDOLENCE PROPOSED ON THE OCCASION OF
THE DEATH OF DR BRUNEAU.

M. Chapais.—The last words, Mr. President, that you pronounced in your opening address, induce me to make a proposition that will, I am sure, meet with the approval of the members of the convention present here this evening.

I propose, seconded by Mr. l'abbé Choquette, that the association vote a resolution of condolence to be presented to the family of Dr. Bruneau on the occasion of his death; and I am convinced that it will be adopted by all present, in memory of him whose loss we all deplore to-day.—Carried.

MR. BERNARD'S REMARKS.

Before proceeding any further, allow me two words that I feel I ought to say in justice and gratitude to this establishment, whose spirited but well deserved praise you have just sounded. You have noted the fact that for the last ten years our association has been improving by its meetings and discussions; and you have deplored the death of Dr. Bruneau. Well, I should like to mention that there is a man, whose death is by no means recent, to whom we owe the establishment of the lectures; and this man was the former Superior of the Seminary of Ste. Thérèse. He went to the Council of Agriculture and told its members that the country would improve, would develop itself rapidly, if lectures could be delivered. I mean M. Stanislas Tassé, so well known, so esteemed here. Both the country and the Association owe him a debt of gratitude for having been the cause of the establishment of lectures. He had the trouble, to him is due the honour.

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TO G. A. GIGALT,

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TELEGRAM FROM THE HONOURABLE COMMISSIONER OF AGRICULTURE AND COLONISATION.

Québec, Dec. 13th, 1892.

TO G. A. GIGALT, ESQ., ASSISTANT-COMMISSIONER OF AGRICULTURE AND COLONISATION.

Convention of the Dairymen's Association, Ste. Thérèse.

Please present to the Association my apologies for my involuntary absence, and send them my best wishes, and have no doubt the intelligent men who direct it, know how to render it as useful to the province in the time to come as it has been in the past.—(Cheers.)

LOUIS BEAUBIEN.

DISCUSSION ON THE SUBJECT OF "FRENCH-CHEESE."

The President.—I would draw the attention of all the members of the Convention to a letter from Bristol, England. I should like the question it raises to be discussed this evening.

Since the establishment of the Dairymen's Association, we have constantly tried to improve our products, to make cheese of the best quality, and now we hear this cry of "French-Cheese," which discredits our goods and paralyses our efforts. What is the use of all the pains we take, if we end in a failure, if we do not let people know that our products are superior? It is to this point that I demand your most earnest attention.

The following resolution was adopted as a supplement to the rules of "The Society of Provision dealers," of Bristol, at a committee-meeting held November 15th, 1892, and submitted for approbation to the next general meeting.

"The cheese made in the French parts of Canada cannot be used in the fulfilment of a contract for the best Canadian Cheese. The seller shall have the right to deliver cheese made in any other part of Canada except the French part... A copy of this resolution shall be sent to every member of the Association."

W. J. PARKER.

President.

It is for you, Gentlemen, to discuss this question.

Mr. Barnard.—Before proposing a motion, I have only a word to say. Ignorance is said to be no sin; but at least it is a great inconvenience. There are people so little informed that they may pass for fools—pardon me the word,—but here is an association, composed of English merchants, that do not understand the very first word of the question.

The question was solved 18 months ago at Toronto, and after that, in England. Professor Robertson sent two cheeses from the province of Quebec—one from the French-country, one from the Eastern Townships,—and these two cheeses, selected by professor Robertson, had previously taken the first prize of the Dominion of Canada at Sherbrooke. These cheeses were then sent to England, where they were sold, after having been shown to the leading dealers in that line; and these cheeses, from the province of Quebec, as much from the French as the English districts, were acknowledged as being the best cheese imported. This was last year.

This year, there was again an exhibition at Sherbrooke, but not a Dominion one. At the Sherbrooke show there were two persons equally disinterested on this subject of "French-cheese." One was a Scotch dealer who had come here to gain information about the best cheese made in Canada; the other was professor Robertson, Commissioner of dairy-industry for the Dominion, who had himself been appointed judge of cheese at Sherbrooke. They formed a committee, found the cheese so good, so superior to anything that had previously been made, that they had the audacity to advise its being sent to the Toronto exhibition this year. It was properly entered, and what was the consequence? It took the first prize for the best cheese made in Canada! And we know that, in England, Upper-Canada cheese is quoted as the best in America.

This then is the result; cheese well made in the *French-country*, as well as the well made cheese of the Eastern Townships, has been proved both in Canada and in England to be the best made in America.

And, now, this Bristol association, composed unfortunately of ignorant men, as I said, will not accept consignments of *French-cheese*. As regards their trade, these men are fools.

How shall we manage to put a stop to this evil? The question is much easier to ask than to answer. But there is a remedy, for we have a new minister of agriculture, who, though without the experience of his predecessor, will certainly do us justice, as you will admit, for I speak of the Hon. A. R. Angers, our ex-governor of the province of Quebec.

I am convinced that a motion inviting the special attention of M. Angers to the facts we have just related, with a request that he would telegraph to professor Robertson, who is now in England, requesting him to confer with these Bristol gentlemen, will open their eyes, and make them feel that the less they talk about

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French-cheese for the future, the sooner will they be supposed to know something about the question.

The President.—How is it that in England so much cheese is to be seen bearing the mark : *French-cheese* ?

M. Vaillancourt.—There is in Montreal an association like the Bristol one, composed of dealers interested in the purchase and sale of agricultural produce, such as butter and cheese, and I have the honour to be on the committee of this association. We had a meeting yesterday, and this copy of the resolution the president has just submitted to us was read ; and like you, Gentlemen, when I heard the phrase, *French-cheese*, I was annoyed, and it was then that I asked our president to give me a copy of the letter. He gave me the original, and I thought the opportunity favorable, since the next day (to-day) was the day appointed for the meeting of the Dairymen's Association.

Our association, for its parts, must take energetic measures to protest against this resolution of the Bristol people. Observe that this resolution was only passed by a committee of the Bristol association, and is not approved by the entire trade of England. But it is to be submitted for approbation to the Bristol dealers (1) at the next general meeting. Before this general meeting of the Bristol men takes place, we ourselves shall have a general meeting of the whole trade which we have convoked for Monday next, and we shall protest vigorously against this resolution. I should like the Dairymen's Association to join in our protest. Protests can never be made too strong.

I will repeat to you the language held at our meeting. The worthy President, Mr. McKergow, and Mr. Ayer, to whom I had spoken about the affair, thought it would be à propos if I opened the question. Mr. Ayer replied at once, in the name of his firm, that he knew of no such thing as *French-cheese*, and that our Montreal dealers knew of no such thing, they only recognized *Canadian-cheese*.

We have here the cheese of the province of Ontario and the cheese of the province of Quebec. It is perhaps that the Bristol people mean. But since, as Mr. Barnard said, the province of Quebec, last year, at Sherbrooke, and this year, at the Toronto exhibition, took the first prize for cheese, the Bristol folk are by no means consistent in passing this resolution.

Again, you can find cheese, made in a purely French-Canadian place, where not a word of English is spoken, cheese made by an Englishman : would they call this Canadian cheese ? (*meaning a French-Canadian cheese* ? A. R. J. F.)

So, our association does not recognise any *French-cheese* here. But if, on one side, we cannot recognise a class of *French-cheese*, we must recognise the existence of a class of *common* cheese. Why do these people call it *French-cheese* ? I am sure I do not know. It is a prejudice, perhaps. Anyhow, there is a cheese that

(1) *Marchand* does not mean merchant but shopkeeper. A. R. J. F.

is common enough, often very well made, but showing the most unpardonable defects in the packing.

You will see a cheese of 15 inches in diameter packed in a box of 16. A box of 10 or 12 inches, and a cheese of 6 inches in it; you will find in one and the same lot variations of 20 lbs. between the highest and lowest weights of the cheese; cheeses highly coloured and cheeses not coloured; these are unpardonable defects in the eyes of the trade. Boxes will be stamped with boot-blackening; they reach Montreal in a state of smudge, and the dealers have to get them scraped clean. I point out these defects in the interests of the dairy-industry; I think that, with a little exertion of good will, they may be remedied.

You may be sure that next Monday our association will take energetic measures to protest against this resolution of the Bristol dealers.

And, now, about our butter. In my opinion, our butter does not get fair play on the English market. The English papers, those that deal specially with the question, often reproach, us *Canadians*, farmers or dealers in dairy-goods, for keeping our butter too long. I am always pained to see in the English, and even in our local, papers, quotations that show a difference of 12 shillings = \$3.00, for the cwt. of 112 lbs.

I have heard the Honorable Louis Beaubien affirm, from good authority, that Canada supplies the dairy-industry with advantages that can nowhere be surpassed. We have every thing to make good butter with, if we only go to work about it in earnest.

I shall, perhaps be told that we are more distant from the English market than New-Zealand is, but there is the butter of that country that arrives on the market in England from double the distance Canada butter has to travel; and yet that butter comes in better condition, and reaches its destination still in possession of all its best qualities.

I see that the government is taking very energetic measures in favour of our industry, and I am glad to observe at St. Hyacinthe a dairy-school which will give us skilled makers. I trust there will be good students at that school, so that we shall no longer be obliged to get workmen from the States for our factories.

As I was saying just now, the government must be very well disposed towards our association, since it has determined to expend so much in encouraging this school. It might also, perhaps, take upon itself the responsibility of sending 100 or 200 tubs of butter from the best creameries, to be exposed for sale on the English market, so as to let people see what our butter is like in its fresh state.

Of course, the government would lose money by this; but observe the sacrifices it makes for the patronage of the national industries. The federal government gives a bonus of so much per 100 lbs. for beet-sugar making; the Quebec government does the same; the dairy-industry, however, is more important than the beet-sugar industry.

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At present, the butter bought from our factories in June and July is sent to Montreal, stored in ice, and is not exported till September. Arrived in England, it is exposed on the counters, side by side with Danish butter only 8 days old. And when a customer is shown our butter, he is not told that it has been made 3 months: he is only told that it is Canadian butter.

I would again beg the government to take the initiative and send 100 or 200 tubs of our butter weekly. Were our butter brought into notice weekly, like this, it would soon be quoted as high as Danish butter.

Mr. Fisher.—The time has arrived, I think, for this association to act, so as to put a stop to this great evil that threatens injury to the dairy industry of the province of Quebec. I wish to testify my gratitude to this society for the benefit my countrymen have reaped from the dairy-industry during the past years, by proposing the following resolution, if any one will second it:

PROTEST AGAINST THE BRISTOL RESOLUTION.

"That the Dairymen's Association learns with surprise that the following resolution has been laid before the association of provision dealers at Bristol for approval: (The resolution read before you follows: see p. —.)

"That the principle of classification, as contained in this resolution, is undeniably unjust and based on old world prejudices which now-a-days have no ground of existence;

"That, at present, in the French part of the province of Quebec, a very great quantity of cheese is made, which will bear comparison, to its advantage, with the best cheese of the Dominion;

"That instead of this classification, it would be better to judge according to its quality this cheese, made, as it is, from milk superior in richness to the milk of all the other parts of the Dominion;

"That the Dairymen's Association would draw the attention of the Chambers of Commerce in England to the organisation of syndicates, now in full play in the province of Quebec; which organisation ensures the constant inspection of the manufacture by experienced inspectors, to a degree that is attained nowhere else;

"That this resolution be communicated to the Hon. Minister of Agriculture, and that he be asked to cable it to Professor Robertson, who is now in England, that he may take all the steps necessary to destroy the erroneous, unjustifiable impression, which has dictated such a resolution as the one complained of."

M. Vaillancourt.—One fact I forgot. The President of our Montreal society, while speaking yesterday on this subject, told me: "I sent three cheese, to England: one from Ingersoll, one from Brockville, and the third from the province of Quebec. I erased from the boxes all the marks that could show whence they came, and I asked the firm to which I sent them, after having made private marks on them, to tell me which was the best of the lot. The firm replied that the best was the one from the province of Quebec."

Mr. Ness.—The letter from Bristol surprised me. Last year, I travelled to Liverpool with your ex-president, Mr. Bernatchez. He had business to do with the firm Marcus Jones. Mr. Jones had visited Canada three years ago. We began to talk about the Quebec cheese as compared with cheese from Ontario: "Sirs, said he, you are wrong in letting yourselves be tricked by the Montreal people; they injure your trade very much; it is not the Ontario people who do it, though it turns out to their advantage: they take a lot of cheese of bad quality, erase the marks on the boxes, and make them pass for Quebec cheese." Mr. Jones did not say that they made it pass for *French-cheese*; this is the first time I have heard the phrase.

We talk of inspectors to look after the factories: government should be asked to appoint men to examine all the boxes, so as to ascertain whence each lot comes.

I am not very old, but I remember when the people of the States made cheese and we did not. At that time, when complaints were made in England about the cheese, the States' people replied: We did not make that cheese, it was made by Canadians of Ontario. Nowadays, the Ontario Canadians, in their turn, say: Oh, we did not make this inferior cheese, it was the Quebec Canadians.

For my part, I am not directly interested in the question; I do not farm in connection with dairying, but I am president of an association like this one, that exists among the English of my county, and I think there should be an inspector appointed to examine the boxes. Look after your interests.

Dr. Couture.—I think it is time to discuss the questions of a general inspection and of fixing upon a trade-mark. If the cheese were inspected, as is done with a great many other objects of commerce, and if each box were stamped by the inspector according to its merits, the disputes that so constantly arise would cease. I ask you, then, would it not be advisable to now discuss the propriety of asking the government to organise a system of general inspection and to fix upon a general trade-mark?

The above motion proposed by Mr Fisher, and seconded by Messrs Beauchamp, M. P. P., and Robert Ness, was carried unanimously.

Mr Barnard.—There is an officer of the federal government present, and I ask if it would not be a good thing if Mr Chapais were to telegraph in the morning to the Hon. Mr Angers and draw his attention to this point. Two strings to one's bow are better than one. Mr Chapais has an official responsibility; a fact has been brought before us which may do great harm, not only to the province of Quebec, but to Canada; and it seems to me that we should not only send the resolution and the report of what has been said, but we should also request Mr Chapais to act according to the best of his experience, in order that this evil, that reaches us from England, may be put a stop to as soon as possible, and that there be not even a root of it left behind.

M. Chapais.—I think that the steps just taken by the Association is a very

proper one, a Minister of Agriculture dispatch in question who would tell Bristol.

For my part, Fisher's idea was forwarded by him to remit to him.

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proper one, and that the resolution ought to be put into the hands of the Minister of Agriculture, so that the Department itself, at Ottawa, may send the dispatch in question. This would certainly be favorably received by the Minister, who would telegraph to Mr Robertson, to parry the thrust aimed at us from Bristol.

For my part, I am ready to do all that lies in my power ; but I think Mr Fisher's idea was that the resolution be put into the hands of the Minister to be forwarded by him to Mr Robertsou, which would have more effect than if I were to remit to him directly.

If, just as we are begining to feel a decent pride in it, we find our cheese depreciated, discouragement will invade the breast of this fine business, dairying. We must therefore prevent this discouragement from spreading, and I am very willing to do all I can in my official capacity to attain the desired end.

M. Vaillancourt.—I think that the general annual meeting, to which the resolution from Bristol refers, will not be held till January ; so that we have ample time to write, if you are afraid a telegraph would be too abrupt.

M. Taché.—The reason why it is imperative to telegraph is this : Professor Robertson is now in England, and he returns at the begining of January. It is important that he should receive the resolution so that he may at once put himself into communication with the Bristol society and defend us.

The President.—I call the attention of the meeting to M. Couture's proposition.

M. Barnard.—I think this question is so highly important that, before it be discussed here, it should be thoroughly digested by the Directors of the Association.

The question of inspection has been talked about for some time ; there are reasons on both sides of this point, and it would be as well to consult the trade before coming to any decision on so important a matter.

I have, during past years, heard many dealers' opinion on this question, and if I do not deceive myself, this is about what they think : cheese, as well as butter, can be tasted ; he who is buying either will never confide in any trade-mark. A trade-mark may perhaps be very useful, but, on the other hand, the buyer has the gift of taste, and no trade-mark will hinder his making use of his judgment and his nicety of taste.

Still, I saw, the other day, at St-Hyacinthe a trade-mark that, it is wished, should be accepted in England, one that Mr. Robertson has gone to that country to get accepted there. It is the trade-mark of the federal government for the butter and cheese made at the dairy-school, or rather, the experiment-station, which Mr. Robertson himself directs. Mr Robertson is then convinced that in putting a trade-mark on excellent butter and cheese, he is doing no injury to the trade of Canada. It is very possible that, with inspection, we can make superior goods, which we can put on the English or any other market in future without any fear of showing whence they come. But, without the inspection of all butters and cheese, it may be that we may begin a mode of inspection by which our in-

spector shall be in a position to declare that such a butter or such a cheese is of the finest quality, and cause to be placed on it the mark of a syndicate of dairy-industry or of the Dairymen's Association.

This is a question to be considered. I do not know if, in discussing it this evening, we can do it justice. I thank Dr Couture for having drawn our attention to a subject of such importance, and if it were à propos to desire the Association or the board of directors to digest the question, after having come to an understanding with the Montreal trade and obtained information on the subject, I think we should attain the end Dr Couture is seeking for, and, at the same time, be doing a great service to the dairy-industry.

Dr Couture's lecture, that was read in the course of this session, will be found at the end of the report.

ELECTION OF THE BOARD OF DIRECTORS.

The elections of the Board of Directors was then proceeded with as follows:

OFFICERS.

Honorary President : The Hon. P. B. de la Bruère.	} Resigning.
Honorary Vice-President : M. Naz. Bernatchez, M. P. P.	
President : Rev. M. T. Montminy.	
Vice-President : Mr. S. A. Fisher.	

NOMINATION OF THE SECRETARY.

M. Taché.—Before proceeding to the nomination of the Secretary-treasurer, I beg to inform you that I have decided no longer to accept that position; not that I have any complaint to make against the association, but because the personal circumstances in which I am placed will not permit me to discharge its duties.

I have done my part, since I have acted as secretary from the foundation of the association, and if I give the place up to-day, it is not for the purpose of breaking the ties that unite me to the society; far from it: you may always count upon my cooperation.

From last June, on representations I made to the board of directors, it decided to engage an assistant for the time. My salary then ceased, and M. Castel took the place. As we desired to have the services of some one who would continue to fulfil the duties of the office, and devote his whole time to it, all his capacity and all his assiduity, M. Castel was only engaged provisionally.

Since the moment has arrived for the election of a Secretary-treasurer, as the former directors and the former officers, except those just re-elected, are out of office, and as I have ceased to be secretary, I feel it my duty, in my simple

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M. Chapais.—

quality of member of the Association, to recommend to you the appointment of M. Castel as Secretary-treasurer of the Association.

For the six months he has been discharging the duties, I can testify that M. Castel is gifted with aptitudes and special qualities that point him out as fit for the post. He was not born one of our countrymen, but he is of our blood, and during the 5 years he has been here he has grown to be our countryman. He passed a year pupilage at our Agricultural school at Ste. Anne Lapocatière; before that, he studied seriously in France, he is thoroughly accustomed to commit his thoughts to paper, and as it has been lately decided that the editing of part of the "Journal of Agriculture" should be entrusted to one of the Association, we must have some one accustomed to journalism to assume the responsibility of this position. M. Castel is an old journalist; for the last 5 years, he has been writing for the *Gazette des Campagnes* with intelligence and disinterested zeal.

Moreover, all the information your officers have obtained about M. Castel, has redounded to his credit. Such being the case, I propose that the Association appoint M. Castel as Secretary-treasurer.

Mr. Barnard.—As M. Taché cannot—and I know it is not from want of good will on his part—since he cannot accept the post of secretary-treasurer, I have the pleasure of seconding the proposal he has made in favour of M. Castel.

I have seen M. Castel at work for several years. M. Taché has mentioned the necessity of having one of the Association to act as editor of part of the Journal, and I am certain M. Castel will acquit himself of the task to our satisfaction. All I know of him—and I have taken great pains to assure myself of his qualities—lead me to believe that it would be difficult for you to find a better man for your purpose.

M. Castel.—The praises that M. Taché and Mr. Barnard have, with too much kindness heaped upon me, impose on me first the duty of thanking them publicly for what they have said in my favour, and they then impose on me obligations towards the Association that is willing to accept them as my sureties. I can only promise you abundance of earnestness, in my endeavours to replace him who has set the example of a zeal and devotion that I can never hope to equal. I will do my best, and I trust that as long as I help myself, heaven will help me.

* *The President.*—As Mr. Barnard has just said, the determination of M. Taché is fixed, is positive; there is no good to return to it. Still, I think it my duty, as President, to express to him the thanks of the Association for the services he has rendered it. As the Ass. Commissioner of Agriculture told us, M. Taché has been the soul of our Association, and if it is flourishing to-day, it owes its success to him. It is useless to continue these compliments: M. Taché is rather sensitive, rather ticklish. We beg him to accept our thanks, and, for the future, we reckon upon his good advice, his devotion, his zeal to aid us as heretofore in working for the good of our loved province of Quebec.

M. Chapais.—As we are about to proceed to the election of directors, I propose

that M. Taché be elected director of this Association, without naming any particular district. We cannot do without him on the board. He can still be of great use to us, and we can easily find him a district. I propose then that M. Taché's name be at once inscribed on the list. (Carried unanimously, among prolonged cheers.)

DIRECTORS.

DISTRICT.	NAMES.	RESIDENCE.
Arthabaska.....	T. C. CARTIER.....	Kingsey French village
Beauce.....	PHILIAS VEILLEUX.....	St-François-Beauce.
Beauharnois.....	ROBERT NESS.....	Howick.
Bedford.....	J. A. HAYES.....	Sheffington.
Charlevoix.....	ED. A. BARNARD.....	Quebec.
Chicoutimi et Saguenay.....	F. PARADIS.....	Bagotville.
Iberville.....	MICHEL MONAT.....	Mount Johnson.
Joliette.....	I. J. A. MARSAN.....	L'Assomption.
Kamouraska.....	J. C. CHAPUIS.....	St-Denis-en-bas.
Montmagny.....	N. BERNATCHEZ.....	Montmagny.
Montreal.....	ALEXIS CHICOINE.....	St-Marc.
Quebec.....	L. P. BERNARD.....	Cap Santé.
Richelieu.....	J. L. LEMIRE.....	La Baie du Febvre.
Rimouski.....	J. DE L. TACHÉ.....	St-Hyacinthe.
St-François.....	D. O. BOURBEAU.....	Victoriaville.
St-Hyacinthe.....	L. T. BRODEUR.....	St-Hughes.
Terrebonne.....	FRS. DION.....	Ste-Thérèse.
Three-Rivers.....	L'ABBÉ GÉRIN.....	St-Justin.

SECOND DAY.—MORNING SESSION.

REMARKS ON "FRENCH CHEESE" BY A. A. AYER.

Mr President and Gentlemen,

I trust that most of you will understand what I say, though I cannot speak French. I am here to speak to you about "*French-cheese*." I am sorry to hear this name applied to a cheese. All our cheese, whether it comes from Ontario or from the province of Quebec, ought to be simply Canadian cheese.

Our cows, our grass, our makers, our factories, our cheese are as good in this province of Quebec, as in any other part of the world. That document from the Bristol Trade Association, that was read to you yesterday, would be an insult,

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had it been composed by people who knew what they were saying. The best makers that supply this very town of Bristol hail from the province of Quebec.

Ste Anne de Prescott, is that in Ontario or Quebec? It is in Ontario, is it not? and capital cheese is made in this French parish; there are many like cases, too. It is perfectly ridiculous to try and cry down what they call "*French-cheese*."

What reason is there for this term, and what is the remedy for the situation?

I can give you the reason, first of all. Many people are greedy about making money, and want to make it fast; these are not farmers, they are dealers and no mistake (*bien entendu*.) These dealers want to make money, and with that in view, they buy lots of cheese, they export it, and if, afterwards, the cheese is found to be inferior, and they are asked whence it comes, they reply: it's "*French cheese*." Thus, they give it a name that does not belong to it. This is neither the behaviour of a patriot nor of a good man of business.

Again, these cheeses are sent off without inspection. Many then sent are too small. Sometimes, the consignment is decorated with a fine name, and among the lot may be found cheese coming perhaps from 50 different factories; and thus the cheese gets a bad character. Unfortunately, these small factories are in certain parts of the province of Quebec, where the manufacture of cheese is as yet only beginning to be understood.

Besides, our cheese, during this last season, was sent out too fresh, too green, before it had sufficiently fermented. This gives us a bad name, for the cheese arrives on the other side in too soft a condition, the dealers ask whence it comes, and the reply is necessarily: from the province of Quebec. We suffer from this; cheese must never again be sent in a green state. If I were a maker, I would never let a cheese leave my factory till it was at least 3 weeks old; but the makers are afraid of its losing in weight, and I have seen some of them send cheese out 5 days after it was made. It is a shame; and if the people of the province of Quebec continue to act thus, the dealers on the other side will continue to call their cheese *bad Canadian cheese*. A stop must be put to this.

Here, now, is another trouble. It is this (*showing a badly made cheese-box*); here is the great difficulty. You know that a man is often judged by the clothes he wears. Once upon a time, when one saw a man dressed in a certain way—we do not see it nowadays—one said: "That is a *habitant*." But still to-day, the cheese is judged by the box, and when a box like this is seen, people say: That is "*French cheese*."

Here is again another difficulty (*showing a small, badly made box*); when people see a box like this, they again exclaim: That is "*French cheese*." We must have better boxes. I have been asking for better boxes for I do not know how many years. My buyers, following my orders, tell makers who have not proper boxes: "We will not take cheese in bad boxes." The makers reply: "Others come and buy it," and they write to me: "If you will not take the cheese in broken boxes, you cannot have it, for there are no others."

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And the boxes are bad, because people bargain with the manufacturers, because they are niggardly about the price. First, boxes used to cost $12\frac{1}{2}$ cents; then people would not pay more than 12 cents, and afterwards only 11 cents, and $10\frac{1}{2}$ cents, and I dare say that soon they will only pay 10 or even 9 cents, if they can get them for that price. And, of course, the boxes are inferior.

This is what I should do, were I a maker of cheese,—they have done it at Brockville.—I would send a notice to all the box-makers: “My price for boxes is 13 cents, not less. Send me a sample of your make. He who sends me the best sample shall have my order.” Then, you will have good boxes. Fix the price, and get the boxes made. Examine the different patterns, and select the best. You will then have no more broken boxes, no more bad boxes, and each box will have nails enough.

The best box that I see here, the one I show you, has not enough nails. You see there are only 7 from top to bottom, and there ought to be 9. I do not know whether this box is of English or French make, but whatever it is, it is bad.

Lastly, the cheeses do not fit well into the boxes. They ought not to be too large, but ought to fit the cheeses exactly. The box-maker comes to your factory and asks you: “What size of box do you want, and at what price?” Answer him thus: “I want boxes that will fit my cheeses exactly; take the measure yourself; I will pay you the price.” Then you will have good boxes.

Make good cheese, do not send it out too often in little lots, get good boxes, and then how can the province of Quebec get a bad reputation for its cheese? It will not only be equal to the Ontario make, but superior to it.

Small factories, again, are an injury to the country. You can never get a good price for cheese from a small factory. What is wanted is large factories and fewer small ones.

Another difficulty is skim-cheese. We ought not to make any. Skim-cheese injures the full-milk-cheese, in the same way that small cheeses injure the large ones.

I am told that skim-cheese sells as high as full-milk-cheese, but that does not prove it to be so good. I know a dealer who had to pay \$400 or \$500 for having mixed skim-cheese with full-milk-cheese. Those who sold him the cheese hardly noticed it; they got a good price for their cheese, but the dealer got taken in.

I also know of lots of skim-cheese that was sold for a cent a pound! Does it pay at that price? Certainly not.

In short, you must make good cheeses, large in size, put them into good boxes, have large factories, and then your goods will be recognised as “The best Canada cheese,” and will fetch the highest market price.

The President.—I am happy to thank Mr. Ayer for coming hither and addressing us this morning. I am especially happy to recognise in Mr. Ayer one of our friends; for as he says, it is sad to see a certain number of buyers and sellers trying to discredit us *Canadians*. If there is an inferior box, people say:

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"That box comes from the *Canadians*; if there is a bad cheese: "That is *French cheese*." I beg Mr. Ayer to protest against this, especially among the dealers. And we, *Canadians*, ought to combine together and agree not to sell our cheese to any but those who do not "make a face" at the word "*French*."

We have with us several kindly feeling English fellow-countrymen; they see the efforts we are making, and appreciate them. We cannot be too grateful to these friends of progress and of merit. Like Mr. Ayer, Mr. Fisher is a true friend of progress and can recognise it wherever it exists. Mr. Foster, too, is here another unprejudiced friend of progress, one whom we often see at our meetings. We appreciate this mark of sympathy on his part, and I will ask him to say a few words to us on the subject of "*French cheese*," or rather about cheese in general. Perhaps he will kindly tell us all about the exhibition at Toronto, and of the Canadian cheese, from the province of Quebec, he showed there.

MR. FOSTER'S ADDRESS.

CANADIAN CHEESE FOR THE CHICAGO EXHIBITION.

Mr. President and Gentlemen,

Pray believe that I feel great pleasure in being present at your meetings, and at being asked to address you; for I take a deep interest in the progress of agriculture in the province of Quebec. I have the greater pleasure in being here to-day, since, having been appointed, conjointly with Prof. Robertson, commissioner at the Chicago exhibition, for the purpose of securing for the province of Quebec a good show of its dairy goods, I can assure you that we have now at Montreal, intended for the exhibition, more than 50 lots, from 50 different parties—280 cheeses in all.—This says a great deal in favour of the province; for 5 years ago, it would have been impossible not only to have found so many lots, but even to have found one cheese that would be worthy of figuring in the first class in such an important exhibition. Then, every one found fault with the Quebec cheese; now, we have shown what we can do, by the results we obtained at Sherbrooke and Toronto.

Mr. Ayer gave us sound and practical advice about the quality of the materials generally employed here in the packing of cheese. You may be assured that the materials used in the factories are worthy of great attention.

Now, the first thing to be done to solve this question, and to ensure that our factories be supplied with good materials, is to pay the maker properly. And in return for a higher salary than usual, make him guarantee his work, make him guarantee the good quality of the materials, and pay the cost of inspection. I believe this to be the only way to secure good results.

On the other hand, if we want to make cheese of the best quality, the farmers must necessarily send good milk. All present know as well as I know, that the best cheese cannot be made without first of all having good milk.

We, in the Eastern Townships, have had a good deal of trouble about this. Many patrons used to persist in taking their milk to the factories in bad order. When a man sends bad milk to a factory, and when notified persists, this man should be excluded from the factory, and not admitted into any other.

The trouble is, that the patron who sends bad milk can, now, say: "If you won't take my milk, another will." Nine-tenths of the neighbouring makers will accept it. The sole remedy for this state of things is a "combine" between the different factories, by which they would bind themselves not to receive the milk of a patron who had been ejected from a neighbouring factory on account of delivering bad milk.

I have nothing more to say except to acquaint you with the importance of this Chicago exhibition. Perhaps, such an opportunity as it offers for making our products known to the world may never occur again; and I beg that each of you, both you, Mr. President, and you who are members of the Dairymen's Association, will exert all your powers to secure a worthy illustration of both the Dominion and the province of Quebec at this exhibition.

I hope that those farmers who are dairymen will take particular pains to make a good exhibit. It is important that our cheese, just now when it is beginning to be received more favourably on the market, should figure at the Chicago exhibition with the greatest brilliancy.

There is no doubt that we have not yet arrived at the limit of progress, we shall increase and improve our production year by year. If, for instance, we succeed in carrying on dairying throughout the winter, it will be an immense step in advance. But while looking forward to such things, we must not forget the Chicago Exhibition. You must second the efforts of Mr. Robertson and myself since I have been asked to work with him in this task.

I thank you, Gentlemen, and I trust that you, all the members present, will contrive that we shall have a fine exhibition at Chicago.

M. Chapais.—Mr. Foster, who is one of the men most devoted to our dairy industry, although he does not speak our language, has always aided the progress of dairying in the province of Quebec with the most strenuous earnestness. He took infinite pain in starting the first syndicates in the Townships, and succeeded in a way that he may be proud of. It is then a pleasure to see him among us, and to hear him ask us to exhibit our butter and cheese at Chicago.

(M. Chapais rendered Mr. Foster's address in French.)

Mr. Ayer begs me to add a few words to what he said. He forgot to mention that there is one great fault in the packing of our cheese. The bandages are too wide, and trespass over the top of the cheese, giving it thereby a bad look.

The President.—Mr. Foster's idea is splendid, and I should like to hear your

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opinion, Gentlemen on the opportunity there would be of displaying our butter and cheese at Chicago. If it were possible to make this exhibit in the name of the Dairymen's Association, it would be a good advertisement in favour of the province; I think we could show butter and cheese of the finest quality, and I hope the United-States people when they see our goods will not cry out: "French-cheese" and "French-butter."

I should like to know your opinion on this point. The time has come for us, the members of the Dairymen's Association, to consider this question: a most important one to us.

M. Bourbeau.—To enable me to give an opinion on this question, I must know from Mr. Foster if the cheese sent from the province of Quebec for the Chicago Exhibition has been separated from the cheese from Ontario.

Mr. Foster.—As I understand it, the cheese coming from the different provinces will be separated as soon as the prizes have been accorded, not before. Prof. Robertson intends to have cheeses of different sizes, so as to erect a pyramid that will give great effect to the exhibit. Our exhibition will thus make more show. Mr. Robertson has ordered a certain number of samples, and he will keep them some time, so as to be able to form a better opinion as to their keeping qualities.

What Mr Ayer said about the smaller factories deserves attention. Instead of allowing each farmer to cart his own milk, there ought to be men specially employed for this purpose. Then, more could be taken and ten times the amount of work done. I do not see why we should not have factories receiving the milk of 1,000 cows; and I cannot see why every factory should not receive the milk of at least 600. At any rate, it is impossible to find a man to cart milk at less than \$1.25 a ton. This system is being successfully carried out in Ontario.

M. Chapais.—Mr. Foster tells us that the milk is carted to the factories in Ontario by a special servant and that the plan succeeds. I am happy to say that this improvement has long obtained in Kamouraska, where, 12 years ago, they undertook the cartage of milk at the expense of the factory. And Mr. Macpherson told me that if we had arrived at better results with our cheese, it was because our milk, being carted twice a day by our own men, at our own cost, was of better quality than milk that came to the factory in another way.

M. Taché.—As to the Chicago Exhibition, it may be as well to state the initiatory steps the Association has taken.

Last September, Prof. Robertson put himself into communication with the Board of Directors of the Association, and asked them to collect the greatest possible number of samples of cheese made in this province. Mr. Macfarlane, as inspector-general, communicated at once with the inspectors of syndicates, requesting them to select from among the finest lot, samples for the Chicago show.

These samples, about 5 or 6 in a lot, were selected and sent to Montreal, where they were kept in proper storage, at the right temperature, to be sent to Chicago next June.

As Mr. Foster said, these samples have not yet been examined, as we did not like to touch them until the proper time for their examination arrived. They will be culled, for they will not probably be all accepted. Mr. Foster has just handed me a list of the samples, of which 280 cheeses come from the province of Quebec.

Out of this total of 280, the French part of the province sends at least 125. This is not exactly in proportion to the population; but we are still in some things in a position a little inferior to the English part of the province. I am not speaking of the quality of the goods, but of the organisation of the factories.

In the Huntingdon district, Mr. Macpherson has begun to practise, privately and without any assistance from government, the system initiated by the Association, 2 years ago, in the province of Quebec. Mr. Macpherson has inspectors who constantly visit the factories of his district. Mr. Macfarlane is still his partner and was, for some years, his inspector; so that this region had its organisation long before syndicates were established in the rest of the province.

From the first year of the organisation, the Bedford district set up a syndicate. There was an inspector there a year before we had one. Since that time, three syndicates have been instituted in the English parts: Brome, Missisquoi, and the English part of Shefford.

At present, the whole of the English part of the province is under syndicates, and this will explain how all the English makers, so to speak, have been able to send cheese for the Chicago show.

In the province of Quebec, there are very many factories that are not syndicated, and yet their goods would have made a good show at Chicago. Unfortunately, a number, relatively great, of these factories has remained outside the movement, because the makers have not thought fit to organise themselves into syndicates, in the district they inhabit; had they done so, we should have been able to get at them more easily, and to have put them *en rapport* with Mr. Robertson or Mr. Macfarlane, so as to have persuaded them to take their share in the exhibition.

Although 125 out of 280 is a decent figure, it is not in proportion with the real merit of the province as regards the manufacture. And I profit by this opportunity to draw the attention of those who dwell in the district of Ste. Thérèse and in this part of the province where there are no syndicates, to the importance of forming them at once.

Mr. Ayer has just shown you the faulty proceedings of many makers, in the selection of the boxes, bandages or the raw material. Now the syndicates are the best means of making these faults evident to each maker. The proprietors of

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from 15 to 30 factories combine, agree to pay each a sum, varying from \$10 to \$25 according to the number of factories in the syndicates, and promise to pay this amount for the services of an inspector, the bearer of the diploma of our Association, to superintend their makers during the whole season. According to the rules of our Association, an inspector must have no other employment, and is obliged to devote his whole time to the inspection of the factories.

In consequence, each maker, forming part of a syndicate, receives the visit of an adviser, who, generally speaking, comes to the factory every fortnight or three weeks, and who, under extraordinary circumstances, can come to him at any time to get him out of a difficulty. And if, in such parts of the province as the Townships, St. Hyacinthe, the Baie du Febvre, Huntingdon, &c., such a lofty level of manufacture has been reached, it is solely due to these syndicates.

Mr. Duguay, a seller in the Baie du Febvre district, will no longer sell for any unsyndicated factory.

And it must be stated here that the farmers who take milk to the factories, but too often meet with obstacles on the part of the makers to the formation of syndicates; it is a sad thing to see. If the makers refuse to enter into syndicates, this Association ought to advise the patrons to *strike*. For there is a benefit, not only to the makers, but also emphatically to the patrons; since, if the manufacture be good, the final results go into their pockets. Consequently, if the makers refuse to join a syndicate that is being got up in a county,—I do not mean to threaten any one; I know that in this point, as in all others, we must act with prudence,—the directors of the factory should go to these makers and say to them: "We have a right to become members of it, and we request you to go to the meetings called for the formation of the syndicate. See the inspector, and accept his advice on this point."

What we are trying to get more than anything else, is uniformity in our goods; without that we can never get uniformity of prices. It is not a few good factories that may be found in any district that fix the prices in it. The buyers are obliged, as much as possible, to pay the same prices to all the factories in a district. So, if the general average make in a district is good, the prices will be high; but, on the other hand, if the average make is inferior, the prices in general will be low. And this is so true, that, some years ago, the price in this province was always lower by a cent or half-a-cent than in some districts of Ontario. But, now, we find that some parts of the province are getting nearly Brockville prices, and do get as high prices as some parts of Ontario.

This is a money-question, and farmers ought to do their best to encourage syndicates, and take measures that uniformity and the best quality of goods become the rule in their district.

The Hon. Commissioner of Agriculture, some time ago, put himself into communication with our Association, requesting us to devote our special attention to the organisation of syndicates throughout the whole of the province. In the

North, there are only 2 syndicates : one in Berthier and the other in Champlain. In the counties of Joliette, Montcalm, Terrebonne, Two-Mountains, Pontiac, and Ottawa, there is no syndicate at all. South of Beauce, no syndicate ; in part of Lotbinière and below Quebec, no syndicate ; and in all these places it is important that syndicates be formed. What Mr. Beaubien requests us to announce specially is, that the present inspectors be asked to take steps to form syndicates where none exist, and the Commissioner will engage to pay them an indemnity for their travelling expenses and time. The inspectors have but little to do in winter, and many of them have time to engage in this organisation ; this would, perhaps, enable them to improve the conditions of their present position.

To engage in the formation of a syndicate, it is by no means necessary that you be an inspector. If a maker intend to present himself at the school as a candidate for a diploma, he can visit some district or other and ask the people if they would like to form a syndicate. He can go at once to any such district and win the consent of the people.

There are many reasons that should incite the present directors to engage in forming syndicates everywhere where none exist. When once these syndicates are organised throughout the entire province, if the term " French-cheese " still exist, it will apply to the best cheese made in America, instead of to a cheese that is esteemed of inferior quality.

M. l'abbé Côté.—I must add a few words about syndicates. I think their greatest advantage affects the patrons, that is, the farmers who deliver milk at the factories ; but it happens sometimes that these patrons will not contribute to expenses incurred by the syndicates, and then the expense falls upon the makers.

I understand that the maker has also a great interest in being part of a syndicate ; but when his salary is small, and he has to pay \$10, \$15 or \$20 for the syndicate, this affects his daily bread. And even if he gain a benefit for himself, as maker, from the syndicate, I am bold enough to say that the patrons receive the greatest benefit, in that, by this inspection, their cheese fetches a higher price. And, so, it would be only fair that the patrons pay their share, and to be quite fair, I think they ought to pay at least half the expense. Twenty or twenty-five dollars are a large sum to a maker ; but the half of this sum, divided among a great number of patrons, is reduced to a few cents each. I therefore think that the patrons should share with the maker the expenses incurred by the employment of an inspector.

M. Vaillancourt.—I have just heard from the Secretary that the inspectors of syndicates have no other duty but to inspect the manufacture of cheese.

M. Taché.—They cannot devote their time to any thing else.

M. Vaillancourt.—I must then conclude that they are sufficiently well paid not to be obliged to solicit a cheese-maker to send his cheese to one firm in preference to another.

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M. Taché.—Whatever be their wages, it is clear they ought not to act as agents for any firm.

M. Vaillancourt.—I have never up to present time, made any complaint, and I have never asked any favour from the directors of the Association, and that is why, that in complaining to day, I hope the Board will take my complaint into consideration, and adopt the measures necessary to prevent what has happened from happening again. I have proof that an inspector solicited consignments and advised makers to send their cheese to one firm rather to another, and even advised a maker to send his goods, on consignment, to England. This is completely opposed to the spirit of the trade, and of the Association. I hope the Board will attend to this.

M. Taché.—In reply to M. Vaillancourt's remark, I must tell him that he certainly received an acknowledgment of the receipt of his letter to me on this subject, for he himself answered me. I at once asked the inspector of whom he he complained, about the facts of the case. The inspector, in this, did not altogether agree with M. Vaillancourt about the occurrences that had caused the complaint. But, at any rate, the Association so thoroughly felt the importance of the affair that the inspector was informed that the certificate of inspectorship would be taken away from every inspector who should in future act as agent for any Montreal firm of dealers.

We do not hinder the inspectors from selling; for the syndicates have the right to agree between themselves about selling, but the Association has decided that it will not allow the inspectors to act as agents for Montreal firms.

If you have any such cases to report, the inspector will in the first place be warned, and should the offence be repeated, his certificate will be taken from him, and he will no longer be allowed to act as inspector.

M. Vaillancourt.—You had the proof of what I said, just now: you cannot certainly deny the thing.

M. Taché.—I wrote to the person to whom the advice was given to no longer send his cheese for sale on commission to Montreal, and the reply ran: "I am well satisfied with the advice given." I have the letter; I remember the affair perfectly, it is a syndicate you are speaking about, North of the St Lawrence, between Quebec and Three-Rivers.

M. Saül Côté.—Besides, does M. Vaillancourt mean to say, that an inspector has no right to give advice. If for instance, the maker intend to send his cheese on commission, may not the inspector say to him: "I prefer sending it direct."

M. Vaillancourt.—M. Côté seems to think the inspector had been asked for his advice, but that does not seem to have been the case.

M. Côté.—Just the contrary, according to M. Taché. Besides, the inspector did not make money by this, he only gave advice.

M. Vaillancourt.—The advice to send the cheese to England, given by this inspector, would be approved by no one in the trade or in the Association.

The President.—Carry the affair before the council. M. Côté does not want the inspector to meddle with the trade; he only wants him to be allowed to give advice. On this point, I should like you to come before the Board of directors.

M. Côté.—I had heard from M. Taché that the advice had been asked for. As for me, the affair is a matter of indifference to me, as I am not an inspector; only, I should like to know what can properly be done in such cases.

M. Chapais.—As to what M. l'abbé Côté was saying just now about the division of the wages to be paid for the service of an inspector of syndicates, I think it is very easy to establish a fixed scale which would be fair to every one. I will take, as an example, a rule that has been lately laid down in the Department of Agriculture at Quebec. The Government having decided to offer 5 cents in November, 10 cents in December, and 15 cents in January, for every 100 lbs. of milk delivered at the creameries during the winter, it was settled that these premiums be granted to the patrons and the makers, in the proportion to the amount paid to each; i. e., if the maker is paid 20¢ for making, he shall receive 20% of the premium; if 15¢ for making he shall receive 15% of the premium.

As far as fairness goes, I think the wages of the inspector should be divided in like manner between the makers and the patrons. If the maker gets 20¢ for making, he ought to pay 20% of the wages, and the patrons, the balance. I do not think a fairer scale can be arranged.

M. l'abbé Côté.—I will hold up both hands in favour of this motion.

The President.—If I understood the Commissioner of Agriculture, in order to have a right to the premium granted by government for making winter-butter, the parties must be attached to a syndicate.

REPORT, BY MR. S. A. FISHER, ON THE SAMPLES OF SILAGE.

Mr. President and Gentlemen,

We have received a great number of samples which, from their appearance, must have been very good silage, but which, in their journey, as it seems to us, have been spoilt. They have not kept well, though we think they were probably very good samples when they left the silo.

This is the best sample of silage found (*showing it*). It is not only well preserved, but the maize of which it is made was advanced enough, very ripe, when it was cut, and for that reason we find that for the food of milch-cows it is the most valuable of all.

These other two samples have also kept well; but the maize of which they are made was not forward enough, not so ripe when cut, and therefore we do not think it so full of nourishment as the other.

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Here, we have a sample of maize which was ensiled in its full length, without being chaffed. It is well preserved. This sample interests us greatly; for we are convinced that there are many farmers, not very well off, who do not like to begin a silo on account of the expense of buying a horse-power, chaff-cutter, &c. This sample, packed at full-length in the silo, is as well preserved as the other. From this instance farmers ought to benefit. The maize that produced this sample was not quite as mature as it ought to have been. Still, it is perfectly sound, and is a good sample of silage.

Here is another sample—a very curious one; it is composed of grass; common grass, clover, timothy, and, perhaps, some wild grasses. It is excellent sample; very nutritious. Indeed, if I were fattening beasts, I should prefer this silage to any of the rest. It has kept perfectly, and is not in the least sour. It comes from M. Lortie, of Quebec.

In the same box, is a sample of maize-silage, by no means so good. This is a little spoilt. Probably, when it left the silo it was as good as its companion.

The silage we have classified as No. 1, comes from Mr. Thos. Trenholme, Lachine; No. 2, comes from Dr. Craig, Lachine; No. 3, From Mr. Drummond, Montreal. The uncut sample of maize-silage, comes under the name of M. Fortier, St-Hermas.

I am informed that M. Fortier is here: I congratulate you, M. Fortier, on having made so successful an essay with *long* silage. You have succeeded marvellously.

We have on our list two samples, 11 and 12, that are not very good; they have rotted a little in their travels. Besides, the maize was not mature enough when it was cut.

No. 13, from M. Gratton, St Jérôme, had been apparently, very good, but now it is little rotten. I do not see why; the maize was mature, but the smell is bad, like the smell of a stable.

There are two other samples, No. 14, from M. Préfontaine, Durham, and No. 15, from M. Taschereau, Beauce, which are in the same condition. All these are too far rotten to be good. But No. 13, from M. Gratton seems to have been thoroughly mature when cut.

There are some other pretty fair samples, but, again, there are others that are sour, acid, notably one from M. Bourgeois, St-Célestin, and one more, with no name attached.

We think that the silage-samples we have here are a good proof that we can succeed with the silo-system in the province of Quebec. And we have this novel instance of maize ensiled *in full length*, which I consider to be a good example for some of our farmers to follow.

M. Chapais.—I have been asked to show how to avoid the nuisance of having so many of the silage samples sent here spoilt in transit, although we feel sure they were in good order when they left the silo. As a member of the committee, I

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made the remark that it is clearly impossible that the growers of these fodder-crops could have intended to send them in such a rotten state. Had the samples been in so bad a condition when taken from the silo, they would never have been sent to us; and this proves that the state in which we received them is due to the accidents they met with on the road.

The best way of taking a sample of silage is to take it from one of the layers that has not been exposed to the air. I have seen people take them from layers that have been exposed to the air for two or three days, and are already on the point of becoming decomposed. The sample must be taken from the mass hitherto kept from contact with the air, be put into tight boxes, and be well pressed down, and, then, before putting on the cover, paper or felt might be put on the top of the silage. Treated thus, we may feel pretty sure that although they may be two or three days on the road, the samples will arrive in good order. Some injury they will naturally suffer, for deterioration will begin as soon as they see the air, but, with the precautions I have mentioned, it is certain they will reach us in better condition than are some of the samples we have now before us.

Mr. Fisher.—There are two more samples here; not of ensilage though. One is quite green; I do not think it has ever been in a silo. In my opinion, they are worthless. Here is a samples of hay, of trèfle d'odeur (white melilot, or scented clover); it is a weed. I wish it was exterminated in Canada. The scent is good, but that is all. I have seen it in some places, even at home, but I have always taken it for a weed. There are some people, I know, who support it; who say it makes fair fodder. Animals may possibly be forced by hunger to eat it, but I do not believe it contains much nutriment; the straw is too woody, too hard; and if it must positively be used, I think it would be better in its green state than in silage (1).

There is an another box, containing, not silage but beet pulp, the refuse of the sugar factory. This is very nutritious cattle-food. It can be brought at the West Farnham factory, and brought by the railroad to any place. It keeps pretty well in winter.

A delegate.—What is the price of the pulp?

M. l'Abbé Labonté.—\$1.00 a ton at the factory, and I think the railroad people charge 80 cents a ton for freight.

(1). After the discussion, at Montmagny, on this *melilot*, we thought of getting the plant analysed; unfortunately, when we wrote to M. Choquette on the subject, the plant was too ripe for a proper analysis of it to be made. We hope at the next convention to be able, to submit to the meeting a complete account of the melilot E. C.

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ADDRESS OF MR. C. D. TYLEE.

THE ENSILAGE AND STOCK-FEEDING ASSOCIATION.

Mr. President and Gentlemen,

I have been asked to say a few words about "The Association for the economical feeding of cattle." As this society is still very young, we cannot compare it with yours; but we hope it will be able to do a great deal of good.

We want to encourage the use of the silo all over the country; for, judging from the experience of all who have practised ensilage, we are convinced that siloes provide a very cheap way of feeding our cattle.

Your chief object, here, is the promotion of dairying. Another society may attend to the fattening of beasts, another to the care of sheep, another to the keeping of swine. In our association we desire to combine all these objects. Those who fatten beasts, will meet flock-masters and pig-breeders. All these people have been heretofore in a position that prevented them from communicating to each other the results they arrive at. Our association will give them an opportunity of meeting together and of exchanging their ideas. And from this will follow, for the benefit of the farmer, a knowledge of the most economical way of feeding all these animals according to the products we seek to make them yield.

We held a meeting last year, and shall hold another this winter, the date of which is not yet fixed; for we are waiting for Mr. Robertson's return from England. He is to announce to us the date of his arrival, to give us time to make known the time at which our convention is to meet, and we shall take care to give you notice of it.

Last year we had a capital meeting, and it produced good effects. I know that several siloes were built last year by farmers, simply on account of their having been present at our meeting and having there heard the addresses delivered on the subject of ensilage.

What our farmers now want, is to gain information by listening to the talk of practical men. We do not want pure theory. We want to see what you are doing at home, how you feed your cows, your stock in general.

If any one present would like to give his name and address, I shall be happy to give him notice of our next meeting. We mean to do our best to welcome all those who attend it, and we shall try to have a hall greater still than this one we are in; and if we find that is not large enough, we will have one larger still; and if this last is still too small, well! we will meet out of doors.

LECTURE BY MR. J. L. LEMIRE.

ENSILAGE.

Mr. President and Gentlemen,

After Mr. Fisher's report on the different samples of silage before us, I feel a difficulty in addressing you, because my views on certain points differ from his. However, ensilage is a subject of such importance to the farmer, that I will lay before you the method I follow.

I have made silage for 8 years, and I have made certain observations that do not agree with statements we often see in the papers, and which we hear everywhere from practical men themselves.

Already, for several years, the friends of agriculture have been doing their best to persuade farmers to build siloes and to grow maize with which to fill them. Our governments, especially the present one, have encouraged these steps, and it is much to be hoped that soon every intelligent farmer will have his silo. Still, many hesitate to start, for fear of failure; so, it is of the greatest importance to instruct them as soon as possible in the best plan to ensure success.

You will allow me to communicate to this meeting the experience I have gained during the last 8 years. I will be as brief as possible.

As to the construction of the silo, I will refer to what I said in 1885 (see 4th report of D. Ass.): I have nothing to alter on this point.

I will say a few words on the way to grow maize for silage.

Should it be sown broadcast or in rows? If in rows, thick or thin? Never, I think, broadcast; it has been stated and very wisely in my opinion, that it is better to sow thinly in rows 3 to 3½ feet apart, in order to have plenty of ears to enrich the fodder, but those who advised this plan did not sufficiently consider that a stalk with ears on it gets harder, more woody, and, consequently less good as fodder. Every one will admit that for cows, maize should be sown thick, so as to have stalks that shall be less coarse, more succulent. By having coarse stalks in the silo, you can compel your stock to eat them, but you cannot make them digest them, and their woody matter contains very little nutriment. Let us then, in sowing maize for the silo, sow it as thick as we sow it for cows in summer; the fodder will be finer, more easily preserved, easier to cut up, and, bulk for bulk, will be worth at least ¼ more than fodder made of coarse stalks with their ears. I advise sowing in rows from 20 to 24 inches apart, and not putting less than a bushel of seed to the arpent, taking care to keep the land clean, as long as the maize is less than a foot high; after that, its close growth will soon prevent their being any chance of the weeds growing.

Let us talk of the best time for cutting the crop. If the maize was sown thick, there is less danger of its getting hard, and harvest can be begun when

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M. Dallaire.
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(¹) See further, p.

other work is less pressing. As a general rule, cutting can begin as soon as the maize is at its greatest length, when the panicles are all out; if we begin earlier, there will be at loss in quantity; if later, the crop will run the risk of being frozen, which greatly injures its quality and beauty.

Should the silo be filled rapidly, or is it better to allow each layer of 2 or 3 feet to heat well? I have already put 45 tons into my silo in 3 days i. e., as fast as I could, and the next winter the silage was good. One year, I began, on the 26th June, to put clover into the same silo, and kept on putting in different fodder-crops, after the clover, until my maize was sufficiently advanced to be cut, filling in about every third day, and I closed my silo September 6th; the silage was more nutritious than when I filled my silo in three days.

In the first case, it was too acid: in the second, the smell was rather too penetrating. To have fine, good silage, the best way is to fill the silo by layers, of to 2 to 3 feet, and to allow it to heat up to 100° to 120°. Before adding another layer it is most important to tramp down the previous one, especially in the corners and along the silo; if it is not well tramped, the place where the silage falls will be found more closely packed than the rest, and the corners will be likely to heat and rot; on account of the air getting in too far.

I advise those who want to have silage, that will keep well, to sow thick, to cut before frost, to cut in $\frac{1}{2}$ inch lengths, and to let it heat, gently, up to 100° and not more than 120°. The silage will not be destroyed if it goes up to 150°, but it will not be so good, neither will it be lost if it does not heat at all, but it will be rather too acid. The silage will be worth something if the maize is sown thin so that the stalks may have ears on them, and the grain be in the milk when cut; but it is much more difficult to preserve at that stage, and is worth much less as food than silage from maize quite green and without ears. (1)

Gentlemen, I have often heard the question of silage treated by distinguished *agronomes*; I know that my views are not in accordance always with what has been said and written on the subject, but pray believe that it is not for the purpose of differing from others that I have set forth certain ideas that differ from those of such distinguished savants. I have stated what I believe I have learned from experience with a view to being useful to all, but especially to those who are novices.

J. LOUIS LEMIRE.

DISCUSSION.

M. Dallaire.—I wish to ask Mr. Lemire a question about the tramping of silage: ought it to be tramped after or before it has heated enough.

(1) See further, p. 121, M. Fisher's explanation, E. C.

M. Lemire.—I generally tramp it both before and after ; i. e., I tramp while putting the silage into the silo, and I do so carefully that the pressure may be equal all round. If it is not tramped then, it will be found pressed tightly in the spot where the maize falls from the elevator, less tightly at the sides. I take the precaution to spread the maize and to tramp it so that the sides may be pressed as closely as the middle. And when I have finished, I tramp it again, to see if there be no spot when it is less pressed than elsewhere.

M. Dallaire.—I should have thought that by tramping the silage before it would hinder its heating.

M. Lemire.—It would take a great deal of tramping to prevent its heating.

M. Dallaire.—Is it not very important, especially when a rather thick layer, always to allow the maize to heat ?

M. Lemire.—Certainly.

M. Dallaire.—If I ask this question, it is because I have met with many farmers who complain of their silage being too acid ; and I thought that this might be accounted on by their having been too hasty about tramping it. If the air is driven out of the silage too quickly after putting it in the silo, it will naturally be too acid. It is a most important question.

M. Lemire.—Certainly ; I am sure that all the tramping a man or two can give on foot cannot prevent the maize from heating to a depth of 2½ to 3 feet ; and by tramping as I have described it, the silage becomes more equally pressed.

M. Bourbeau.—I built a silo last year and made my report on it at the Montmagny Convention. I even produced a sample of the silage there, but it was not thought to be very good ; so I tried to find out what faults I had committed in its ensilement.

First, I must tell you, that the silage was composed of maize in good order, sown thin, in very wide rows, and the stalks were very high and coarse ; so the bottom of them was too hard.

But what caused the silage to be of inferior quality, was (as the advice I have received and the experience I have gathered have taught me) that the silo was filled all at one time without any intermediate stoppage. We began in the morning, kept on till night, and began again the next morning, never stopping till the silo was full. The silage was too acid, and the cattle would not eat it alone, so that we had to mix it with hay and straw, in layers, previously moistened. This, a very small proportion of silage being used, answered very well, and the silage gave out a pleasant smell, and had a flavour that the cattle seemed to like, a pretty rapid fermentation taking place in the boxes where we mixed the fodder. So I can assert that, in spite of all, I succeeded with my silage last year, though it was not thought to be very good.

But this year, we sowed the maize with a machine, to save time, and the drill put it in too thick rather, although the rows were wide apart. Still, the season not being favourable, on account of the frequent rains, the maize was neither as

big nor as high. But we took care of the silo in the other putting in another tramped it well, and made the maize pressed, we put continued in like

Well, I am sure silage was excellent as it is given to impart to others.

I think that to heat until the silo at once, not be necessary.

Mr. Fisher.—I fell from Mr. Len differ in opinion from the experience of stations, and who oppose, then, to Mr. science, which principle, an ordinary samples. Now, they found that the ripe

It is true that is a state of the plant growth ; at that moment only in the ear, not rises up to the vertex. This is the degree means should the should be changed, the seed is formed, the seed to form or

The point of time period of the formation but is still soft ; which contains the greatest. Formerly, when its seed and give the

big nor as high as in the preceding year ; and the frost, alas, injured it a little. But we took care to ensile it, all the same, after chaffing it, though we did not fill the silo in the same way. We put in a layer about 3 feet thick, and, before putting in another, we let it heat. When we thought it had heated enough, we tramped it well, and taking a good deal from the centre we threw it round the sides, and made the man tramp it and tramp it again. When we thought it sufficiently pressed, we put in another layer, which we allowed to heat as before, and continued in like fashion until the silo was full.

Well, I am happy to tell you that, this year, our success was perfect ; the silage was excellent ; it is not sour, and the cattle eat it greedily, unmixed, just as it is given them. I have not much experience, but what I have I like to impart to others.

I think that the plan of filling the silo with layers 3 feet thick, and allowing them to heat until the silage is *cooked* enough, is preferable to the plan of filling the silo at once. This I say of maize silage ; as to other kinds of fodder it may not be necessary, as they do not contain as much acidity as maize.

Mr. Fisher.—I feel bound to make some observations on certain remarks that fell from Mr. Lemire. I agree with almost everything he said, but in one point I differ from Mr. Lemire. I am not going to give you my own ideas alone, but the experience of almost all those scientists who are at the head of the experiment-stations, and who have analysed different samples of maize-silage. What I oppose, then, to Mr. Lemire's ideas, is not my own ideas, but the conclusions of science, which proceeds rigorously by analysis. It is not simply an opinion, an idea, an ordinary observation, it is the chemical analysis of different silage-samples. Now, these gentlemen, proceeding by scientific methods, have invariably found that the riper the maize the more nutriment it contains.

It is true that this maturity of maize may be perhaps, carried too far. There is a state of the plant in which the nutriment is found distributed over the whole growth ; at that moment, the nutritious matter is not only present in the seed, not only in the ear, not only in the stem, but everywhere, and from the ground it rises up to the very last leaf, and in every part of the plant there is nutriment. This is the degree of maturity at which silage-maize should be cut, and by no means should the plant be allowed to ripen so far that the stalk at the lower part should be changed into wood. On the other hand, if you cut the maize before the seed is formed, you will not have so much nutriment as if you had allowed the seed to form on the plant.

The point of time at which the plant is richest in nutriment is at the first period of the formation of the seed. When the seed of the maize is fully formed but is still soft ; when it is in the milk-state, it is then that the plant *as a whole* contains the greatest feeding quality.

Formerly, when there were no siloes, we used to allow the maize to mature its seed and give the stalks to the cattle. Then, the stalks were no longer green,

they resembled wood, and we were obliged to steep them in water to induce the beasts to eat them. Now that we have siloes, we must cut the maize while there is still a quantity of its natural moisture in the stalk.

So far North as we are situated here, there is another danger. With the great Southern-corn we grew at first for silage, there was not much risk of its getting too ripe. But, now, we are advised, particularly by Mr. Barnard, who has experienced its value, to employ our Canadian maize. With this sort, perfect ripeness is attainable, and the maize can be ensiled when thoroughly mature, if you please: I, however, by no means advise this treatment of it.

For, I believe there would be a double danger in it: first, the stalks would be too woody; secondly, the fully ripe seed would pass undigested through the beast into the dung. This would be a waste of food.

I prefer cutting the maize when the seed is in the milk-state, still soft, not too ripe.

This summer I tried an interesting experiment. I sowed a sort of maize that I got the seed of from Sorel. Our regretted friend, Dr. Bruneau, showed us, two years ago at that *City*, a very fine ripe sample of maize. He described the cultivation of this crop to us, and it seem to contain all the qualities needed for ensilage. I got a bushel of it last season and sowed it.

The crop was small; the plant did not exceed 4 feet in height; and I fancied there was nothing in it. But, when I cut it, I found it had large ears, nearly ripe. Many stalks had one ear, and others two ears nearly ripe.

Still, the yield appeared to be small. I carted it to my large scales, on which I weigh all my crops, and weighed it: its weight surprised me.

Although the crop seemed small, it gave me 9 tons an arpent of nearly ripe maize; and I am sure that if I had left it ten days in the field (*growing*), I should have had 50 bushels an arpent of seed.

By its side, I had an ordinary crop of corn of different kinds: Western, Southern, &c. They seemed very large crops; 8, 10, even 12 feet high. The crop appeared to be double the crop of the Canadian corn. But, when I came to weigh this great crop of immature corn, I only found 11 tons of it to the arpent, i. e., only 2 tons more than the small Canadian corn; and I am sure that 2 tons of the small kind was worth, as food, 3 tons of the other.

I have not yet fed out this maize, as I have not opened the silo in which it is, but I feel certain that, now that I am ensiling nearly ripe corn, the cows will not eat so much of it. I have always found in previous years than cows do not eat so much of a corn that is riper than usual; they can be kept in as good order with a much smaller quantity of silage.

I give you these ideas of mine, because I think the advice given by M. Lemire, to sow thick, is dangerous. I do not wish to see people sow thick. Our friend, Mr. Choquette, our chemist at St. Hyacinthe, has made several experiments with different samples of maize, and he has always found that thick sown maize

contains, analytical experiments in feed that it is far better advanced degree o

Mr. President and G

I always feel for countrymen on agricultural part to open my eyes can gain important practical men, especially

I appreciate the example to us during this Congress Association that, of best lectures. And here. I had promised though, on "Agriculture"

To whom are we in our country distinguished; ordinary; but when up through the labor the country, had devoted zeal.

The list was extremely distinguished; dates could not be accomplished

Nevertheless, I v the friends of agriculture subject; for I am un

The lectures on agriculture so in the numerous villages found parishes in which

contains, analytically, less nutriment than thin sown maize. And, after my own experiments in feeding cattle, I am convinced that this conclusion is correct, and that it is far better to sow maize in such a way as to allow of its reaching a pretty advanced degree of maturity.

SECOND DAY—AFTERNOON SESSION.

LECTURE BY M. DALLAIRE.

AGRICULTURAL LECTURES.

Mr. President and Gentlemen,

I always feel fresh satisfaction when it falls to my lot to address my fellow-countrymen on agriculture. But, to day, I feel that it be wiser perhaps on my part to open my ears and listen. For, on occasions like this one, a lecturer can gain important information, since he meets with the most successful practical men, especially as regards the dairy industry.

I appreciate the excellent advice, the wise suggestions that have been offered to us during this convention. In my opinion, it is certainly the Dairymen's Association that, of all agricultural bodies, is the cause of the delivery of the best lectures. And, therefore, I say: I feel altogether in an inferior position here. I had promised the Association to prepare an essay, not an elaborate one though, on "Agricultural Lectures."

To whom are we indebted for the first idea of establishing agricultural lessons in our country districts? At first, this enquiry did not seem to me anything extraordinary; but when I began this search, I found that it was necessary to follow it up through the labours of many friends of the farmer, who, in different parts of the country, had devoted themselves to this undertaking with a most admirable zeal.

The list was extensive; the merits of these different persons had to be distinguished; dates accumulated; and I found that I had undertaken a task that could not be accomplished in the allotted time.

Nevertheless, I will accomplish this task; not alone, but with the aid of all the friends of agriculture. I am in position to get the best information on the subject; for I am under orders to visit every part of the province of Quebec.

The lectures on agriculture have doubtless done much good. I have found it so in the numerous visits I have paid to most parts of the province. Where I found parishes in which farming was a prosperous business, where agriculture

was flourishing, it was easy enough to see that good lecturers had been there; lecturers more or less prominent, each according to his talent, but, anyhow, one could see that lecturers had been there.

No one, as you know, is a prophet in his own country. True it is that by means of societies, clubs, etc, great improvements can be reached. But it is rather remarkable that the voice of a stranger, who confirms the people in their practice, is also encouraging, is effective. I am not speaking personally; I am a lecturer, it is true, but I have ascertained this to be a fact: any one can see it.

The lectures—I will only say a word or two about them to day—the lectures were started into life in, I believe, 1869. As Mr. Barnard said yesterday, the first idea of them is due to the late regretted M. Tassé, then Superior of the Seminary here. The Council of Agriculture, 1889, was in doubt whether to found a Journal of Agriculture, or to arrange a course of lectures, and to use for that purpose, a certain sum that the government had granted to the Council. At that epoch, M. Tassé was in favour of lectures. He, too, I think, requested Mr. Barnard to undertake the duty of delivering them, if only here and there, and you all know the immense amount of work Mr. Barnard has undergone in this line.

As I have said, I do not want to be unfair, and that is why I will not now mention by name—it would take too long—all those who have given lectures up to the present time. Still, I cannot refrain from mentioning the name of M. Montminy.

M. Montminy was a *vicare* (1) at Beauport, I think, when Mr. Barnard went there to give a lecture on the formation of farmers' clubs. And it was from that lecture, at which M. Montminy was present, that he derived the earnest taste he has for those clubs, as well as a part of that grand devotion he has always shown in favour of the agricultural class. There are many more I could mention, but as I feel myself limited, I must quit the subject I intended to treat.

Agricultural lectures are absolutely necessary; whatever be the means employed to diffuse education, agricultural instruction, I assert that lectures on agriculture will nearly always be the most practical means, at any rate they will be the most popular means. Agricultural societies, clubs, in fact all the efforts employed to diffuse agricultural information, will never reach the mass of the population as lectures will.

It must be acknowledged that, a few years ago, the audience at these lectures was not large; even to day, I confess frankly that in some places there is a great deal of apathy. But in others, the attendance is numerous, and we find that the

(1). *Curate* in English, but in French the parish-priest is, and correctly, the *curé*. In England, the *vicar* of a parish has only the *small tithes*; the *large tithes* being in the hands of either a college or other corporate body, or in the hands of a *lay-impropriator*. A. R. J. F.

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more we advance, the more are the people desirous of instruction. This desire for instruction is shown by the number of questions put to the lecturer.

It is not always easy for the people to gain instruction in any other way. The Journal of Agriculture, it is true, is ready there ; but how many receive it, how many read it ? Very few indeed. I do not praise the farmers of the province of Quebec in this : very few of them receive it, and yet it would be very useful to them if they did read it. And I am not speaking only of the official Journal ; I speak of agricultural papers in general ; farmers, at least some of them, those who are able to instruct the rest, ought also to take in a business paper.

But they are satisfied with reading a political paper, more or less important, which they do or they do not understand ; for as regards politics, like everything else, a special study is required before they be understood. In this province, there is too much attention devoted to politics, too little to farming. Ten, twelve, fifteen political papers are taken, against one farm-paper, though the latter ought to be far more interesting to the farmer. This I say, not as a reproach, but to show the true state of things.

Since it is so difficult to get the farmer to trouble himself about reading and study, lectures on agricultural matters have this good effect: they bring agricultural information within his reach. Whatever may be the reason, it is difficult for the farmer to set himself to read ; why, I do not know, but he will not read much, and the lectures have the good effect of keeping him always well informed on the subject of the markets.

Were I to ask this question : What is the most important thing for the farmer to know, so as to make his work a source of profit to him ? You would reply : " To thoroughly understand the course of prices ; " that is everything. To plough well, to harrow well, are excellent things ; but the chief of all is to make your products suit your market.

And it is thus that I have found some parishes, that have for many a day understood the wants of the markets that have devoted themselves to dairying from the very commencement of the movement, and who have profited well by their action. While I have found others, deeply in debt, their people more or less in despair, and when I asked them : " What are you growing at present ? " they replied : " Ah ! well, what should we grow, there is no sale for anything, nowadays. We sow because it is the custom to sow, and we are waiting for good times." What are good times ? When will they visit you ? Good times will come when you grow something the market is in want of—those are the only good times you will ever have.

Growing grain is no longer profitable : why then grow grain ? To grow grain is all right, if you consume it on the farm.

People keep on fattening cattle as if it paid well ; they keep on harvesting grain and sell it even at 20 cents a bushel.

I have met with whole counties where hay is the only crop grown. There, I have sometimes found it difficult to get myself listened to, and I have had pretty hot discussions, which were carried to such a pitch that the audience would not hear me speak! "But, my good fellow," they would say, "we grow our hay, and our hay done with, we have finished our year's work. It would be a queer thing to have a lot of milch-cows and to take the trouble to look after them!"

"Yes, but does hay fetch a good price?"—"Ah, not now, but it will later on." And, so, they go on like this, no manure, always timothy-hay, and hay, too, that they most frequently allow to ripen its seed. For 20 or 30 years, they have been growing hay, and nothing will get them to alter their system.

Well, when lecturing, one has a chance of explaining these things to the farmers, and of making them lay their finger on their own sore. This is well worth practical work: it is a good thing to know how to hold the stils, how to plough; but I think it is also useful to understand the markets, and to be forewarned of any change in them.

In some parts of the province, the people are really suffering from want, they are really in a state of destitution; indebted to that extent that they see no means of extinction; properties are sold off, the owners leave for the States. I have seen them start: "Where are you going, my good fellow?" "To the States." "Why are you going there?" "Because we are so deeply in debt." "What have you been growing for the last 5 or 6 years? What has your labour been producing?" "Well, I have been farming as others have, a little grain, a little hay, some of this, some of that." "Have you tried dairying? There is a real business; have you tried it?" "Ah, no, there is neither creamery nor cheesery near us." "Yes, but you need not have either to go to dairying; all you need is some good cows, and to give the crops you grow to them, to be by them turned into milk, which milk you will turn into butter or cheese, working in accordance with the demands of the market."

Besides, it is always easy enough to have a creamery or cheesery in a parish. What men have made money of late years? I arrive at a place, and the first question I ask is: "Who are making money by their farms?" and the reply is, invariably: "Those who have good cows and take good care of them."

Do you ask, why? The reason is simple: they follow the market. A knowledge of the demands of the market is the most important of all things to the farmers; and the principal aim of the lecturer, it seems to me, should be to teach people how to understand what the market wants, and how to produce the goods that suit it. Change your crops when the market changes; that is important. Now, the effect of agricultural lectures is to prepare the road for the dairy-industry in those places where it does not yet exist.

I have met numbers of people, again, who have said to me: "We should have been glad to have begun dairying, but we have no one to teach us, no one to put us into the right way to conduct it. Now, tell us, how should we set

about it, what are we wanting.

A stranger who arrives, gives his advice, and is easily persuaded by the clubs.

It is, I would think, every parish to take an essay, but I subscribe, but I only say the and to get you to in his own local lectures are absolute all his heart, and

Thus, in this numerous audience number of those are. It is very pleasant sense to come hit the farming interest circuit of a hundred could have come

It is not easy as regards some of

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I think I have perseverance and it will be more extensive to instruct farmers being paid to the duty of farming must be

You will say: style of farming must well as with the so-

about it, what are the first steps, &c.?" This means, that the spirit of initiative is wanting.

A stranger arrives; frequently, I do not know if,—as I said just now, it depends upon one not being a prophet in our's own country,—but a stranger arrives, gives his ideas, and they are willingly accepted. A good lecturer can easily persuade people to build creameries, cheeseries, or to establish farmers' clubs.

It is, I would say, absolutely necessary, that there should be some one in every parish to take the lead, and give the impetus. I had begun to prepare an essay, but I subsequently found it too long, so I have to speak without notes; but I only say these few words to show you the full importance of this question, and to get you to enter upon this project, that is, to persuade everybody, each in his own locality, to propagate as much as possible the idea that agricultural lectures are absolutely essential, that each one of us ought to favour them with all his heart, and that our fellow countrymen ought to attend them.

Thus, in this meeting of the Dairymen's Association, we certainly see a numerous audience present; but it is not numerous if we consider the still greater number of those who ought to be present. I like to state things as they really are. It is very pleasant to be able to congratulate all those who have the good sense to come hither; yes, for they have shown good sense and a good feeling for the farming interest. But how many ought to have come, I do not say from a circuit of a hundred leagues, but from a circuit of a few leagues? How many could have come who have not come?

It is not easy to induce farmers to attend these lectures; so difficult is it, that, as regards some of them, the better way is to go and see them at home.

And one thing I, as well as all of you, have remarked, and that is that if you arrive in any parish whatever, to deliver a lecture, who are the first to come to hear it? As a rule, those who are least in need of its teaching.

Ah! ah! they say: we are going to have a lecturer. Perhaps, out of the multitude of words that come from his lips, this lecturer may at last say something useful to us, may give us some good advice, and thus pay us for the trouble of listening to him for one or two hours. A simple piece of good advice, one good idea, is enough to recompense the progressive farmer for his pains.

I think I have found the way, the only way that exists to teach the farmer: perseverance and time. With time, it can be done, and the taste for farming will be more extensively diffused. And it is in lectures, too, that it is important to instruct farmers in the style of farming they must adopt, proper attention being paid to the demands of the market. When the market changes, the system of farming must change too.

You will say: "In cultivating heavy land, or light land, such or such a style of farming must be followed." True; but in reckoning with the market, as well as with the sort of soil; and that is just what I found to be the practice

among a great number of model farmers, particularly with those I met when I followed in the steps of the "Judges of Agricultural Merit."

People say: "There must be a system of cultivation" (*a rotation of crops* & A. R. J. F.). True enough, but in agreement with what has to be grown for the market. In lecturing, this subject may be particularly insisted upon.

And it is in lectures, too, that the formation of farmers' clubs can be best promoted. Besides, the ideas of the first promoters of these clubs was this: let us try to get farmers together in groups, in societies, and when we have succeeded, lecturing will be easily carried on, and practical instruction diffused. Thus, agricultural lectures and farmers' clubs are intimately allied.

I am very glad to see throughout the whole province, everywhere in some degree, such emulation, so hearty a desire to form farmers' clubs. The whole population is deeply imbued with this idea. I know that these clubs have met with some adversaries, but still it is the case that they are generally approved of by the farmers of the province, at least by the very great majority of them: this is certain.

Now, some degree of rivalry, some slight enmity, seems to exist between the agricultural societies and the farmers' clubs. Well, do not let us make two things out of one; the two are exactly the same. I see no two things in the societies and the clubs: I only see just one thing.

The sole difference between the old state of things and that which is desired to be established, is, that instead of expending yearly the government grant of \$656 a county, for exhibitions; if the farmers wish it, and when the societies shall decide upon it, these grants shall be disposed of in favour of the clubs: the grant shall be divided among the clubs, according to the number of members in each club.

It is simply a rather different way of applying the government funds, and I fail to see what other distinction you can find in it. Is it because you want to have an annual exhibition that you oppose it? You can hold this exhibition just the same. We do not often find a county in which agricultural societies are in a flourishing condition. I know it myself: counties in which the agricultural societies are prosperous are very scarce. The finest county exhibition I saw this year (and I have seen a great many) was in the county of Two Mountains. And yet, though as that show I congratulated the members of the society, all those who took part in it, and who certainly deserved to be congratulated, I cannot say that it surpassed all its predecessors.

In such counties as this, where the people are so attached to their annual exhibition, let them retain it; but do not let them deprive those counties that wish to organise themselves into farmers' clubs and distribute the government grant among the different clubs; that they be not deprived of the advantages they desire to ensure to themselves.

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Some counties are very badly shaped, so that it is very difficult for all the parishes in them to take part in the county exhibition. So much so, that I have met with many people, whom to name is unnecessary, but whom I will name if you like, persons who did not even know that an agricultural society existed in the county. I reach a place to give a lecture: "Who are the directors of the agricultural society of this county? Where do they live! Who is the president?" "Ah! I don't know": and they do *not* know. In some counties half as large as a province, the agricultural society is held in a little corner of the county. Two or three parishes profit by its existence, the rest know nothing of what goes on there.

And you will find that there are many counties, where the societies do not draw more than half their grant: of the \$656 voted to each society, not more than \$200 or \$300 are drawn.

What, do you ask, is the meaning of this? It means that the members of the societies do not trouble themselves much to increase their numbers. This may depend upon one thing or another, but the societies cannot be working well since they do not draw their government grant. And this is not merely a difference of some dollars; for in some places, the membership is so scanty that there are hardly members enough to keep the society on its feet.

In such cases, I should ask the Council of Agriculture and the government to distribute the grant between the parishes, between the farmers' clubs of the different parishes, so that each club may benefit by its share *pro rata* of the number of its members.

Now, I shall be told: "A farmers' club; what good can that do?" As a proof of the good it can do, I seek no further than the excellent speech of Dr. Grignon. Ah! a well managed farmers' club can do a great deal of good, particularly if it receive some help from government.

For, I have already said it in writing, and I repeat it, we have got into a very bad habit in the province of Quebec; one that I have seen myself: nothing, or hardly anything, can be done without reckoning on aid from government. "*Government must help us.*" "Ah! it's all right; let government help us." And while waiting for this aid from Government, years pass without private initiatory endeavours, and nothing is done.

Government must help us! Go where you will, and the cry is: "If government won't help us, nothing will be done." I have seen parishes rich enough to do a great many things for themselves, and have been asked by the people: "Do you think government would help us to set up a creamery or a cheese factory?"

Why does not government take it into its head to find food for the whole population? You will tell me that I talk in this way because I am employed by the government. Well, at any rate, I did not ask for it.

Private enterprise is everywhere wanting. Government aid is expected everywhere; it is a general fault. It would not be so sad were only a parish here or there affected, but the evil is all over the province. Nothing can be done

without it; it is a running sore that affects the social body throughout our fine province.

Suppose, for a moment, I want a chaff-cutter. This costs, say \$45. I cannot afford to buy one, so, I say to myself: "If this were not so dear, I could buy it myself: why not go and see my three nearest neighbours, and say to them: "Let us club together to buy this implement, it will do for six of us as well as for one; we will use it turn and turn about, and this indispensable implement will only cost us \$7 or \$8 a piece! If ten of us club together, only \$4.50 each: if 15 only \$3.00!"

I bring forward this instance only to show our people the need of clubbing together, when they have not the means to act alone. Union makes power, and that is the reason that government intends to come to your aid, under the form of a grant to encourage the formation of farmers' clubs.

What are they, after all, these farmers' clubs? Associations by means of which many things can be bought at a low price. The thing is easy enough to understand, easy enough of execution; but here, again, government support is needed; government must furnish its share.

Well! at any rate I am glad about the resolutions that were passed yesterday. In the counties where the societies do not manifest sufficient energy to act for themselves, the balance of the grant, or at least part of it, may be distributed among the parish clubs that are not able to profit by the agricultural society.

Let us take, as an example, the county of Compton, and in that county, the parish of St. Romain, which is absolutely segregated from the rest. What on earth could its people do with an agricultural society? It can never receive a cent of that grant; and there are many other parishes in a like state.

Politics, too, sometimes takes a hand in the game. I have scrutinized the agricultural societies closely. "Who are those who belong to the agricultural society of this place?" I look, and find that they are all tories or all radicals; not fellow-citizens who unite for the general good, and for the good of their parish in particular; no: all tory or all radical.

And so, naturally, it does not take much trouble to meet with people who put themselves into opposition against everything one wants to do. That is, there is squabbling in the camp, permanent disunion takes place. The disunion would be less, if the grant were divided among the parochial farmers' clubs.

Again, I shall not consider the necessity that may exist for government to interfere and make people thoroughly understand their true interest. I have always felt the thing to be bad in itself. Let us, then, leave them to their private initiative. If they will not understand their own interest, well! let them alone. That would be but reasonable.

But our government has been, for many years, very liberal towards the agricultural classes; more generous, indeed, than that class deserves, since every year, for more than 30 years, government has voted \$30,000 in aid of agriculture

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Well, will that sum be drawn every year? I do not know if, this year, the societies will draw their \$30,000, or if, as usual, they will leave a balance of \$15,000 or \$16,000, which doubtless will be employed by government in aid of agriculture, but which was intended for the societies. This shows that government has always done more for the farmers than they have taken the trouble to employ.

I should prefer being able to say to all my countrymen: "Well! Gentlemen, it is unfortunate that government cannot help you as much as you wish, but at least understand that, hitherto, government has done its part." But that is not what I am in a position to say; what I can say is this: government, in many ways and by many methods, has taken great pains to diffuse agricultural instruction. I almost wonder at this movement on the part of our politicians. For many years, whatever party was in power at Quebec or at Ottawa, they have all felt that agriculture is the foundation of the prosperity of our province. Every party has understood this, and has acted accordingly. They have voted sums for the encouragement of agriculture, because, from a certain point of view, the thing was reasonable. But, for goodness sake, let every one in his parish, let the whole population of the province throw themselves into the movement, and, making a study of agriculture, oppose, without pity, those who say that: we know enough to farm land, that we can stay at home, etc., etc.

I see more of this than ever. I reach a place where I am to lecture: "What is he going to tell us about farming? What do these fellows, government employés, know about it?" It is sad to relate, but I am here to tell the truth; I have seen professional men, people of education, or who pretended to be educated, try to hinder the wheels of the car: "Stay here, then; what's the good of going there? Fancy attending an agriculture lecture! It is so and so, who wants to start a farmers' club, and besides, he's a radical (or a tory), and he wants to make himself popular in that way; let's stop at home." And so on: there are too many, unfortunately, who talk in this way.

I will profit by this occasion to express my admiration at the resolution taken by Monseigneur the Archbishop of Montreal, and by all his clergy, to encourage the formation of farmers' clubs and to earnestly invite the people to attend the lectures, when we take the trouble to go and deliver them. This is very important; the movement is highly beneficial.

Besides, before many years have expired,—this may take some time, I do not know anything about that, all depends upon the patriotism and devotion we put into it,—but in a few years, it is more than probable that the *clubs* will be organised into *societies*, and will be numerous. This appears under a farmers' syndicate, which is an excellent form of association, but one that needs management, safe management, if it is to reach a satisfactory consummation. For, in a few years, this populous association of all the farmer's clubs of the province of Quebec, will become a power in the state. I am glad to see that the clergy of

the province have put themselves at the head of this organisation, encourage it, and support it.

You will forgive me if I have been lengthy : I have nothing prepared, and I was obliged to say a few improvised words. But, at any rate, I must now stop. Again I say, it is far better for me, in such a convention as this, not to speak but to listen, to try and understand the wise advice given here.

Only, about a lecture I heard this morning, allow me to make a short remark. I was not satisfied with an observation I heard about ensilage. Since we are talking on the subject of dairying, and as the silo is immediately connected with that industry, I say : when you are filling a silo, do not tramp the silage until it has heated sufficiently. Do not tramp it, whatever people may say. As to this, I do not trust to my personal experience, for, as you know, I have none, or hardly any, and even if I had, the experience of one man could not prevail over the experience of a great number of men. I see siloes in many parts of the province, and thus, I am in a position to obtain information on the subject, and I say : do not tramp before the silage has heated enough ; when the maize or the clover falls into the silo, spread it, but let a small boy do the work, as he weighs less. I insist upon this : spread the silage over all the silo and then let it heat. When you think the heat is sufficient, test it with the thermometer. If you find 120° F., of temperature, then I say : tramp, tramp as much as possible ; I do not say that one man is enough, put on 2, 3, 4 ; and if you can get something heavier than men, put it on.

You will say : " Yes, but the silage will compress itself. "—True, but it may also happen that it will not compress itself quickly enough, and that there will be a delay when one is about to bring in the loads of maize or other green-fodder, and the temperature is rising too much. It is important to have the temperature exactly the same throughout.

Why should we wait to tramp until the silage has heated enough ? Not to exclude the air from any one part. Otherwise, the silage will be more or less sour. This I frequently see, and I have heard it remarked. What is the danger, what is the thing more generally complained of by those who make ensilage ? " It is a little sour. " Thus, it is always a little sour ; the cattle do not, at first, eat it well.

When there is a layer of 3 or 4 feet, one is instinctively led to tramp. This is wrong. M. Bourbeau said so this morning. He follows exactly the plan of not tramping until the silage has reached 120° at least, and then he tramps thoroughly.

If the President will allow me (my time is very limited, not that I am late, but there is something that bothers me a little, it is that I ought not to exceed certain limits, a quarter or half an hour, exactly) : but as the president is good enough to allow me the chance, I will make a few observation on agriculture in the province of Quebec.

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The first thing we remark is : many farmers do not understand what the word "drainage" means. *The drainage of land, what does that mean ?* They tell me : " There is no water in the ditches, none in the furrows, none in the water-furrows, none to be seen anywhere : therefore the land is drained ! " " Oh ! no, it is not drained. "

Drainage means to take away the last drop of *useless* water from the land. There is no water in the ditches ! That is not the point. The point is to know if, when rain falls on the land, the rain-water has had the chance of escaping as quickly as possible through the water-furrows, ditches &c., or if the water has been retained in the soil.

The result is that only half-crops are grown. No doubt about it ; I have again observed it, this summer, at St. Canut. There the land is fairly well cultivated. I saw there perhaps the most advanced parish, as regards dairying, in the province, considering the population. There are 150 families, and they deliver daily at the creamery 19,000 lbs of milk. I think it would be hard to find another parish in the province that can rival St. Canut.

Only, I had to show them that their system of drainage was defective. The proof is, that, with capital land, they hardly grow 15 to 20 bushels of oats to the arpent. This depends entirely on their defective drainage. The water remains in the soil.

At M. Forget's, of St. Janvier, I found an excellent specimen of what drainage really ought to be. There are other cases, but I quote this one because it is close by. His land is very heavy ; by drainage, by thorough water furrowing, although the season was a rainy one, in this spot, where they know how to drain, the crop was as good a one as usual, as good as it always is ; while, in all the other places which were more or less badly drained, there was either only half a crop or none at all. Everything had rotted. It is therefore a matter of great importance to thoroughly drain the land. (*)

The growing of clover, too, is another very important point, as well as its use. Well ! I have been in parishes where I was asked how to set work *to destroy* the clover. That means that in some places none has ever been sown. Lectures in such places do a great deal of good : no doubt about it.

In other places, I have been asked : " Do you think it would be a good thing for us if we had creameries or cheese-factories ? " These people are not well informed. One or two of them take in " *Le Journal d'Agriculture* " ; sometimes none of them do : they are all asleep.

(1) Rather puzzling to distinguish between drainage by water-furrows and drainage by subterranean conduits. For the latter, the *French* employ the word *drainage*, borrowed, of course, from the English : but what a debt of words we owe them ! A. R. J. F.

I say they are all asleep; they have worked hard, they still work hard, but what do they produce after their year of work? I really do not know. Any how, they are in debt. No grass, no clover grown.

In the parishes where things are understood, where the people have not remained isolated, everything progresses.

Another little remark, *en passant*, on the care to be given to milch-cows. For many farmers, to possess cows is enough. People say: "He is a good farmer; he has 15 cows." As if that was all the question. And, moreover, they are mistaken enough to suppose (the idea is one that is generally prevalent) that cows will pay if they are allowed to remain dry all the winter. I have proof positive that those who make money in summer by their cows, even those who make a good deal, hardly make any profit out of them if they do not make them yield something during the winter.

A comparison I lately made seemed to strike the audience: it was a comparison between cows and boarders. Suppose a boarding-house keeper takes 10 to 12 boarders, at \$12 a month, and that their board costs him \$9 a month, he will make a profit of \$3 each by them. But, suppose, again, that those boarders stay at the same hotel through the winter, and that in spring they say: "Well, sir! We thought we could pay you, but do not reckon on our money for this winter; it's no use; we have no means of paying you for our board for the winter months."

These people have consumed the summer profits in the winter, and the \$3 of profits, that the boarding-house keeper made in the summer, are not enough to cover the expenses of the winter.

In the same way, I met many farmers who told me this (I always trust a good deal to the experience of farmers): "I make money with my cows; they give me \$200 or \$250 at the creamery; but at the end of the year, I never find anything left. On the contrary, I find myself in debt, and why? it is because I have kept a number of cows, ten or twelve for some years, and they eat up everything, leaving me no profit".....This, because it is only in summer that the cows are profitable, and they pass the winter on the profits of the summer. And, as these profits are never very great indeed, it follows that the farmer makes no progress, even if he does not run into debt.

I am about to terminate my address. I am sorry it has been so unconnected, but, in conclusion, I will only add one word. Continue, Gentlemen, to honor agriculture with all your understanding, with all your powers of mind, with all your energy, and above all things do your duty as patriots by inciting all your friends to become members of the farmers' clubs and subscribers to the Journal d'Agriculture.

Let every one take part in this work. What certain parts of the country want above all things, is the dairy-occupation. I have found some parishes only half populated, from emigration; their people are leaving them in discouragement,

ment, never mind the last few years.

I will not go away. You have prospering, but creameries and milk alone through

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ment, never mind; there are parishes where more money has been made during the last few years than had never been made there before.

I will not go very far, I will cite Ste-Therèse, St-Eustache, and others farther away. You have St-Eustache; I will not say that all the farmers there, are prospering, but I do say that this parish supplies 30,000 lbs. of milk daily to the creameries and cheeseries; which implies the diffusion of \$300, by the sale of milk alone throughout the parish.

The important thing for you to do is to keep yourself well informed about the markets; and the way you can do this is to unite yourselves in farmers' clubs to investigate your wants. Study the needs of agriculture, and the needs of the markets: this cannot be too often repeated.

I conclude, Mr. President; Gentlemen, I thank you for your patience.

Dr. Grignon.—I have only a few remarks to make on the lecture M. Dallaire has just given us. As to what he said about the introduction of politics into the clubs, I know something about this myself. During the four years our clubs have been in existence, we have had no difficulty about politics, for the simple reason that we had thoroughly made up our minds to expel any one who tried to talk politics in our clubs.

Our secretary-treasurers are strictly warned not to ask any farmer who offers himself as a member who he is: "Who are you?" "What do you want to do?" "What are your politics?" All these questions are forbidden.

Last year, however, a little incident took place. I am a conservative, and not ashamed to confess it; I hope it will not offend some of my friends who will fancy that I am going to be a candidate at the next elections; I shall not be one; you will never see me on the hustings; when one is busy about farming, one has no time to engage in such things. Were I a candidate, if I offered myself for a member, I should offer myself as a conservative. I do not blush for my politics, and I do not ask any one to change his.

The reason why I have mentioned this is that, one day, a member of the farmers' club came to my house, and said: "Doctor, will you send me a ram to keep?" "Well, my friend, I have sent one to your neighbour, close to your place." "That is not the reason why you won't send me one; it is because I am a radical." "Ah, I think you are mistaken; let us consider if I have divided these animals equally." We looked into the affair, and we found that out of 15 rams distributed in the parish, the radicals had 9 and the tories 6: this I can prove. (Laughter.)

I have never been led by politics; that would have the effect of completely destroying the good effects one has a right to expect from the clubs. It would be absurd to introduce politics among fellow-countrymen, French Canadians, when the subject of progress was under discussion. So, I told this member: "Since you are under this impression, I would rather not have you in the club, so I erase

your name from the list." This year, he came back without my asking him. You, who want to talk politics in our club: Avaunt! If they fancy they have time to meddle with politics, they will never be good farmers.

As to the use of machines, when our clubs were established, in 1888, we were in expectation of forming an agricultural society at once; we proposed to unite and to subscribe one dollar each, without reckoning on any government grant. Then, M. Labelle said to us: "You have the right to divide the county in two, and to receive \$328 from government." I replied: "Since government can help us, we will accept its aid. We cannot refuse what we are entitled to by law."

I am anxious to prove that the existence of these clubs will certainly cause one improvement among the farmers, and that it will be the means of checking their habit of depending for everything upon the government. In connexion with this, I will give you an instance; this fact occurred last September: Four farmers came to me and asked if there were no means of buying a potato-digger; labour was very high, so high as to absorb all the profits. I remarked: "Are you expecting the club to help you?"—"No; we are five in it. Find out how much the machine costs, and if we can have some time allowed for payment." I went to Latimer's; they had told me to buy the implement if it did not cost more than \$75, so I bought it. It took the five partners 3 years to pay for it; \$25 a year, divided by 5, only made \$5 each to pay for an implement that did the work of 12 men; for that is what a potato digger does.

The same men told me: "Next season, we will try to buy a potato-planter, it costs just the same; and we five will still be in it."

One of them, who had used it, told me himself that in a day's work he had planted 80 bushels of potatoes, sitting all the time like a man on a mowing machine; it is splendid!

Still, they were not yet satisfied. They joined together and bought a winnowing machine that cost \$10, i. e., \$2 a piece; and so on with other things.

On the subject of drainage, I have to say that I have drained 6 arpents on my farm. My neighbour asks me: "What are you going to do? One can walk all over the farm for the soil is certainly not wet; there will not be any water to run through the drains; why do you throw away money like that?" Said I: "I think there is water below; as for me, I know nothing about it, but there is another, a Mr. Barnard, who says so. I would rather trust his opinion than yours. Look at those mare's-tails, (1) that are growing there, on that side; if it were not for the water in the subsoil, grain would be in their place.

Here is the way I did my drainage. The ditch is 4 feet deep and 4 feet wide. I took pieces of red-spruce and fir about 5 inches thick at the smaller end,

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you know that wood at this depth does not rot, or hardly at all. Above these I put a slab of cedar, or of hemlock, and then 2 feet deep of branches of fir.

A short time after, my friend who said there was no water there, saw that he was wrong. There was enough to drive a mill-wheel, and my land was dry. I then said to him: "In spring you will have your ploughing to do and I can do it now all over my farm." Last Saturday, in spite of the frost we have had, the drains were running freely.

One more word and I have done: about the creameries. A creamery is a regular club. The farmers who take their milk there do not all get the same amount of money. Those who get less than the others ask: "How is it, that, with the same number of cows, I do not get as much money?" There, they are obliged to learn the reason; that is why I say that the creameries are regular clubs.

I know one man who with 20 cows only received \$172, and another with only 8 cows who received \$142. Meeting Michel, the one with 20 cows, I asked him if he was satisfied. He replied: "I am satisfied with having earned \$172 with my cows." Of course he did not earn so much before the creamery existed. "If you were in Moïse's place (the man with 8 cows), you would have earned much more." "I know it, and I'll feed my cows better next winter." There, is a point gained.

How did Moïse feed his cows? With maize, green-crop, and a little bran. The other declared his intention of doing the same the following year.

In conclusion, I will simply say that where there is no club I beg that the farmers will go on strike. Against whom? Against the leading men of the parish, against the shopkeepers and the professional men. Go to them and say: "If you will not interest yourselves in the farmers' club, neither will we intrust our business in your hands." That is what we advised our people to do. We made the smith, the tradesmen, the notary, all join the club in this way.

And that is not all: we went to the parish-priest: "You, M. le Curé, you are going to give us a lecture." "I cannot, for I do not know how." "Just take a treatise on farming and read passages out of it to us."

One solitary man in a parish is enough to manage a club. I do not ask for 15, for 100, one can do all that is needed: it is easy enough. All that is wanted is earnest intention.

The President.—Which is as much to say that zeal is better than knowledge to make a lecturer.

Mr. Barnard.—I think I ought to draw your attention to a perfectly consolatory fact, connected most especially with dairying: I mean the new organisation of Agricultural Missioners.

It is highly probable that these gentlemen whom I am going to name to you in an instant are not desirous of receiving the apostolic title. Still, they are true apostles, and they have undertaken the mission with all its weighty conditions.

I therefore only mean to say one word, Gentlemen of the Dairymen's Association, to draw attention to this point: Our Lords the Bishops, having felt the

need of making a common effort for the promotion of agriculture, and to do this through the dairy-industry, have appointed agricultural missionaries in their respective dioceses; and you will soon see that, for agricultural missionaries, they have selected men competent to instruct farmers in all pertaining to the dairy-industry.

You have, for instance, the chairman of the syndicate of the county of Shefford, the Rev. M. Côté, who is at the same time agricultural missionary, apostle of agriculture in the diocese of St. Hyacinthe.

Another apostle of agriculture has long been known to you. He has been the vice-president of your association; I mean M. l'abbé Gérin, who is still a director of the Dairymen's Association, and the patron of agriculture in the diocese of Three-Rivers.

We have also a third, less known to you perhaps, but who also is here, and is all that is needed to be an apostle. Indeed, he has shown his qualifications for the task, as he is an assistant (*vicaire*) in some of the most retired parishes, where the farmers are very difficult to move. He has founded a farmers' club, he has kept it going, given it a reputation, caused to be built several siloes, and has sown the good seed of every description. He has done the same kind of work as MM. Pilote and Grignon. He represents the arch-diocese of Quebec.

Several others have been appointed for the different dioceses, for instance, M. Roberge for Chicoutimi; he owns many farms, and is as devoted to agriculture as he is to other good works.

Gentlemen, I welcome with delight the creation of this great movement, which is made exclusively, entirely, and with the most truly kind feelings, in the public interest; for I know that the different agricultural missionaries ask for no remuneration from government to incite them to work, under the direction of their bishops, for the good of the public.

LETTER FROM M. NANTEL, MINISTER OF PUBLIC-WORKS.

Quebec, December 13th, 1893

J. DE L. TACHÉ, Esq.,

Secretary of the Dairymen's Association, Ste. Thérèse.

Dear Monsieur Taché,

I regret very much that circumstances prevent me from taking part in the convention of the Dairymen's Association at Ste. Thérèse. I would gladly have profited by the association to tell you, with all the citizens who take an interest in the future of the country, how great a work you are doing, how much gratitude your efforts, and the success that has crowned them, deserve from the public.

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There is now no contesting your success : it is quite secure, since the farming of the province of Quebec is in process of regeneration by the influence of the dairy-industry. In 1879, this industry was, for the first time, enrolled in the political programme of him who now presides over the Executive of the province. Encouraged successively by the different governments, it has, in these our days, under the enlightened stimulus of the Hon. Louis Beaubien, taken an onward flight that is in itself the praise of your association, and attests the zeal of the Minister of Agriculture for the progress of the farming classes, as well as his profound acquaintance with the needs of agriculture.

Your earlier days were full of difficulty, but you had faith in the value of this fundamental reform, and you are now on the way to cover the whole of the province, even in its most retired districts, with the beneficent branches of an industry that defies both the seasons and the reluctance of land worn out by the production of grain-crops, and yields in every year a regular income to the farmer, a revenue that by its absence in the past has caused many a one to betake himself to the neighboring States.

Reckon, then, M. Secretary, on my support, and kindly tell your fellow-laborers that M. Beaubien has a fair and open field before him to enable him to sustain you, seeing that there is not a member of the Cabinet who does not feel that the basis of a fruitful policy rests upon agriculture, of which art the dairy-industry constitutes one of the chief elements.

I should have been glad to have spoken to you, on the classic soil of Ste. Thérèse, during one of your sessions, about the instruction to be given in the country schools. This lecture would have been the pendant of some ideas I had already propounded at the seminary of Ste. Thérèse on the necessity for the higher education or the teaching of the classics.

Allow me to condense into a few words the opinion I should have liked to submit you. If a well constituted society should form by energetic studies those of its young citizens who are destined to compose what may be termed the governing body of the nation, it is no less important that our rural population be penetrated with the idea that it is perhaps only a small number that demands the higher education ; and that, on the other hand, most of the children in our rural districts, being destined to become farmers or artisans, their earlier instruction must respond to the needs of agriculture and the mechanical arts. And these occupations, more surely than the liberal professions, than commerce and manufactures, ensure to the young, more easily and at an earlier age, a peaceful, honorable, and generally speaking, an easy condition of life, if they are industrious, orderly and economical.

Agricultural instruction in our rural schools should be secondary only to instruction in Christian morals, and should interpenetrate the entire education of the pupils, not so much, perhaps, to teach the children the art of cultivation,—an art that the school-masters themselves do not understand sufficiently to teach,—

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as to imbue them with a taste for it, and to give them an idea of its honorable position. It seems to me that all their books should be impregnated with a love for rural life, and, in a thousand different ways, should furnish the material for lessons in reading, arithmetic, book-keeping, geography, geology, &c., so as to apply to the daily need that the pupil, become later a farmer, may have for these various notions.

On leaving school, the farmer's son ought, as much as possible, to be in possession of all the information required for the noble exercise of his art. He should not have his memory over laden with words not understood, neither should he be wearied with lessons so unattractive that they frequently cause him to become disgusted for ever with even the simplest reading. Why, by means of interesting lessons on things always familiar to them, and on the objects around them, cannot the pupils be led on to the gradual appreciation of things they must necessarily become acquainted with, and, at the same time, be inspired with a strong taste for study and observation, and be made to feel that it is their duty to keep themselves well informed on all the fresh advances made in the art of agriculture? This is what is already being done by many young farmers, but have first of all been brought up as practical farmers, in the States, in Ontario, and even in our own province

The reformer, who shall have the courage to instil into the mass of our rural population true agricultural education, the first principle of which is a love for one's business, and to then show the people the means to make it profitable, will render an incalculable service to our country which, from a certain point of view, is only of real value from its agriculture.

But I am forgetting myself, and I am giving you the lecture I excused myself from giving just now. Forgive me, then, and pray present my apologies to your fellow-labourers, as well as my sincere words of encouragement in their task.

Accept, Mr. Secretary, the expression of my entire devotion.

Truly yours,

G. A. NANTEL.

DISCUSSION ON SKIM-MILK CHEESE.

M. N. E. Clément.—As Mr. Ayer one of the largest dealers in Montreal, is present, I think it would be interesting to know his opinion of the *combined manufacture of butter and cheese*, and to see if there is not some means of arriving at an understanding with the buyers of butter and cheese at Montreal, so that skim-milk cheese may be paid for according to its value.

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I understand that, trade in this country being open, this understanding will be hard to arrive at; but I think that with the aid of the Board of Trade established at Montreal to control and protect the trade in butter and cheese, we could prevent the establishment of those cheeseries that skim the milk.

I have always opposed the combined manufacture of butter and cheese. Still, I have found that patrons of these factories have received more for their milk than we can pay the patrons of our factories; and that, because dealers pay too high a price for skim-cheese. Our patrons, seeing reports from the other factories, that follow the process of combined manufacture, are asking us to establish factories on this plan.

The Directors of this Association might take every possible means to persuade the exporters of, and dealers in, cheese, not to pay for these cheeses, if practicable, except in proportion to their real value. Otherwise, we shall before long be obliged to adopt the combined process, and to make cheese from partially skimmed milk. If this is done, the high repute of the cheese of the province of Quebec will infallibly be lost.

Mr. Ayer told us this morning that he was opposed to the making of skim-cheese, but I should be still happier were he to say that in the future he would do his best to prevent the establishment of combined cheese- and butter-factories.

Mr. Ayer.—M. Clément's question about skim-cheese is a very difficult one. I think I once stated at one of your meetings, some years ago, that the experience I had had of skimmed-cheese was something like this: "*A fresh dealer must always be found to purchase it; for a dealer that bought it one year will not buy it again the next year. The chance of selling it thus becomes smaller and smaller year after year. During the past years; a good deal of skim-cheese was sold. There is very much less now; skim-cheese is unsalable at Liverpool this year.*"

I understand the difficult position in which my friend M. Clément finds himself; I feel, as he feels, the annoyance that this position inflicts on him who strives to do things regularly. Still, I wish you to note that those who sell skim-cheese only get a good price for it because the quantity made in the province is so small. Take the case of one maker who skims off all the fat and makes a small cheese without cream; he might sell it for the best price. But, if instead of one maker, there were a hundred who did this, instead of 10 or 12 cents, this cheese would not fetch more than one or two cents.

For instance; in Montreal, you can sell a small quantity of butter like that your vice-president, Mr. Fisher sends there; butter of superior quantity. But, if instead of a small, there were a large quantity sent to Montreal, the price would fall, and butter such as that would not sell for much more than tub-butter.

It is just the same with skim-cheese; as soon as a great many makers set to work to make it, the price would fall very low.

There are some milks, in certain parts of the province, which would turn out a pretty fair cheese, if the milk were moderately skimmed; but if you try to

skim too hard, you will get hardly anything for them. As I said this morning, a maker was obliged to tell a lot of skim-cheese at a cent a pound; and the same thing has happened in several factories in the United-States.

And in connection with this subject, allow me to mention another point. Some years ago, they tried, in the States, by mixing oil or fat with the cheese, to replace the butter skimmed off in the cream. For a little time, money was made by this process, but before long, all those who meddled with it were ruined. It was a fraud from the very commencement, and fraud almost invariably ruins those who practise it. It is only right that such rogues should fail, and fail they do.

For my part, I am of opinion that the people of the province of Quebec should do things honestly; they should only make full cheese and good butter, without adulteration; in this way, we shall establish a good reputation, and they will no longer be able to talk maliciously about our *French-Cheese* or our *English-Cheese*. People will try their best to give us a bad name, but they will not succeed.

On the contrary, if you make skim-cheese, you will, sooner or later, get a bad name; and even those who make nothing but full-cheese will suffer by it. If you persist in making poor cheese, it will be called *French-Cheese*, and it will deserve the name. One or two makers may be able to make it good, none of the rest will be able to make anything but bad cheese on this plan. If, as an exception, you make a few skim-cheeses, make them small, so that they may be distinguishable from the others. But never try to make a skim-cheese similar in size, &c., to the full-cheeses. If it is a skim, sell it for what it is, and let people know what they are buying. Never make a skim-cheese of 70 lbs., to sell it for a full-cheese. This is not acting like an honest man, or a man of business.

Another point; I hear that it was said here, yesterday, that some commission agent or other at Liverpool told a certain Canadian that the Montreal exporters were in the habit of selecting the worst of the cheeses they bought, and labelling them *French-Cheese*. I have been 25 years in business, and I never yet saw a cheese marked *French-Cheese*. The Liverpool man, who told this tale, was greedy after consignments, and he took a bad way to get them.

We must not deceive, neither must we try to pass off a bad article for a good one. Let us produce good articles, and sell them for what they really are. Do not let us be jealous of our neighbours who make bad articles and make money by them; if they do make money now, they will not make it long.

Dr. Grignon.—Our maker is a man of progress, who was a pupil of an agricultural school. He was an honest, upright man. He very much wished to get as much profit as possible out of his milk. Consequently, he took it into his head, one day, to make skim-cheese, making the farmers understand that they would get more profit in this way, as indeed ought to be the case: "you will have both butter and cheese." His patrons expected the cheese to fetch a very

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high price. It was sent to Montreal, but the experiment was not a fortunate one. Receiving no news of the cheese, I went to the purchaser, who said to me: "Sir, I am bitterly sorry that I paid the freight; I paid \$3.20 for it, and the cheese is there in the street." The cheese was in Montreal, and nobody would have it. Consequently, we have given up the notion of making skim-cheese, and next year we shall keep the skim-milk for the young stock. Some one advised us to keep this cheese for 3 months; we did so, and it had become as hard as iron.

M. N. E. Clément.—I wish again to draw the attention of the meeting to the combined factories of cheese and butter, to the question of making cheese and butter from the same milk. Not that I am in favour of this combination. I have been 14 years in the business, and I have never sought to adopt this principle. Although I have neighbours who, with the combined process, have paid their patrons more than I have paid mine, I have always opposed this system.

But, seeing Mr. Ayer present, I thought it opportune to ask him to deal seriously with the question, so that the patrons may be prevented from asking us to establish these creamery-cheeseries. This is the point I want to arrive at; it has been already rather warmly discussed; I took no part in the discussion. I have been pressed, in different cheeseries, by the patrons who desire the establishment of these creamery-cheeseries. I oppose their desire. Wherefore, I ask Mr. Ayer if, in the *Board of Trade*, established in Montreal for dairy-goods, they can arrange matters, and agree to pay such prices for skim-cheese as shall enable us, the makers of full-cheese, to compete with it on the market.

For I have remarked, this year, that my brother-makers, who came to sell their skim-cheese, sold it for only half a cent less than the price I got for my full-cheese. I do not pretend to make better cheese than other makers, but I make good cheese, and yet, I saw my brother-makers in Montreal, selling, contemporaneously with my sales, their skim-cheese only a quarter-cent less than I was getting for my full cheese.

Therefore, Mr. Ayer being the most influential man in the Montreal dairy-trade, I thought it opportune to put this point before him. He can certainly do something for us.

Mr. Ayer.—I will answer this question in the same way I answered it just now. Where there is but very little skim-cheese on the market, and the milk it was made from was only moderately skimmed, it may fetch a fair price. Perhaps, Monsieur Clément, you are only speaking of cheese made from milk of which the night's milk alone has been skimmed.

M. Clément.—Just so.

M. Ayer.—Then the cheese, if only that quantity of cream has been skimmed, and if there is not much of it, may fetch within a cent a pound as much as the finest full-cheese.

Here is an instance : it took us nearly the same time to sell 500 cheese of the sort I have just mentioned, as it took to sell 25,000 full-milk cheese. That is my experience. Only the night's milk had been skimmed. If we had had to sell, in the same space of time (instead of 500) 2,000 skim-cheese, against 25,000 full-milk cheese, the price of the skims would have had to be lowered $2\frac{1}{2}$ cents a pound. If 5,000 skims against 25,000 full-milk cheese, we must have taken 4 cents less; and with 10,000 skims against 25,000 full-milk, the seller must have taken one cent a pound for his skims.

In a word, as long as the proportion of skims is small, it will fetch a good price; but the moment the proportion increases, the fall in price is serious.

M. Vaillancourt.—I have but little to say on the subject of skim-cheese, for although I buy some, I have always opposed this method of working. But we usually make a difference in price of at least a cent a pound. I am connected with several cheese-makers and there is not one that can say that I have ever encouraged the making of skim-cheese. Having always opposed the practice, I cannot but endorse Mr. Ayer's statement.

Mr. Ayer.—I have not, I think, answered one of the questions put to me: Cannot Montreal Board of Trade agree not to buy skim-cheese? I think it could be done by means of a "combine" (1). Personally, I am opposed to "combines". But, perhaps, I might not be opposed to a "combine" the intention of which was to protect the farmers. Still, it would be a "combine", and I am opposed in principle to "combines".

M. Vaillancourt.—M. Clément asked Mr. Ayer to do all in his power to get our Board of Trade to decide not to buy any more skim-cheese. I believe the whole trade, in general, not only the members of the council, but the whole trade, is opposed to the principle of combined butter- and cheese-factories; but, in spite of our efforts to put a stop to it, we have great difficulty in persuading people of the wisdom of abolishing this mode of manufacturing. I see, however, with pleasure, that, for several years, the making of skims has very much diminished in this province.

Mr. Ayer.—To show the trouble we sometimes have to get rid of skim-cheese, I may tell you that the last lot we had in our hands we had to sell to a man who was so poor that he never paid us. (Laughter.)

M. Clément.—As a conclusion to the last remark of Mr. Ayer, I think it would be better for the Montreal dealers not buy skim-cheese, or pay for it in accordance with its real value. Up to the present time, Montreal dealers have behaved in such a way as to yield to the requests of our patrons; for they have always paid for skim-cheese a price too remunerative, considering its true value.

(1) Of course the *English* word is *combination*.—A. R. J. F.

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Consequently, I am happy, not on account of the loss Mr. Ayer has sustained, but I am glad to see that this loss may perhaps induce him to buy no more skims, and to join with the other dealers in Montreal to put an end to the combined manufactured.

LECTURE BY M. H. NAGANT.

THE AEROGENIC CHURN.

Mr. President and Gentlemen,

Before beginning the examination of this machine, I think it would be as well to investigate cursorily the properties of milk and cream, as well as the mechanical effect of churning, and to throw together some fresh considerations and ideas, on the interior constitution of milk. If, after my essay has been delivered, any of you wish to discuss it, I shall be highly pleased.

As you are aware, milk is an emulsion of fatty matters in water, containing in solution sugar of milk and casein partly in a soluble as well as partly in an insoluble state.

What is an emulsion? You have, all of you, seen one; the druggists often make them: Emulsions are preparations in which a fatty matter, oil for instance, is mixed with water containing albuminoid matters. Thus, one simple emulsion is linseed infused, so to speak, in cold water, by stirring it and shaking it forcibly. The fatty matter of linseed oil is not met with in a state of solution, but in globules, which resemble the globules of butter in milk. All sorts of emulsions are made, with fat, water and albuminoids; which is as much as to say that fatty matter is found in the condition of very small globules suspended in water.

It is interesting to examine these globules under the microscope. I hoped to have time enough to show you, as a picture, these globules as they are seen under the microscope, but this must remain for another occasion.

In milk in its ordinary condition, at the moment it leaves the udder, the fatty globules, the globules of butter, are in the melted state, they are melted butter. These globules enjoy a property well known in physics: thanks to their tiny size, they remain liquid much below the point of solidification; you may cool milk down to 50° F. or even to the temperature of melting ice, and even then many globules will remain melted. If, however, you reduce the temperature to about 24°; at that moment, the majority of the butter globules are solid; only the tiniest of the globules remain liquid until a degree of temperature, not as yet definitely settled, is reached.

Under the microscope, the globules appear in the form of tiny spheres, perfectly round and soft. In the drops of milk examined, they can be seen in

motion, taking different shapes. These droplets come into collision with each other, like india-rubber balls, but do not stick together. Currents are formed in the drops of milk according to the leaning of the microscope; the globules, when they press against each other, become distorted in shape for an instant, but they do not become united. Here, we see something strange; there is something that hinders the consolidation of the globules. If two of the globules were to stick together, there would be only one, and you would at once have a grain of butter, a very small one, truly, but still, butter.

Why is this emulsion of milk so much more stable than the ordinary emulsions made by artificial means? In other words, what is it that hinders the butter-globules from uniting and coalescing? There are many causes; we will not review them all; but, one chief reason is their extremely small size.

I have the size of the globules here; I will not waste your time, but it would, I think, interest you if I gave you an idea of the tininess of them. The smallest are $\frac{1}{40000}$ of an inch in diameter; that is, you can place forty thousand of the smallest globules, side by side, on a space an inch long. The largest only measure $\frac{1}{2500}$ of an inch, so only 2,500 of them can be placed on an inch. Thus, there is a vast difference between the largest and the smallest.

It has been frequently remarked that the milk of different breeds of cows is characterised by different variations in the size of the fatty globules.

If we take the cow that has the reputation of being the best cow for butter, the Jersey, we see that the globules of her milk are the largest of all. There are small ones, but very few. Take the shorthorn and the Ayrshire, and we shall find some large globules, but many more small ones. Lastly, the Dutch cow's milk contains, in general, very small globules; and every one knows the different qualities of the milk of these different breeds.

I shall not enter upon a description of the other matters that go to the composition of milk, except as to one or two of them that will occur in the course of this enquiry.

When you let milk rest in any vessel, what is it that rises, what is it that mounts to the surface? Of course, every one will reply: "The cream." And again: "What is cream?"—"Well! it is the globules of butter in the emulsion." If we go further, and ask of what this cream is composed, we shall be told (and this is what we read, particularly in the older writers): "Cream has nearly the same composition as milk, only it contains much more butter.

Well, gentlemen, it is nearly certain that this is not exact. Cream is not simply milk with butter in it. No doubt, there is casein in cream; and fatty matter in great proportion (from 20 to 50%), and water, as in milk, and the so called albumin of milk. But is there nothing else?

Have you never remarked that when skim milk is getting stale, is ripening, its taste and its smell is by no means the same as the smell and taste of stale cream? To what is this due, this change of smell and flavour? It cannot be due

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to the butter, because butter would not spoil in so short a time. The composition of the butter-globules is stable, at least for some days. If it be not the butter, it must be something else, and what is that unknown something? We will try to find out.

We observe, too, that cream is richer in microbes, in ferments, than milk. The microbes are more numerous in cream than in milk; and this is also true of cream from the separator. If you skim, with the centrifugal separator, milk that has just been drawn from the cow, the small number of microbes that were in the milk will be almost all found in the cream.

It is observable that, at certain seasons, or under certain circumstances, milk is much more difficult to churn. Why is this? In explanation of this difficulty it is often thought sufficient to say that the milk is too thick, too viscid (gummy). True but whence comes this viscosity, this gummy character of certain milks? In part, from the casein, from the albumen (if this really is found in milk); but not from these alone; there must be something else.

For instance; take two kinds of milk having the same composition as regards their casein and butter-fat; there is no apparent difference between them, and yet it may happen that one will churn more easily than the other, and that the practical yields of butter will differ.

All these considerations—there are many others, but I will not prolong this lecture too much—lead us to think that, in milk, a substance on which we have not until lately reckoned exists in small quantities, but though trifling in quantity, sufficient to exercise great influence on the stability of the emulsion of milk, and therefore on the churning of the milk or cream; this substance is the *lacto-fibrin*, or *fibrin* of milk.

You all know that if animal-blood is put into a vessel, it quickly curdles or coagulates; this coagulation into lumps is caused by the fibrin! There is not more than $\frac{1}{500}$ part of it in blood, but you see how powerful its effects are. Milk, which requires for its elaboration a considerable influx of blood, and is derived, in fact, by secretion from the blood, milk, I say, must bring with it a small quantity of fibrin: this every one will see at a glance.

Unfortunately, we have, as yet, no direct proof of the presence of fibrin in milk; as you know milk contains a great deal of casein; when we try to examine the fibrin, we meet with other matters, and can no longer see our road clear.

Chemists have tried to find how much fibrin milk contains, but analyses made up to the present time have not been conclusive. I will not go into them. But I thought in my duty to call your attention to the almost ascertained presence of fibrin in milk. Let us now pursue our investigations at greater length.

The milk has hardly left the udder before the coagulation of the fibrin commences, just as in the case of blood. Only, the fibrin of milk is probably less instantaneously coagulable, and may possess different properties. We know nothing about them; still, chemists and microscopists have succeeded in proving

satisfactorily that there is a commencement of coagulation in milk, which is not the coagulation of the casein. After a short time has elapsed, there appears in the mass, as it were a network of fibres, crossing each other in all directions, this network of fibres imprisons, more or less loosely, all the globules of butter. When milk is *set*, the globules of butter rise in the liquid like real little balloons would rise through the air. They are, though, hindered in their movements by the more or less viscid state of the milk, but especially by the tissue of *lacto-fibrin* which they draw along with them, and which is found almost in its totality in the cream.

When cream is hard to churn, this is probably due to a proportion of fibrin greater than usual. This may spring from the quality of the food of the cows, or from other causes.

I have tried to discover how to act upon the fibrin so as to make churning easier. Before pointing out the chemical re-agent which seems to me to be the most effective, let me say at once that this sort of research has enable me to understand why ripened-cream churns more freely and gives a better yield of butter than perfectly sweet cream: it is because in ripened-cream the lacto-fibrin has been destroyed, or rather liquified, by the action of the ferments and microbes.

The re-agent I employed successfully, and which seems to have a powerful effect on the fibrin, is *tannic acid* or *tannin*. Although added in very small quantities to the milk, it seems to act on the fibrin by producing a contraction of the fibres I have mentioned. I am speaking of milk left at rest in a vessel after the addition of the tannin; but, if the liquid is submitted to repeated shakings, the fibres are broken, burst open, and the butter rapidly forms in grains.

And now the time is come for me to talk to you about the churning; this operation you know is what produces the butter. How does it act? By imparting shocks to the globules of fat, which are thus brought into contact with each other, gather together, and thus form grains of butter. This is the common mechanical operation of churning. Has the air in the churn no effect? My enquiries are not yet sufficiently advanced for me to reply to this question.

THE AEROGENIC CHURN.

But a novel method of churning cream or milk has lately been invented: this consists in causing a rapid current of air to pass through the milk or cream. How does the air act in this case? The air, in passing through the milk, must act on the fibrin as air acts on fresh blood. Blood coagulates much more rapidly when exposed to the air than when guarded from its influence. I do not say that this is sufficient, but it does coagulate more quickly. The existence of this network of fibrin in the milk being admitted, by thus introducing air into the milk, the network of fibrin is affected and broken into small pieces. Every time I have

churned with substance that certainly a peccope; and at

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I have on it is short. The confess that I, introduce it to of glass; I had that takes place

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Before chur I may observe, he seems to be a butter even as h froth, particularl I do not mean o

churned with this machine, when the introduction of the air began, the first substance that rose to the surface was, not butter, but a fibrous substance; this is certainly a precipitate that is formed in the milk; it is visible under the microscope; and at the same time the butter begins to form.

Is this the entire theory of churning? I dare not say so, but, at all events, it is the commencement of an explanation; the future will show if this theory is, or is not, well founded.

I have omitted many other important things I wished to tell you, for our time is short. The Aerogenic Churn (fig. 1, p. 151) is a Belgian invention, so I must confess that I, the compatriot of the inventor, am proud of being the first to introduce it to you. Do not imagine that the churns usually sold are, like this, of glass; I had this one made of glass, to help me to show you all how everything that takes place within it occurs.

The false bottom of the churn (fig. 3, p. 151) is pierced with small holes; if I pump air into the tube, it will pass under the false bottom and rise through the milk in the shape of thousands of bubbles.

The second part of the apparatus (fig. 2, p. 151) is the air purifier. You know that the air contains microbes. We want to prevent the microbes from passing into the milk. For this it suffices, as Pasteur has shown, to make this air pass through wadding, or as I have it here, through *asbestos* or *amianthus*. Even if the air contained numberless microbes, they would all be detained by the asbestos, and the air would be freed from them. For a churn that works every day, this amianthus would certainly serve five or six times without wanting to be renewed.

Lastly, we have the bellows, or blower, of any kind. The inventor of the churn furnishes the blower with the machine, but any forge-bellows will answer.

I join the tube of the blower and the purifier. Now, to apply what I have just said, I will pour milk into the vessel and make you some butter.

I do not mean to say that I can here get all the butter out of the milk. In a meeting like this, it is not easy to comply with all the indispensable conditions: if the milk is not of the right temperature, I shall not have time enough; and, besides, one is always working more at one's own ease at home. So that, all I aim at doing here is to show you that butter is really made by the action of the air. As to the yield, we will talk of that afterwards, and I will give you the figures I have obtained.

Before churning, the milk should be raised to between 80° and 90°. Here, I may observe, that the instructions given by the inventor are not quite exact; he seems to be afraid of heating the milk, while I have no fear of it, having made butter even as high as 104°. If you begin churning at 70°, you will only get froth, particularly if the milk is viscid; and when I use the word viscid, I do not mean out of order; I mean milk that yields up its butter with difficulty.

This milk is now at 86° ; it will cool a little, and fall probably to 84° . It ought to give good butter, for it comes from M. Francis Dion, and his cows, if I am not mistaken, are Jersey-Canadian. We shall soon see what sort of butter these cows give.

(The lecturer here churned, making the bellows work.)

If a large churn were wanted, the bellows might be worked by horse or dog power; but it takes very little to work such a one as this. Only, if you buy one of these churns, see that the bellows are powerful enough, if they be not, you will have to churn for a very long time. Here, our bellows are very powerful for so small a churn, so the results are always certain. Do you see the butter is forming in the churn? Towards the end of the churning, we know that the butter has come by the transparency of the buttermilk; a change takes place easily recognised by any one who has had a little experience with this churn.

Again, observe this very curious thing. You know that in common churning the butter does not "come" by degrees, but all at once. The time it occupies in "coming" is very short. You have a change in the sound made by the churn, and you know that the butter is come. But here, when the milk is subjected to the microscope, we see that after two or three puffs of the bellows, there are already grains of butter formed. The butter comes by degrees, and the last grains of butter do not form until after the elapse of half an hour, or even more; this is the reason why one does not always succeed in making butter with this churn, if one adheres strictly to the instructions sent with it. We must not be afraid of churning too long. I must tell you that the milk I lately churned at Quebec took an hour's churning, but the churning was very remarkable, and much more thorough than with other churns. As yet, I have never tried summer-milk; I think it could be much more easily dealt with.

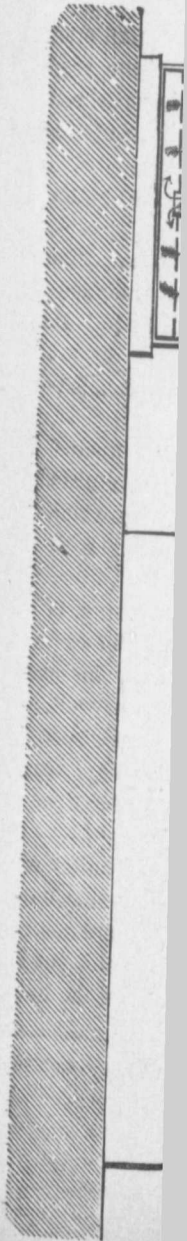
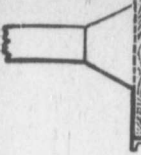
While the butter is coming, I may say that I have made experiments in churning milk that parted most reluctantly with its butter. I made experiments in which I tried to act upon the *fibrin* I mentioned just now.

For this purpose, I used tannin (tannic acid), as it is sold by druggists. People do not like using chemical re-agents in milk; they ought not be used, as a rule, but the quantity I specify is so small that I do not think its addition can be called an adulteration. In general it takes $\frac{1}{20000}$ part of tannin to produce the effect I have named; that is, one pound of tannin to 20,000 pounds of milk.

The flavour of the milk is not in the least injured by the tannin; on the contrary, it imparts a delicious aroma to it, a nutty taste, so popular in some countries.

I do not mean to say: make your butter with tannin; I am only reciting to you the experiments I have made. If some of my hearers like to try it, I think they will be astonished at the results.

Moreover, this is merely the commencement of the investigations I am determined to continue.



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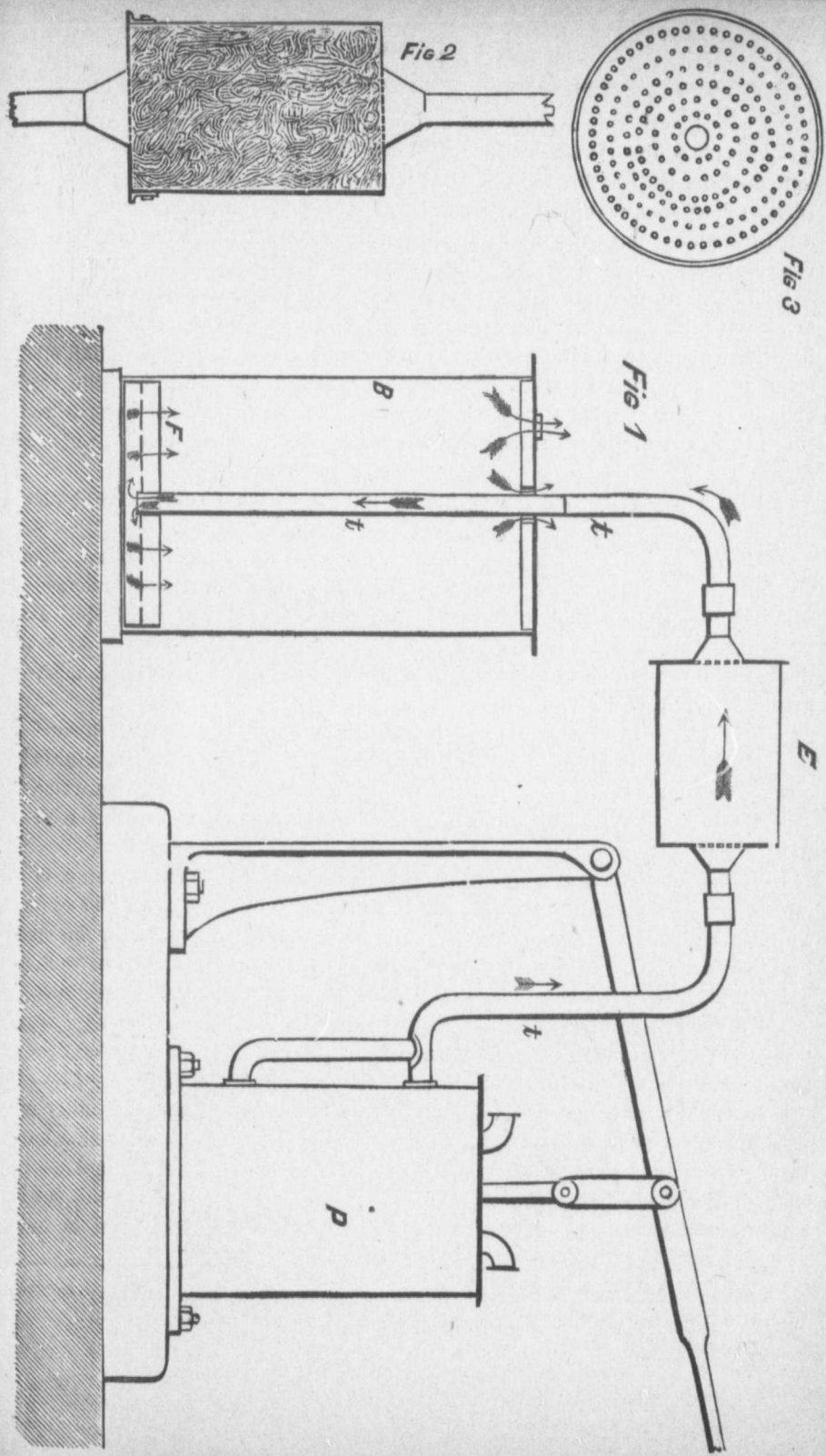
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I hoped to be able to show you a very fine grain of butter; but in the present circumstances, this is rather difficult. I am not well situated here as regards temperature. Still, at 86°, the grains of butter, which are forming, are not blended (*fondue*)¹ as one would fancy, and, besides the temperature lowers rapidly during the churning; the great quantity of air passing through the milk, keeps on cooling it.

This churn may have its inconveniences; I do not say it is destined to do away with the separator; this perhaps it will never do. The separator will always be used when a great butter factory is in question. As to using it in small creameries and in private dairies, I think, on the contrary, that this machine, sooner or later, will be adopted almost everywhere in retired villages, or in parishes too small to admit of the establishment of creameries worked by the centrifugal separators.

A Delegate.—Will the lecturer kindly tell us at what season the butter is most difficult to churn?

M. Nagant.—I have not made, myself, a special study of this point. I found churning very difficult in November. The milk I was using was intended for sale in town, and I do not know what the cows were being fed upon. Many persons are much better able to answer your question than I; but I think that the food, the condition of the cow, the lapse of time since calving, &c., have a great deal to do with the question.

Mr. Fisher.—In large churns of this sort, how much butter can be made?

M. Nagant.—In large churns, I think, 20 gallons of milk could be churned at once. You could churn cream, but it would have to be lowered with water.

Mr. Fisher.—With 20 gallons of milk, could you work the bellows with the foot?

M. Nagant.—The arm could work a 20 gallon-churn. This, I think, is the largest aerogenic churn yet made. As to knowing how large quantities of milk could be churned in these machines with a horse-power, the maker or his agent must be consulted. It seems to me that the system would work just as well, provided that the bellows were made large in proportion to the size of the churn.

Until further orders, until large churns have been made and tested, I am not prepared to recommend them for large factories. Still, for a private dairy, or for small creameries, I think this churn presents very important advantages.

It would now be *à propos* to touch upon the question of making butter with fresh milk. An experiment, lately made in Denmark, tends to show that butter from sweet cream possesses an aroma as good as, and naturally more delicate than, butter made from ripened cream. It is a very curious experiment, but I do not know that it is conclusive. I should like you to test the quality of the butter

¹ By the word "fondue", I suppose the lecturer means that the grains are not so soft as to run together and prevent the butter from being washed in the grain. (*Trans.*)

I have just made milk, I think. I

Churning with butter, but I test and I found in it

I am now with ought to be cool. water; churning perfectly, and very as in common with

If I wanted to and to put in the

A Delegate.—butter there.

M. Nagant.—churned to the last taste of silage, for is strongly flavoured

M. l'abbé Côté. we have been used made by it is certain for a year's supply to come and taste the capital town of

The only thing ment of the cheese milk or from cream milk, and afterwards fatty matter. This

With cream, and after the cream was speaking generally, I am inclined to think done better, though

The churn has amused itself by playing not, but at the week double instead of another man at the of milk we worked minutes, and got more

I have just made in your presence. The milk churned was perfectly fresh, to-day's milk, I think. I have added no tannin to it.

Churning with tannin gave me the following yield: I did not weigh the butter, but I tested the buttermilk that remained in the churn by the Babcock, and I found in it a *quarter of one per cent*, which is a magnificent result.

I am now washing my butter. The water ought not to be too cold; still it ought to be cool. You see what I am doing; I replace the buttermilk by pure water; churning for a few seconds is enough; the washing of the butter is done perfectly, and very easily. The grain of the butter is not destroyed by the washing, as in common churns, for there are none of those shocks that bruise the grain.

If I wanted to salt the butter, now would be the time to withdraw that water and to put in the pickle.

A Delegate.—If the milk is rich, you ought to have a quarter of a pound of butter there.

M. Nagant.—True, but I am not sure of getting so much, because I have not churned to the last degree, seeing the short time at my disposal. This butter must taste of silage, for the air of the room, which has been driven through the churn, is strongly flavoured with its smell.

M. l'abbé Côté.—While these gentlemen are tasting the butter, I may state that we have been using this churn from November 21st till last Saturday. The butter made by it is certainly of the finest quality. I have made some for my own use for a year's supply,—about 160 lbs,—and my friend, M. Brodeur, whom I invited to come and taste it, asked me to take some to the Convention, held at St. Liboire, the capital town of his county. I promised him he should taste it.

The only thing is, that we, not being experienced, perhaps, in the management of the cheese, have never been able to extract all the butter, whether from milk or from cream: we have churned both milk and cream. We tested the milk, and afterwards the butter-milk. The most we could do was to get $\frac{3}{4}$ of the fatty matter. Thus, out of 4 of fat we got 3 of butter.

With cream, we did not succeed so well, for the test of the butter-milk left after the cream was churned, gave us more than 8 % of fat. So that I think that, speaking generally, we did not extract more than one half of the butter. But I am inclined to think that had our bellows been more powerful, we should have done better, though the bellows seem to act well, and it was very easy to work.

The churn having been forwarded from Montreal to Upton, the Grand-Trunk amused itself by playing me a trick. They carried off the lever, whither I know not, but at the week's end it came back. In the interim, I had a lever made, a double instead of a single one, so that a man could work it on one side and another man at the other side. A child of 12 years old could churn the 250 lbs. of milk we worked at once, and think it only play. We churned from 20 to 50 minutes, and got more butter after 50 than after 20 minutes churning.

A Delegate.—Did you get all the butter that was in the milk after the 50 minutes' churning?

M. l'abbé Côté.—No. We churned from 70° to as high as 90°, as the directions told us to go from 77° up to 86°. We have gone over it a little, but we did not dare to exceed it more, because we thought that those who had sent out this direction had tested the churning system more accurately than we.

But, as Mr. Nagant said, this is not a possible churn for a great factory. On the other hand, for one who wishes to have extra superior butter for his family, and who does not care for quantity, I may tell him: buy one of these churns. On the contrary, I do not hesitate to tell the man who wishes to get out of the milk the whole of its butter contents: this does not give satisfaction. There are epicures who, as long as the quality is all right, do not care about the quantity; to these epicures I should say: buy an aerogenic churn, and you will have the very best butter.¹

As for the keeping quality of this butter, I am told that it will not keep; this I know nothing about; I have no proof either way. At any rate, I have salted enough for our own use up to next fall; till we make butter again; that will probably be next fall. If it keeps, I will let you know, and so I will if it does not keep: you shall hear the truth.

M. Nagant.—I attach great importance to the information furnished by M. Côté; but I must make one serious remark; this invention is quite new, and the deficient yield is very probably due to want of experience on the part of the operator, or to other accidental causes.

I think M. Côté might have got a better yield with a little more practice, or by changing the conditions (*of the milk? Trans.*), or, as he properly suggested by having a more powerful bellows.

There is something I learnt from my experiments at Quebec: "If the butter is churned for 15 to 20 minutes, there remains over 1% of butter in the butter-milk; if the work is continued for 15 or 20 minutes more, there remains only from $\frac{60}{1000}$ to $\frac{80}{1000}$ of one%, that is a little less than 1%. If we again churn for 15 minutes more = $\frac{3}{4}$ of an hour altogether, I then get at a minimum loss of $\frac{1}{4}$ or $\frac{1}{3}$ of one per cent. These are the results I arrived at, and very satisfactory they are, showing that the yield is at least as great as, if not greater than, the yield from other methods.

¹ *Gourmet*, when I was in Europe, used to mean "a good judge of wine."—A. R. J. F.

Mr. Ayer.—I
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REMARKS BY MR. A. A. AYER.

AND A DISCUSSION ON THE MANUFACTURE AND SALE OF BUTTER, AND ON CERTAIN MACHINES EMPLOYED IN THE DAIRY-INDUSTRY

Mr. Ayer.—I have brought these butter-tubs before you as an “object-lesson.” To-day there is no excuse for making bad butter; we have the separator, we make butter by the machine, and the manufactured article ought to be uniform.

But when once the cream is separated from the milk by the centrifugal machine, there are two difficulties to contend with: churning and packing. These are the two great obstacles to the production of a good article, especially the packing.

There are rules laid down for churning: churning should be done at a certain temperature, and under certain conditions. But the packing of butter is more difficult than people generally think, and if there is a weak point in the making of butter in Canada, it is in the packing.

I see here a butter-worker. I will not say that good butter cannot be made with this machine, but I must say that I have often seen it fail of its purpose; and if I had one in my factory, I would burn it (it was the *Fargo* butter worker the lecturer was talking about); other people may like it, but I do not.

I do not agree with working, kneading (*malaxer*) butter with a machine: the work is too delicate. Butter is met with in different states, and the treatment it is subjected to should be also varied. If it be worked by the hand, the working can be varied; but the workmen are not much inclined to multiply hand-labour.

This summer I met with several lots of butter that tasted of wood. We have had a good deal of it this year, and of butter, too, intended for exportation to England. And you know that at present, even more than in past time, we must endeavour to learn the requirements of export-butter, particularly of butter intended for the English market.

Now, almost all the butter that I have found this year with this taste of wood I have traced it to its origin, and I have almost invariably run up against this butter-worker. I give you the facts just as I have found them. I am not a finished butter-maker, but when I see that defects in the products of several creameries, one after the other, are to be attributed to the use of this machine, I must say that it is not the best.

I said that one of the greatest difficulties lay in the working and packing of butter. Do not work it too much, and when you put the butter into the tubs, fill them very full. If they are 50 pound tubs, why not put 50 pounds into them. The butter would sell and suit the export-trade all the better. Take care that the surface of the butter be level, smooth, and not covered with all sorts of figures. The surface ought, if possible, to be as level as a billiard-table.

There is another taste I want to mention. In this part of the country you do not suffer from it, but in other parts, in the lower St. Lawrence, for instance,

this flavour is often met with : I mean a fishy taste. People may fancy this taste is due to the vicinity of the sea, and that it really comes from fish ; but this is a mistake, for it can be traced very far inland. As I told you : I believe that the woody flavour in butter can be traced to the use of wooden butter-workers. As to the fishy taste, I do not know exactly to what that is due. It is sometimes said that it arises from the use of salt that is employed at the same time for preserving fish. I do not know if this is so.

Now, look at these two tubs : they are no longer like each other, now ; are they ? The difference, after all, is perhaps not very great, but, if you were buying butter which would you choose ? I, for my part, would choose this one : it is clean.

Why do you not pack butter in cleaner tubs ? Why should not a tub be as clean as the plate we eat from ? This tub is dirty, isn't it ? But it is not half so dirty as the majority of tubs that reach us in Montreal. I received, in Montreal, not long ago, 200 tubs, and one lot of them which was in no better condition than that one. The man from whom I bought that lot told me that it was all right, that the butter was not the worse for it. He might have been right ; perhaps the dirty state of the tubs did not injure the butter ; but it certainly did injure the sale of the butter. When a buyer comes to our store, and goes over our lots, he never fails to say when he seen dirty tubs : " Let's leave that lot ; show us another." At the first glance, he conceives a prejudice against butter in dirty tubs.

For the local market, dirty tubs may be accepted in Montreal. M. Langlois can tell us something about it ; but they will not accept them in England.

Do not let your tubs be muddy. People will say, perhaps : " It does not matter ; the pickle will go through the wood and blacken it." In fact, this used to happen formerly. But I will teach you how to avoid this accident.

Australian and New-Zealand butter is sent to England in square boxes, made apparently of spruce ; they are clean and white. Economy in the freight is the reason for employing such shaped boxes. How is the pickle prevented from penetrating the wood ? We can do the same thing : they put parchment paper along the sides, and this preserves them. And this parchment paper has the additional advantage of not sticking to the butter : the butter does not touch the wood, and the tub is kept clean.

I hope to see, in future, all the Canadian butter packed in handsome, clean tubs : this would greatly help its sales on the English market.

What difference, in price, is there between a clean and a dirty tub ? In England, the same man would give half a cent a pound more for the butter in the clean tub. Is it not worth while to look after this ?

As to the size of the tubs, here are the three sizes commonly used in Canada. The largest (70 lbs.) is the one suited to the English market. Butter packed in the other two sizes would fetch a cent or half a cent a pound less. And, as you know, there is not the slightest use in arguing with an Englishman : he has his

ideas and he sticks to Montreal, but not

These tubs are to almost all the tubs shallow. Why are they so weak round the top ? The consequence is often broken.

There is an iron ought to have a joint to keep it fixed. It would not move.

Itself thicker. It is not fit the top of the tub exactly fit the upper

These are but tubs but attention to such Keep clean tubs no trouble in getting

Mr. Wilson.—Could with the Fargo but

Mr. Ayer.—It is not Mr. Wilson.—Yes Everybody knows insists in doing their has the time, should

Mr. Ayer.—I see where they use the machine ; but the should be in any form

Mr. Wilson.—I price.

Mr. Hayes.—I see working the butter not working the butter

Mr. Ayer.—True

Mr. Hayes.—I notice and by what you see

Mr. Ayer.—Whether made with this machine

ideas and he sticks to them. The smaller sized tubs (30 to 50 lbs.) may do for Montreal, but not for the English market.

These tubs are very good ones. Still, they have one defect which is common to almost all the tubs made in Canada: the hoops or flanges of the covers are too shallow. Why are the hoops so strong at the bottom of the tub, and so narrow, so weak round the cover, that you can pick them to pieces with your nail? The consequence is that during the removals from place to place the covers are often broken.

There is an improvement that ought to be adopted: the flange of the cover ought to have a jutting-out piece on each side which should fit into a notch, so as to keep it fixed. In this way, the hoop would be pressed on both sides, and would not move. The hoop of the cover, too, should be wider, and the cover itself thicker. It might be made double.

Another trouble with the tubs is that the covers are often too large and do not fit the top of the tub exactly. It is most important that the cover should exactly fit the upper extremity of the tub.

These are but trifles, you will say: this is what we call "style," in English; but attention to such trifles greatly helps the sale of merchandise.

Keep clean tubs, strong ones, put good butter into them, and there will be no trouble in getting a good price for it.

Mr. Wilson.—Can you mention by name any makers who have made bad butter with the Fargo butter maker

Mr. Ayer.—It would not be fair to publish the name of these makers.

Mr. Wilson.—You say that bad butter has been made with these machines. Everybody knows that the machines do good work; and their great utility consists in doing their work quickly. But there is no reason why the maker, if he has the time, should not work his butter by hand.

Mr. Ayer.—I said that I have seen bad butter that came from creameries where they use these workers; the badness of the goods might not be due to the machine; but the coincidence was striking. Besides, I do not see why there should be in any factory a machine that can be done without.

Mr. Wilson.—I have made butter with this machine that fetches the very best price.

Mr. Hayes.—I should like to know, from Mr. Ayer, if we do not often neglect working the butter enough? In my opinion, I should say that there is danger in not working the butter sufficiently.

Mr. Ayer.—True enough.

Mr. Hayes.—I never used the Fargo-worker myself, but I have seen it used; and by what you said about it just now, I had the impression that it was impossible, or at least very difficult, to make good butter if it were used.

Mr. Ayer.—What I said was: the finest butter in the world might perhaps be made with this machine, only, to my knowledge, the results were not favourable.

Mr. Hayes.—At Burlington, where I studied, Prof. Gurder used to tell his students most distinctly that the only way to work butter with exactitude was to work "by time", that is, by keeping an exact reckoning of the time employed. In well managed creameries, the working of the butter should be under thorough control; consequently, butter, all things being equal, should receive the same amount of work every time. I must say I never saw any machine with which the working of the butter could be so effectually controled, and so expeditiously performed, as the "Fargo worker".

The woody taste that you attribute to the use of the worker may not have been the fault of the machine itself, but may have been due to its not having been properly washed; to its not having been well prepared to receive the butter.

Mr. Ayer.—That may be.

Mr. Hayes.—I cannot see why the Fargo-worker should give the taste to the butter, if the other part of its manufacture had been properly managed.

Mr. Ayer.—I think it is only fair to add, in connection with what these gentlemen have just been saying, that, certain premises being granted, the churning was done at the right temperature, the cream in good order, in a word, all the conditions being perfect, this machine would do the work as well as any one. And it is on this system that all our creameries should be carried on. Every maker should do just what I have indicated; and I know of factories that are, in their management, very nearly equal to the model I have set before you. But, unfortunately, the majority of Canadian factories have not arrived at this perfection. Look, for instance, at the buildings, there are hardly ten of them, in this province, that are perfect. We are yet poor, and we have to be satisfied with the buildings we have. They do not keep the churn, the cream, etc., in their factories in the best state. We must therefore beware of putting into their hands instruments that, if good results are to be expected from them, must be in perfect order.

Mr. Hayes.—Ought it not to be easy enough for any one to get cream to the right temperature?

Mr. Ayer.—You had better ask this question of an expert. I did not find fault with the worker from the technical point of view, I only gave you facts that had become known to me in practice. I favoured one thing no more than another; but I must give my advice to makers and farmers without varnish or disguise: I must either speak openly, or not at all.

Mr. Wilson.—There is one quality the Fargo-worker entirely possesses: the butter, when in the granular state, can be better worked by it than by any other machine.

Mr. Hayes.—Once more, I see no reason why the Fargo-worker should spoil butter. The impression you gave us, Mr. Ayer, was, that if we had one in our factory, we ought to burn it. I should really be glad to know if this machine is or is not a good one, if it is good, I mean to get one; if not, I will have nothing to do with it.

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Mr. Ness.—The debate seems to be clear enough ; Mr. Ayer relates things as he has found them ; it is for you to decide.

Mr. Wilson.—The reason why I asked for names, is because in certain factories, no good butter can ever be made, never mind what utensils are employed. Besides, it is absurd to talk of butter acquiring a bad flavour from a machine in which it never remains more than 5 or 6 minutes.

Mr. Ayer.—A maker I know has two creameries ; in one he has the worker, and the butter tastes of wood ; in the other, he has not the worker, and the butter made there never tastes of wood. Mr. Wilson may, perhaps, be able to tell us the reason of this difference.

Mr. Hayes.—Do you meet continually with this flavour, or have you met with it only once ?

Mr. Ayer.—I found it in the butter made in July, in August more impressively, and as late as October.

Mr. Taché.—As to what Mr. Ayer said about the covers of the tubs, last year, we had a rather important contract to make with the tub-makers, a contract which I was compelled to break during the season, because the covers of the tubs did not fit. Last spring, I made a fresh contract, and I told the tub-makers that I would do as I had done before, if the same thing recurred. During May, all went on pretty well ; but in June, the old fault began again to appear. Then I went to the factory, and passed a whole day with the proprietor. During the day, we tried on 80 to 100 covers of all sorts. He took the measure, he continued to use it during the rest of the season, and his tub-covers gave us satisfaction. The size to be given to the covers is exactly the eighth of an inch more than the size of the circumference of the tub. If it is smaller, you force the hoop, and run the risk of its rending ; but if you allow exactly the eighth of an inch over, even if the tub swells, there is no danger of the hoop bursting. This eighth will be lessened a little by the soaking, the tub is subjected to.

I may add a point that it is important for the makers to know ; they should not finish the top of the tub quite upright ; it must be spoke-shaved towards the rim, bevelled off a little. The more it is bevelled, the better chance there is of the cover fitting if it is a little too small for the tub. By rubbing off a little of the *tournage* with sand-paper, very carefully, you give a better chance to a cover, that is a trifle too small, to fit the tub. Here, I will mention the tubs Mr. Barnard spoke about, these were sent to the dairy-school by Mr. Robertson last week. They are made thus : they are of exactly the common shape, only instead of 70 lbs., they hold 50 to 55 lbs. They are made at Ottawa, but our makers can turn them out quite as well.

As I said, they are of the common shape, but instead of having wooden hoops they have iron ones ; and, besides, they are painted like lard pails. Mr. Robertson intends to stamp them for the English market.

There is a double bottom to the tubs; a row of staves is placed in one direction, and the other row crosses it that the wood may not spring (*douelle*). Then, even if the tub should be struck, the disturbance will not affect the contents. Moreover, these tubs are coated in the inside with parafin, which was laid on at the factory, and it is highly probable that this factory pays the cost of the laying the coat of parafin on the tubs; but it would be easy enough for the makers to apply it in any other way themselves, and this would have a capital effect for the same reasons that the parchment paper has.

I have received, from Bushnell & Co., of Montreal, instructions how to lay on parafin. This parafin is nothing but what we call "*baleine à chandelle*". You all know what *chandelle à baleine* is: it is that fine parafin that is almost translucent.

You melt this in a glue-pot with a bain-marie under it. It most likely has 120° or 125° as its melting point. You have a revolving wheel worked by the foot; you start the tub into motion; you pour in a little boiling parafin, and the tub is coated with parafin. This cools at once, and your tub need not be wetted. It will weigh less than a soaked tub and will imbibe no moisture at all. Consequently, you will positively gain on the yield; you will gain more than the cost of such a tub by the additional returns.

I have such had tubs offered me lately, but I advised the makers that I would not accept them until I knew the opinion of professor Robertson about them; it would perhaps be well for the dealers to keep a corner of their store for such tubs, in case their customers should ask for them.

Mr. Ayer calls my attention to the fact that Prof. Robertson has not as yet taken upon himself to recommend this style of tub. He has been experimenting on them, and perhaps I have gone too far; they are being tried at our creamery. However, attend to the articles in the Journal of Agriculture, which will shortly contain a report of Mr. Robertson's trip.

Mr. Ayer says that, for his part, he is not prepared to recommend this tub; for he has seen butter kept in it for 4 months that was not so good as was expected. It is as well to hear both sides of the question, so as not to go too far in either direction.

As for the *Fargo-butter-worker*, these gentlemen declared that it was possible that, in the case where the worker imparted a taste of wood to the butter, it arose from the carelessness of the maker, either in the bad management of his butter or in leaving it too long in the worker.

Mr. l'abbé Côté.—There certainly are some woods that impart their flavour to all that is in contact with them, unless they are steamed, and even twice or thrice. Without that treatment, they will, as long as they exist, give a flavour of wood.

A Delegate.—Have you any personal knowledge of the *Fargo-butter-worker*? Have you any others in your factory?

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M. Taché.—No. I saw some in the States last October. At Oswego, in Southern New-York, I met a maker who aimed at making gilt-edge butter, and who was making a great outlay in advertising his butter; he had been using this worker for a month or six weeks. He told me at the time that it was an excellent machine. At St. Albans, the same thing. There, Mr. Robertson tells us the result was not so good, but we must remember this: when a novel machine is in question, we must not be in too great a hurry to pronounce our opinion on it, for it may be that we have not always had sufficient experience of the proper way of using it so as to get the best results from it.

A Delegate.—It is by no means an easy thing to work butter on a table. If this did work well, it would be very advantageous to the maker of butter.

M. Taché.—A negative result may be obtained otherwise. I should be rather in favour of the machine. I can understand that when a maker has a great deal to do, after having risen at half-past 4 o'clock or 5, to churn early, after skimming the milk, and having answered the patrons requirements, and then, about 1 afternoon, he has to turn to at the worker to work up by hand 200 or 300 lbs. of butter, I can understand, I say, that he will find himself rather slack at the job, and I do not blame him. It is an important matter, whatever be the kind of worker employed, to study this question thoroughly; and it is important for the maker who intends to buy a worker to study its working in the hands of those who know how to use it, so as not to hazard the safety of their butter by using it before they understand it.

M. Marsan.—I am asked to testify as to the use of the Fargo. Of all the machines in our creamery, it is certainly the most satisfactory. Ours is a large size one; we can work 250 lbs. of butter in 5 minutes and we have no complaints of the bad flavour of our butter from l'Assomption shop-keepers. If this machine gave a bad taste to the butter of some factories, that may have been caused by the quality of the wood in their worker being different to the quality of the wood in others; or it may depend, again, on the neglect of the man to keep the machine clean.

M. Allard.—Do you think your butter would keep as well?

M. Marsan.—I cannot positively say, but I think it would.

M. Allard.—It may be as good at first, and yet not keep for as long a time, when worked in this way.

M. Marsan.—I have not tried other workers; it is possible that the trouble found in the use of the Fargo may be met with in the other mechanical workers. With them, there is always this danger present: there is the risk of working the butter too much, which ruins its quality. But when the maker is pressed with work, he is sure to work the butter better with the machine than by hand, for the working is done more uniformly.

We have heard this machine praised as highly by the factory owners at St. Albans and in the States as by the agent for its sale. And from Mr. Lord's

testimony, who saw it working at Burlington, I recommended it. My advice was taken, we tried it, and we are perfectly satisfied with it. I have no hesitation in recommending it to any maker, especially in creameries where there are large quantities of butter to work up; for it is a great saving of labour to a man at the season when milk is most abundant.

M. Taché.—No doubt, when the maker's arms are not too tired, he can devote his mind more freely to his work.

As to the working of butter, I was in hopes that one of those who spoke on the subject of butter would draw the attention of makers to a point: the relation that exists between churning and working, as regards the final result obtained. I will cite something that struck me last year, and my authority is Mr. Fisher.

Mr. Fisher makes *fresh* butter for the Montreal market. The finest butter is that which contains the least moisture, which cuts like wax; for epicures, the best butter is that which has a waxy texture. Now, to get rid of the moisture, the butter must be well worked. I do not say *much* worked, for I believe butter can be *well* worked without being *much* worked; and that by this we arrive at perfection.

To get perfection in butter-working, the first point is, without a shadow of doubt, the washing in the churn. If butter be thoroughly washed in the churn, nothing remains in the butter but water, and of all things water is the easiest to get rid of and the least injurious. If butter spoils, that is due to the milk that remains in excess in it, and coagulates, giving it a bad taste. When butter spoils in the tub, it is because it has not been worked enough to expel all that.

Mr. Fisher told me how he succeeded in obtaining such excellent results. He stops the churn when the butter is about as large as a grain of wheat, or at the outside, as large as a pea; and he employs every possible means, the most minute means, to wash with as much water as is required to ensure that the water of the last washing shall run out quite clear.

Another thing connected with churning: to get a fine grain of butter, churning must be done as at low a temperature as possible. Mr. Nagant told you just now that cream is composed of melted globules of butter. If you melt butter in its natural condition, you warm it up to its melting point, and this point, in milk, is 90° or 95°. Now, the butter in cream is melted, and it remains so even if you cool the cream down to 30° or 40°. The effect of churning is to break this sort of envelope, which is liquid, according to the theory held at present, and which retains it in that state. Butter, left to itself, will rise at 85° or 90°, and on that account the emulsion of rounded globules, which is made in the cow's udder, cannot break up except by the operation of the churn. The effects of churning is to break the envelope of the emulsion, and as soon as that is broken, the butter will rise.

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Now, how does it rise? The proceeding has been by comparison: water was made into an emulsion with an oily liquid. This mixture has been reduced to 20° below freezing point (12° F.), without the water being altered. But as soon as the mixture was disturbed by shaking, crystals of ice were formed outside, because the temperature was too low.

But in making the experiment, it was proved that the crystals of ice were all the finer, or had by so much the more grain, in proportion to the lowness of the temperature in which the crystals were formed. Consequently, if we reason by analogy, in the case of butter, the grain of your butter will be all the finer in proportion to the lowness of temperature at which the cream was churned. And this is all the more certain because M. Nagant says he proved it under the microscope. He says the butter had the appearance of pretty globules, compressed at the sides.

And what is the consequence? If, instead of having a mass of cohering globules, you have grains that only touch simply by their angles, if you have a mass of angular grains, from such a mass the liquid can easily escape, which in the contrary case it cannot do. Secure then your butter in grains at a low temperature; then wash it thoroughly; the butter will wash itself almost without your touching it. Under these conditions, whatever be the kind of worker you use, the butter will not have to remain long on the working table and it will be perfectly made.

M. Saül Côté.—To let the butter drain thoroughly is important. If, when you salt it, the butter is perfectly dry, you need only work it just enough to mix the salt and the butter together. Had we not to mix the two, I see no reason for working it. The dryer the butter before working the less working it requires. That is why the churning should always be done in a very dry place.

M. Dallaire.—Why cannot what is done on a small be done on a large scale? that is, salt the butter with a very strong pickle made over-night? Could not that be done?

M. Côté.—I know some who do salt the butter in the churn, but with salt, not pickle. I think that, with large churns, it would be difficult to salt in the churn, and salting with pickle is not the custom in such establishments.

M. Dallaire.—I see that, since Mr. Barnard prepared tables on this subject, and explained the process, it has become the custom to stop churning as soon as the butter has come in grains. Cold water is used to harden the grains and to separate the butter milk. The churn is turned a little to mix up the water in every part; the butter is washed when in grains; when it has been washed in two or three waters, working very slowly, only just moving the churn, not turning it, the butter is perfectly free from milk. After two or three washings, the butter is salted with pickle, made the night before and kept in a very cool place. I found that butter treated thus was salt enough for many people's taste.

M. Côté.—As to the difficulty of getting uniformity in salting, the idea is a good one; but it is not easily carried out in practice.

M. Dallaire.—It answers well on a small scale.

LECTURE BY M. CHAPAIS.

THE POSSIBILITIES OF THE DAIRY-INDUSTRY.

Mr. President and Gentlemen,

In my position as director of the Dairymen's Association, I have followed with much interest the course of our annual convention. I only find one fault in these conventions: I could wish that they were like the meetings of a certain club of negroes at New-Orleans. A negro belonging to this club was trying to make proselytes and to recruit new members, so, among other details on the advantages offered by the club, he gave those he wished to inveigle the following one: "We have an annual meeting every quarter" (Laughter). I feel, seeing the interest the people of Ste-Thérèse take in our deliberations, that these annual meetings might easily be made to recur trimestrially without wearying anybody.

But, since we have the pleasure of meeting each other only once every year, we ought to profit all the more by it, and endeavour to study thoroughly the grand business that forms thoroughly the object of our labours.

I am about to surprise you by begging you to remount at one bound to the year 1870. That year, in a fine spring evening, the son of a farmer in that part of the province I live in was going to bed thoroughly tired out with his day's work.

It was the beginning of May: the first duty he had had to do in the morning, was to lift up from the ground three aged cows that could not get up of themselves. During the day, he and his father had been at plough—the old wheeled plough—with a team of a horse and a bullock. As the plough was hard to keep in the furrow, and as the horse and the bullock did not pull together, the lad had to hold the reins: you may guess whether he was tired or not!

In the afternoon, he had amused himself with harrowing with a harrow with wooden teeth, and some of those missing. So that, the lad, when evening came, and he was just going off to sleep, passed over in his mind all the miseries he had endured in the day. Half an hour after he had fallen into a deep sleep, he had a dream; he seemed to see one of the old cows he had raised from the ground in the morning come into his room and draw near his bed. To his great surprise, the cow addressed him. As the boy had followed the commencement of a college course, he had heard people talk of that man who had made the animals of old times talk so wisely: the good old Lafontaine.¹ So he fancied that this must be one of those animals that had assumed the form of his father's cow, and preserved the talent that Lafontaine had endowed it with.

¹ He wasn't good at all. Some of his works are filthy. A. R. J. F.

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The aged cow, in a tremulous voice,—and this is easy to understand, if she dated her life from the times I mentioned,—said to the lad: “My good friend, you have always been very kind to me. From your earliest infancy, instead of cheyving me, or setting your dog to bite my heels, you used to come and see if, in that field crowded with thistles, I had grass enough to keep me alive. If you could steal a few armfuls of hay from the horses, that have always be better fed here than we cows, you stole enough to give me a light meal. And, this morning, instead of threshing me to make me get up, you took me by the tail, giving me such a good spring that it put me on my legs at once. (Laughter.)

“Well, I will repay you for the kindness you have always shown me by giving you some news that will surprise you. This news was imparted to me by the good genius of cows. For you must know that cows are watched over by a tutelary genius, and this genius came to me and said: “Now that you are at the point of death (your death is not far off) I wish to tell you what will happen to you when you shall have passed over into the body of another cow, in accordance with the laws of me tempsychosis. In those days, instead of seeing cows that compel their owners to lift them up from the ground by their tails every spring, you will see cows that are the greatest pride of their masters. Instead of keeping for your use, you poor things, the vilest straw in the barn, and lodging you in the meanest sheds, people will study earnestly to find food good enough for your nourishment. And in gratitude for the kindness man will show you in those days, you will become for him the best source of profit he possesses.

“In those days, man will tax his ingenuity in committing to the soil the finest products for your food. The sparse blades of clover that are found casually in those bare pastures where you are compelled to pass your summers will be replaced by rich meadows of clover; for man will have conceived the idea of harvesting that seed and sowing it for your use. In those days, the meadows will be full of fine timothy-grass, which will be reserved for you, and the time will come when, by a process unknown now, but that will be discovered by the savans of that time, man will find means to preserve fodder green throughout the entire winter.”

After having thus addressed him, it seemed to the youth the cow suddenly changed her bearing and even her coat. Instead of her lean carcase, he saw a cow of finely modelled shape; her coat was shining, her skin elastic, and she had every appearance of being in perfect health. Then, he awoke from his dream. (Cheers.)

In the morning he went and found his father, and related to him this curious dream. “Can you fancy? Our old cow, that I lifted up this morning by the tail, came to me during the night and talked to me in this fashion?” and he then told his father what he had seen and heard. The next morning, when he entered the cowhouse, the poor thing lay dead!

I need not explain this little allegory to make you understand what I mean by it. The title of my address is: *The Possibilities of the Dairy-Industry*. This industry is for us the regenerative source of our agriculture, so long in trouble. No one among

you, gentlemen, doubts the truth of this. The great work we have accomplished during the last few years, the great progress made in the mode of feeding cattle and in the production of milk, suffice to show how long is the road we have traversed.

Still, it would not astonish me, in our days, if one of our improved cows were to present itself before us to show us prospects still more brilliant. Perchance, some cow, still in possession of the talent conferred upon her by the great fabulist, may come and tell us that we can do even better than we are doing to-day. But to succeed in this, we must bring to bear all our wits, so as to profit by the knowledge acquired during the last few years, and apply it to all the branches connected with the dairy-industry.

The first thing to be done to enable us to march bravely along the road of progress—and this is true not only of farmers, but of all who want to succeed in the world,—is to do everything in a well considered manner. And the system of farming of us dairymen, must always be carefully thought out.

There are in the world three kinds of ignorance, which are fatal to all who are afflicted with them, but fatal in different degrees. The first is that of knowing nothing at all. In this our age, there are, happily, very few afflicted with this kind of ignorance, and did it exist in any one it could be easily cured.

The second kind is that of not knowing thoroughly what one does know. Unhappily, there are more people afflicted with this style of ignorance than with the other; and it is more difficult to cure; for, if it be pretty easy to convince of his ignorance one who knows nothing, it is, in general, very hard to make any one confess that he is only a demi-savant.

The third kind of ignorance is that of knowing other things than those it is our business to know, and to pass our time in running after chimeras, while we neglect those things that lie within our reach.

In the farmer-class we find these three sorts of ignorance. God gives his gifts to whom he pleases; but in our social condition, we ought to devote ourselves to make these three kinds of ignorance vanish, saying to those who know nothing: Enter our society, enter our farmers' clubs, and learn.

We must deal more lightly with those who know something, but who only partially know it, because then, as when we meet any one who thinks he knows, we must beware of hurting his susceptibility. We must instil into his mind good principles without his perceiving it, and expel the bad principles that were rampant there. As for him who knows what it is no of use to him to know, we should try to make him learn things that are really useful to him. We must teach those who are following another road than that of dairying, that the road they are following does not lead so directly as ours does to the prosperity and the progress of the country.

We must always act with reason, and to reason we must think. "To act without thinking is to fire without aim," as the Spanish proverb has it. Before making any move, in any kind of cultivation, we must think it out, in order to understand if the change we intend to work is one based on experience and on principle. We must see

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that it is in conformity with safe practice, and to do so we must resort to the springs whence knowledge is drawn, and the springs I refer to are meetings like this one and like those of the farmers' clubs. Those are associations of farmers who come together to consult, and their results finish by brightening the intellect of the least gifted of men.

I said just now that to be able to reach all the possibilities that dairying offers, we must know how to utilise all the resources we possess in the different branches of cultivation which we are obliged to pursue if we wish to arrive at perfection in the dairy industry. The commencement must be the performance of our farm-work in the most perfect manner possible ; our land must be cleared of the stones that encumber it ; they must be drained to rid them of the surplus water, and be levelled that the implements may have free scope for working. The best implements are always the most improved, and the most improved are always the least dear, however much they may have cost : plough, cultivator, harrow, roller, etc., indeed all the tools used in good farming, must be of the best class. The man who has a good tool can do twice as much as the man who has a bad one.

These possibilities appear too in a more striking form, in the feeding of our stock. Instead of a ration in which there was very little hay and a great deal of straw, we now have every kind of other foods which have been tried, and which lead to results, I will not say double, but five times what they used to be.

At present, in this province, we have raised the old yields of 40 lbs. of butter a cow to 150 lbs. We must know how to utilise all kinds of stuff : cotton-cake, green-fodders, prepared fodders, which formerly were unknown, but which now, when once fermented or preserved in a silo, are well suited to the wants of the cow and make her give the greatest possible yields.

And this good food that we must have for our cows, we have only been able to get because we have taken the greatest care of our manure, of our dung. We now know positively that badly preserved manure, as it used formerly to be, is not worth one-half as much as well preserved manure. And we also know that by having a cheap shelter under which the dung is safe from storms, and by enriching it with phosphate, plaster, and lime, by feeding the cattle in the best possible manner in order to enrich the dung still more, by all this we shall succeed in producing crops more and more abundant, and in securing by these means the food best suited to our cows.

Thus, one ton of cotton-cake, costing \$27, gives us in dung yielded by the stock this same \$27 ; a marvellous thing, truly ; almost incredible, did not chemistry vouch for its truth. By taking better care of the dung and manure, and by having the best that science points out to us, we can grow crops five-fold as rich as formerly ; and this is again one of the possibilities we have whereby to increase the products of dairying.

Let us now attend to the stock that is the source of this industry : the cows. Formerly keeping cows was considered as a make-shift. In a family, one cow was

kept on in milk from the autumn to have a supply for the baby during the winter. In winter, the cows ate as little as possible ; in summer, they were allowed to wander about the pastures, when the burnt-up soil showed hardly a blade of grass ; and this is how our cattle became a mean and degenerate race that produced no good results.

One day, in a village, now a bathing place on the St. Lawrence, the boarders had passed the night without sleep ; they had been kept awake by a street-roaming pig, one of the sort that passes the year without eating. They hunted out the owner of the pig, and asked him : " Why do you keep this pig ? " his answer was : " It is always good enough to drink the dish-washings that I have to give him." They used to say, once upon a time, that a cow was always good enough to eat the little food they gave her in winter, and to give a little milk in summer.

How different are things to day ! Where there were 200 cows, averaging 40 lbs. of butter a year, there are now 600, giving each three times as much milk as they gave then.

I do not hesitate to say that, in every part of Quebec-province, with the farms we possess, we can easily double and triple the number of cows, if we only knew how to improve them by the methods I have rapidly run over.

The rearing of the milch-cow is a rather complicated affair ; and it is by means of rearing and selection that we have brought out the different varieties of cows that afford us profit. It is, in fact acknowledged now that, in two or three generations, a race of cows can be so improved by feeding that they become irrecongnisable. This is the universal experience.

Our cows, were, formerly, in general, a mixture of Ayrshires, Herefords, Short-horns, Canadians, &c. They ate a great deal and were sometimes fat, but they never paid their way. At last, it was discovered that, by the side of these cross-breeds, there was a distinct race that had developed itself side by side with them without intermixture, weighing about 500 lbs., and able to yield ample products.

We have raised the food of this to the feeding-rations of the thoroughbreds, and what is the result ? It is this : not only have the cross-breeds, Shorthorns and Ayrshires, been discarded, but even the pure-bred animals of those breeds. And we have registered in the herdbook of Canadian-cattle, kept by the Dairy-Association, reports that prove that some of these cows give as much as 14 lbs. of butter a week.

If, by wise persistent efforts, for some years, we have succeeded in getting such good results from this race, do you not agree with me in thinking that, in 10 years, foreigners will come to search after our Canadian cows as they now search after her sister of the Isle of Jersey ? For, with proper food, she is as handsome and produces quite as much. We do not want a race of butcher's beasts for the dairy. And it would be wasting time to try to get cows that would answer both purposes. When a cow, like the Canadian, has given her owner the best returns for her food for a series of years, would it be more than fair to claim for her, when old, a better fate than the butcher's pole-axe ? Let us be satisfied with making this cow yield this precious milk of hers, which is the source of the finest industry that exists in the province.

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I have just mentioned the word "milk": milk is, with respect to the dairy-industry, its raw material, and therefore deserves our special attention. What I have to say about it will not detain you long.

Science teaches us that milk is of all things the most sensitive to its environment. A crowd of once unknown germs, which cause the numerous injuries we so well know, but the source of which we were once ignorant of, microbes, bacteria, etc., have a great share in this. Nowadays, we cannot have a slight head-ache, without fancying it is the work of a microbe: the microbe of the influenza (*grippe*), of the typhoid-fever, of the cholera-morbus; and even a common cold is laid to the charge of a microbe.

What are they, these microbes? The tiniest of beings; only visible under great powers of the microscope.

The first way to get rid of them is cleanliness; and I do not mean such cleanliness as makes us *see* no dirt, but that sort that is determined that no dirt shall exist in its domains. How often have I seen patrons bringing milk to the factory in dirty cans, in which the milk stank! Still, the milk, to look at, was clean. In the morning, the can that held the butter-milk, was emptied, rinsed with cold water fresh milk was put into it, and it was supposed to be "all right."

But it was no better that what was done by the two Hebrews who had just landed at Montreal from an ocean-steamer. Having no work, they went to try to get some from the German Consul. The consul's clerk, when they entered the office said to them: "If you want to see the consul, the first thing you have to do is to change your shirts; he will not receive you in that state." The two tramps went out, and very shortly returned in exactly the same condition. "But I gave you notice," said the clerk, "that the consul would not receive you unless you changed your shirts." "Well, replied one, we have changed them; I took Samuel's and Samuel took mine." (Laughter.)

These folk evidently knew nothing about what real cleanliness means; and there are some of our folks who do not seem to know much more about it than they. If there is no dirt to be seen on their hands, or on the implement they are using, it is all right. They seem to have neither smell nor taste; in fact, they seem wanting in many senses that are the endowment of our race.

Well, gentlemen, milk is a thing that must have the greatest cleanliness observed in dealing with it: but that is not all. Sad to say, I must state that, in our province, one of the things that makes the perfection of dairying difficult of attainment, by our own fault; one of the worst things we have to deplore in the dairy-industry is—I may mention it, for we are *en famille*, and even if we should even speak of our faults, that can offend nobody—, well, it is, that we are in the habit of adulterating our milk.

There is a substance that costs but a trifle, and is very easily mixed with milk: I mean *water*. People are led to put great quantities of it into their milk.

Another thing they are inclined to despoil their milk of. Some one has said: "Milk is a thing on which many things have been written; but the best article I ever saw on milk is cream." Cream is one of the things that tempt the farmer the most severely. I, for my part, try to make my cows yield as much cream as possible; the richer in cream the milk I send to the factory is, the more satisfied am I. But there are people who when they see plenty of it, skim off some. They say: "There is no harm in it," no, it is to make butter. Evidently, this is not a respectable proceeding.

Unfortunately, in some parts of the country, dishonest patrons are so numerous, that it may be said of them what was said by the following epitaph on the tomb of a lawyer: "In memory of a lawyer and of an honest man." On seeing this epitaph, a visitor exclaimed: "What on earth did they mean by burying two men under the same epitaph?" I should not be surprised one day, if at the sight of this epitaph: "To the memory of a patron of a cheesery, and of an honest man," passers by were to fancy that two distinct persons were there interred. (Laughter.)

But I hope this will never happen. There are enough of the class I have just been speaking of who, rightfully or wrongfully, have lost their reputation, without adding another class. I trust the lawyers who are present will not feel bitter against me for this remark; for I was a lawyer myself, before I was converted and became a farmer.

Butter is one of the most delicate products of the dairy: it requires the greatest care, not only to make it good, but to keep it so. Formerly, it was unfortunately not uncommon to see butter of such a quality, that when the coffee at breakfast was too weak, it had only to be put near the butter to make it stronger. Now, things have altered; we make better butter than formerly; but even now it is not perfect, and you know that perfection in everything connected with the possibilities of dairying must be sought after.

Take the example of Denmark. Formerly Denmark produced but little butter, and that very bad; and now it commands the European market. In spite of some less favourable circumstances in which we find ourselves, we can succeed just as well as Denmark; and it is to that success that we must bend our efforts.

You heard Mr. Ayer yesterday illustrate the precautions to be taken not only as to the making of good butter, but also in packing it. He told us how fanciful the dealers are; for really these are fancies. If the tub is not as clean as it might be, even if the butter in it is very clean, they make us lose a cent. But this explains itself: it is the nature of man to be fanciful. We have the beautiful, the good, and before all we search out these abstractions by the senses, by the eyes. For it is the eye that gives the first indication of what is good, or bad.

Take then to market an article that cannot be found fault with, and the only way of having such an article of butter is to make it by the best rules, by the best processes that are taught us in our meetings.

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It is not my part, in speaking of the possibilities of dairying, as I am now doing, to enter into details. I simply show the points to which our attention should be directed, if we desire to attain the very highest degree of perfection in that business of which we are the promoters.

Up to the present time, butter has been only a summer-product in this province; it was only by chance that any was made in winter. Now, things are changing: our attention has been drawn to the fact that we are situated in the best possible circumstances for the manufacture of winter butter for exportation; and there is now a movement going on to induce the proprietors of cheeseries to convert them into creameries in the winter months. Our government has just set a generous example, by offering 5, 10, and 15 cents per 100 lbs. of milk taken to the factory during November, December and January, months in which butter is proposed to be made. Every one must be anxious to profit by this.

It may be said, this year, that here is a thing but little understood: but next year, I trust we may say that winter-butter-making is spreading rapidly and is yielding good returns.

What a difference from former days! I described to you the condition of the cow of 22 years ago, and her present condition. To-day, during winter, instead of doing nothing, boarding out, with very bad board too, as it used to be, the cow, I say, gives as much profit in winter as in summer, if her master knows his business. If the factories close in November, if there is no creamery near us; we will open small dairies for ourselves, make our cows give plenty of milk, milk producing butter worth 25 cents a pound. And the places where this is being done are very numerous.

But we want more than this; we want the making of winter butter to become one of our habits as much as the making of cheese in summer. By this, by making butter in winter, and the finest possible export-cheese in summer,—for to-day our cheese will compete on equal terms with Ontario cheese,—we shall have attained the maximum of production in the dairy industry.

I told you that to-day our cheese was about to win prizes on the neighbouring market. This happened two years ago, and Toronto was the stage on which it was given us to compete with the rest. This "French cheese," which people chose to designate by hard names, will be our glory, and the province of Quebec will benefit by it in a special manner.

To perfect ourselves up to this point of dairying, it took a great deal of study, and we, the members of the Dairy-Association, had to carry on this study. We did it conscientiously; we laboured with all our strength. We had among us valuable men, men of science, who came to our yearly meetings charged with fresh discoveries, with improved methods, that promised better results every time. And the results we have reached to day give us the finest prospects for the future.

Honour to those devoted men who have given up their time to the progress of this grand industry. I trust that those who hear me will do justice to the men who have done so much for the country. (*Applause*).

We thought that one of the best means to promote the interests of our dairy-industry was the spirit of association. This industry, as it exists at present in this province, cannot be carried on, on such a large scale, except by co-operation, that is, the combined action of all the farmers united in associations of cheeseries and creameries, where each takes his milk to be made up. These are public places, where people meet together to labour or to make others labour in common for the production of an article, the offspring of their own industry, in order to obtain from it the best results.

We formed syndicates of factories that the different factories might unite, form strong associations between themselves, with a special view of engaging inspectors to enable them to make real progress in their business.

We have in prospect another great association ; one that will bring together all the local societies : the syndicate of farmers. It is, though still in its infancy, already sanctioned by the legislature. This society will permit all farmers, whatever be the state of their means, by subscribing \$2.00 a year, to benefit by the knowledge and experience of each other, and will specially enable them to sell, on good terms, the produce they have to dispose of, without fear of foreign competition, and above all, without fear of speculations of which they are sometimes the victims through the acts of those who come to buy their goods. In the farmers' clubs, we have centres of instruction, whither all can come to imbibe knowledge, and with the aid of all these societies, by means of co-operation, we are certain to obtain finer results than we have ever dreamt of.

And now, to look a little farther, what has this dairy-industry, of which I have been speaking so much, in reserve for us. Well, here it is : we were told at first that this industry if carried out *à outrance*, as it was suggested, might overload the market. Now, we know that we only export to England 42 o/o of the cheese and 2 o/o of the butter she consumes : I think we need not be afraid of overloading her market. But there is another thing : if we are asked to push the dairy-industry to its extreme limits, it is not only because it tends to produce plenty of milk and other daily products, but because the practice of this business will compel us to throw aside routine, to give better food to our cattle, to improve all our products, and to devote such attention to farming in general, that I fear not to say that, in 20 years from the present time, the province of Quebec will be in a position to produce wheat as it used to produce it 40 years ago. For we shall have restored to the land all its fertility, all its powers. We shall then begin to rear beasts for the butcher, and to grow grain, if the markets for butter and cheese are overloaded. We shall have restored our farms to the condition they were in when they were first cleared.

These then are the prospects I see before me ; this is what I hope for ; it is this the young generation will see ; and this it will owe to the reiterated efforts of the men of this generation.

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¹ To understand that was being held in the during play-hours, had had been attending.

But, gentlemen, we must not go to sleep over this fine prospect : he who comes to a stand-still on the road of progress is, in reality, slipping backwards, and for this reason : because the man who is with him, while he himself is staying behind, continues to advance. It is a providential arrangement, that when once we have entered upon the road of progress, we cannot but pursue it.

Thus, we are obliged constantly to study new methods, and new implements, in order to keep up with the times ; and it is only by means of persistent inquiry and constant work that we can make sure of realising these fine prospects.

In conclusion, allow me to say a word to the young folk who have listened to us so attentively, and have even begun to imitate us.¹ You know that the farmer, if he wants to have good things in his garden, must, to start with, secure good seed.

He begins by making hot beds, where his plants are to start. He prepares the land, cuts up all the weeds which might feed at the expense of the young plants. He introduces artificial heat under his hot-bed, in the ground, and then waits for the Almighty to do his share.

Later on, these plants are drawn and transplanted into cold-frames, that is, into frames a little cooler than those in which they had previously been, but better suited to the plants under their then state of growth.

Lastly, when the plants have by degrees become accustomed to their final abode, they are set out in the garden, protected in every way from the attacks of insects, and before long they transform themselves into superb products.

Well, Gentlemen students, you are the seed of the nation. You are here in a hot bed, so to speak, where intelligent gardeners bestow on you all the care and culture you require to become what you ought to be. Later, you will be placed in cold-frames, called universities, special schools. And lastly, when you leave them, full of vigour, you will find yourselves in that fine garden, the Province of Quebec, where you will produce the fine fruit that is rightly expected from you, after the care that has been lavished upon you. (Cheers.)

One thing against which I must forewarn you in the position you occupy is this : formerly, and not very long ago, there existed a strong prejudice against learning ; it was thought that a man of learning must become an advocate, a notary, a professional man of some kind.

A few years ago, an educated man, who devoted himself to farming, would have passed for the least sensible man in the world. Now, this is rather different. You have perhaps no idea,—and yet you might have gained some idea of it during the last few days,—of the enormous amount of information a farmer stands in need of.

I will go further ; I will say that a farmer needs more knowledge than any one,

¹ To understand this passage in M. Chapais' address, we must remember that the convention was being held in the great hall of the College of Ste-Thérèse, and that the pupils of the college, during play-hours, had started a convention of their own, imitated from that whose sessions they had been attending.

if he is to excell in his business. Study physical science, chemistry, all the exact sciences, and not a day will pass, in your life as a farmer, in which you will not find the benefit of them.

Who are the men who, without having the strength of many others, advance the art of cultivation? They are the learned men who, like you, have passed years on the benches of the colleges, and who are now the glory and boast of the agricultural class. I reckon on you, and I place among the "possibilities of the dairy-industry," the hope that there will be many among you who will devote themselves to this grand industry the information they shall have acquired here.

M. CHAPAIS' MOTION.

CONCERNING THE DESPATCH OF CANADIAN MILCH-COWS TO THE CHICAGO EXHIBITION.

M. Chapais.—Before resuming my seat, as our convention is drawing to a close, and as we must get along as fast as we can, to avoid detaining our audience too long, I am about to read you a resolution that, if you think it opportune, I hope you will agree to.

I said a few words to you about the Canadian cow, and about the great value she is to us in this province. We have splendid herds of Ayrshires, Jerseys, Guernseys, Holsteins, Shorthorns, Devons, Herefords; we have fine breeds of imported horses. But the sole race we have essentially provincial, one that really is our own, is the Canadian cow. It is the only one that belongs to us, and is not to be found elsewhere, unless we go after it in the country of its ancestors: France.

If this cow is so valuable to us, if the government has such a high opinion of it that it has thought fit to encourage its breeding by giving prizes for the best specimens of the race and enrolling them in a herd-book, there is one thing we must do: we must make them known, and assign them a place in the Chicago Exhibition, like all the other races of cattle.

Every day we hear about the selection of herds of Ayrshires, Jerseys, Herefords, of Clydes, &c., for this show; but, to my great regret, I have never heard mooted the question of sending thither a herd of the Canadian race.

Well! The resolution I am now about to propose is a desire addressed to the Hon. Ministre of Agriculture, that he would enable the breeders of Canadian cattle to make an exhibit of them at Chicago.

I am seconded in this resolution by M. l'abbé Gérin, who, I think, has a peculiar right to play this part. M. Gérin, at the first competition of Canadian cows, carried off the first prize. I have in my herd a cow that, in a competition in our association also took first prize for the greatest quantity of butter made in one week: it was,

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in her case, nearly 14 lbs. These are facts that authorise us to ask you to pass the following resolution:

"Proposed by M. Chapais, seconded by l'abbé Gérin, that the Hon. Minister of Agriculture of the Province of Quebec, be respectfully prayed to accede to the wishes of the Convention of the Dairy-Association of the Province of Quebec, by enabling the breeders of Canadian cattle to send an exhibit of animals of that race to the Chicago Exhibition. Carried unanimously.

INSPECTION OF SYNDICATES, 1893.

M. Taché.—The makers who intend not offer themselves for examination for the diploma of inspector, will probably be requested to attend at the Dairy-school at St-Hyacinthe about the tenth or twelfth of next month. The examinations will most likely take place about the 26th. They will be more severe than in past years on all matters forming the official programme on which the candidates will have to be questioned.

We have pasted a notice in the convention showing that the Association will probably require about fifteen inspectors this spring. We have, from to-day, 5 new syndicates, in only one district of the province, and others will certainly be found elsewhere. Consequently, the association may want 15 more inspectors, whose salary will be rather higher than the salary of the makers. Besides, our makers are interested, whether engaged or not, in providing themselves with certificates that will entitle them to be appointed inspectors by the government.

For admission to the school, a request must from to-day be sent to the secretary of the school, on a form furnished by the Association. Any one who has not received this form, can get one here.

FRENCH-CHEESE AGAIN.

Last night, the Association passed, a propos of the incident at Bristol, a resolution asking the Association to communicate at once with the Hon. Minister of Agriculture, that M. Robertson, now in England, be requested to attend to this incident, and to take the necessary steps to destroy the false impression under which the proposition emanating from Bristol was indubitably drawn up.

The following is the dispatch the Hon. Minister of Agriculture sends to the Association:

Ottawa, 14, 12, 1852.

Labroquerie Taché, Ste-Thérèse, Que.

"I have telegraphed to Robertson, London, the following message: Confront the resolution proposed by the Provision merchants association of Bristol against

the cheese of the province of Quebec, a cheese even superior to other Canadian cheese, and made under the direction of inspectors."

(Cheers)

A. R. ANGERS.

REMARKS ON CONDENSED MILK.

M. Alexis Chicoine.—As M. Choquette spoke on this novelty yesterday, I have not much to say about it; only a few words in explanation of the mode of manufacturing condensed milk. It is simply preparing milk with sugar, and evaporating it *in vacuo*. About 80 o/o of the water milk contains is evaporated, and this makes an easily preserved article. I do not intend to speak at length on the subject; only to show this milk to the convention.

M. Chapais.—M. Chicoine is too modest. He is one of those who has worked here most earnestly on behalf of the dairy industry; and, now, not satisfied with having shown his superiority in butter-making, he wants to display his talents in the art of making condensed milk.

M. Chicoine himself has manufactured his apparatus, which, if imported from abroad, would have been too costly, and now he can make condensed milk. I am sure the convention will be delighted to find such a great step in advance in the province of Quebec.

M. l'abbé Gérin.—What proportion exists between condensed milk and milk in its ordinary state?

M. Chicoine.—Five pounds of milk make one pound of condensed milk.

M. Gérin.—Does it keep well?

M. Chicoine.—For an indefinite period.

LECTURE BY M. AIMÉ LORD.

PAYMENT FOR MILK ACCORDING TO ITS RICHNESS.

The l'Assomption butter-factory, which I have the honor to direct, has, for the first time, paid its patrons, this year, for milk according to its richness in fat. In addition to this, I am the proprietor of a creamery at l'Epiphanie; there, too, we paid our patrons according to the richness of the milk they delivered. I do not fear saying, that this system is by far the best of those followed up to the present time, and, if we wish to do justice to the patrons, we must necessarily adopt it everywhere. Not only has this system the advantage of doing justice to the patrons, but it also affords the means of learning the true value of our milch-cows, and supplies a precise indication of those we ought to retain, as much as regards the milk they yield, as regards their fitness for producing the herds, both male and female, of the future.

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The instrument, we used to test the value of the milk with, is the Babcock. It gave us perfect satisfaction; still, the use of this machine cannot do justice to every one:

1. Unless an average sample of the milk be taken; which is done by mixing carefully all the milk of the patron;
2. Unless acid of the proper strength be always employed.

Our method of proceeding is this: the sample of each patron's milk is taken every day and placed in a common fruit jar, holding about a pint, and marked with the number of the patron's can. As soon as the first sample is taken, even before the milk is put into the jar, I put into each jar about the $\frac{1}{20}$ of an ounce of commercial corrosive sublimate; and every day, for eight or ten days, I add to the contents of the jar a sample equal in quantity to those taken before. It is not necessary to stir or shake the jars, but it is most important to close them tightly and to keep them closed as tight as possible, as, otherwise, the air will dessicate the fat, and prevent its dissolving, which would be highly injurious to the final investigation of the quality of the milk. At the end of the eighth or tenth day, when about to make the final test, we must begin by decanting carefully the milk of each of the jars three or four times into another—backwards and forwards. Care must be taken not to jog the jars, and to do this decanting carefully, so as to prevent as much as possible bubbles of air from getting into the final sample about to be taken. This sample is to be taken with the pipette, always being careful to take every time a uniform quantity of milk in the pipette. As M. Choquette observed in this meeting, the quantity of the sample taken must be exact, and it must never vary even by a drop, more or less. Whatever be the size of the Babcock, and the number of vials it contains, the final test must be made on the same day for all the patrons. If not, the milk of some will be staler than the milk of others, and this difference in the age of the samples would change their comparative value.

Having proved, by weighing, the quantity of milk furnished by the patron, and found, by the Babcock, the percentage of fat in the milk, we credit each patron with the quantity of fat he has delivered. We then divide the money among them in accordance with the quantity of fat furnished, without troubling ourselves any more about the quantity of milk weighed. This is what our practice has been this year in two different creameries. I am not aware that the patrons of the l'Assomption creamery have been dissatisfied with this novel system. At l'Epiphanie, one solitary patron withdrew even before the first payment, and took his milk to a cheese-factory, where they receive milk, such as it is, without regard to its richness.

This is all I think I need say about the working of this new system in creameries, which, I repeat, gives perfect satisfaction.

As to the payment for milk by the Babcock test in cheese-factories, this is the opinion of the professors at the dairy-school at Burlington, in which Mr. Hayes, M. Gareau and I went through the entire course of instruction last year: Professor Hills, among others, declared that, after thousands of experiments made by him in

cheese-making, the proportion of fat is so important, and so completely governs the intrinsic value of the casein, that the few variations existing in this latter matter have hardly any importance appreciable in money. He is, therefore, persuaded that the patrons of a cheesery are treated with perfect fairness if they are paid for their milk according to its richness in fat. I would also draw your attention, Gentlemen, to the fact that M. J. E. D. Gareau, a cheese-maker, has this year, paid his patrons according to the richness of their milk in butter only, and he thinks the system works well, and does justice to the patrons of cheese-factories.

DISCUSSION ON M. LORD'S LECTURE.

A Delegate.—I wish to ask M. Lord what principle he followed in paying his patrons. Was it according to the richness of their milk as shown by the Babcock?

M. Lord.—My method is this: We have a bottle on which is the number of each of the patrons' cans; and, as I said, we place $\frac{1}{20}$ oz. corrosive sublimate in it to preserve the milk. With this addition of corrosive sublimate, milk can be kept for at least a fortnight without souring. Otherwise, if it sours or curdles, a perfect sample cannot be taken, for it would be impossible to perfectly mix the cream and the milk together. After having taken these samples daily for eight or ten days, I make the Babcock test.

A Delegate.—I meant to ask: how do you mix the milk when you take the sample for the vial?

M. Lord.—We mix the milk and cream thoroughly, and stir them up several times, until we are sure the mixture is complete. We have a small vessel which holds a gill, a half-gill (*sic.*), and we always take the same quantity of milk for our sample.

There are, at present other methods that are practised in some parts of the States. When you open the tap that lets the milk into the vat, you adjust a sort of siphon that rests on the bottom of the trough; under the siphon you put another small vessel, so that when the milk begins to run through the trough, it falls all through the time it is running into the small vessel. This is said to be as good a way as stirring the milk, and is decidedly a shorter way, as there is no need of mixing the milk before taking a sample, since the milk is taken from the bottom.

A Delegate.—Are the ingredients you employ expensive?

M. Lord.—They cost me a dollar a pound.

A Delegate.—Does each sample take much?

M. Lord.—For one factory, I only used $1\frac{1}{2}$ pounds for a whole season's work. I made the test once a week. We put corrosive sublimate to the milk; that keeps it ten days.

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M. Taché.—Do you take a sample every day of the milk of each of your patrons ?

M. Lord.—Almost every day. It sometimes happens that, through press of work, a few may be neglected, but, as a rule, we take the samples, as much as possible, every day.

M. Gérin.—Do you find that the milk of the same patron varies much ?

M. Lord.—In August, between the patron whose milk showed the highest percentage and the patron with the lowest, there was more than one-third, *i. e.* the lowest was 2.80 to 2.90, while the highest was 5.20 (80 o/o ?). There was only one patron whose milk was so low as the figures I have quoted ; it was an exception. The other milks did not go below 3.

M. Gérin.—But I mean the milk of one and the same patron. You weigh the patrons' milk every day, do you find much difference from one week to another ?

M. Lord.—No, there is no great difference ; at least, unless there is some adulteration, or some negligence in taking the samples or in applying the test. But, practically speaking, that is, when the rules are well observed, and the work well done, there is no great difference.

M. Chapais.—But how if you compare a June sample with a September one ?

M. Lord.—Ah ! there would then be a considerable difference.

M. Chapais.—Then, there is a difference that keeps on increasing by degrees according to the season.

M. Lord.—Decidedly. The average of July was only, at our creamery, 3.59, and in September, 3.75. One thing is certain, that the October average was much more than 4 lbs. of fat.

M. Côté.—What difference in the payment is there between the richest and the poorest milk ?

M. Lord.—In September, we paid from 70 cents to \$1.05, the 100 lbs. of milk.

A Delegate.—What astonishes me is that, with this method, of paying people that you speak of, that is, giving one 70 cents for his 100 lbs of milk, and another \$1.05, you can keep your patrons and give them satisfaction. In general, the patrons of cheeseries assert that one man's milk is as good as another's. I do not dispute the difference that exists between herds of cows, but each patron says he has as good cattle as his neighbours. I think, if I may so express myself, that we are too young in the dairy industry, here, to adopt the plan of paying for milk according to its richness. Still, I should be one of the first to adopt the plan, were I assured that it gives satisfaction to the patrons of creameries and cheeseries. I should like to know the result of your operations this year ; that is, were your patrons satisfied ?

M. Lord.—The only thing I have to say is, that only one patron left me, when I began to pay for milk according to its richness ; and he left without waiting for the results. He probably knew beforehand what the result would be, and he took fright in consequence. I cannot say this positively, but it might have been the case. As for the other patrons, they almost all abstained from making complaints. I have

had people come after me, and say : " It seems to me that you found as much fat in our milk as during last month ; you have sold the butter a cent a pound higher, but we have not had more." I looked at the books, and replied : " That is because your milk is poorer than the average." They saw I was right, and said no more about it.

M. Taché.—Do I understand that, apart from the sample you take every day from the milk, you also take a sample from the milk in the vat.

M. Lord.—Yes, I have done so ; not regularly, though, because, to take a sample correctly from the vat, one must take one every ten or fifteen minutes, because this vat holds but little milk. In a cheesery, it could be done, but it is not the same thing in a creamery ; it would be difficult, almost impossible, to get a fair general sample.

M. Taché.—Could not you, at the same time you are taking a sample of the milk of one patron to put into his bottle, take another and pour it into a larger vessel, so as to make up, with the milk-samples of all your patrons, an *average* sample.

M. Lord.—I have never tried that plan, but it seems practicable to me.

M. Taché.—During the summer, our creamery inspector made use of the lactometer, but when he had to take a sample for the Babcock, after having made the lactometer test, he poured the contents of that instrument into a jar, and thus had the average sample of the milk of the patrons. And so, in the Babcock, you would have every day an average of the richness by dividing the results obtained with the Babcock by the number of the patrons.

M. Lord.—That is by far the most practical means to get at it in creameries.

A Delegate.—Have you found that you have the same yield of butter, when it is once made, as the Babcock showed when you made the test ?

M. Lord.—No ; the yield is not the same, if I understand your question aright. When the Babcock shows 4 o/0, that represents the fat present in the milk ; while the butter, by itself, common, well made butter, contains from 10 o/0 to 12 o/0, and even 15 o/0 of matters not fat, such as water, salt, &c. ; 4 o/0 of fat is equal to nearly $4\frac{1}{2}$ o/0 of butter.

M. Chapais.—Do we not allow a difference, on an average, of 10 o/0 between the Babcock test of fat present in the butter.

M. Lord.—It is about that.

M. Gérin.—I congratulate M. Lord on the system he has just established in this province. The results he has obtained lead us to hope that this process, after having been adopted in the creameries, will, when brought to perfection, be finally introduced into the cheeseries.

Far from creating discontent among the patrons, its use is desired by a great many of them. One of my parishioners, knowing that I was coming to this convention, said to me : " Monsieur le Curé, try to arrange that we shall be paid for our milk, as we are for our grain, according to its real value, and not according to its quantity, its measure." To this, I made the same objection as the one made just now. His reply, full of good sense, was : " Should I quarrel with my chapman

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because he shows me that my grain weighs less than my neighbour's? All I have to do is to get better seed, or farm better, and there will be an end to it."

In fact, as soon as one finds that the milk is not rich enough, either the cows must be changed, or they must be better fed, according to the cause whence the defect arises.

Besides, Gentlemen, any method, even if severe, which tends to cause fairness to be observed in dealings that concern a whole public, always ends by being well received, in spite of the clamour of private interested persons.

When this process once gets into general use, it will aid in displaying in a greater degree the superiority of the Canadian cow as a milker. And another immense advantage: it will put a stop at once to the trouble of which both patrons and makers complain; people will no longer be at the pains to cart water to the factory as soon as they find that they get no pay for it.

M. Lord.—In reply to *M. Gérin's* observations, I am thoroughly convinced that this process will be a means of getting rich milk, good milk. But I should like to say that the same rich milk is not given by all Canadian cows; there will certainly be variations; even if all of us kept these cows, there would be variations in the quality of their milk.

M. Gérin.—But, is not the Canadian cow's milk richer than the milk of foreign breeds, in general, always excepting the Jerseys?

M. Lord.—Oh! of course it is.

M. Taché.—Last year, the average you got at the l'Assomption creamery was 4.20; your report said so. What difference did you find in the yield of that year, as compared with preceding years? Have you found any increase in the yield of the milk since you began to pay for it in proportion to its richness?

M. Marsan.—This is the first year we have paid for milk according to its richness.

M. Taché.—Have you not compared the yield month by month?

M. Lord.—I have only made the comparison for the month of June; there is an increase of richness. The yield is certainly superior to the yield of previous years. It took fewer pounds of milk to make a pound of butter, and we attributed this to the attention the patrons paid to the care of their milk.

TAKING SAMPLES.

I take this opportunity of drawing the attention of the makers to this plan of paying for milk according to its richness. The principle of the thing is decidedly good, and we must try to bring it into practical use as soon as possible. It is only treating the patrons with fairness, this paying them for their milk in proportion to its richness. But great care in the taking of samples by the makers is absolutely necessary. Much attention is required to see that the milk is well stirred, the cream and milk thoroughly amalgamated. For, I have known it happen, that when a

sample of warm and another sample of cold milk, both of equal richness, have been taken, the cream of the cold milk rising to the surface, the same degree has not been marked by the Babcock. For, if we take, from the surface, a sample of the milk of a patron whose cream has risen, we have then milk that is richer than the milk that is at the bottom of the can. And if we take it from the bottom, instead of from the surface, the sample will be too poor, and justice will not be done to the patrons. The samples, then, must be taken as near to an average as possible, and this is a most important precaution to be observed. The principle is clearly a good one, but it may, by want of care, be made ineffective.

Again, there is another difficulty; this difficulty concerns the maker, not the patron: the labour and time required in making out the dividends. The calculations are lengthy, very minute, and offer many chances of making mistakes. These dividends should be made out by an earnest man, one able to devote to this work all the attention it demands. Difficulties often arise that one cannot clear up to one's own satisfaction. Still, we shall succeed in this, for if there are no tables published here on this subject, there will be some soon; they have them in the States, though we have not any yet. I hope these tables will soon be sent out, and then we shall be able to make our calculations more rapidly.

M. Côté.—Would M. Lord please explain his way of preparing the dividend-sheet? Many makers say to us, when we propose this process to them: "How can we do this? We have already too much work, and this would take several hours extra a week."

M. Lord.—When the maker has already too much to do, he should not undertake this; for it requires care; and any one who cannot devote all his attention and all his mind to it, had better leave it alone.

M. Côté.—How long would it take a man who gave his mind to it?

M. Lord.—It might take a man who gave his mind to it nearly a day in every week. He who has already six day's work a week, could not undertake this extra work. If skimming takes five hours, with the time the taking of the samples occupies, another man must be employed to take them; and, then, the testing of the milk takes about half a day, and even more. For 66, 70, or even 100 patrons, I calculate that the taking of samples occupies a whole day at least; that is, all this takes a day's work out of each week. Then the making out of the dividend remains, which, by the process, is increased to nearly double the work it used to take.

A Delegate.—In what months did you pay for milk according to its richness?

M. Lord.—In July, August, and September.

A Delegate.—Did you find any difference in the sales? Thus, supposing you received from a patron, at first, milk of 2.50 or 2.90 richness, had this milk increased in richness by the end of the season?

M. Lord.—Yes; from the beginning to the end of the season, the milk increased in richness by about one-fourth.

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A Delegate.—But what I mean is : will the farmer improve his herd ; if he has an inferior, debile cow, will he get rid of it, or improve it so as to make it as productive as the rest ? Will he improve by the end of the season ? For this, I think, is the practical point, that every one should reach the same level, and that the average be not much below the highest, not much above the lowest, but all should be as equal as possible.

M. Lord.—The milk of one of my patrons, the one who delivered at first the poorest milk, certainly improved towards the fall, but not in proportion to the average improvement. A cow that gives poor milk certainly does improve in richness in autumn, but not so much as a cow that gives rich milk.

M. Dallaire.—Dr Couture says that each cow always gives milk of the same quality, feed her as you please ; this opinion of his will be likely to discourage some people.

M. Taché.—Dr Couture did not say that the best food did not modify the quantity ; he said that the relative richness of the milk was not increased. There is always a gain in good feeding, because it will make more pounds of milk. The richness will not increase, but the quantity will. I am speaking of a cow under good, ordinary conditions, in good health and well fed ; even if you try to force her, you would not increase the richness of her milk.

M. Castel.—But if the lowness of the percentage is due to an incidental cause, such as illness, it may be remedied ; it is the richness or the percentage of the milk of a cow in good health that cannot be increased ; and if a cow, in this condition, be above a good average, the Babcock will have done a good work for the farmers by letting them know it, and by aiding them in the selection of their cows as regards their future stock. For, by weeding out systematically all their cows that are inferior in richness of milk, and only keeping the good ones, the best, the farmers will quickly and easily succeed in doing for their herds that which the inhabitants of the Channel Islands have done for the Jersey. Thus, in 10, 15, or 20 years, the little Canadian cow may be made the best cow in the world as regards the richness of her milk.

M. F. X. Trudel.—Will M. Nagant tell us if he has succeeded in making butter with frozen milk ?

M. Nagant.—Up to the present time, the winter has been exceptionally mild, and I have not been able to freeze my milk as far as I should have liked ; therefore, the making of butter with frozen milk for this winter appears to me to be rather doubtful. All I have done is this : I have made two experiments in churning frozen milk ; the frozen milk gave up its butter with incredible ease. In five minutes, I got the whole yield, when with ordinary milk it took 30 to 45 minutes. I will not enter into too lengthy explanations, but I may say that the butter thus made did not at all differ from butter made after all the other methods. It has all the aroma of sweet cream, of course, for it was made from sweet cream. I had, however, milk kept for a week, which had frozen, thawed, and frozen again, the yield was rather larger, but

the butter was no better. It had a little more flavour, but the aroma had not increased; on the contrary, it had rather diminished; that is to say, the good sample, the only one I had from frozen milk, was very delicate, and was made with immense rapidity; as to its keeping, I cannot say, for it has been only made a few days.

M. Trudel.—Is the yield as great?

M. Nagant.—Not a doubt about it.

M. Trudel.—As to the quality?

M. Nagant.—The quality seems to me to be quite as good.

REMARKS BY MR. J. A. HAYES.

When I came to Ste-Thérèse, I did not intend to make a speech, I came to listen. I have listened very attentively; not being very well acquainted with French, I was obliged to pay great attention in order to catch the meaning of everything said. One thing gave me great pleasure, to see the interest the people present, the French-Canadians, take here in the questions that are being discussed.

I am asked to speak on the subject of paying for milk according to its richness. Last winter, I went through the course at the Burlington school, and there I learned how to make use of the Babcock process, and how to pay for milk in proportion to its richness.

From the previous experience I had had in butter-making, I was convinced of the necessity of paying for milk according to its richness; taking into consideration the great variation there is in the richness of different milks, and considering, too, that the farmers who deliver poor milk are paid in the same proportion as those who deliver rich milk. This seemed to me to be unfair; it gave a premium to poor milk. Thanks to Mr. Fisher, I have here a few figures, published in the *Herald*, that I can send over to you.

In the first place, I may say that process of testing the milk I have pursued is thorough. We have a jar for each patron; and every day, a sample of each patron's milk is put into it; at the end of each week, the sample is stirred, the test made, and the percentage of fat found is registered: on this percentage the payment is founded.

Great care must be exercised in taking the samples, for upon it depends the exactitude of the test. The sample must represent fairly the average of the milk.

The test is made weekly under the inspection of a committee appointed for the purpose. This committee, at our factory, consists of four persons, who make the test with me.

At the end of the week, each patron is credited with what he has delivered. The product of the sales is divided between the patrons, after deducting the cost of making, and this amount is divided among the patrons according to the quantity of fatty matter each has delivered.

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The variation between the patrons of my factory does not seem to be very great ; still, it was great enough to render the adoption of the new process advisable.

I opened my factory on the 12th April, and up to the 1st June, I followed the old plan. In the interval, I made some tests to show the patrons what there was in it, and to induce them to adopt the plan I proposed to them.

From the 1st to the 30th June, I found that the lowest test gave 3.5, and the highest, 4.2 ; which would make a difference of a little less than one per cent.

From July 1st to July 12th, the difference was about the same ; nearly one per cent.

In October, the variation was greater : the lowest 3.9, and the highest 5.6.

I may state that the process in our factory, gave, as far as I could see, perfect satisfaction. I never yet received any kind of complaint.¹

QUESTIONS PROPOUNDED TO M. FISHER.

M. Clement.—I observed yesterday, Mr. Fisher, that you said in your address that M. Hayes had paid an average of 81 cents per 100 lbs. of milk to his patrons. I should like to know what percentage Mr. Hayes asks from his patrons for making the butter ; for the average price seems rather high to me, considering the price butter fetched in the season of 1892,

Mr. Fisher.—He charged $2\frac{1}{2}$ cents a pound for making the butter ; but Mr. Hayes told me that price did not pay him ; he must certainly charge 3 cents. Generally, with us, the other makers, those who make cheese, charge $1\frac{1}{2}$ cents, that is $12\frac{1}{2}$ ¢ or \$1.25 per 100 lbs. for making the cheese. And, as I said before, I have found no cheesery in the counties of Brome and Shefford which paid the patrons so much as Mr. Hayes paid. The highest I found paid the patrons 79 cents.

M. Clement.—Is $2\frac{1}{2}$ cents generally the established price for making, or is it a special price that Mr. Hayes has adopted ? For I should like to call the attention of the meeting to the fact that, in our district to the North of the St. Lawrence, we generally charge 20 ¢ for making butter, or 4 cents a pound, and for cheese $1\frac{1}{2}$ cents, or 15 ¢. But, on the other hand, we have but small factories compared with those you have in your county. I invoke the attention of the meeting to this, because, in connection with your address, some people told me that we were charging a little higher ; but these people were not here when you said that your factories received a vast quantity of milk in comparison with what the factories of our county received. It is this that made me ask you to give us an explanation about the great quantity of milk delivered in your factories when compared with ours.

Mr. Fisher.—I am happy to get a chance to make this comparison. With us there is more competition ; there are many makers, and they compete with one

¹ At a meeting, on the 31st March, 1893, the patrons of Mr. Hayes' factory unanimously agreed to receive payment for their milk during the season of 1893 according to its richness. E. C.

another, and, hence, they sometimes, perhaps, make cheese too cheaply. I have found it so in several factories.

In my county, there are only two or three creameries ; Mr. Hayes' and two or three others, and I believe they all charge $2\frac{1}{2}$ cents. They all say the charge is too low ; that they cannot do it at the price, and that we ought to pay 3 cents. Such is the state of affairs in the Eastern-Townships. As for the state of things with you. I can say nothing.

M. Taché.—What is the total quantity of milk you receive ?

Mr. Fisher.—1,646,000 lbs. This would represent 10,000 lbs of milk a day for 7 months, up to the 1st November.

M. Taché.—There is no doubt that in such factories, butter can be more easily made for 3 cents, than in ours for 4 cents.

A Delegate.—But are the freight-charges paid by the patrons ? Does Mr. Hayes charge $2\frac{1}{2}$ cents and pay for the tubs and the freight.

Mr. Fisher.—No, sir ; Mr. Hayes only pays for the salt and the tubs. The patrons pay the freight and the commission on sales, and all that kind of thing, even the stationery and the division of sales. The salary I mentioned is only paid for the making and the tubs ; the $2\frac{1}{2}$ cents only includes those two items. As to the division of sales, that probably costs \$25.00 for the whole season.

A Delegate.—Do the patrons pay \$25.00 for all the divisions.

Mr. Fisher.—They pay the expenses ; and Mr. Hayes told me that these would amount to about \$25.00, that is for the making out the dividend-list. I was also told by him that the whole of the other expenditure incurred by the patrons throughout the season, might amount to about \$100.00 ; but this is for butter delivered at the nearest station, not for its freight to Montreal, which is not paid by the patrons. The Eastern-Townships butter is always sold "delivered at the station."

I should like you to notice the difference existing between the milks of different patrons. In June, the difference between the highest and the lowest test was 4.2 for the highest and 3.5 for the lowest ; it was this for the first half of June. In the second half of that month, it was 4.35 and 3.6. First half of July 4.35 and 3.55 ; second half of July, 4.4 and 3.5. In August, first half, 4.5 and 3.6 ; second half, 4.5 and 3.6. September, 4.6 and 3.74. October, 5.6 and 3.9.

The averages were : June, 3.95 ; July, 3.96 ; August, 3.97 ; September, 4.10 ; October, 4.41 ; and for the whole season 4.00. During the whole season, Mr. Hayes found it took 22.30 lbs. of milk to make a pound of butter. In the previous season, when he had not adopted the new process of payment, it took 23.50 lbs. of milk for a pound of butter ; that is, the introduction of the new process of payment saved 1.20 lbs. of milk : it took that much less milk to the pound ; in other words, the milk was richer than it was before. By making a small calculation, we find that Mr. Hayes, using the same quantity of milk, made 3,000 lbs. more butter. Or, again, that he earned for himself, at 3 cts. a pound for making, \$112.00 by the introduction of the new process.

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Mr. President

Our labor Association, on spacious hall a

I thank tl my thanks to s the convention believe in our the interest th

I congrat selves that the Labonté and M efforts.

And so, G pray Providen year.

M. Clément make a short r tion very late ; the report out

This year, he has made 73,890 lbs. of butter. Had he taken the same quantity of milk that he took last year to the pound of butter, he would only have made 70,042 pounds of butter: a difference of 3,848 lbs.

Another lesson to be derived from this is the following. It has been asked if the test were fair, exact. Mr. Hayes made the test nearly as Mr. Lord makes it; that is, he takes, every day, a sample of milk, which he puts into a bottle, and after some days, every week, he takes a sample from the bottle, and makes the test in that way. He found the milk pretty rich, as you see; but it is certain that the test was not higher than the richness of his milk deserved, for we see that each month he did not use the usual quantity to make a pound of butter; that is, he made a great number of pounds of butter, and, that, in accordance with the quantity and richness of his milk. This proves that the milk was fairly rich; that the milk he was dealing with was good milk; and the test he had made demonstrates the same thing. This test, was positively a fair one; its indication showed the milk to be just what practice proved it to be.

M. Taché.—At 3 cents a pounds for butter, Mr. Hayes seems to have made nearly \$2,200.00 for his salary as maker.

FAREWELL.

Mr. President,

Our labours are ended. It only remains for me to express, in the name of the Association, our sincere thanks to the Gentlemen of the house who have placed this spacious hall at our disposal.

I thank these kind Gentlemen for their courteous hospitality. And I also offer my thanks to all the lecturers who have been good enough to honour us by addressing the convention. The papers too, the "Gazette" and the "Star," will please to believe in our gratitude to them for having sent hither representatives, thus showing the interest they take in our cause.

I congratulate the good, peaceful people of Ste. Thérèse; we may flatter ourselves that the meeting we have had has been a fine and successful one. The abbé Labonté and M. Frs. Dionne must be satisfied with the success that has crowned their efforts.

And so, Gentlemen, our convention is at an end, and it only remains for us to pray Providence to preserve our lives until we meet again at St. Hyacinthe next year.

M. Clément.—Allow me, Mr. President, although the convention is closed, to make a short remark. This year we received the report of the Dairymen's Association very late; not till August or September. I think that if the Directors could get the report out earlier, it would be very useful to us, especially for the cheese- and

butter-makers who could not be present at this meeting, and that means the great majority of the trade.

M. Taché.—The reasons of the delay are numerous. First, the stenographer who reported for us, kept back the manuscript for a long time. Then, the printing contract is given out by the House, and the firm entrusted with the publication delayed us for two months on account of government work they had too do. But, this year, we hope to send out the reports during May.

As was announced above, we here produce the Lecture delivered by Dr Couture.

LECTURE BY DR. COUTURE, V. S.

THE PHYSIOLOGY OF LACTATION AND THE PRODUCTION OF MILK.

Mr. President and Gentlemen,

Our secretary had given me as the subject for a lecture at this meeting. "The Production of milk in winter." This proposal I accepted, intending to confine myself strictly within the limits of this subject. But, while preparing the notes I am about to read to you, I allowed myself to be led on until I included in my lecture the whole of the "*Physiology of Lactation*," and, at the same time, "The production of milk in general."

Was I wrong?

You are about to judge whether I was or was not.

Before I begin, I must tell you that a great part of what I am going to say on this subject needs long and numerous comments. Time not allowing us to make these comments, I limit myself to the enumeration of the laws and rules that govern the processes I am treating of, and to drawing from them some practical conclusions.

I must also state, that in preparing this essay, I have made numerous extracts from the excellent works of Samson on Zootechnie.

Having said so much, I will at once enter upon my subject.

PRELIMINARIES.

A thorough knowledge of lactation is not simply interesting as regards physiology. The ideas it contains furnish the basis of high importance to zootechnie.

Of the component parts of milk, two only, *water and albumen*, exist in the blood that reaches the udder and irrigates the glandular elements. Neither the butter-globules, nor the casein, nor the lactose, nor even the salts occur ready formed. Hence, it is clear that in the udder the elements of the blood undergo changes, and that milk is not a simple result of *diffusion* or *filtration*, but a product of *elaboration*.

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For, in truth, the milk of every female possesses the *same qualitative composition* (butter-globules, casein, lactose, salts).

But not so, as regards its *quantitative* composition. The proportions of its component parts vary between individuals, and these variations are independent of the composition of the blood.

As regards a single individual, these components are, in general, *perceptibly constant*. These quantitative components, then, are connected with the attributes of the individual.

There are, then, individual superiorities as to milk-production; and these superiorities we must search for.

Families, too, and varieties, possess superior powers.

Rule.—Properly speaking, there is no such thing as a race of milch-cows; there are only varieties more or less fitted for milk-production; and these are to be found in almost all races.

Here, let me say, in parenthesis:

That the word *race*, in our country as well as in the States and in England, is terribly perverted in common speech. ¹ It is, in general, used instead of *variety*.

Thus, people speak of the Holstein *race*, the Ayrshire *race*, &c., instead of the *variety* Holstein, the Ayrshire *variety*.

Of this, you may judge by the following list, borrowed from Salmon's works.

VARIETIES.

RACES.

The Holstein	}	Belong to the race of Holland.
The White belted Dutch		
The Shorthorn		
The Ayrshire		
The Kerry	}	" " Irish.
The Jersey		
The Guernsey		
The Alderney		
The Breton		
The Canadian		
The Norman, otherwise Cotentin,		" German.

There are, then, varieties that are superior to others.—Further on, we shall see how to discover them.

It is important to select a good nurse.—Every female that becomes a mother, must suckle her offspring. Every judicious observer knows that nothing can replace the dam's milk, if fine serviceable stock is desired, provided this milk be sufficient in quantity and good in quality.

¹ In England, we use two words; *race* and *breed*. To the aboriginal wild cattle at Chillingham, to the Devons, the origin of which is lost in the darkness of the ages, as well as to the Sussex and the Welsh-cattle, we apply the term *race*; but we speak of the shorthorn *breed*, the Ayrshire *breed*, these having been, so to speak, the production of comparatively modern times, and evolved from crosses. (A. R. J. F.)

Why do breeders of horses, sheep, pigs, and calves never, or rarely, think of this, and why do they never allow this powerful organ, the udder, to enter into their calculations when selecting the dams of their stock.

In dairying, the fitness of the individual is everything.

The quantitative differences in milks are due to the differences in the constitution of the glandular grains which elaborate its various component parts; one constitution is better fitted than another for the elaboration of *butter-globules*, or for that of *casein*. It must be understood that exercise increases the number of the glandular grains and the extent of the activity of the udder.

FOOD DOES NOT MODIFY THE COMPOSITION OF THE MILK.

Let us take, as an instance, the fatty matters :

A cow whose udder elaborates, in 24 hours, from 35 to 40 litres of milk = .014 grammes of dry substance to the litre = 50 grammes of butter, in all, 3½ lbs. to 4 lbs. of dry substance, receives in that time no more than 600 grammes of fatty matter of which hardly more than 60 are digested = 12 ounces. Thus, at least 2¼ lbs. to 2½ lbs. must be found elsewhere, even although the fatty matters of the food were to serve directly in the elaboration of the fatty matters of the milk, which is not the case.

THE POWER OF PRODUCING MILK RESIDES IN THE UDDER.

In short, the lactation, furnished by the udder, consists in the elaboration of the milk by borrowing its materials from the *plasma* of the blood; *it is owing to the passage of these matters, in the sanguineous capillaries of the network of the glandular grains that their chemical transformation into milk is effected*: How? Nobody knows, I only mention this to make you understand the importance of selecting a perfect udder (Laboratory).

The sooner this sanguineous afflux begins during the period of pregnancy, (in other words, the sooner the female begins to make her udder), the more active will her lactation be.

Sometimes, the udder is immense at the moment of parturition, and the blood passes out through the passages of the udder (red milk); the udder becomes more and more distended; soon, drop by drop, flows out through the orifice of the teat a glutinous liquid, of a fine lemon-yellow, sticky and very coagulable; this is the most certain sign of parturition being at hand.

This liquid is not as yet milk, it is *colostrum*.¹ It is richer in albumen (*ropy*), and in salts (*yellowish*), and is indispensable, as a laxative, to the health of the newly born. Soon, the albumen diminishes, and becomes very small in quantity, and, at the same time, the fat, lactose, water, and casein, increase in proportion, and the teat allows real milk to flow from it.

¹ *Colostrum*, in Scotland, is called *beistyn*, or *beestings*. (Trans.)

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The science of physiology teaches us many more things about the phenomena of lactation, *but let us get on*. There is, however, one thing we do not understand: how it happens that of the glandular grains of the udder, which are all histologically alike, some produce fat, others casein, others lactose, and that from one and the same blood.

THE SOLIDARITY OF THE UDDER AND THE UTERUS.

The action of the udder and of the uterus is *normally* conjoint (*solidaire*); they begin at a certain moment of pregnancy, even before they are completely developed. But this is not absolutely necessary, for:

1. All newly born females have milk in their rudimentary udders. (De Sinéty);
2. Samson reports that a heifer was begun to be milked at the age of 4 months.
3. I knew a heifer, belonging to Mr. Barnard, that even before it had taken the bull, began to give milk at the age of 16 months.
4. All females (mares), about which we have been consulted, because they gave milk, without having been served, are a fresh proof to us that the udder may be developed without the uterus being pregnant.

Generally, in all these cases, lactation had been induced by the sucking or repeated pulling of the udder determining an afflux of blood into the capillaries.

In every case, it is this afflux of blood which gives to the udder its more or less powerful functional action.

And this is the reason why we should always look out for milkers whose udder is wide and deep.

THE GENERAL CONDITIONS THAT INFLUENCE LACTATION.

Let us lay down as principles:

1. The entire environment of the female giving milk, and anything that acts on her blood or on her nervous excitability, necessarily affect the functions of her udder.

2. The udder's production is in proportion to the matter that enters it.

3. The production of milk is in proportion to:

(a) The quantity and quality of the blood that flows through the udder, in a certain time.

(b) And is also in proportion to the size of the udder; for the bulk of milk produced is the sum of the quantities supplied by each of the glandular grains, taken one by one. The more numerous these grains, the greater the quantity of milk.

All other things being equal, the power of lactation is in proportion to the size of the udder, provided that size be not due to fat (cellular adipose), or to hypertrophy of the conjunctive tissues (fleshy udder).

JUDGING OF THE TENDENCY TOWARDS MILK PRODUCTION.

The tendency towards the production of milk may be judged of by measuring the udder, and defining its anatomical constitution (by the touch), which in practice is by no means difficult (in adult animals).¹

RELATIONS BETWEEN THE SIZE OF THE UDDER AND CERTAIN GENERAL INDICATIONS.

Full and large udders generally accompany certain general indications concerning:

1. The conformation of the body (Fine extremities and large body, especially full in the pelvis.)
2. Feminine appearance of the head, &c.
3. The disposal of certain parts of the hair (the escutcheon, in the Guenon system.)
4. The smooth, fine, silky touch of the hair of the udder.

From these relations, result certain rules which, in the positive sense, are rarely at fault, but the absence of these indications do not necessarily, irremediably, bring with them the absence of large sized and capacious udders. The affirmative is almost always true; that is, the general signs mentioned above as indications of a good milker and a large udder go together. The negative is never true; that is, an animal may not show these general signs, and yet she may have a large udder.

EXAMINATION OF THE UDDER.

This examination is easy enough, when the udder is at work; but much less so, when the female is not giving milk.

Examination by the eye.—The greater the space occupied by the udder, the wider apart the teats (showing the great width of each *quarter*), the more regular the shape, the better (all other things being equal).

Examination by the touch.—The full udder diminishes in bulk the emptier it is made; (it becomes flabby). If it is then touched, it feels like a sponge, a sensation the more significant the more it resembles a sponge, for then it contains a much greater number of grains (glandular *vacuoles* or *culs de sacs*) and contains no conjunctive or fatty element. If, as the milk is being drawn off, the udder hardly lessens in bulk, and if, when it is pressed, no elastic feel is perceived, it contains fat and conjunctive tissue (hypertrophy); that is a fleshy udder.

¹ *Mamelle* and *pis*, in French, cannot be distinguished from one another in English. *Pis* is the udder of a cow, of a she-goat, or of a ewe; *mamelle*, the udder of a mare. A. R. J. F.

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EXAMINATION OF THE UDDER WHEN IT HAS NOT YET BEEN OPERATIVE, OR WHEN
IT HAS ONLY REACHED IMPERFECT DEVELOPMENT.

This examination is not so easily made, but it is important in selecting young females to keep and bring up as milch-cows. This examination is concerned with ;
1. the escutcheon (Bovide's) ; 2. the situation of the teats (Bovide's and others) ;
3. the situation of the teats and their number in females that have more than four.

1st. *The examination of the escutcheon.* Supposing that he is familiar with Guenon's system, the man who examines the escutcheon should seek for the 1st-orders of the 7 first classes : I place the following relative value on each of the different orders :

1. First order of the first class (Flandrine). This is the best cow.
2. The second order of the first class, and the first orders of the classes 2, 3, 4, 5, 6, 7. Cows with such escutcheons as these are very good milkers.
3. Cows who have escutcheons of the 3rd. order of the 1st. class and the 2nd. order of classes 3, 4, 5, 6, 7, are good milkers.

2nd. *Examination of the teats.* Teats very near together, are similar to very small udders ; teats very far apart correspond with very large udders.

In bitches and sows, the lactation is probably in proportion to the number of *open teats* (variable in individuals). Each of these teats corresponds with a tree made up of lactiferous conduits ; the tree produces ramifications ¹ in proportion to the room that is afforded it by the space that separates it from its neighbour.

PSEUDO-INFLUENCE OF THE RACE, OR, RATHER, OF THE VARIETY.

We have seen that there are no such things as milking races, but that there are milking families more or less in number, in which, in the conditions under which they live, the power of lactation is more active than in others. These families are from the varieties, Ayrshires, Jerseys, &c. But these families (varieties) are found in all the races, the power of lactation not being affected by the race. This excessive development of lactation (milking qualities) is the result of exterior, or extrinsic influence, which we are going to examine, and easily acquires hereditary potency. *But this hereditary potency ceases to exist as soon as the influences in question disappear.*

We must therefore, in choosing young females, equally with individual indication, weigh the antecedents of the family. There is no better guarantee than a more or less extensive pedigree from parents more or less given to yield plenty of milk, but under the condition of maintaining the extrinsic influence, the predominating importance of which is too often ignored in favour of pedigree alone.

¹ " If a radical idea branches out into parallel ramifications, &c." V. preface to Johnson's Dictionary. A. R. J. F.

INFLUENCE OF CLIMATE AND TEMPERATURE ON LACTATION.

Must we say that climate and atmospheric variations affect lactation? Decidedly, they do. Milk contains 80% to 90% of water; the blood contains an average of 90%, that is, just enough to supply the udder with the necessary quantity, taking into consideration the quantity of water taken from the blood for the use of those other organs essential to the preservation of life.

Thus: The urine takes so much; the skin, the mucous-membrane take another notable quantity.

If the blood only contains the proportion of water indispensable for these inevitable losses, *the functions of the udder are arrested*, so that the functions of the udder are limited to the quantity of water it has at its command.

The animal loses water by the air it expires, by the skin (let us leave aside the kidneys), until the *layer of atmospheric air around it is saturated with humidity*.

The saturation of this layer of atmospheric air is proportionate to:

1. The temperature—the warmer it is, the harder it is to saturate it, the more water is lost by the animal;

2. The frequency of the renewal of the surrounding air.—The more the air is agitated, the more frequently is the moist layer in contact with the body renewed, and the greater the loss of water.

3. The inverse proportion of the hygrometric state of the atmosphere.—In other words, the more the air was previously moist, the less moisture does the animal lose in saturating the layer in contact with its body. To sum up: The maximum of loss takes place in an atmosphere which is at the same time warm, dry, and agitated; then the imbibition of water, in drinking and in the food, is hardly sufficient to maintain the blood in its normal condition, and the lactation is then reduced to its simplest terms.

Lactation attains its maximum in places where the atmosphere is generally mild and saturated with humidity; in such a case, the elimination of water is reduced to a minimum. This it is that explains the power of lactation of the Holstein and other Dutch cattle, of the Danish cows, &c.; this, too, is the reason why Manitoba will never be so favourable to the production of milk as the provinces of Quebec and Ontario.

INFLUENCE OF DRY COLD.

If the atmosphere be dry and cold, the capacity for saturation of the immediate layer of the atmosphere is low, but, *en revanche*, the loss of animal heat is great; and to compensate them the sanguineous capillaries of the skin (to which order belong those of the udder) contract under the influence of the cold, less blood reaches the udder, and it remains inactive.

INFLUENCE OF QUARTERS.

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When they are too warm (above 68°), through want of ventilation, the cutaneous transpiration and the respiration are too active; the surrounding moist atmospheric layer is renewed too frequently; the loss of water is too great, and the *lactation is less active*.

In cold cowhouses (below 45°, for instance), too much ventilated, and ceaselessly traversed by rapid currents of air, the renewal of the damp atmospheric layer is constant; the cold produces the effects we have just seen on the skin, and the *lactation is less active*. *The most favourable temperature is between 54° and 65°.*

If the stables are too well lighted, the nutritive exchanges are too active, urination is more copious, the consumption of food greater, and the lactation less abundant.

The following table, borrowed from May, shows clearly that temperature of 54° is that most favourable to the yield, and, at the same time, that the weight of the animal increases more with hardly any additional food.

Temperature.	FOOD, 10 DAYS.		Milk.	Variation of the weight of the body.
	Hay.	Water.		
41	502 lbs.	1,578 lbs.	310 lbs.	22 lbs. increase.
54	510 "	1,822 "	314 "	34 " "
65	506 "	1,792 "	306 "	32 " "
59	508 "	1,722 "	294 "	6 " "

INFLUENCE OF FOOD.

The effect of food on lactation never varies; however, it has not all the influence many assign to it.

Theorem.—The quantity of milk produced is in proportion to the richness of the food. (Richness here signifies: Quantity and quality.)

INFLUENCE OF WATERY FOOD.

We saw just now that water formed 80 olo to 90 olo of the milk, and that the more the blood (the organism) lost of its water, the less copious is the lactation. Well, in practice it is recognised: *that the quantity of milk produced in 24 hours is in proportion to the quantity of water imbibed, the dry matter of the food remaining the same.*

This results from the facts that:

1. The udder (and all the other glands) acts in proportion to the pressure of the blood in the arteries.

2. This pressure is equal to the *total quantity of the blood*.

3. The total quantity of the blood is equal to that of the water absorbed by the vessels.

The practical conclusion from these premises is, that the food most conducive to an abundant yield of milk is rich pasture, the food supplied by nature (provided that external circumstances be favourable, all other things being equal), or artificial food containing 75 o/o to 80 o/o of water.

Thus, a cow that consumes 160 lbs. of food, containing 80 o/o of water (grass), absorbs about 128 lbs. of water.

Dry foods only containing in general 15 o/o of water, a cow that should consume the equivalent of the above ration in dry foods (nearly 38 lbs.) would only get from that food about 5 lbs. of water. The same result would not be obtained by giving her additional drink, to compensate for this want of water, because:

The imbibition of water is limited by the thirst, which satisfies itself at much less cost; water taken in quantities more or less great, when dry foods are used, cannot take the place of foods containing 75 o/o or 80 o/o of water.

The practical conclusions from these principles are too obvious to need drawing.

INFLUENCE OF FOOD ON THE DRY MATTERS OF MILK.

The quantity of dry matter in milk (the absolute richness) increases in proportion to the quantity of *protein* digested in the food (in other words, to the richness, the nutritive value of the food); but neither the quantity nor the quality of the food is capable of modifying the composition of the dry matter of the milk, especially of the butter and casein. The relative proportion of the casein and butter in milk depends entirely on the individual, food has no effect upon it. I will explain:

Here is a cow that gives a milk richer in butter than in casein, the quantity of casein in her milk cannot be increased by peculiar feeding; here is another that gives milk rich in casein and poor in butter, the quantity of butter in her milk cannot be increased by feeding.

But rich food will increase the quantity of butter in the butter-cow and the quantity of cheese in the other.

INFLUENCE OF FOOD ON THE FLAVOUR OF MILK.

The animal economy rids itself, by elimination, of certain proximate principles and certain non-nutritive mineral components; now, the udder, like the kidneys, the skin, and the bronchial tubes, is one means of elimination, and this is the reason why the elimination of these matters may sometimes be injurious, sometimes beneficial.

It is *injurious*.—1. By the ingestion of medicines which sometimes injure its flavour; these, however are very often beneficial to the young one that is being suckled;

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¹ Mares are h word to designat

2. By scented, aromatic plants that are well known, such as onions, garlic, turpentine.

3. By certain foods, of bad quality, seeds, tubers that have germinated and contain *asparagine* in different proportions (milk more or less tainted).

It is beneficial.—There are certain pleasant aromas elaborated by many of the meadow-grasses that eliminate themselves through the milk. To this is due the delicate flavour of the butters yielded by the cows that are pastured on certain meadows in Normandy, in Belgium, in Denmark. These cows pastured elsewhere would not give the same flavoured butter.

The practical conclusions to be drawn from the above, are :

1. That food modifies the flavour of milk ;
2. That the absolute richness of the food increases the absolute richness of the milk ;
3. That food is radically incapable of altering the proportion of the dry matter, especially of casein and butter ;
4. And that, with the same food, one cow produces more butter, another more casein, although the total sum of the dry matters be equal.

INFLUENCE OF PREGNANCY, OF TIME, AND OF THE " COMING INTO SEASON."—*rvl.*¹

As fast as pregnancy advances, the butter-fat diminishes and the casein proportionately increases ; latterly, the albumen increases so much that sometimes the milk when boiled curdles. The same thing occurs when the animal is " in season."

EFFECT OF CLEANLINESS ON THE FLAVOUR OF MILK.

The emanation from the bodies of animals and their ejections communicate a disagreeable flavour to milk, this is often attributed to the food. Therefore cows must always be kept clean.

SUMMER-FEEDING

The best of all foods, as we have seen, is meadow-grass. It contains the necessary water, it is richer than other foods in dry matters, especially in digestible protein.

<p>Thus, hay contains—8.50% of crude protein, 64% of which is digestible. So that 27½ lbs. of hay, or its equivalent, contain 2 lbs. 5 oz. of crude protein = 1 lb. 7¾ oz. of digestible protein.</p>	<p>Grass contain 16.44% of crude protein, 75% of which is digestible. 80 lbs. of grass (the ration for a large cow) supply rather more than 13 lbs. of crude protein = nearly 10 lbs. of digestible protein.</p>
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¹ Mares are horsing ; cows seek the bull ; only deer are rutting. We have no single English word to designate the "*coitus-desiderium*" of all animals. A. R. J. F.

Conclusion :—In summer, feed your females that are giving milk, on grass, either by pasturing or, which is better, by soiling.

WINTER FEEDING.

The problem before us is to compound a ration for winter made in such a way as to differ as little as possible, in its physical composition and its richness, from the summer food furnished by good pastures, that is, as moist, as rich, and as digestible.

Winter foods may be divided into 3 classes :

1. Coarse fodder (rich in cellulose)—hay, straw, chaff, &c. ; containing from 15% to 16% of water ;
2. Corn-silage, fleshy roots, or beet-pulp, carrots, &c. ; containing 70% to 85% of water.

Concentrated foods.—Rich in crude protein, poor in cellulose ; 15% of water ; these are :

The cereal grains.—Barley, maize, oats, bran ; containing less than 12% of crude protein.

The leguminous seeds.—Pease, beans, &c. ; containing more than 12% of crude protein.

Linseed- and cotton-seed cake, &c. ; which contain more than 12% of crude protein.

CONCENTRATED FOODS.

Cereals.—Barley, wheat, maize are too high-priced for animal food. Oats are suitable as regards price and its proportion of protein ; bran is excellent ; it contains, sometimes, from 14% to 27% (17% ?) of easily digested crude protein.

Gru (middlings?) contains less protein and more starch and other carbohydrates. Now, as all the foods to which middlings are added contain already plenty of these carbo-hydrates, those in the middlings are wasted ; they even diminish the digestibility of the protein in the other foods.

The *waste-products of breweries* and of distilleries (slop), which contain 70% to 80% of water and 3% to 6% of protein, form an excellent food.

The *germs of malt* (cummins ?) containing 85% to 90% of water and 20% of crude protein, almost all of which is digestible, are capital food.

Leguminous seeds.—Pease, beans, lentils, have nearly 25 0/10 of very digestible protein. They should be crushed, or coarsely ground before feeding. They have great value, but the market price regulates their use.

Linseed- and cottonseed-cake contain 15 0/10 of protein ; cottonseed-cake costs the less, confers no bad taste on milk, and its protein is eminently digestible. Linseed-cake is rather the dearer, gives its own flavour to milk, and its protein is much less digestible. The former therefore is the better of the two.

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COMPOSITION OF THE RATION.

Cut roots with silage and coarse fodder, mixed together and moistened or boiled, will supply sufficient moisture, which should reach 70 o/10 or 80 o/10. This mixture will give a nutritive ration of 1:7. (Nutritive ratio is the proportion between the crude protein and the amount of it that is digested; example: a substance contains 3 o/10 of crude protein and 1 o/10 of digestible protein the nutritive ratio is 1:3.)

A nutritive ratio of 1:7 is not sufficient for milch cows. There must be:

1:5	for full grown cows of 5 years old.
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The digestive faculty being far more powerful with young than with adult animals, the nutritive ratio must also be higher with the young than with the adult.

By adding one or more kinds of concentrated food, in varying proportions, according to their richness in protein, the nutritive ratio can be raised to the proper point.

The bulk may consist of 35 to 50 lbs. of silage (70 o/10 to 80 o/10 of water, ratio 1:7), 4 lbs. of straw, and 4 lbs. of hay. By adding 7 lbs. of beans, or 6 lbs. of cottonseed-cake, or 8 lbs. of bran, the ration will be 1:3 or nearly so. This is enough for the largest cattle. Diminish the feed in proportion to size.

If moist food is wanting, make a mash with the dry food, more or less thin, by mixing it with cold water.

Lastly, give the cattle as much as they will eat; some eat much more than others; this depends upon the digestive power of each individual.

INFLUENCE OF THE DISTRIBUTION OF THE FEEDING-HOURS.

The appetite, the digestion are increased by dividing the meals. This takes more labour, but the cattle eat more and better.

INFLUENCE OF THE MODE OF MILKING.

The udder must be thoroughly emptied.

Let us take 10 cows.—Suppose there remains in the udder 1 oz. of milk (two table-spoonfuls) at each milking = 2 oz. a day for each cow = 20 oz. or $1\frac{1}{4}$ lbs. for the 10 cows = $37\frac{1}{4}$ lbs. a month = 375 lbs. for 10 months = \$3.00 nearly. How many persons leave 4, 6, 8, 10 ounces a day in each udder.

To this add that the lactiferous conduits, or rather the *grains*, do their work more lazily and the yields falls off. Incomplete milking, then, results in direct loss of the quantity of milk left in the udder, and in indirect loss, the consequence of less production.

INFLUENCE OF THE NUMBER OF MILKINGS ON THE QUALITY AND QUANTITY.

Rule 1.—The cream being lighter than milk floats in the upper part of the udder. Comparative richness of milk obtained, by Helriegel, at the beginning, the middle and the end of 3 milkings a day, morning, noon, and evening.

	1st litre.	2nd litre.	3rd litre.
MORNING'S MILK.			
Butter	1.49	2.37	4.16
Casein	2.14	2.26	2.06
Lactose	4.10	4.50	4.06
Salts	0.71	0.76	0.76
Water	91.56	90.11	88.16
	100.00	100.00	100.00
NOON'S MILK.			
Butter	2.19	6.50	(The litre = $\frac{3}{4}$ quart.
Casein	3.37	3.36	
Lactose	4.26	4.06	
Salts	0.75	0.73	
Water	89.43	85.35	
	100.00	100.00	
EVENING'S MILK.			
Butter	3.40	5.28	
Casein	2.64	3.10	
Lactose	4.03	3.97	
Salts	0.75	0.72	
Water	89.18	86.93	
	100.00	100.00	

The longer the milk remains in the udder, the more it loses its normal richness in butter, as the following table shows.

Comparative statement showing the quality of milk given by a cow milked thrice a day for 11 days, and twice a day for the 11 subsequent days.

	3 milkings a day.	2 milkings a day.
Water	87.6 p. c.	87.9 p. c.
Butter	4.1	3.5
Casein	4.5	4.4
Sugar and salts	3.8	4.2
	100.00	100.00

(E. WOLF).

Rule 3.— following table

TABLE of a t showing t kilo = $2\frac{1}{4}$ l

Quantity of milk .
Quality, dry matt
" fatty ma
" Lactose
" Protein

Quantity of milk .
Quality, dry matt
" fatty ma
" Lactose
" Protein .

By this tak are, in the 1st c litres and a frac

In the 2nd periods,¹

4th Rule.—! and the evening' eye on the above this fact in the t In such cases, w

¹ Since I read shows beyond all d twice a day. The t a 2nd period of 10 d 1st. Period.—1 2nd Period.—3 2rd Period.—2 See, at the end

AND QUANTITY.
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 ing.

Rule 3.—Three milkings a day give more milk than two, as is shown by the following table :

TABLE of a test of 3 periods of 10 days each, of a Dutch cow and a Swiss cow, showing the quantity and quality of milk obtained during each period. (The kilo = $2\frac{1}{4}$ lbs., nearly.)

3rd litre.
4.16
2.06
4.06
0.76
88.16
100.00

	1st period, 2 milkings daily.	2nd period, 3 milkings daily.	3rd period, 2 milkings daily.
Swiss cow.			
Quantity of milk	70. litres 90	84. litres 19	88. litres 20
Quality, dry matters.....	10. kilos 121	12. kilos 106	11. kilos 104
“ fatty matters	2. “ 127	4. “ 667	3. “ 832
“ Lactose	2. “ 624	4. “ 446	4. “ 783
“ Protein	2. “ 869	2. “ 397	2. “ 252
Dutch cow.			
Quantity of milk	114. litres 41	102. litres 28	87. litres 26
Quality, dry matters.....	15. kilos 827	14. kilos 126	12. kilos 688
“ fatty matters.....	4. “ 659	4. “ 711	3. “ 937
“ Lactose	5. “ 573	5. “ 448	4. “ 525
“ Protein	4. “ 792	3. “ 241	3. “ 596

(LAMY.)

By this table it will be seen that the average yield in the 1st and 3rd periods are, in the 1st case 79.55 litres ; 84.19 litres in the 2nd period ; in the 2nd case, 99 litres and a fraction against 102 litres and a fraction, in the 2nd period.

In the 2nd period, the milk is richer in butter than in the 1st and 3rd periods.¹

4th Rule.—The morning's milk is less rich in butter than the milk of the noon and the evening's milking. To be convinced of this it is only necessary to cast one's eye on the above table of Lamy, and on the following one of Elft. We can profit by this fact in the feeding of babies and young calves that are affected by diarrhoe. In such cases, we can either add water to the milk or only use the morning's milk.

¹ Since I read this lecture at the Convention, I have myself made an experiment which shows beyond all doubt that the yield of milk is greater if the cows are milked thrice instead of twice a day. The test was made on 10 cows milked twice a day for 10 days ; thrice a day during a 2nd period of 10 days, and lastly twice a day for a period of 10 days. This is the result :

1st. Period.—10 cows milked twice a day : Total yield 1850 lbs.

2nd Period.—3 milkings a day. Total yield 2036 lbs.

2rd Period.—2 milkings a day. Total yield 2017 lbs.

See, at the end of the lecture, the details of each day's test.

ts normal richness

by a cow milked
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2 milkings a day.

87.9 p. c.
3.5
4.4
4.2

100.00

(E. WOLF).

Average of analyses showing the relative quality of *triple and of double milkings.*

NAMES OF MATTERS.	TRIPLE MILKING.	DOUBLE MILKING.
Solid elements.....	12.4 p. c.	12.1 p. c.
Water.....	87.6 "	87.9 "
Butter.....	4.1 "	3.5 "
Casein.....	4.5 "	4.4 "
Lactose and salts.....	3.8 "	4.2 "

(ELFT A ELDENA).

In an experiment by Wolf, the yield of 11 days—2 milkings—was 133 litres; that of 11 days—3 milkings—was 161 litres.

SUMMING UP.

In winter, the food must be saturated with water. *Crush, steep, boil the fodder.*

To get plenty of milk, concentrated food must be given. Bran (2 lbs.), cotton-seed-cake (2 lbs.), and oats (3 lbs.), for ordinary cows, will make up a ration of 1:4 with fodder.

Feed at different times, to excite appetite and digestion.

Milk thrice a day—if possible.

Milk the udder dry.

Groom the cows.

Keep the cowhouse at 54° to 59°, and have it *just light enough to see to work by.*

Feed regularly.

Above all things, and begin thus—*Keep good milkers.*

This, Mr. President, is a lecture of great length, and yet one which I have tried to condense as much as possible, while at the same time attacking all sides of the subject.

I have laid down the premises; I have drawn some practical conclusions from them, and I am sure, Gentlemen, you will still be able to draw others.

DISCUSSION

ON DR. COUTURE'S LECTURE.

A Delegate.—Are turnips likely to injure the flavour of butter?

Dr. Couture.—They give their taste to the milk.

A Delegate.—Is it right to keep water always before milch-cows?

Dr. Couture.—It is a matter of indifference; if you give them a mixed ration such as I advised just now, they will not drink much.

A Delegate.—Everything they eat they receive in a moist state?

Dr. Couture.—Yes.

A Delegate.—You *moisten* the fodder one meal in advance?

Dr. Couture.—Evidently, if you prepare it in advance, it will be harder to

saturate it; that if you prepare absorb still more.

A Delegate

Dr. Couture

Mr. Barnard

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Dr. Couture

A Delegate

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M. J. A. COUTURE

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saturate it; that is, it will absorb more water. It will absorb all the more water if you prepare it 12 hours in advance; if you prepare it 24 hours in advance, it will absorb still more water than if it were prepared only 12 hours before hand.

A Delegate.—Is it better to prepare it in advance?

Dr. Couture.—Of course it is.

Mr. Barnard.—Would not the circulation be the more active if the fodder were given when warm?

Dr. Couture.—True, but it is a question whether or not the cows would benefit.

A Delegate.—Do you think the drink ought to be given warm?

Dr. Couture.—As I told Mr. Barnard, it is an open question; but I do not care to discuss it this evening.

Mr. Barnard.—Do you object to say whether the preparation with hot water of food that is subsequently allowed to cool, is injurious or not?

Dr. Couture.—No. But as you insist upon an answer, I will give you my opinion: I am opposed to giving hot water to cattle, because it keeps them in a state of constant fever, and you thereby render them much more likely to catch colds and other diseases.

NOTE BY DR. COUTURE.

In order to satisfy myself about the yield of milk by cows milked twice a day, as compared with the yield of cows milked thrice a day, I begged the R. R. D. D. of the Hospital of the Sacred-Heart, at Quebec, to submit ten of their cows to a test of three periods of ten days each; during the first and third, the cows to be milked twice a day, and during the second period thrice.

These Ladies were so extremely kind as to consent to do this, and they sent me the following account of the experiment.

Hospital of the Sacred-Heart, 13th. January, 1893.

M. J. A. COUTURE, Veterinary Surgeon, Quebec.

Sir,—I have the honor to send you the rations you asked me to give to our cows, and the results obtained:

1ST. PERIOD.—FOOD: 22 LBS. SILAGE, 5 LBS. BRAN, 5 LBS. HAY.

PRODUCT OF MILK.

1st day	188 lbs.
2nd "	184 "
3rd "	186 "
4th "	187 "
5th "	184 "
6th "	185 "
7th "	188 "
8th "	186 "
9th "	188 "
10th "	183 "

Total..... 1859

uble milkings.

LE MILKING.

2.1 p. c.
7.9 "
1.5 "
1.4 "
1.2 "

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as 133 litres;

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2ND. PERIOD.—FOOD: 22 LBS. SILAGE, 5 LBS. BRAN, 6 LBS. HAY.

PRODUCT OF MILK.

1st day	199 lbs.
2rd "	198 "
3rd "	206 "
4th "	210 "
5th "	212 "
6th "	211 "
7th "	212 "
8th "	210 "
9th "	213 "
10th "	215 "

Total 2086

3RD. PERIOD.—FOOD: 23 LBS. SILAGE, 4 LBS. OF BRAN, 5 LBS. OF HAY.

PRODUCT OF MILK.

1st day	305 lbs.
2nd "	195 "
3rd "	192 "
4th "	194 "
5th "	191 "
6th "	188 "
7th "	190 "
8th "	187 "
9th "	187 "
10th "	186 "

Total..... 2015 lbs.

(The average yield of the two periods of two milkings a day was 193½ lbs., against 208½ lbs. a day for the 2nd period. Note by J. A. Couture).

This, Sir, is the exact quantity of food we have given the 10 cows, and the yield of milk, equally exact, they gave during 30 days.

(Signed) SR. M. DE L'ENFANT JÉSUS,
Manager.

I must add, that as soon as the test was finished, orders were given to milk all the cows at the hospital 3 times a day.

Towards the 1st. February, there was an increase of 40 lbs. of milk a day for the total yield of 15 cows; compared with the yield of December when they were only milked twice a day.

The Ladies of the General Hospital at Quebec were good enough to try the same experiment. Their cows not giving nearly so much milk as the cows at the

Sacred-Heart, is not so apparent the quantity of

Test made days each.

	Mo
1st day.....	
2rd "	
3rd "	
4th "	
5th "	
6th "	
7th "	
8th "	
9th "	
10th "	
Total.....	

	No	Morg.	No
1st day ..	6		
2nd " ..	6		
3rd " ..	6		
4th " ..	5		
5th " ..	5		
6th " ..	5		
7th " ..	7		
8th " ..	6		
9th " ..	5		
10th " ..	5		
Total.....	56		

Sacred-Heart, and the test of 4 cows only having been made, the difference of yield is not so apparent, but the result is the same. This is the statement sent me; it shows the quantity of milk given by each cow at each milking.

Test made on 4 cows at the General Hospital at Quebec, for 3 periods of 10 days each.

1st. PERIOD—2 MILKINGS A DAY.

	No. 1.		No. 2.		No. 3.		No. 4.		
	Morg.	Evg.	Morg.	Evg.	Morg.	Evg.	Morg.	Evg.	
1st day.....	6	5	9	7	7	6	7	5	Total quantity for the 10 days 510 lbs.
2nd ".....	6	5	9	7	7	6	7	5	
3rd ".....	6	5	9	8	7	6	7	5	
4th ".....	5	5	9	7	7	6	7	6	
5th ".....	6	4	8	6	7	5	7	5	
6th ".....	6	5	8	7	7	5	7	5	
7th ".....	6	4	8	7	7	5	6	6	
8th ".....	5	5	8	7	7	6	7	6	
9th ".....	6	5	9	7	7	6	6	6	
10th ".....	5	4	9	7	7	5	7	6	
Total.....	57	47	86	70	70	56	69	55	
		104		156		126		124	

2ND PERIOD OF 10 DAYS.—3 MILKINGS A DAY.

	No 1			No 2			No 3			No 4			
	Morg.	Noon.	Evg.	Morg.	Noon.	Evg.	Morg.	Noon.	Evg.	Morg.	Noon.	Evg.	
1st day..	6	3	2	8	5	3	8	4	2	7	4	3	Total quantity for the 10 days. 533 lbs.
2nd " ..	6	3	2	9	4	3	7	4	2	8	4	3	
3rd " ..	6	3	3	9	4	3	7	4	2	8	3	2	
4th " ..	5	2	2	8	5	2	7	4	2	8	3	2	
5th " ..	5	2	2	8	3	3	7	3	2	7	4	2	
6th " ..	5	4	2	9	5	2	8	3	3	7	3	2	
7th " ..	7	2	2	9	4	3	9	4	2	8	4	2	
8th " ..	6	4	2	9	2	3	8	4	2	8	4	2	
9th " ..	5	4	2	9	5	3	8	4	3	8	4	2	
10th " ..	5	2	2	9	8	2	8	4	2	8	3	3	
Total.....	56	29	21	87	40	27	77	38	22	77	36	23	
	106			154			137			136			

6 LBS. HAY.

199 lbs.
198 "
206 "
210 "
212 "
211 "
212 "
210 "
213 "
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5 LBS. OF HAY.

305 lbs.
195 "
192 "
194 "
191 "
188 "
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INFANT JÉSUS,
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3RD. PERIOD.—2 MILKINGS A DAY.

	No 1		No 2		No 3		No 4		
	Morg.	Evg.	Morg.	Evg.	Morg.	Evg.	Morg.	Evg.	
1st days.....	6	4	9	7	8	7	7	6	Total quantity for the 10 days.
2nd "	6	4	9	8	8	7	8	7	
3rd "	7	5	9	8	7	6	7	6	
4th "	6	5	10	8	7	6	7	6	
5th "	6	5	10	8	7	6	8	6	
6th "	5	5	10	8	7	6	8	6	
7th "	6	5	10	7	8	7	8	6	
8th "	5	4	9	7	7	6	7	6	
9th "	5	9	9	8	8	6	7	6	
10th "	6	5	10	7	7	6	7	6	
Total	58	46	95	76	74	63	74	61	
	104		171		137		135		547 lbs.

The daily average for the 1st and 3rd periods is $52\frac{1}{2}$ lbs. against $53\frac{3}{10}$ lbs for the 2nd period.

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Supplement to the Report of the Convention.

NOTE.—The following essays were to have been read at the convention, but time was wanting to communicate them aloud to the audience.

As in previous years, it was decided to publish these essays in the annual report, with an explanation of the reason why they could not be read at the Ste. Thérèse convention.

LECTURE BY MR. S. A. FISHER.

THE HISTORY OF ENSILAGE.

I am asked to address you on the history of the system of ensilage, and in trying to comply with this request, a most interesting train of investigation has presented itself. We are disposed to look on the system as a quite new discovery, and that the great advantages obtained from it, are to be credited to the inventive genius of the Americans. Instead of this modern origin however, we have to go back to the earliest records, not only of our own continent, but also of Europe, Asia and Africa.

The name silo is traced to the greek word "siros" a pit, which in Spanish and Latin became silo. The Spanish have the verb "ensilar," which in old Spanish books on agriculture is used to signify the putting of grain in a pit, to preserve it. In Pliny's Natural History, a Latin book of the 1st century, the writer mentions the preservation of corn in trenches called *siri* or *sili*, in Asia Minor, and he says that in Spain and Africa great care was taken to place these sili in dry ground. Several other Latin writers allude to the practice in various outlying Provinces of the great Roman Empire. Later writers describing the customs of the half barbarous people in North Africa and in Asia, describe pits in the ground in which, not only grain, but freshly cut grass is stored. Col. Burnaby, the daring English cavalry officer who performed the famous "Ride to Khiva," and wrote about what he saw, tells of seeing men and women engaged in unearthing a lot of grass from a pit in a field. He says this grass had been cut the fall before, and pitted, and that it was thus preserved so that, when taken out, it was good food for the animals. Then, again, we have in the "Relations des Jésuites," the statement of how our own predecessors, the North American Indians, preserved their maize or corn in pits in the ground, burying it often for a long time to serve them in years of scarcity. In Mexico, also, early travellers found the same practice, and to day in that country green fodder is pitted and preserved for the animals in the dry season. All this shows that ensilage is no new thing.

quantity for
10 days.

47 lbs.

the 2nd period.

For its present system and use among us however, we must thank two men, chiefly, for its adaptation to modern requirements, and our own continent. The first is M. Goffart, the eminent scientific agriculturist of France, who there reduced the inefficient and wasteful pitting of fodder in the earth to a system, and the second is Mr. G. B. Brown, President of the New York Plough Company, who translated M. Goffart's book into English, and disseminated the knowledge of what the French were doing among our practical farmers.

M. Goffart had his attention attracted to this system, by the experiments of a certain Herr Reihlen, a German living in the Kingdom of Wurtemberg in South Germany. This gentleman was owner of a beet sugar factory, and had used pits in which to store the refuse from the beets, so that it would keep the year round for his cattle. In 1861-62, this gentleman published results of his experiments of preserving maize in the same way. M. Vilmorin-Andrieux, a noted French writer on agricultural science, published in 1870, in the "Journal d'Agriculture Pratique," a translation of Herr Reihlen's letters. M. Goffart examining these, determined to improve on the methods used. Herr Reihlen, and others, up to this time, had simply excavated a long narrow trench in the field, perhaps 10 feet wide and 10 feet deep, or even only 5 or 6 feet deep. The fodder, generally the tops of the beets or maize, with the refuse of the sugar factories mixed in it, was packed into the trench, and the earth which had been thrown out, heaped on to the mass of fodder. In 1877, M. Goffart published a book "manuel de la culture et d'ensilage des maïs et autres fourrages verts." In this he not only showed improvement in the method of doing the work, and making the pits or silos; but by the publication, the system was made known to the world, and the possibilities of its uses popularised. Before M. Goffart, the fodder was simply pitted in the earth, but he built walls to the sides and ends of the pits, and after put up permanent roofs over them, and then placed these permanent silos in, or attached to the cattle stables. He also cut the maize up in short lengths, and arranged a system of weighting the mass, so as to completely exclude the air. Mr. Brown translated this work, and presented it to the American farmers, and just as M. Goffart popularised the system in France, so Mr. Brown disseminated the knowledge of what could be done in the preservation of green fodder, in America.

Before this, a certain Mr. J. Morris, a Maryland Quaker, had practised the pitting of corn or maize in much the same way that Herr Reihlen had done in Germany, and had found its successful and profitable. This was the first known attempt at ensilage in modern American Agriculture. A Mr. J. M. Bailey, of Massachusetts, reading the translation of M. Goffart's book, determined to put the system in practice on the Winning Farm, at Billerica, Mass. and there built 2 large silos with concrete walls. His ensilage was quite successful and Mr. Bailey wrote a book, published in 1880, in which he made most extravagant claims for the system. He assured his readers that 40 to 50 and even as high as 70 tons of corn could be grown on the acre, and he pretended that 2 tons of his ensilage was as good as 1 ton of first rate hay. Basing his calculations on such figures, he worked out

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enormous possibilities for New-England farmers, which the hard common sense of the practical men revolted at. The result however was very beneficial, as an animated controversy was begun in the agricultural press, and every where ensilage became known. The admirers of the system, those who had tried it, and found out the real advantages, gave their experiences. The American Agriculturist and the Country Gentleman, invited discussion and facts. Very soon the question resolved itself into one of expense. M. Goffart and Mr. Bailey both considered heavy stone walls and expensive weighting, essential parts of the silo, and of the keeping of the fodder. It was not long before the demand arose for a cheaper silo, and some escape from the handling of the stones, or other weights considered necessary. Naturally, on this continent, wooden walls were thought of, and in 1881, 1882 and 1883, full discussions on these points are reported. The latter year shows that some wooden silos were constructed and successful, at the same time thorough discussion of the cultivation of the crops for ensilage was had. Corn, especially, was acknowledged to be the best fodder, and the mode of cultivation, the period of growth at which to cut, the varieties best for the purpose, have been, and still are, under careful consideration. Cost of silo, and cost of handling, have been reduced to a minimum, by careful comparison of results, and by the aid of the machinists, who have provided all sorts of labour, saving aids to our work. In these advances, I am proud to say, Canadians have taken a prominent place. I have only to mention Prof. Barnard of Quebec, and Prof. Robertson of Ottawa, and Mr. D. M. Macpherson, to prove the boast. Now, we know that matured corn, cut up and properly packed, in a cheaply built wooden silo, without expensive weighting is perfectly preserved as long as we wish; and that 2 tons of such matured corn, thus preserved, is as good as 1 ton of good hay and much cheaper. We know that any ordinary farmer, can build his silo himself in a corner of his barn, and if he is not able to buy or hire machinery he can pack the long corn in his silo, and take it out quite good and find it better food than he has ever before had for his animals.

I may add a word or two of the introduction of the system into Canada and Quebec. In 1878 I think, Mr. M. Dawes of St. Anne de Bellevue built a fine stone silo, and successfully stored in it clover and corn. In 1878 or 1879, Mr. M. C. Fisk, of Abbotsford, P. Q., built a stone silo, and was satisfied with the result, though, for some years, he did not keep up the use of it, in consequence of ill-health. In 1881, I, myself, built a wooden silo, which as far as I can find must have been, if not actually the first, certainly one of the first all wood silos, on the continent. I cannot find in the writings in the Country Gentleman, in the controversy arising out of Mr. Bailey's publication, any statement of such a silo having been built so soon. Since then, a number have been built around Montreal, and in the neighbourhood of Brome in the Eastern Townships and lately Mr. C. D. Tylee, of your own parish, has shown what a farmer, with a small farm and resources can do, in providing cheaply much valuable food for his cattle. The enlightened encouragement given by our government has caused a wide extension of the system, to the great good of our farmers.

Professor Robertson, the Dairy Commissioner, early grasped the full advantages of the systems, and to his advocacy and logical and clear explanation of the theory and practice, much of the complete success and wide extension of the silo, in Canada, is due. Last season, we understand, Prof. Robertson has tried various fodders, heretofore unknown in our list of cattle food, and we wait with interest his reports as to the "Robertson Combination Ensilage." We already know that it is a success, and no doubt the agricultural world will soon acknowledge a debt to the enlightened enterprise of another Canadian experimenter.

I ought to say that, in the exhaustive discussion which has accompanied the spread of knowledge in regard to ensilage, many changes have been made in the system. The hard common sense, and the spirit of enquiry and experiment which distinguishes the leaders in agriculture to-day, on this continent, have simplified, cheapened and improved the system, so that now it is within the reach of every one, and can be employed on crops, and for purposes, little dreamt of 10 years ago. The farmers owe a debt of gratitude to those who have been instrumental in this work, and ought to acknowledge it. Nowadays, the cheapening of production is the direction in which we must lead our forces. Prices are low, and will be low and lower, so the only possibility of profit is in cheapening production. The silo is the greatest factor in such cheapening that has been discovered. We must appreciate this, and show our appreciation by adopting it, using it, and reaping the benefit. That is the best way of rewarding the labours of the pioneers in its adaptation to our needs, for as imitation is the sincerest flattery, I am sure those pioneers will be most rejoiced by seeing their experiences benefiting their compatriots and their country. The system has spread with marvelous rapidity all over the States and Canada. Those who have read the Agricultural paper, and my hearers are of the number, know the progress that has been made. I have only to point out the facilities by reason of which that progress has been possible. It took hundreds of years from the first rude use of the principle that fodder could be buried in the earth and come out good food for animals, to reach the point where civilized nations began to do this on their farms. It took a couple of generations before people of one country were able to learn and adopt the methods of other lands. It took from 20 to 25 years before the original crude practice of centuries was elaborated into a system by Mr. Goffart and others in France, but when once the scientific writers of the Agricultural Press of that cultured land, had mastered the question, it took but 10 or 12 years to spread the knowledge over two continents. We see here the enormous advantages, which our farmers of this generation have, we see the tremendous value of the assistance we derive from the educated scientific men, and the facility which the Press and Literature give us of obtaining the results of the study of those men who are able to correctly work out the problems. In no way has the value to the farmer, of the co-operation of capital, intellect and science, been so wonderfully shown, as in the spread and development of ensilage.

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LECTURE BY MR. A. R. JENNER FUST.

ROTATION OF CROPS ADAPTED TO MILK PRODUCTION.

We are attacked on all sides. If we look to the South, we see free ingress of our barley into the United States hindered, if not absolutely prohibited, by the McKinley tariff. The production of beef and mutton is so cheaply carried on by the great ranche-proprietors of the North-West that it has become almost impossible to rear bullocks or sheep with any profit in this province, while the wheat of Manitoba, now selling at some 80 cents a bushel at the elevators, makes the cultivation here of that cereal almost hopeless.

But we need not absolutely despair. If grain and meat will not bring us in much profit, if their production is carried on as it usually has been up to the present time by most of our farmers, the dairy industry still remains to us, and, in connection with that pursuit, it does not seem to me to be impossible, if a well studied rotation be followed, to still make some fair profit out of the production of meat and cereals on most of our farms.

For, where there is no stock, there is no manure ; where there is no manure there is no crop ; and neither stock, manure, nor crop can be profitably produced, unless the land be subjected to a proper rotation, a rotation not empirically selected but one that is, suited, practically, to the soil we are working, and theoretically adapted to the various demands for food the plants we cultivate make upon that soil.

You all know, that every genus of plants asks, for special kinds of food. Wheat does not insist upon being supplied with the same special food as clover, neither does barley need the same special food as pease. And it is upon this difference in the requirements of special foods that, though utterly ignorant of the theoretical reason for their practice, the farmers of my own country have, for some 90 or 100 years, been accustomed to separate the white-straw crops they grew by the interposition of some other crops of an unlike nature.

Hence, arose the Norfolk or 4 course system ; in which barley or wheat was grown every alternate year, but separated by intermediate crops of roots and clover. It stood thus :

1st year.....	Roots, turnips, mangels, &c ;
2nd "	Barley ;
3rd "	Clover, standing only one year ;
4th "	Wheat ;

Now, the practical English farmer was not quite such an unthinking creature as he seems to be considered by some people. He worked away at this rotation for many years, until, time bringing changes, he found that there were certain defects in

the yield of certain of his crops, the reasons for which had to be discovered. For instance: the clover crop, all of a sudden began to refuse to grow: a sad thing indeed; for a good plant of clover, mown two or three times, according to the season, hardly ever failed to produce a good crop of wheat. He soon found out—more than 50 years ago—that if the clover, and by clover I mean the *trifolium pratense*, or common red-clover, were sown so often, either the condition of the land, or its mechanical state, rendered that plant unsuitable to it. Some other crop, then, must take its place: what shall it be? Too many grain-crops would clearly not answer, even if the terms of their agreements—leases were very rare in those days—would admit of their succeeding one another, which they did not. They tried pease on light and beans on heavy land, in place of half the clover—both being leguminous or pod-plants—and though the following wheat-crop was not so good as heretofore, it was very little inferior, and the pulse being both hand-and horse-hoed, the land benefited considerably by the extra cultivation it received.

Thus, the 4-course system was converted into an 8-course one, and things went on as well as ever.

Another difficulty arose, some 20 years later. Malting barley always sold well, but in time, the very high state of cultivation to which our best farms had been brought by the year 1850 made the growth of a good sample of malting barley—and there was always, or almost always, a difference of at least 50 to 60 cents a bush between grinding and malting barleys—almost impossible if that grain were sown after a heavily manured crop of roots fed off, as was and is the custom, by sheep eating additional food: cake or grain, or pulse, or all three.

What was to be done? The remedy was simple: wheat was sown after roots, followed by barley and clover seed, and the wheat as usual, after the clover, completed the course. This could only be done on very well farmed land, but there the sample of barley was as bright as ever, and this is the form in which the original Norfolk course or rotation now stands in all but the most backward districts of England, viz:

1st year	.....	Roots;
2nd "	.....	Wheat;
3rd "	.....	Barley;
4th "	.....	Clover; half-pease or beans half;
5th "	.....	Wheat;

There being, as above, in reality, ten limbs to the rotation instead of the original four. And there things remain, the produce of the land having increased in acre-yield, for whereas the average yield of wheat 50 years ago was only 26 bushels an acre, it is now, as nearly as possible, 30 bushels, taking all sorts of land together.¹

¹ It must not be forgotten that, in England, both barley and wheat are horse-hoed.

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Thus, I think you will see that a sensible attention to the advantages and a sensible amendment of the defects of the common rotation of crops in England, have resulted in a marked improvement in the average yield of the most important crop of that country.

In presenting you to-day with my ideas as to the rotation best adapted to a dairy-farm in the province of Quebec, I must beg you to observe that I speak in general terms. Silo-corn will not mature sufficiently at Métis, but their swedes are superb and the Belgian carrots too, and vetches do well ; so, in the districts below Quebec, those who desire to employ ensilage for the winter supply of their dairy-cows, must substitute vetches or clover for corn.

The number of years that land should lie out in grass, again, is another point to be determined by the situation of your farms. Those who are fortunate enough to be within reach of an unlimited supply of dung, can break up their pastures sooner than those who are entirely dependent on the home-production of that description of fertiliser. But, I may state positively, the addition of a moderate ration of extra food, such as cottonseed-meal, pease-meal, crushed oats, &c., to the scanty food afforded by your pastures in July and August, will prove, in all cases, highly remunerative.

You will not, of course, neglect giving your milch cows a portion of green-meat, mown for them every day. No better use can be made of the early cut of clover. For, I need not tell you that if once a cow begins to fall off in her yield of milk, it is a mighty difficult thing to restore the original flow.

Two or three years ago, I had the honour to contribute to the Report of your Association an article on the best provision of green meat for dairy cattle, so I shall not go over that matter again, but will lay before you the rotation that, generally speaking, I think you will find suitable to the farms of, at all events, the Western part of the province.

The rotation I propose is calculated for a farm consisting of 100 acres of land under cultivation. The first limb is, of course, a hoed or green one, comprising roots, part of which may be sugar-beets, if things go well with the factories, as I hope they may, green-meat, such as vetches, early rye to be cut *very* green ; fodder-corn ; my own mixture of two bushels of oats, one of tares, one of pease, and 2 lbs. of rape, the last of which will be found very useful for your sheep to pick over after the crop is cut.

This will be followed, in the 2nd year, by barley, or wheat, sown down with grass-seeds. Of what mixture you ought to use for this purpose I say nothing : *soil and situation* must be your guides ; but Mr. Evans, the seedsman at Montreal, is fully informed of my ideas on this subject, and, if you ask him, will give you a list of such seeds as will be found suitable to your farms. These seeds, I propose to let lie out for 4 years, so the rotation will be ten years in extent. In it there will be no cramming of two-grain-crops on one another, and in the middle, that is, in the 6th

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year, provision is made for a partial cleaning of the land ; for, in such a long rotation, unless something of the sort is done, the land will become frightfully foul before the course is finished :

Acres.

First year, a cleansing or hoed-crop.....	10 ; roots, corn, pease, or beans, with oats, tares and rape.
Second year, grain.....	10 ; 7 in barley or wheat, 3 flax with gras-seeds.
Third " meadow.....	10 ;
Fourth " "	10 ;
Fifth " pasture.....	10 ;
Sixth " "	10 ; to be broken up for bastard fallow, 1st July, and
Seventh " grain	10 ; oats with 14 lbs. red-clover.
Eighth " clover.....	10 ; to be mown for hay, for silage, or for green-meat.
Ninth " grain	10 ; oats.
Tenth " pulse.....	10 ; pease on light and horse-beans on heavy land.

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Thus, you will have 40 acres in grass, 10 acres in pulse, 10 acres in clover, 10 acres in hoed-crop, 27 acres in grain, and 3 in flax.

As regards the first limb of the rotation, the hoed or cleansing crop, the preparation of this ought to be begun in the previous fall, after the crop of grain or pulse is severed. Plough or grub shallow, harrow and horse-rake the rubbish, couch, &c., and burn it, before laying up the land for the winter. The roots and corn should be sown on the land that is the least clean, as the first lot of green-meat, vetches &c., must be sown as early as possible, and there will be no time to clean it ; sowings should follow at intervals of, say, a fortnight. Pray do not fancy that 4 bushels an acre of the mixed grain and pulse are too much ; it should be cut when the vetches are just showing bloom.

I have taken 3 acres of the 2nd limb for flax. The crop may yield, if well treated, 12 bushels an acre, and as the pulse-crop of limb 10 ought to give at least 18 bushels, a very fair mixture can be made of the two in the proportion of 5 of pulse to 1 of linseed, which, for milch-cows or fattening beasts, will not be found out of the way.

As for the sixth limb, the fourth in grass, I propose to sacrifice the pasture from the 1st July, and make what we call in England a *bastard fallow* of it. The land should be ploughed shallow, cross-ploughed, two weeks later, a little deeper, by which the grass, &c., will be brought to the surface and the weeds killed, after a good tearing about with the grubber and harrow, if the month of August is as hot as usual : a fair dressing of dung lightly ploughed in will fit it for the following crop of grain.

Do not stint the clover-seed in the seventh limb : 14 lbs. an acre are not too much. The clover in the eighth limb may be mown for green-meat generally by

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the first week in June ; it may be cut for hay ; the first-cut may be hayed and the second-cut ensiled ; or it may be done whatever you like with, except ploughed under. It is, believe me, far too valuable to be treated so contemptuously. If you must bury anything, take vetches, pease, any pulse crop, except clover. As for buckwheat, green-rye, mustard, &c., I do not believe that any good is derived from interring them, unless the trifling *mechanical* effect they have may be beneficial.

As to the pulse-crop, in the tenth and last limb of the rotation, if you would only treat it as you treat a crop of potatoes, you would find it profitable. But I fear it will be a long time before I shall see here a field of pease or horse-beans drilled, hand-hoed, horse-hoed, as it is done at home. At all events you can harrow them once or twice after they have come up, particularly after a fall of rain on heavy land, if it be only to break the crust.

A propos of the horse-bean : it will not answer on light land, and it *must* be sown early. Mr. Dawes of Lachine, whose recent appointment to a seat in the Council of Agriculture I beg leave to congratulate him upon, grew these beans this year successfully ; they were drilled and horse-hoed and yielded 20 bushels an acre. No food like them for horses in cold weather, and they keep the flesh on heavy milking cows better than anything grown. I have seen them 8 feet high, on our low-lying Glo'stershire lands, and yielding 80 bushels, of 68 lbs., to the acre. Half a bushel of beans takes the place of a bushel of oats in our farm-horse rations, and other hard workers have them all through the winter ; only don't give them to an idle horse, as they are pretty sure to cause *farcy*.

You see that we have got a pretty good lot of food together on our supposed 100 acre farm. Let us see :

Ten acres of green-meat, roots, &c. at 15 tons an acre.....	150 tons.
“ “ green clover at 12 “ “	120 “
	270 tons.

To say nothing of the 27 acres of straw from the grain-crop, 10 acres of most valuable pease straw, and the two years hay of 20 acres, all of which may amount to some 110 tons of dry fodder, making in the whole about 380 tons of bulky food. To this add the grain, equal to at least 25 bushels an acre, or 675 bushels ; 180 bushels of pease and 36 bushels of linseed (which you will reserve for the calves and down-calving cows), and if you cannot make butter in winter, and plenty of cheese in summer, I have no means of showing you how to do it.

Lastly, do not stay at home so much : You may, and probably will, think I have exaggerated things, but if you would only look about you a little, if you would visit the farms of the best men to be found in the province, if you would inspect the cultivation of the Compton people, who showed forth in such glorious colours at the distribution of the “ Order of Merit ” this year, the farms of Mr. Fisher and Mr.

Foster of Knowlton, of the Messrs, Dawes, of Lachine, and of various others too numerous to mention; if you would take a month or so, "between haying and harvest," though the habit of late haymaking here brings those labours too near together I fear, to look over some of the farms I have mentioned, you would find that other men are doing better, far better than anything I have brought before you to day; and I need not remind you that, all other things being equal, what one man has done, another man can do.

LECTURE BY MR. ROBERT WHERRY,

Inspector of Brome syndicate.

Mr. Chairman and Gentlemen,

In making a summary of the methods of cheese-making I find it has been the aim of experts and leading lights to adopt one uniform system throughout the Dominion to secure consistency of make and evenness of quality, and there is no doubt but the means taken and the instructions given to farmers and cheese-makers to bring about this condition of affairs have been the means of materially improving our great Canadian cheese-industry.

It is true, system and uniformity are desirable in cheese-making but can only be applied successfully when the surrounding conditions of soil, climate, &c., are uniform. For instance, the quality of the milk would have to be uniformly alike in all sections and localities. If it were possible for all the milk in the country to follow down the many different sectional channels into one great reservoir, like our small streams into our great rivers, thus becoming uniformly mixed and then returned to be made into cheese, the adoption of one uniform system would do: provided our great cheese consumers were uniform in mind and taste. But such uniformity not existing, we can hardly afford to allow our eyes to be closed by one iron rule at the expense of the many different localities producing milk under entirely different circumstances of climate, soil, food and water; the milk of each locality requiring treatment in unison with its own sectional peculiarities.

As there has been very little known or publicly stated concerning this difference in local treatment, I think it is at least worthy of our consideration and investigation.

Such investigation has been unavoidably forced upon me in pursuance of my duty as inspector; and, as a result, I am able to present to your minds for consideration at least a few facts which set forth the necessity of a difference in the local treatment and handling of milk in the manufacture of cheese of a uniform quality. This uniformity of quality we are able to produce by close observation and careful

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study of the character and needs of the milk of each section, and of the treatment required in different localities to produce reasonably uniform results throughout, and by skilfully manipulating the applications and varying the processes of the many agencies employed in cheese making ;

Such as ripening milk more or less, using large or small quantities of rennet, cutting curd coarse or fine, stirring it slowly or rapidly in the whey, heating it to a low or high temperature, giving more or less acid at time of drawing the whey, stirring curd vigorously after the whey is off to expel the moisture or allowing it to pack with the moisture in, ripening or mellowing the curd down in the pack more or less, using large or small quantities of salt, pressing hard or easy. All of which we can control and use as a means of varying our system of manufacturing locally, so as to enable us to equalise the quality of all sections by a practical experience of handling milk produced under different circumstances of climate, soil, water, air, food, &c.

The cow machine is a creature of circumstances, and while she may impart to the milk she produces some of her own individuality in the form of high or low color, more or less butter-fat, the quality of the milk is also largely affected by the food, water and air she is required to eat, drink and breathe. We find her producing a certain quality of milk on low, level tracts of country from grasses grown on clay and swampy soils, with dark, sluggish creeks and streams of water and impure wells to drink from. We find this varied when we come to a rolling limestone section with clear springs of hard water. Again, when we come to a mountainous springy section, with slate rock and pure springs of soft water, we find another and perhaps the very best quality of milk known to cheese-makers in this country. All these variations in quality, force upon us the conclusion that the milk of different sections of the country requires different treatment to produce that uniformity of texture and quality that the great cheese-markets of the world demand, but which can be supplied by our makers studying up and skilfully utilising the agencies known to us, so as to produce a uniform quality of cheese in all localities, with the exception of flavour which leaves its indelable sectional brand of matter, soil and climate, these giving a local character to the cheese of the different districts.

When I first came to the Bedford district, I found the cheese that was being made there much too soft to please the taste of consumers, or to compete successfully with the cheese of that part of Ontario in which I had been making. I supposed that our Ontario system had not been tried here, so I introduced it but soon found that I had no better success than those who had gone before me. I at once concluded that the instructions suitable to Ontario could not be successfully applied in that district, and determined to vary my processes of manufacture, so as to, if possible, meet the varying conditions. I did so, and by a series of experiments succeeded in inventing a system that I have since applied, you, Gentlemen, know with what results.

ROB. WHERRY.

 REPORT OF THE COMMITTEE APPOINTED

 TO EXAMINE THE MACHINES AND UTENSILS EMPLOYED IN THE MANUFACTURE OF
 BUTTER AND CHEESE.

To the President and Directors of the Dairymen's Association :

Gentlemen,

The undersigned, appointed to examine the machines and utensils employed in making butter and cheese, have the honour to report :

1. That they have examined with satisfaction :

Two centrifugal separators, with their driving-belts, and other accessories, to wit : One Alexandra No. 1, and a small Danish separator, the arrangements of which are supplied with a speed controller, a truly important improvement. Both these machines are exhibited by the Company of Dairy-machinery ;

And a Fargo butter-worker, exhibited by Mr. F. Wilson.

2. That they have also examined a sample of butter-tubs of five different sizes, of 10, 25, 35, 50, and 70 lbs., content, proceeding from a new factory recently opened at Cap Santé (Portneuf) by MM. Bernard and Richard ; and another sample of tubs exhibited by M. Fréchette of St. Ferdinand d'Halifax.

They beg to be allowed to congratulate the makers and agents of dairy-utensils who exhibit at our meetings improved articles. This is an excellent means of diffusing the knowledge of good apparatus for factories, the best systems of packing butter and cheese, and of insuring the rapid progress of the dairy-industry.

Ste-Thérèse de Blainville, December 14th 1893.

L. J. A. MARSAN,
 P. MACFARLANE,
 J. D. LECLAIR.

 THE LECTURES AND CONVENTIONS OF THE DAIRYMEN'S ASSOCIATION.

By Emile Castel.

When, six months ago, M. J. de L. Taché told me that he meant to present me as a candidate for your votes as his successor in the duties of secretary of your association, I felt that he was doing me a great and formidable honour. In spite of his modesty, he must permit me to say, and to asseverate, that the zeal, the intelligence, and the activity he has manifested in the conduct of your business will render the task of his successor a very arduous one, whatever may be the earnestness, the devotion, and even the endowments of that successor. Without concealing this

from myself, least question noble ancestor to look danger fore, accepted M. Taché.

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from myself, I have often called to mind that one of those qualities, among those least questioned as being the mark of our race, one of those which, thanks to your noble ancestors, have been most freely imported into New-France, is knowing how to look danger in the face, and how to measure its extent with coolness. I therefore, accepted, if not without apprehension, at least with resolution, the proposal of M. Taché.

I was not an entire stranger to the labours of your association, seeing that I had been observing its operations for nearly the previous 5 years ; and, desirous of fulfilling the hopes of my predecessor, I, as the son of a good surveyor (en fils de bon arpenteur), easily persuaded myself that if I was anxious to continue in a straight line the road that M. Taché had opened for me, it was my duty to seek in the already important and interesting collections of your annual reports the stakes or land-marks that would enable me to trace out the road I should have to follow. I therefore immediately set to work on this task.

In proportion as I advanced in this investigation of your previous labours, I became convinced that for the members of our association, for the farmers in general of this province, all of whom are directly interested in the success of the dairy-industry, the collection of your reports, the numerous lectures and instructive essays this collection contains, would prove an inexhaustible mine of valuable information, an unerring guide, a vade-mecum, a manual of the dairy-industry of the province of Quebec, if a complete and systematic analytical table of it could be made and published at a moderate price.

One of our former directors, a man of experience and information, whose absence to-day I lament, told me, even recently, that it would be worth while to make of all these essays and lectures a classification and an abridgment, with a view to the publication of a new edition, which, in his opinion, would be of great service to the people. This would be a work of great nicety, one that would require much knowledge, much discernment, and the concurrent assistance of many men of true earnestness.

The analytical table I mentioned above might be a preliminary step, a preparation, inasmuch as it would effect a classification of the essays. I would have prepared for this convention the analytical table of a single subject : ensilage, for instance ; but time failed me, though I have succeeded at least in offering you a summary, a rapid review of the matters treated at our first ten annual conventions, and at the two extraordinary conventions held at Quebec in 1885 and 1886.

This work will doubtless prove to be rather dry reading ; but our object here is not simply to amuse ourselves ; most of those present have come hither, I am persuaded, to gain information ; and if I succeed in convincing many of them that our annual report are *good books*, I shall not have thrown away my time, but far better, I shall have done good to those I have convinced.

Before entering upon the details of this classification, it will not perhaps be inopportune to relate in a few words the history of the Association. A voice of

greater *timbre* than mine will tell us its story at the Farmers' Congress, which the Hon. Commissioner of Agriculture, in his solicitude for the welfare of the agricultural classes, proposes to hold at Quebec at the beginning of the next session of the House.

In January 1882, a meeting was held at St-Hyacinthe with a view to the establishment of a regular association for "the improvement of the manufacture of butter and cheese." The movement started at St. Hyacinthe had at its head the Hon. B. de la Bruère, Ed. A. Barnard, the Rev. J. B. Chartier, L. T. Brodeur, A. Casavant, A. Chicoine, and J. de L. Taché, labourers of "the first hour" who have all remained faithful to their task, with the exception of M. Casavant, whose loss the association still laments.

In the course of the year, the association was established and incorporated; and in November, 1882, it held, at St. Hyacinthe, its first annual convention.

Since that date, 10 annual conventions and 2 extraordinary meetings have been held. St. Hyacinthe, the cradle of the association, sheltered its infancy. At the age of 4 years, the youthful association was introduced to the world at Quebec, in an extraordinary meeting; the following year, 1887, it appeared at Three-Rivers, but to return before long to the scene of its earliest successes. Emboldened, however, by the reception it had met with abroad, and acceding to the prayers of the people who desired its visits, as a benefit to agriculture and the dairy-industry in the district visited, it was to be seen successively at l'Assomption, in January 1889, at Arthabaska, in the end of that year; at Sorel, in 1890, and at Montmagny, at the beginning of the present year, 1892. The pleasant reception it met with at St. Thérèse and the promptness with which its people replied to the appeal of the local director, Mr. Frs. Dion, will no doubt encourage the association to continue its roamings. Many districts are now disputing the honour of receiving it next year.

The success of the convention is no doubt very flattering, but there is another kind of testimony that the association warmly appreciates, that kind that is heard in "the joyous jingle of hard cash," as they would say in the old country, where the *cent-sous* is still greatly venerated. The Canadian dollar (*paper. Trans.*) is perhaps less pleasant to the eye and ear, but it is equally held in high esteem by the association, not so much, believe me, on account of its purchasing power, as because it represents a subscriber, a friend. Little presents, says an old proverb, maintain friendship. A friend makes a slight gift to the association; it will not be behindhand with him; at once, it dispatches to him some pamphlets on farming, some work on dairying, the report for the year of the association, its annual bulletins; it provides him with the Journal d'Agriculture gratis. Giving, and giving freely, as the association does, let us, since we are among friends, avow that the association does its work well, and that the dollar paid to it is well laid out. Without going so far as to say that the subscriber gives an egg to get back an ox, it is certain that the farmer who, for the last ten years has regularly paid his subscription, has attended the conventions, listened attentively to the lectures, profited by the teaching and organisation of the association, must have realised by a hundred fold the ten dollars

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he has paid to the society. So it is not wonderful that the number of the members is annually on the increase. There were 70 members in 1882, now, there are more than 600. The yearly rate of increase has been nearly constant and regular : is it encouraging, is it satisfactory, is it sufficient ? I do not hesitate to reply in the negative. I have tried to make out a list of the cheeseries and creameries of the province, but, as yet, I have not been able to complete it ; but I think I can assert there are at present about 850 cheeseries and 150 creameries. Well, do you not think that the 1000 makers of butter and cheese in those factories ought all to belong to our association ? Taking 20 patrons, at least, to every factory, we have 20,000 farmers benefiting by the dairy-industry, and out of this number which, large as it seems, is very much below the reality, we have only 600 subscribers, of whom, at most, 350 are makers of butter and cheese !!! Am I not right, gentlemen, in saying that the progressive increase of our membership is insufficient ? Every cheese- and butter-maker should become enrolled ; this would give us at least a thousand members ; this would be better, but not yet enough. We reckon on the extension of the number of syndicates to increase the list of our subscribers. Here, let me, *en passant*, point out a state of things that is much to be regretted. Our rules stipulate that every syndicated factory should pay a subscription to the association ; it is right to acknowledge that the greater part of the proprietors have, without making any difficulty about it, conformed to this rule ; but, are there not some who have refused payment, under pretence of having received nothing from the association during the year ? To these, I have already intimated what opinion may be held of their conduct, but I wish to make it thoroughly understood that to be a member of a syndicate does not make one a member of the association, but to become so, it is necessary that the subscription be paid. The syndicates are the work of the society ; they are under the control of the rules that the legislature has authorised the society to lay down ; one word added to these rules might make the subscriptions of the syndicates payable in advance ; and it would be a service done to them if they were made to pay in advance, for they would not lose, as many have done by deferring their enrolment too long, the benefit of the bulletins on the best methods of manufacture by the inspector-general, and the other bulletins of the association.

I advise, then, the secretaries and the inspectors of syndicates to see next year that, in their respective syndicates, the subscriptions be paid early.

But these serious inconveniences, which I thought well to mention passingly, have led me far away from my subject.

From the number of members of the association, I am about to proceed to the number—a much smaller one, but still considerable—of educated men, earnest and devoted men, who have afforded us the assistance of their addresses. The society is indebted to 64 speakers for 142 lectures and reports delivered at its different meetings ; and, thus, I return to my starting point. These essays have attacked and treated many varied questions, or, rather, many varied reports of the same question :

"The prosperity of the agricultural classes of the Province of Quebec advanced by the Dairy-Industry."

To enable readers to make out the meaning of this numerous collection of essays, it would be well, I think, to divide it into ten classes, by which I mean, that the analytical table I spoke of at the beginning of this note, should consist of ten chapters headed, or nearly so, as follows :

	Number of subjects treated.
1 Agriculture in general	21
2 Ensilage.....	7
3 Stock, selection and feeding of.....	18
4 The Dairy-Industry in general.....	53
5 The testing of milk.....	4
6 Butter.....	12
7 Cheese.....	9
8 The trade and production.....	4
9 The means of influencing farmers.....	7
10 The butter- and cheese-syndicates.....	3

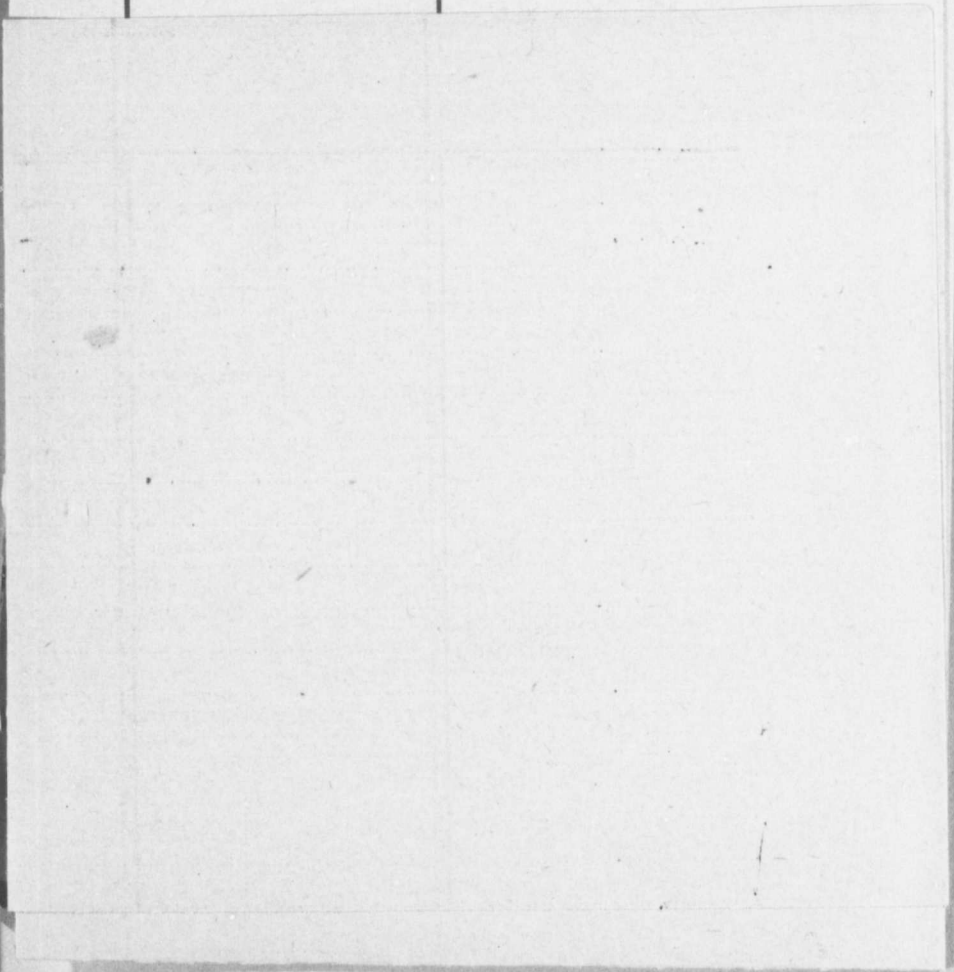
It would be only paying a debt of gratitude to mention here the names of all the lecturers, but it is a long one, and I will limit myself to quoting to you, in order of constancy, the most faithful names, following them by the number and subject of their lectures : MM. J. C. Chapais, Dominion Asst. Commissioner of the Dairy-Industry (8 lectures, *cultivation and dairying*) ; Dr J. A. Couture, V. S. (6, *selection and feeding of cattle*) ; Ed. A. Barnard, Director of the Journal of Agriculture, (5, *cultivation, cattle and dairying*) ; Arthur R. Jenner Fust, (5, *cultivation, and feeding of stock*) ; the Hon. Louis Beaubien, Minister of Agriculture of the Province of Quebec, (4, *ensilage*) ; D. Macpherson, (4, *manufacture of cheese and the production of milk*) ; Aimé Lord, (4, *manufacture of butter and the use of the Babcock*) ; Antoine Casavant, (5, *cultivation, and the breeding of swine*) ; the Rev. A. Chartier, (3, *ensilage*) ; the Revd. M. Montminy, (3, *Farmers' Clubs*) ;

Not being in a position to prolong this list indefinitely, and being obliged to limit my essay to a given time, I beg those of our lecturers, whose names to-day rest in the shade, to forgive me ; and I promise them to display their names in full in the table of honour which I have prepared to grace the walls of our school at St. Hyacinthe, for the information of our pupils and of the public in general.

(See the annexed table.)

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{ Agricultural education in Belgium. Progress in butter making	
	Jamaica Exhibition.....



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COMPETITION OF REGISTERED CANADIAN COWS.

There were no cows entered in the competition for 1893.

RECEIPTS AND EXPENDITURE.

OF THE SOCIETY FOR THE YEAR 1892.

RECEIPTS.

Grant to the Society, 1892.....	\$ 1500 00
" " balance from 1891.....	300 00
" School factory, 1891.....	300 00
Interest for the year.....	0 00
Subscriptions received.....	582 00
Sale of reports.....	13 00
Receipts for visits (1891).....	0 00
Collections.....	0 00
Sundries.....	24 00
Balance in hand 1891.....	136 48
Grant for syndicates.....	1000 00
	<hr/>
	3856 08
Balance due to the secretary-treasurer.....	171 07
	<hr/>
	4027 15

EXPENSES.

Printing.....	411 48
Stationery, postage, &c.....	183 92
Directors' travelling expenses.....	124 24
Grant to a rd expenses of the convention ..	281 30
Salary to the secretary-treasurer.....	308 00
Travelling Expenses, teaching, syndicate, 1890-91.....	30 00
Prizes for the " competition ".....	40 00
Purchase of books and subscriptions.....	39 55
Extraordinary expenses.....	0 00
Syndicates and travelling dairy-school.....	2608 66
	<hr/>
Total.....	\$ 4027 15

See Report of the Auditors page 25.

LIST OF THE BUTTER AND CHEESE-FACTORIES

OF THE PROVINCE OF QUEBEC. (1)

ARGENTEUIL

Parishes.	Names of the Proprietors.	C. C.	Creamery.	Cheesery.
Chatham	Ross, Thos. & Son			4
Grenville.....	" "			1
Harrington.....	" "			1
Lachute.....	" "			3
St. Andrew.....	" "			1
"	William J. Morrow.....	1		3
St. Philippe	Ross, Thos. & Son.....			2

ARTHABASKA.

Arthabaska ville.....	J. C. Thibeault.....			1
"	Maheu et frère.....			1
St. Albert.....	Albert Lainesse.....			1
"	J. de L. Taché.....			1
Ste. Clotilde de Horton.....	G. E. O. Benoit.....			1
St. Christophe.....	Maheu et frère.....			1
"	Bergeron Philéas.....			1
"	Michel Jos.....			1
"	Baril Thos.....			1
St. Hélène de Chester.....	P. Dumas.....			1
"	P. Girard.....			1
"	Léon Camiré.....			1
"	Ferdinand Fortier.....			1
St. Louis de Blandford.....	Dolphis St. Laurent.....			1
St. Norbert.....	Alfred Ouellette.....			1
"	Brunel.....			1
"	St. Pierre et Bourbeau.....			1
"	David Dumont.....			1
"	Dame Vve Pellerin.....			1
St. Paul.....	Irenée Bergeron.....			1
"	Grégoire Lafontaine.....			1
"	Xavier Moreau.....			1
"	Joseph Leclair.....			1
"	L'Heureux et Fouquet.....			1
St. Patrick.....	Zéphirin Genest.....			1
"	Xavier Moreau.....			1
"	Joseph Morneau.....			1
"	P. D. Larivière.....			1
"	Philéas Laroche.....			1
St. Rémi de Tingwick.....	Taché et Lefebvre.....			1
"	Adélar Proulx.....			1
"	Ernest Poisson.....			1
St. Samuel.....	Bergeron et Trudel.....			1
St. Valère de Butstrode.....	Leclair et frère.....			1
"	Adolphe St. Laurent.....			1
"	Blanchette et St. Laurent.....			1

(1) We only offer this list to the public as an imperfect one. There are many corrections needed in it, and we beg all those interested in it to help us to correct and complete it. If requested, we shall be happy to send blanks to be filled up. E. C.

Parishes

Stanford.....
"
"
"
Victoriaville.....
Warwick (St. Médard).....
"
Chester (Nord).....

St. André d'Acton.....

"

St. Christine.....

St. Dominique.....

"

"

St. Ephrem d'Upton.....

"

St. Hélène.....

"

St. Hugues.....

"

"

St. Liboire.....

"

St. Nazaire.....

St. Pie.....

"

"

St. Rosalie.....

"

St. Simon.....

"

"

St. Théodore.....

"

Saints Angés.....

"

St. Côme de Kennebec.....

St. Elzéar.....

"

St. Evariste de Forsyth.....

St. François.....

"

"

ARTHABASKA.—Continued.

Parishes	Nam's of the Proprietors	C. C.	Creameries.	Cheeseries.
Stanford.....	Fréchette et B-ril.....			1
".....	Léonard Perreault et Cie.....		1	
".....	Dme Vve J. Pellerin.....			1
".....	Cal. Dion.....			1
".....	Georges Blanchette.....			1
Victoriaville.....	D. O. Bourbeau.....			1
Warwick (St. Médard).....	A. M. Méthot.....			1
".....	David Guillem-tte.....			1
".....	Philéas Larøche.....			1
Chester (Nord).....	Joseph Prince.....			1

BAGOT.

St. André d'Acton.....	McDonald Milton.....			1
".....	Asselin Cédras.....			1
St. Christine.....	McDonald Milton.....			1
St. Dominique.....	Salois Edmond.....			1
".....	Ménard Philéas.....			1
".....	Chagnor Antoine.....			1
".....	Lapalme J.-Bte.....			1
".....	Frédette Norb.....			1
St. Ephrem d'Upton.....	S. Lafontaine et frère ..			1
".....	Ls. Lussier.....			1
St. Hélène.....	Dufault Eusèbe.....			1
".....	Sicard Antoine.....			1
St. Hugues.....	Brodeur, Fafard et Brousseau...			1
".....	Joret Louis.....			1
".....	L'Heureux Octave.....			1
St. Liboire.....	Lemonde Jos.....			1
".....	Lajoie François.....			1
St. Nazaire.....	Milton McDonald.....			1
St. Pie.....	J.-Bte. Racine.....			1
".....	J. Blanchard.....			1
".....	A. Langevin.....			1
".....	A. Morin.....			1
".....	Toussaint Normandin.....			1
St. Rosalie.....	Jos. B. Grenier.....			1
".....	Frs. Lemonde.....			1
St. Simon.....	Hermenegilde Robert.....			1
".....	Laliberté Edouard.....			1
".....	Joseph Lemonde.....			1
St. Théodore.....	Michel Tanguay, Elie Sylvestre.			1
".....	Isidore Jodoin.....			1

BEAUCE

Saints Angés.....	Plante et Giguère.....			1
".....	N. Beaudoin.....			1
St. Côme de Kennebec.....	Irénée Bélanger.....			1
St. Elzéar.....	Drouin Plante.....			1
".....	(A vendre).....			1
St. Evariste de Forsyth.....	Lachance et Blais.....			1
St. François.....	Bolduc & Co.....			1
".....	Fortin & Co.....			1
".....	Chs. Bolduc et autres.....			1

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BEAUCE—Continued.

Parishes.	Names of the Proprietors.	C. C.	Creameries.	Cheeseries
St. François.....	J. Bureau et autres.....			1
"	Frs. Gagnon et autres.....			1
"	N. Beaudoin.....			1
"	Ed. Loubier et autres.....			1
"	T. Poulin et autres.....		1	
St. Frédéric.....	F. X. Plante.....			1
"	Vital Roy.....			1
St. Georges.....	Albert Poulin.....			1
"	L. Gendreau.....			1
"	Ch. Poulin.....			1
"	John Gosling.....			1
"	Morin & Cie.....			1
St. Honoré.....	Cheese Factory Co. (Co. n° 1).....			1
"	N. Beaudoin.....		1	
"	Rousseau & Fortier.....			1
St. Joseph.....	Joseph Lambert (St. Joseph).....			1
"	Vital Roy.....			1
"	Noël Roy.....			1
"	Ephrem Tardif.....			1
"	Thomas Doyon.....			1
"	Vital Cliche.....			1
St. Marie.....	McPherson & Taché.....	1		
"	Jean Faucher.....			1
"	H. Havard.....			1
"	Marcou & Cie.....			1
St. Pierre de Broughton.....	Alfred Gagné.....			1
"	J. Gagnon.....			1
St. Samuel.....	Société n° 1.....			1
St. Sébastien.....	Nap. Beaudoin.....			1
St. Victor de Tring.....	McPherson & Taché.....		1	
"	Nap. Beaudoin.....			2
"	F. X. Plante.....			3
St. Vital de Lambton.....	C. B. Lavigne.....			2
"	J. E. Roberge.....		1	
St. Methode d'Astock.....	Fromagerie n° 1 d'Astock.....			1

BEAUHARNOIS.

St. Clément.....	St. Clément Cheese Co.....			1
St. Etienne.....	Jérémie Brosseau.....			1
"	Délia Laberge.....			1
St. Louis de Gonzague.....	Thompson John.....			1
"	Tait Chas.....			1
"	Gardner Thos.....			1
"	Sauvé Antoine.....			1
"	McPherson et Ferguson.....			1
"	Lepage Horm.....		1	
St. Stanislas de Kostka.....	Aug. Lesperance.....			2
"	William Durnin.....			1
St. Timothée.....	Auguste Crevier.....			1
Ste. Cécile de Valleyfield.....	James Irwine.....			1

Parishes

St. Gervais.....
St. Michel.....
St. Raphaël.....

The Report from the

Berthier paroisse.....

".....

".....

".....

Isle du Pas.....

".....

St. Barthelemi.....

".....

".....

St. Cuthbert.....

".....

".....

".....

".....

St. Damien.....

".....

".....

".....

".....

Lanoraie.....

".....

St. Michel des Saints.....

St. Norbert.....

Lavaltrie.....

New Richmond.....

Port Daniel.....

BELLECHASSE

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
St. Gervais.....	Dr Tanguay.....		1	
St. Michel.....	Jos. Ringuet.....		1	
St. Raphaël.....	Phil. Gonthier.....		1	
The Report from the other parishes has not reached us.				

BERTHIER

Berthier paroisse.....	U. Courchesne.....			1
".....	A. Dulmaine.....			1
".....	Atchie Mousseau.....			1
".....	Louis Olivier.....			1
Isle du Pas.....	George Boland.....			1
".....	Alfred Plante.....			1
".....	J. Bte. Côté.....			1
St. Barthelemi.....	F. E. Rouleau.....			1
".....	F. X. Mayer.....			1
".....	O. Brunette.....			1
".....	Urgel Lécuyer.....			1
St. Cuthbert.....	Ulric Courchesne.....			1
".....	Joachim Grégoire.....			1
".....	Robert Antoine.....			1
".....	J. Marchand.....			1
".....	H. Brunette.....			1
".....	J. Lacourse.....			1
St. Damien.....	Joseph Boucher.....			1
".....	Euclide Boucher.....			1
".....				1
St. Gabriel de Brandon.....	George Dubeau.....			3
".....	Edward Remington.....			1
".....	J. Robillard.....			1
Lanoraie.....	Ulric Courchesne.....			1
".....	A. Farland.....			1
St. Michel des Saints.....	Alexis Ménard.....			1
St. Norbert.....	Sn. Denis.....			2
Lavaltrie.....	A. Robert.....			1

BONAVENTURE

New Richmond.....	J. E. Arseneau (Co.).....			1
Port Daniel.....	(Co.) Rev. Aug. Gagnon.....			1

BROME

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
Bolton East	Randall			1
"	Bowker Geo.			1
"	Scott Morah			1
"	Vaughan Cedric			1
"	Lacaillade Louis			1
"	Beauchamp Ludger			1
Bolton West	Blunt Rufus			1
"	Blunt Rufus			1
Brome	Gingras G. E.			1
"	McClay Isabelle			1
"	Robb Geo. A.			1
"	McCrum Geo.			1
"	Rockwell Byron			1
"	Benjamin John			1
"	Hastings Cassius			1
"	Taylor Wm			1
"	Vernal John			1
Farnham East	Dominique Philias			1
"	Boright A.			1
"	Enright John			1
"	Hawk H. A.			1
"	J-well C. D.			1
"	Wilkinson Thos.			1
"	Sewell Carrie			1
"	Wilkinson Hermas			1
Potton	Clark Dom. Sec.			1
"	Hare Jane, Miss.			1
"	Bailey Alfred			1
"	Howie & Labelle			1
Sutton	Estey Asa			1
"	Willey C.			1
"	Newton Arthur			1
"	Hawley Amos			1
"	Strong James			1
"	McFarlane Wm			1
"	McFarlane Arthur			1
"	Wells Willard			1
"	Caveneau C.			1
"	Sweet G. B.			1
"	Perkins Wm			1

CHAMBLY

Chambly				2
St. Basile le grand	Trudeau Avila			1
St. Hubert	Alfred Baillargeon			1
St. Joseph de Chambly	Georges Pepin			1

CHAMPLAIN

Champlain	Joseph G. Félix			1
N.-D. du Mont Carmel	Ducharme Luc			1
Ste. Anne de la Pêrade	N. E. Clement	1		
"	J. T. H. Dubord	1		
"	Daniel Foley			1
"	Michel Loranger			1

Parishes

St. Flore
"
St. Frs. Xavier de I
"
St. Frs. Xavier de
"
Ste. Geneviève de
"
"
St. Luc
"
St. Maurice
"
"
St. Narcisse
"
"
St. Prosper
"
"
St. Stanislas
"
St. Thècle
St. Tite
"
"
St. Séverin
"
St. Adolphe
"
Baie St. Paul
"
"
Malbaie
St. Urbain
St. Fidèle

CHAMPLAIN—Continued.

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
St. Flore.....	Edouard Laperrière & Mateau			1
"	Uldéric Leblanc.....			1
"	Hilaire Lupien.....			1
St. Frs. Xavier de Batiscan.....	Laguère Isidore.....			1
"	L. P. Lacoursière.....			1
"	Pierre Lapointe.....			1
St. Frs. Xavier de Batiscan.....	Ludger Duval			1
"	Chs. Gouin.....			1
Ste. Geneviève de Batiscan.....	Philippe Trudel.....			1
"	Onésime Marchand.....			1
"	E. Massicotte & Noberl.....			1
"	Ernest Jacob.....			1
"	F. X. Massicotte.....			1
St. Luc.....	Anselme Beaudoin.....	1		1
"	Louis Beaudoin.....			1
"	Hubert Noberl.....	1		1
St. Maurice.....	F. X. Blondin.....			1
"	Antoine Laprise.....	1		1
"	Hubert Noberl.....	1		1
St. Narcisse.....	Trefflé Trudel			1
"	"			1
"	Ferdinand Cossette.....			1
"	Benjamin Boulanger.....			1
"	Joseph Drouin.....			1
St. Prosper.....	Alfred Trudel.....			1
"	Guillaume Lacoursière.....			1
"	Cloutier et Lacoursière.....			1
"	Théophile Cloutier.....			1
St. Stanislas.....	Alfred Trudel et Cie.			1
"	Joseph L. Jacob.....			1
"	J. Jacob			1
St. Thècle.....	Alfred Trudel & Cie.....			1
St. Tite.....	Alfred Trudel & Cie.....			1
"	Jacob et Paquin			1
"	François Marchand			1
"	Théodore Moreau			1
"	Zotique Allaire.....			1
"	Jacob et Lacourcière			1
St. Séverin.....	Trudel & T. Veillet.....			1
"	Narcisse Bordeleau			1
"	Majorique Bordeleau.....			1
St. Adolphe.....	Alfred Trudel & Cie.....			1
"	P. N. Chaillet.....			1

CHARLEVOIX

Baie St. Paul.....	Gédéon Perron.....			1
"	Martel Charles.....			1
"	Fortin Benjamin.....			1
"	St. Henri.....			1
"	Gagnon Alfred.....			1
Malbaie.....	Bradette Jules.....			1
"	Bouchard Joseph.....			1
St. Urbain.....	Ouellet Samuel.....			1
St. Fidele.....	Antoine Perron			1

CHATEAUGUAY

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
Chateauguay	Narcisse R. Laberge.....			1
St. Jean Chrysostôme.....	McPherson et Ferguson.....			1
“ Aubry.....	“ “.....			1
“ Garland.....	Héritier S. Pettis.....		1	
“ Russelltown.....	N. Beaudin.....		1	
Ste. Martine.....	Edward McGowan.....			2
“.....	Etienne Marleau.....			2
Ste. Malachie de Ormstown.....	Edwin Hookes.....			1
“.....	James Sangster.....			1
“.....	Co. of farmers (J. W. Sadler, sec)			1
“.....	Wm. Graham.....			1
“.....	Wm. Callum.....			1
“.....	McPherson & Ferguson.....			1
Ormstown (village).....	“ “.....			1
Ste. Philomène.....	Edouard McGowan.....			1
“.....	J. Bte. Damours.....			1
Très St. Sacrement.....	Ward & Carter.....			1
“.....	Jos. McGregor.....			1
“.....	McPherson & Ferguson.....			1
“.....	Donald McDonald.....			1

CHICOUTIMI

St. Alexis.....	Jules Gauthier.....			1
“.....	Alexis Blair.....		1	
St. Alphonse.....	F. Paradis.....			1
“.....	Joseph Buteau.....			1
“.....	Wilfrid Côté.....			1
“.....	Elie Tremblay.....			1
Ste. Anne.....	Nazaire Boucher.....			1
“.....	Henri Côté.....			1
“.....	Xavier Savard.....			1
“.....	Louis Boucher.....			1
Chicoutimi.....	Frs. Maltais.....			1
“.....	David Maltais.....			1
“.....	Henri Fortin.....			1
“.....	Ernest Jean.....			1
“.....	Frs. Brassard.....			1
“.....	W. Grant.....			1
“.....	N. Alexander.....		1	
St. Dominique.....	Joseph Brassard.....			1
“.....	Donat Brassard.....		1	
“.....	John Brassard.....			1
“.....	Jean Girard.....			1
“.....	Xavier Gagnon.....			1
St. Fulgence.....	Thom. Villeneuve.....			1
N.-D. de la Terrière.....	Thom. Tremblay.....			1
“.....	Ls. Aubin.....		1	
“.....	Benjamin Gaudreault.....			1
St. Jean (Anse).....	Zéphirin Desgagné.....			1

Parishes

Bury.....
 Coatcock.....
 Clifton East.....
 N.-D. des Bois.....
 Ste. Edwidge.....
 “ Martinoi.....
 St. Pierre de Ditton...
 St. Romain.....
 St. Venant.....
 Auckland.....

St. Augustin.....
 “.....
 “.....
 St. Canut.....
 St. Eusache (paroisse).
 “.....
 “.....

“ village...
 St. Hermas.....
 “.....
 St. Joseph du Lac.....
 Ste. Monique.....
 St. Placide.....
 Ste. Scholastique.....
 “ village...
 Oka.....

Frampton.....
 St. Anselme.....
 St. Bernard.....
 Ste. Claire.....
 “.....
 Ste. Benedine.....
 St. Sidore.....
 Ste. Justine.....
 St. Léon de Standon...
 St. Malachie.....
 Ste. Marguerite.....
 “.....
 St. Odilon.....

COMPTON

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
Bury.....	John Mackie.....			1
Coaticook.....	A. Gérin.....			1
Clifton East.....	E. S. Lussier.....			1
N.-D. des Bois.....	A. R. Dumoulin.....			1
Ste. Edwidge.....	A. Gérin.....			1
" Martinonville.....	".....			1
St. Pierre de Ditton.....	Alex. Bourret.....			1
St. Romain.....	Cyrille Bourque.....		1	
St. Venant.....	Frank L. Young.....			1
".....	Paquette L.....			1
Auckland.....	Roy Jos.....			1

DEUX-MONTAGNES

St. Augustin.....	Osias Duquette.....		1	
".....	J. H. Charbonneau.....			1
".....	Noé Duquette.....			1
St. Canut.....	M. Grace.....			1
St. Eusache (paroisse).....	Oscar Paquette.....		1	
".....	F. X. Laurin.....		1	
".....	L. W. J. Payment.....		1	
" village.....	J. E. Binette.....		1	
St. Hermas.....	Benjamin Beauchamp.....			1
".....	J. W. Morrow.....			1
St. Joseph du Lac.....	McCall & Ladouceur.....			1
Ste. Monique.....	Gaudet Albert.....			1
St. Placide.....	Pilon Anthime.....			1
Ste. Scholastique.....	Louis Lacroix.....			1
".....	John Morin.....			1
" village.....	J. Dumoulin.....			1
Oka.....	RR. PP. Trappistes.....		1	

DORCHESTER

Frampton.....	J. Bte. Blais.....			1
St. Anselme.....	McPherson & Taché.....		1	
St. Bernard.....	Veuve C Genest.....		1	
Ste. Claire.....	Georges Richard.....			1
".....	Alphonse Bernier.....			1
Ste. Henedine.....	Marsolay Marchand.....		1	
St. Sidore.....	J. de L. Taché.....		2	
Ste. Justine.....	Léo Cayouette.....			1
St. Léon de Standon.....	Victor Blanchet.....			1
St. Malachie.....	Napoléon Beaudoin.....			1
Ste. Marguerite.....	David Cloutier.....			1
".....	Société de Cultivateurs.....			1
St. Odilon.....	Veilleux & Cie.....			1

DRUMMOND.

Parishes.	Nam ^s of the Proprietors	C. C.	Creameries	Cheeseries
Kingsey french village.....	Société de St. Félix.....			1
" "	George Benoit.....			1
" "	Jos. Lefebvre.....			1
" "	Société, J. Lefebvre, ger.....			1
L'Av'nir (St. Pierre de Durham)	Hylas Duguay.....			1
" "	Ephrem Charpentier.....			1
" "	C. Duguay & Cie.....			1
" "	H. Duguay & Cie.....			1
" "	Duncan McLeod.....			1
" "	George Benoit.....			1
" "	H. Duguay & Cie.....			1
Ste. Anne.....	Rév. G. Caron (Sec Tres.).....		1	
"	A. McCallum.....			1
St. Eugène.....	Gedeon Nicholas.....			1
St. Fulgence de Durham.....	D. N. McLeod.....			1
" "	Ulfer Mongeon.....			1
Ste. Christine.....	Charles Asselin.....			1
St. Germain de Grantham.....	Olivier Lemaire.....			1
"	Michel Gauthier, fils.....			1
"	Louis Fontaine.....			1
Drumondville.....	Linière Olivier.....			1
St. Bonaventure d'Upton.....	Proulx Eusèbe et Cie.....			1
St. Guillaume d'Upton.....	Archambault Alfred.....			1
Wendover Simpson.....	Raymond Napoléon.....			1
"	Cyr Charles.....			1
Wickham Ouest.....	Lafrance Jos.....			1

GASPÉ

No factories.

HOCHELAGA

Rivière des Prairies.....	Numa Vésina.....			1
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HUNTINGDON

Dundee.....	D. M. Macpherson.....			5
"	MacFarlane et Macpherson.....			2
Elgin.....	"			2
"	D. M. Macpherson.....			1
"	Thos. Wood.....			1
Franklin.....	R. H. Boomhower.....		1	
Godmanchester.....	D. M. Mcpherson.....			4
"	MacFarlane et McPherson.....			2
"	W. Patton.....			1
"	John Elder.....			1
Havelock.....	M. Saunders.....		1	

Parishes

Hemmingford.....

Hinchinbrooke.....

"

"

"

"

"

"

"

"

Kelso.....

St. Anicet.....

"

"

"

"

St. Barbe.....

St. Alexandre.....

"

St. Athanase.....

"

St. Brigide.....

"

St. George de Henry.....

"

St. Grégoire le Grand.....

"

St. Sébastien.....

St. Geneviève.....

"

"

Pointe Claire.....

Ste Anne.....

Ile Bizard.....

HUNTINGDON—Continued.

ries	Cheeseries	Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
	1	Hemmingford.....	Thrs. Boyce.....		2	
	1	Hinchinbrooke.....	D. M. Macpherson.....			2
	1	".....	Macfarlane et Macpherson.....			1
	1	".....	Parquhar et Oliver.....			1
	1	".....	John Cairns.....			1
	1	".....	Samuel Henderson.....			1
	1	".....	Daniel Staring.....			1
	1	".....	Robert Kelly.....			1
	1	".....	John Purse.....			1
	1	".....	John Boyd.....			1
	1	".....	Rob. Boyd.....		1	
	1	Kelso.....	F. Wilson.....		1	
	1	St. Anicet.....	Macfarlane et Macpherson.....			2
	1	".....	D. M. McPherson.....			1
	1	".....	Rob. Warden.....			1
	1	".....	Rob. Stirling.....			1
	1	".....	Masson et Gaza.....			1
	1	".....	Robert Brown.....			1
	1	Ste. Barbe.....	Damase Daoust.....			1

IBERVILLE

		St. Alexandre.....	Narcisse Breault, fils.....			1
		".....	Amb. Labrecque, fils.....			1
		".....	Frs. Vigeant.....			1
		St. Athanase.....	Boucher J. B.....			1
		".....	Bergeron Olivier.....			1
		St. Brigide.....	Godfroid Tessier.....			1
		".....	Osius Archambault.....			1
		St. George de Henry.....	Léon Bernard, Vincent Charles.....			1
		".....	-société.....			1
		St. Grégoire le Grand.....	M. Monat.....			1
		".....	Nazaire Langevin.....			1
		St. Sébastien.....	Pierre Breau, fils.....		1	

JACQUES-CARTIER

		Ste. Geneviève.....	Urgel Lauzon.....	1		
		".....	Ambroise Pilon.....		1	
		".....	J.-Bte Meloche.....		1	
		Pointe Claire.....	Daniel Legault.....			1
		Ste Anne.....	Télesphore Madore.....		1	
		Ile Bizard.....	Nap. Boivin.....		1	

JOLIETTE

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
St. Alphonse	George Etienne Trudeau.....			1
" "	Rosario Gervais.....			1
St. Ambroise.....	Joseph Breault			1
" "	H. Boucher			1
" "	Joanne Grégoire.....			1
Ste. Beatrice.....	Onésime Boucher.....			1
" "	Alfred Laporte.....			1
St. Come.....	Labine et Lacasse.....			1
St. Elisabeth.....	Lacasse et Beaulieu.....			1
" "	U. Dudemaine.....			1
" "	George Dubeau.....			1
" "	George Gingras.....			1
" "	G. Roy.....			1
Ste. Emmélie.....	G. Boucher.....			1
" "	Onésime Beaudry.....			1
" "	Moïse Beaulieu.....			1
" "	Joseph Desrochers.....			1
" "	Joseph Coutu.....			1
" "	Charles Blais.....			1
St. Jean de Matha.....	Louis Robitaille.....			1
" "	Louis Marcil			1
" "	Joseph Brault.....			1
" "	Adolphe Ratel.....			1
" "	Anselme Asselin.....			1
" "	Léon Bonin			1
" "	Moïse Roy.....			1
St. Félix de Valois.....	John Louis Coutu.....			1
" "	Joseph Gravelle.....			1
" "	Eugène Boucher.....			1
" "	George Asselin.....			1
Ste. Melanie.....	Clement.....			1
St. Paul.....	M. Gingras.....			1
" "	N. Briere.....			1

KAMOURASKA

St. Alexandre.....	Edouard Pelletier.....			1
St. André.....	A.R. Desjardins et A.C. Marquis.....			1
Ste. Anne de la Pocatière.....	François Gendron.....	1		
" "	Joseph Boucher.....			1
St. Denis.....	Augustin Dionne.....	1		
St. Germain de Kamouraska.....	Bernier			1
Ste. Eélène.....	Anselme Ouellette.....			1
St. Philippe de Neri.....	Louis Anctil et Cie.....	1		
Rivière Ouelle.....	J. A. Pelletier.....	1		

Parishes

Chambord

Heberville.....

"

"

Normandin.....

Roberval

St. Bruno.....

St. Félicien.....

St. Gédéon.....

St. Jérôme.....

"

"

St. Joseph d'Alma.....

" "

St. Prime.....

.....

.....

.....

L'Assomption (ville).....

Lachenaie.....

Laurentides.....

St. Lin.....

"

L'Epiphanie

St. Henri de Mascouche

"

"

"

St. Paul l'Hermite.....

St. Roch.....

"

St. Sulpice.....

L'Assomption (Haut).....

" Point du j

.....

.....

St. Frs de Salle.....

"

St. Martin.....

St. Rose.....

" village.....

St. Vincent de Paul.....

"

"

LAC ST-JEAN

eries	Cheeseries	Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
	1	Chambord	Octave Lefrançois			1
	1	Heberville.....	P. E. Hudon.....			1
	1	"	Servule Tremblay			1
	1	"	Pierre Martel.....			1
	1	Normandin.....	J. E. Trotter.....			1
	1	Roberval	S. C. Paquet.....			1
	1	St. Bruno.....	Benj. Desbiens.....			1
	1	St. Pélicien.....	David Girard.....			1
	1	St. Gédéon.....	Jos Girard.....			1
	1	St. Jérôme.....	Damase Jalbert... ..			1
	1	"	Pierre Martel.....			1
	1	"	Joseph Gagnon.....			1
	1	St. Joseph d'Alma.....	Frs. Harvey.....			1
	1	"	Arsène Tremblay.....			1
	1	St. Prime.....	Adelard Perron			1

LAPRAIRIE

L'ASSOMPTION

	1	L'Assomption (ville).....	Collège de l'Assomption.....	1		
	1	Lachenaie.....	Frs. Allard.....			1
	1	Laurentides.....	Edmond Desmarais.....	1		
	1	St. Lin.....	Alfred Allaire.....		1	
	1	"	Théodule Corbeil		1	
	1	L'Épiphanie	Aimé Lord		1	
	1	St. Henri de Mascouche	Dagenais Thomas.....		1	
	1	"	Joseph Chaillon.....			1
	1	"	Alphonse Saucisse.....		1	
	1	"	Lamoureux Louis.....		1	
	1	"	Vaillancourt Arthur.....		1	
	1	St. Paul l'Hermite.....	Samuel Chagnon.....			1
	1	St. Roch.....	Raymond Lesage.....		1	
	1	"	Joseph DeLongchamp.....		1	
	1	St. Sulpice.....	Chicoine et Giguère.....		1	
	1	L'Assomption (Haut).....	Desroches et Masse.....			1
	1	" Point du jour.....	Société de Fromagerie.....			1

LAVAL

	1	St. Frs de Salle.....	Adam			1
	1	"	Onésime Vayette.....			1
	1	St. Martin.....	Allard L. et Côté M.....			2
	1	St. Rose.....	Wilfrid Cloutier.....			1
	1	" village.....	Isaïe Ouimet.....		1	
	1	St. Vincent de Paul.....	C. E. Paré.....		1	
	1	"	Augustin Allard.....			1
	1	"	Ludger Menard.....			1

LEVIS

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
St. Henri.....	Adolph Fortier.....			1
".....	N. Beaudoin.....		1	
St. Lambert.....	McPherson et Taché.....		1	
St. Nicholas.....	Alf. Berg-ron et E. Fréchette.....			1
".....	Benj. de Villers.....		1	

L'ISLET

Anse-à-Gile.....	Bernier et Dussault.....		1	
L'Islet.....	Boucher et Leclerc.....			1
".....	Carbonneau et Leclerc.....			1
" (Trois Saumons).....	Cyrias Houle.....		1	
St. Aubert.....	Alfred Blain.....		1	
".....	Boissonneau.....		1	
St. Cyrille.....	?			1
".....	L. S. Boucher.....		1	
St. Jean Port-Joly.....	Ed. Vaillancourt.....		1	
St. Louise.....	Nazaire Caron.....			1
St. Roch des Aulnaies.....	Pelletier Origène.....			1

LOTBINIERE

St. Agapit.....	Télesphore Roger.....			1
".....	Arthur Tremblay.....		1	
St. Agathe.....	Octave Boulanger.....		1	
St. Antoine de Tilly.....	Alphonse Bergeron.....			1
".....	Alphée Aubin.....			1
".....	Félix Lambert.....			1
St. Appollinaire.....	J.-Bt. Lambert.....			1
".....	J.-Bte. Côté.....			1
St. Croix.....	Rinfret, Boisvert & Garneau.....			1
".....	".....			1
".....	".....			1
".....	Eugène Réaume.....			1
St. Edouard.....	Ferd. Coulombe.....			1
".....	Elisée Hamel.....			1
".....	Cie de Villers.....	1		
St. Emélie.....	Vve. Gagné.....			1
St. Flavien.....	Lazare Bédard.....			1
St. Jean des Chaillons.....	A. A. Mailhot.....		1	
".....	Arthur Paré.....			1
".....	Dubuc & Frère.....			1
".....	Genest.....			1
St. Louis de Lotbinière.....	Henri Bernier.....		1	
".....	Laurent Hamel.....			1
".....	Vésina.....		1	
St. Narcisse.....	Alphonse Desrochers.....			1
St. Philomène.....	Philippe Bourret.....			1
St. Sylvestre.....	Paquette.....		1	

Parishes

Maskinongé.....
".....
St. Alexis.....
".....
St. Didace.....
".....
".....
".....
".....
".....
St. Justin.....
".....
".....
St. Léon.....
".....
".....
".....
St. Paulin.....
".....
".....
St. Ursule No 1.....
".....
".....
".....
".....
".....
".....
Maskigoche.....
Louiseville.....
".....
".....
".....
Matane.....
".....
St. Flavie.....
".....
".....
".....
Verdun. Ouest.....
Beeds.....
Cyster.....
S.-D. de Lourdes.....
Sacré Cœur de Marie.....
Somerseset.....
".....
".....
Chetford.....
".....

MASKINONGÉ

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
Maskinongé	N. E. Clément & Cie.....	1		
"	P. Sicard.....			1
St. Alexis.....	P. L. Bellerose.....			1
"	Pierre Boucher.....			1
St. Didace.....	E. Lanoix.....			1
"	H. Boucher.....			1
"	Joseph Jalette.....			1
"	Bellerose & Perrault.....			1
"	Alfred Morin.....			1
"	Henri Bergeron.....			1
"	George Lefrançois.....			1
St. Justin.....	Pierre Baril.....		1	
"	J. A. Clément.....			1
"	A. Ladouceur.....			1
St. Léon.....	Léonard Milot.....			1
"	Hector Caron.....			1
"	Samuel Lefrançois.....			1
"	Roy & Caron.....			1
"	Napoléon Roy.....			1
"	Lessard & Paquin.....			1
St. Paulin.....	Henri Bergeron.....			1
"	"			1
"	"			1
St. Ursule No 1.....	Georges Boland.....			1
" 2.....	"			1
" 3.....	"			1
"	Dolphis Lessard.....			1
"	Sam. Boucher.....			1
"	Dolphis Belanger.....			1
Maskigoche.....	Georges Lefrançois.....			1
Louiseville.....	Milot & Cie.....		1	
"	C. Paquin.....			1
"	Hector Caron.....			1

MATANE

Matane	Harrison & Truchon.....		1	
"	Stanislas Thibault.....		1	
St. Flavie.....	Honoré Paquet.....			1

MEGANTIC

Verdun. Ouest.....	Thibault & Marion.....			1
Leeds.....	M. Wilson.....			1
Lyster.....	Côté & Cie.....			1
N.-D. de Lourdes.....	Gasien Roy.....			1
Sacré Cœur de Marie.....	Raymond Beaudoin.....			1
Somerset.....	J. DeGuise & Cie.....	1		
"	Napoléon Proulx.....		1	
"	David Simoneau.....			1
St. Thelford.....	J. Gagné.....			1
"	Cloutier & Cie.....			1

MEGANTIC—Continued.

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
St. Adrien.....	Caron & Roy.....			1
".....	Gilbert & Masse.....			1
St. Ferdinand.....	B. Pelletier.....			1
".....	Louis Gilbert.....			1
".....	".....			1
".....	Thibault & Boucher.....			1
".....	X. Masse & Cie.....			1
".....	Louis Gilbert.....			1
".....	Oscar Gilbert.....			1
".....	Beaudoin & Provencher.....			1
".....	Lavertu & Cie.....			1
Ste. Julie.....	Mercier & Comtois.....			1
".....	Jutras & Cie.....			2
St. Pierre Baptiste.....	Thibault & Marcoux.....			1
Ste. Sophie.....	U. Pellerin.....			1
".....	Beliveau & Skilling.....			1
".....	Honoré Fortier.....			1
".....	C. Boucher.....			1

MISSISQUOI

Dunham.....	Ingalls, Edmund.....			1
".....	Ingalls, Sherman.....			1
".....	Harvey, C. M.....			1
".....	Wales, J. G.....			1
".....	Coles, Jilbert.....			1
".....	Teel, Cornélius.....			1
".....	Girard, N.....			1
".....	Ruiter, Mathew.....			1
".....	Hutchins, E. O.....			1
".....	Gilbert, Henry and J. L.....			1
".....	Burnett, Thomas.....			1
Farnham Town.....	McQuillen, Jno.....			1
Farnham West.....	Welch, Ewin.....			1
".....	Kennedy, Guy.....			1
Notre-Dame des Anges.....	Varois, Aug.....			1
St. Armand East.....	Bridge, Edward.....			1
".....	Bridge, A. E.....			1
St. Armand West.....	McKee, Thomas.....			1
St. Ignace.....	McKee, Robt.....			1
".....	Russell, Ernest.....			1
".....	Taylor, Smith.....			1

MONTCALM

Rawdon.....	J. Lane.....			1
St. Alexis.....	Ernest Liard.....			1
".....	O. Magnan.....	1		
St. Calixte.....	B. Rivet.....			1
St. Esprit.....	R. Lesage.....		1	
".....	A. Riopel.....			1
St. Jacques.....	A. Boucher.....			1
".....	J. Marion.....		1	
Ste. Julienne.....	O. Magnan.....		1	
St. Liguori.....	A. Gaudette.....		1	
Ste. Marie Salomé.....	Ernest Gaudette.....		1	
St. Théodore.....	A. Riopel.....			1

Parishes

Berthier.....
 Cap St. Ignace.....
 ".....
 Isle aux Grues.....
 ".....
 Montmagny (ville).....
 ".....
 St. Frs. Riv. du Sud...
 St. Pierre Riv. du Sud
 St. Paul de Buton.....

Ange Gardien.....
 Château Richer.....
 Ste. Anne de Beaupré
 Ste. Famille.....
 St. Joachim.....
 St. Féréol.....
 St. François Isle d'Orlé
 St. Jean I. O.....
 St. Pierre I. O.....
 St. Tite des Caps.....

Montréal.....

St. Cyprien.....
 St. Michel Archange...
 St. Rémi.....
 ".....

Béancourt.....
 ".....
 Nicolet, paroisse.....
 ".....
 " ville.....
 St. Angèle de Laval.....
 Ste. Brigitte des Saults..
 St. Célestin, village...
 ".....
 " Côte St. Pie

MONTMAGNY

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
Berthier	Numa Bernatchez.....		1	
Cap St. Ignace.....	Joseph Jalbert.....		1	
"	Edouard Pelletier.....			1
Isle aux Grues.....	Chs. Georges Roy.....			1
"	"			1
Montmagny (ville).....	H. Hébert.....		1	
"	Société.....		1	
St. Frs. Riv. du Sud.....	F.-X. Dagneau.....		1	
St. Pierre Riv. du Sud.....	Jacques Collin.....		1	
St. Paul de Baton.....	F. Guiment.....			1

MONTMORENCY

Ange Gardien.....	H. Huotte.....		1	
Château Richer.....	E. Rhéaume.....		1	
Ste. Anne de Beaupré.....	Edouard Morel.....		1	
Ste. Famille.....	Jos. Paul Blouin.....			1
St. Joachim.....	Séminaire de Québec.....		1	
St. P-rcel.....	Edouard Gariépy.....			1
St. François Isle d'Orléans.....	J. Côté.....		1	
St. Jean I. O.....	P. C. Blouin.....		1	
St. Pierre I. O.....	Joseph Lortie (société).....		1	
St. Tite des Caps.....	Edouard Gariépy.....			1

MONTREAL

Montréal.....	E. Quintal & Cie.....		1	
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NAPIERVILLE

St. Cyprien.....	Société Rvd. A. P. Tassé.....			1
St. Michel Archange.....	J. Venchestein.....		1	
St. Rémi.....	Charles Huguet Latour.....		1	
"	Etienne Marleau.....			3

NICOLET

Bécancourt	Philémon Brassard.....			1
"	Stanislas Montplaisir.....			1
Nicolet, paroisse.....	Napoléon Desfossés.....			1
"	Abraham Beaulac.....			1
" ville.....	M. G. Proulx.....	1		
St. Angèle de Laval.....	Joseph Hébert.....			1
Ste. Brigitte des Saults.....	Jos. Lemire.....			1
St. Célestin, village.....	O. Fournier.....			1
"	Antoine Hébert.....			1
" Côte St. Pierre.....	Philémon Duguay.....			1

NICOLET—Continued.

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
St. Célestin, near C.P.R. Station	Jos. Piché			1
St. Edouard	Eusébe Houle			1
"	Onésime Fournier 2ème rang			1
"	" 3 "			1
Ste. Eulalie	Luc Thibodeau & Hamel			1
"	Joseph Trudel			1
Ste. Gertrude	Eusébe Houle			2
"	Moise Girard			1
St. Léonard	Hébert & Thibodeau			1
Ste. Monique, village	Pothier & Milot			1
" " cordeau	Chs. Milot			1
" " G. St. Esprit	Chs. Milot			1
" " " "	Chs. Milot			1
" " dans l'Isle	Jos. Lafrance			1
" " " "	J -B. Beauchemin			1
Ste. Marie de Blandford	H. S. Cantin			1
St. Pierre les Becquets	Noé Mercure			1
" " " "	Ferd Cinq Mars			1
Ste. Perpétue, village	Luc Girard			1
" " " "	J. B. Beauchemin			1
Ste. Sophie de Lévrard	Damase Dubuc			1
" " " "	Paul Barabé			1
St. Samuel	?			1
St. Wenceslas	Albert Thibodeau			1

OTTAWA

Early	Simpson			1
"	Simpson			1
L'Ange Gardien	Damase Meilleur			1
Lochaber West	R. McLachland & Co			1
Montebello	Ferdinand Hunault			1
N. D. de Bonsecours	Napoléon Hunault			1
St-Angélique	F. S. McKay			2
"	Damase Meilleur			1
Rupert	William D. Gibson			1
St-André Avelin	Hilaire Gareau			1
"	F. McKay			1
St-Casimir de Ripon	T. S. McKay			1
Thurso	George Edwards			1
Ste-Valerie de Ponsomby	Charles Libercent			1
Lochaber et Gore	McLaughlin Bros			1
Masham	Gibson Samuel			1
Buckingham	Ths. Ross & Son			1

PONTIAC

Bristol South	McReadie			1
Calumet Island	Rouleau			1
Clarendon South	Elliott H. H.			1
Thorne	Hodgins John			1
Bristol	McKechnie			1

Parishes
St-Alban
"
"
Cap Santé
"
"
"
Deschambault
"
"
Grondine
N. D. des Anges
" de Portneuf
Pointe aux Trembles
"
"
St-Augustin
"
St-Basile
"
St-Catherine
"
St-Jeanne de Neuvill
St-Raymond
"
St-Ubald
St-Casimir
"
"
Charlesbourg
St. Edmond Stoneham
St-Foye
St-Gabriel
Beaufort
St-Aimé
"
St-Anne de Sorel
St-Louis de Bonsecours
St-Marcel
"
St-Ours ville
" paroisse

PORTNEUF

eries	Cheeseries	Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
	1	St-Alban.....	Octave Naud			1
	1	"	Jean Savard			1
	1	"	Hubert Perron			2
	1	Cap Santé.....	Bernard et Frénette.....		1	
	1	"	Félix Leclerc.....		1	
	2	"	Wilfrid Vézina.....		1	
	1	"	Gabriel Hamel.....			1
	1	"	Félix Leclerc.....			1
	1	Deschambault.....	Henri Bernier.....		1	
	1	"	Aubert Bedard Naud.....			2
	1	"	Wilfrid Vézina.....			1
	1	"	Gédéon Laganière.....			1
	1	Grondine.....	Louis Archambault.....			2
	1	N. D. des Anges.....	Philippe Moreau.....			1
	1	" de Portneuf.....	Taché et Girard.....		1	
	1	Pointe aux Trembles.....	A. Clément.....		1	
	1	"	F. Hardy.....			1
	1	"	Rochette & Cie.....			1
	1	St-Augustin.....	W. Vézina.....		1	
	1	"	East & Rochette		1	
	1	St-Basile.....	Jos. Derome & Cie.....		2	
	1	"	A. Trudel.....			1
	1	St-Catherine.....	Wilfrid Vézina.....			1
	1	"	N. E. Clément et Bussière.....			1
	1	St-Jeanne de Neuville.....	A. Bussière.....			1
	1	St-Raymond.....	J. de L. Taché.....		1	
	1	"	Lesage et Hamel			1
	1	St-Ubalde.....	Alfred Trudel.....			2
	1	St-Casimir.....	Roch Massicotte.....			2
	1	"	Honoré Gendron.....			1
	1	"	J. A. Folly.....			1
	1	"	Tessier et Rivard.....			2

QUÉBEC

Charlesbourg	Société.....		1	
St-Edmond Stoneham.....	Wilson		1	
St-Foye	Société.....		1	
St-Gabriel.....	M. Lefebvre.....			1
Beauport	James Geggie.....		1	

RICHELIEU

St-Aimé.....	Louis Lalancette.....			2
"	Joseph Hébert et Esdras.....			2
St-Anne de Sorel.....	Napoléon Latravers et Cie.....			1
St-Louis de Bonsecours.....	Antoine St-Martin.....			1
St-Marcel	Roch Guilbeault.....			1
"	Houde & Cie.....			1
St-Ours ville.....	Pierre St-Germain & Cie.....		1	
" paroisse.....	Ambroise Larivière.....		1	

RICHELIEU.—Continued.

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
St-Ours la basse.....	Société.....		1	
“ ruisseau.....	Clodomir Millette.....		1	
“ Sarasteau.....	Edouard Durocher.....		1	
“ Bord de l'eau.....	Pierre St-Germain.....		1	
St-Robert.....	J. P. Paquin.....			1
“.....	St-Germain & Cie.....			1
St-Roch.....	Collet Alexis.....			1
St-Victoire.....	Hercule Paul Hus.....			2

RICHMOND

Brompton Falls.....	Martel, Arthur.....			1
Melbourne.....	Watson, John.....			1
“.....	McLeod, Duncan.....			2
“.....	Stalker, Duncan.....			1
“.....	Dunbar, James.....			1
Shipton.....	Taché, J. de L.....			1
St-George de Windsor.....	Genest, A.....			1
“.....	Richer, George.....			1
“.....	Marcotte, Adélar.....			1
“.....	Thibodeau, Aimé.....			1
Spooner Pond Cleveland.....	Léfebvre, J.....			1
Brompton.....	H. Darby.....			1
Windsor (Hardwood Hill).....	M. Bégin, manager.....			1
“.....	Pierre Kirouac.....			
“.....	Barnard, Quinn.....			
Dennison Mills.....	Taché, J. de L.....			3

RIMOUSKI

N. D. de l'Assomption.....	Pamphile Aubert.....		1	
St. Anaclet.....	Arthur Marman.....			1
St-Cécile du Bic.....	Société de fro. 1st range.....			1
“.....	“ 2nd “.....			1
St-Fabien.....	Société de fro.....			1
“.....	Société de beurre.....		1	
St-Flavie.....	F-X. Pelletier.....			1
St-Luce.....	Alph. Pelletier.....			1
St-Mathieu.....	Société.....		1	
St. Octave de Métis.....	O. Roy.....			1
St. Simon.....	Alp. Nicole & Gagnon.....		1	

Parishes
Canrobert.....
L'Ange Gardien.....
“.....
“.....
N. D. de Bonsecours.....
“.....
“.....
St-Angèle de Monn.....
St-Hilaire.....
St-Jean-Bte.....
“.....
“.....
“.....
St-Césaire.....
“.....
St-Marie de Monnoi.....
“.....
“.....
“ de Marievi.....
St-Paul.....
“.....
St-Mathias.....
“.....
“.....
St-Michel de Rougem.....
“.....
“.....
N-D. de St. Hyacint.....
N-D. du Grand Rang.....
St. Damase.....
“.....
“ Argenteui.....
St. Madeleine.....
St. Charles.....
St. Denis village.....
“.....
“ 3e.....
“ 4e.....
La Présentation.....
“.....
“.....
St. Rose.....
St. Barnabé.....
“.....
St. Jude.....
“.....

ROUVILLE

eries	Cheeseries	Parishes	Nam's of the Proprietors	C. C.	Creameries	Cheeseries
		Canrobert.....	Nap Beatte.....			1
		L'Ange Gardien.....	Elie Bourbeau.....			1
		"	Philius Brodeur.....			1
		"	Arthur Pinsonneault.....			1
	1	N. D. de Bonsecours.....	Ambroise Tetreau.....			1
	1	"	Joseph Ostiguy.....			1
	2	"	Alfred Larivière.....			1
		Ste-Angèle de Monnoir.....	Joseph Beauregard.....			1
		St-Hilaire.....	Benoit D.....			1
		St-Jean-Bte.....	Edmond Chabot et Cie.....			1
		"	Pierre Lambert et Cie.....			1
		"	Louis Rémi et Cie.....			1
		"	Eusèbe Hébert & Cie.....			1
		"	Tétrault et Cie.....			1
		St-Césaire.....	P. Denis.....	f		
	1	"	Frédéric Ménard.....			1
	1	Ste-Marie de Monnoir.....	Frs X. Marcoux.....			1
	2	"	Paul Gemme.....			1
	1	"	"			1
	1	"	Hubert Gingras.....			1
	1	"	Joseph Bédard.....			1
	1	" de Marieville.....	"			1
	1	St-Paul.....	Ford. Morrisson.....			1
	1	"	Thomas Carignan.....			1
	1	St-Mathias.....	Alf Bertrand.....			1
	1	"	Wm Johnson.....			1
	1	"	Société.....			1
	1	St-Michel de Rougemont.....	Delage Damase.....			1
	1	"	Paul Birs.....			1

3

ST. HYACINTHE

		N-D. de St. Hyacinthe.....	Archambault J. M.....			1
		N-D. du Grand Rang.....	U. Bienvenu.....			1
		St. Damase.....	Fromagerie de Corbin.....			1
		"	" du Pont.....			1
		" Argenteuil.....	Jacques Jodoin.....			1
		St. Madeleine.....	U. Chabot.....			1
		St. Charles.....	Joseph Blondin.....			1
		St. Denis village.....	Victor Gareau.....			1
		"	U. Phaneuf.....			1
	1	" 3e.....	P. Anger.....			1
	1	" 4e.....	Frs. Allard.....			1
	1	La Présentation.....	M. Piché.....			1
		"	Cyrille Daigle.....			1
		"	Camille Letourneau.....			1
		Ste. Rose.....	?.....			1
		St. Barnabé.....	Ed. Marquard.....			1
		"	Archambault.....			1
		St. Jude.....	".....			1
		"	".....			1

ST. JEAN

Parishes	Names of the Proprietors	G. C.	Creameries	Cheeseries
Lacadie, St-Jean.....	Gonzague Couturier.....		1	
St-Bernard de Lacolle.....	J.-B. Massé & Co.....			1

ST. MAURICE

St. Barnabé.....	Arthur Milot.....			1
".....	Joseph Ringuet.....			1
".....	Wilfrid Ayotte.....			1
".....	Edouard Paquin.....			1
".....	Pierre Corriveau.....			1
St. Elie.....	Ludger Rivard.....			1
St. Etienne de Grès.....	Ulderic Brunelle.....			1
Ste. Marguerite.....	Léonard Milot.....			1
Shawenagan.....	Société.....			1
".....	Geo. Boland.....			1
".....	Léonard Milot.....			1
Pointe du Lac.....	O. Huplessis.....			1
".....	Pointe du Lac.....			1
St. Sévère.....	Euchariste Lamy.....			1
".....	Léonard Milot.....			1
".....	George Boland.....			1
Yamachiche.....	Adrien Milot.....		1	
".....	Léonard Milot.....			1
".....	Roy.....			1
".....	Edouard Paquin.....			1

SHEFFORD

Ely.....	Bombarbier, Hypolite.....			1
".....	Darby, Aza.....			1
".....	Darby, Nathan.....			1
".....	Vincelette, Emeric.....			1
".....	Brazeau, Antime.....			1
".....	Choinière, Modeste.....			1
".....	Girouard, Hilaire.....			1
".....	Fleurault, Magloire.....			1
Ely North.....	Salois, Napoléon.....			1
".....	Morin, Jos.....			1
Granby.....	Belisle, Hector.....			1
".....	Booth, Chas.....			1
".....	Ryder, Jas.....			1
".....	Bradford, Ed.....			1
".....	Beauregard, Hector.....			1
".....	Duncan, Jas.....			1
".....	Allard, Pierre.....			1
".....	Morrison, Gordon.....			1
".....	Smith, Erl.....			1
".....	Rocheleau, H.....			1
".....	Fossy, Andrew.....			1
Roxton.....	St-Onge, Théodule.....			1
".....	Beauregard, Jos.....			1
Roxton Falls.....	Brazeau, Louis.....			1

Parishes

Roxton Falls.....
St-Joachim.....
Shefford.....

".....
".....
".....
".....
".....

Stukely North.....
".....
".....

Lawrenceville.....
Stukely South.....
".....

St-Cécile de Milton.....
".....
".....

St-Pudentien.....
".....
".....

St-Valérien.....
".....
".....

Waterloo.....
".....

Ascot.....

Coteau du Lac.....
St-Clet.....
St-Joseph.....

".....
".....
".....

St-Polycarpe.....
St-Telephore.....
St-Zotique.....

Barnston.....
".....
".....

SHEFFORD.—Continued.

Parishes	Names of the Proprietors	C. C	Creameries	Cheeseries
Roxton Falls.....	Aubertin & Descarrie.....			1
St-Joachim.....	Vadnais Louis.....			1
Shefford.....	Bachand Jérémie.....			1
".....	Richardson L. E.....			1
".....	Boulé Gédéon.....			1
".....	Booth Edw.....			1
".....	Doonan James.....			1
".....	Voyer Augustin.....			1
".....	Booth Thos.....			1
".....	Beauregard Théophile.....			1
Stukely North.....	Hawkins Jas.....			1
".....	Blanchard H.....			1
".....	Roberts Robert.....			1
Lawrenceville.....	Vadnais Jos.....			1
Stukely South.....	Scott R. E.....			1
".....	Gingras Ozias.....			1
St-Cécile de Milton.....	Robert & Rochon.....			1
".....	Ballard H.....			1
St-Pudentienne.....	Purdy Henry.....			1
".....	Reynolds Mrs U.....			1
".....	Purdy W. X.....			1
".....	Brunel Isidore.....			1
".....	Vadnais Cléophas.....			1
St-Valérien.....	Depot Euclide.....			1
".....	Marsan Arthur.....			1
".....	Guertin Jos.....			1
".....	Chaput Désiré.....			1
Waterloo.....	Booth Thos.....			1
".....	Beauregard Thos.....			1

SHERBROOKE

Ascot.....	R. J. Sorel.....			1
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SOULANGES

Coteau du Lac.....	Jos. A. Bourbonnais.....		1	
St-Clet.....	George St-Denis.....		1	
St-Joseph.....	Emery Lécuyer.....		1	
".....	Basile Charlebois.....		1	
".....	Olivier Charlebois.....		1	
".....	Samuel Leroux.....		1	
".....	Godefroi Constant.....		1	
St-Polycarpe.....	Hector Leclair.....		1	
St-Telesphore.....	Joseph Louis Chénier.....		1	
St-Zotique.....	McPherson.....			1

STANSTEAD

Barnston.....	Hall G. B.....			1
".....	A. W. Martin.....			1
".....	H. E. Corliss.....			1

STANSTEAD—Continued.

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
"	W. W. Heath			1
"	Carmi Taylor			1
"	D. L. Taylor			1
"	W. K. Baldwin			1
"	J. D. Morrissou			1
Dixville	F. Martin			1
Hatley	J. D. Morrissou			1
"	Bérard et Rayvill			1
"	Rrd. F. X. Michon			1
Magog	E. J. Merry			1
Stanstead	Wm. Taylor			1
"	E. A. Baldwin			1
"	W. S. A. Buck			1
Barford	O. Trudeau			1
"	A. W. Martin			1
Coaticook	Jas. Mullins			1

TEMISCOUATA

Isle Verte	Préfontaine et Frère		1	
St. Arsène	Théophile April		1	
"	J. de L. Taché et McPherson		1	
St. Clément	Pierre April et Cie		1	
St. Eloi	J.-Bte Godbout		1	
"	Antoine Parent		1	
St. Epiphane	McPherson et Taché		1	
St. Jean de Dieu	Joseph Massé		1	
St. Paul de la Croix	Thomas Beaubien		1	

TERREBONNE

Ste. Adèle	W. Grignon		1	
Ste. Agathe	Grégoire L'Aveline		1	
St. Janvier	N. E. Clément			1
St. Jérôme	Israel Dion		1	
St. Jovite	Adolphe Desjardins		1	
St. Anne des Plaines	Philéas Désormiers		1	
St. Sauveur	John Kimpton		1	
" Pied mont	Albert Kimpton		1	
" Côte St-Lambert	E. Brasseur		1	
" Cote St-Gabriel	E. Brasseur		1	
Ste. Thérèse village	Joseph Labor té Ptre		1	
" paroisse	Alexandre Miller		1	
"	Damien Leclair		1	
"	Albert Garth		1	
Ste. Sophie	Louis Brault		1	
"	L. J. A. Lambert		1	

TROIS-RIVIÈRES.

La Banlieue	H. Duval			1
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Parishes

L'Île Perrot
 Rigaud village
 " paroisse
 Ste. Marthe
 "
 T. S. Rédempteur ...
 Vaudreuil village ...
 " paroisse... ..
 "
 Peveril
 Pointe Fortune.....

Contrecoeur
 St-Antoine
 "
 "
 Ste. Julie de Verchèr
 Ste. Théodosie... ..
 St. Marc.
 "
 Belœil
 "

Ham North
 "
 " Sud.....
 Garthby
 St. Adrien
 Sts. Anges Tétreau Mi
 "
 St. Camille.....
 "
 St. Fortunat.....
 "
 "
 St. Julien
 "
 St. Gabriel
 Weedon
 " Centre
 "
 Lac Weedon
 Canton de Weedon...
 Wotton
 "
 "

VAUDREUIL

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
L'Île Perrot.....	Antoine Daoust.....		1	
Rigaud village.....	Eugène Séguin.....			1
" paroisse.....	Joseph Séguin.....			1
St. Marthe.....	Peter Monahan.....			1
".....	Aldéric Séguin.....			1
T. S. Rédempteur.....	George Valois.....		1	
Vaudreuil village.....	Amédée Castonguay.....		1	
" paroisse.....	Paul Denis.....		1	
".....	Athanase Bimer.....		1	
".....	Basile Charlebois.....		1	
Peveril.....	McLeod.....			1
Pointe Fortune.....	Thos. Ross & Son.....			1

VERCHÈRES

Contrecoeur.....	Pierre Lamoureux.....			1
St-Antoine.....	L. J. Cartier et Cie.....			1
".....	Napoléon Birtz.....			1
".....	Elie Gaudette.....			1
St. Julie de Verchères.....	Louis Blain.....			1
St. Théodosie.....	Bruno Larose.....			1
St. Marc.....	Leroux Gaspard.....			1
".....	Alex. Chicoine.....		1	
Belœil.....	Belœil village Cheese Co.....			1

WOLFE

Ham North.....	L. Cloutier.....			1
".....	Morin Alfred.....			1
".....	Herménégilde Guertin.....			1
" Sud.....	Charles Belliveau.....			1
Garthby.....	Thomas Jacques.....			1
St. Adrien.....	N. Brochu.....			1
Sts. Anges Tétreau Mills.....	Chs Lougre.....			1
".....	Norbert Plante.....			1
St. Camille.....	J. de L. Taché.....			1
".....	Coopérative.....		1	
St. Fortunat.....	Lazare Massue.....			1
".....	Joseph et Narcisse.....			1
".....	France Beaudoin.....			1
St. Julien.....	Louis Gilbert.....			3
".....	Gilbert et Morin.....			1
St. Gabriel.....	Gédéon Heon.....			1
".....	Walter Hébert.....			1
Weedon.....	Ouellette.....			1
" Centre.....	Simon Fontaine.....			1
".....	Francis Ouellet.....			1
Lac Weedon.....	".....			1
Canton de Weedon.....	Alphonse Fontaine.....			
Wotton.....	J. de L. Taché.....		1	1
".....	".....			1
".....	Proulx et Cie.....			1

YAMASKA

Parishes	Names of the Proprietors	C. C.	Creameries	Cheeseries
La Baie du Febvre.....	J. L. Lemire et Cie.....	1		
"	"			1
"	J. N. Duguay.....			1
"	"			1
"	Charles Drouin.....			1
"	Allard Lefebvre et Demers.....			1
"	"			1
"	Elie Proulx.....			1
"	"		1	
"	François Jutras.....			1
"	Michel Courchesne.....			1
St. David.....	Charles Cyr & Co.....			1
"	Herménégilde Fontaine.....			1
"	Hormisdas Lebrun et Cie.....			1
St. Elphège.....	William Parent.....			1
"	Siméon Paquette.....			1
St. François du Lac.....	J. N. Duguay.....			2
"	Charles Cyr.....			1
St. Guillaume.....	Brodeur et Vigneau.....			1
"	Boucher et Lanoie.....			1
St. Pie Deguire.....	Edmond Dauplaise.....			1
"	Charles Cyr.....			1
St. Thomas de Pierreville.....	William Parent.....			1
"	Ida Niquette.....			1
"	Armand Alie.....			1
St. Zéphirin.....	J. N. Duguay.....			3
"	Milot et Lupien.....			1
"	Cyprien Jutras.....			1
Yamaska Ouest.....	Lemire et Parenteau.....			1
" Est.....	Lafond et Roberge.....			1

LIST O

- St-Adolphe de
- Arthabaskavill
- "
- Rivière Noire..
- St-Albert de W
- Ste-Clotilde....
- Ste-Hélène de
- "
- St-Norbert.....
- "
- St-Patrick's Hi
- St-Patrick de T
- St-Paul.....
- St-Valère de B
- "
- "
- Stanfold.....
- "
- "
- "
- "
- "
- Tingwick
- "
- Trottier P. O....

LIST OF THE MEMBERS OF THE ASSOCIATION.

YEAR 1892.

COUNTIES

ARGENTEUIL.

St-Adolphe de Howard Roberge Narcisse.

ARTHABASKA.

Arthabaskaville..... Thibeault J. C.
 " Guillemette David.
 Rivière Noire..... Leclerc Achille.
 St-Albert de Warwick..... Lainesse Albert.
 Ste-Clotilde..... Houle Gédéon.
 Ste-Hélène de Chester..... Camiré Léon.
 " " Roux Pierre.
 St-Norbert..... St-Pierre Germain, 2.
 " Tousignant Nap.
 St-Patrick's Hill..... Genest Zéphirin, 2.
 St-Patrick de Tingwick..... Bédard Octave.
 St-Paul..... Bergeron Irénée.
 St-Valère de Bulstrode..... Blanchet J. L.
 " " Maheu & Frères.
 " " St-Laurent Cyrille.
 " " Trudel Joseph.
 Stanfold..... Blanchet Elzéar.
 " Dion Calixte.
 " Frechette Gédéon.
 " Hébert J. A.
 " Morand Joseph.
 " Perreault Léonard.
 Tingwick Laroche Philéas.
 " Morneau Jos.
 Trottier P. O..... Dumas P.

ries Cheeseries
 1
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 2
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 1
 1
 1
 3
 1
 1
 1

Victoriaville.....	Bolduc Siméon.
“	Bourbeau D. O.
“	Poirier J. N.
Walker's Cutting.....	St-Laurent Adolphe.
Warwick.....	Allard J. N.
“	Methot A. M.
“	Vidal N.

BAGOT.

Actonvale.....	Macdonald Milton.
Clairvaux	Robert Herménégilde.
St-Dominique.....	Fréchette Norbert.
St-Ephrem d'Upton.....	Chicoine Delplis.
“	Duhamel Louis C.
Ste-Hélène.....	Sicard Antoine.
St-Hughes.....	Brodeur L. T.
“	Depot J. B.
“	Le Febvre Emile.
“	Toupin Alexandre.
St-Liboire.....	Lemonde Joseph.
“	Lapalme J. B.
St-Pie.....	Morin Alphonse.
“	Racine Chs.
“	Roy P. E.
St-Théodore d'Acton.....	Jodoin Isidore.
Upton.....	Grandpré Louis.

BEAUCE.

Beauce Jonction.....	Cliche G.
Saints Angés.....	Lagueux Georges.
“	Plante Norbert.
St-Come.....	Giguère Gaudiose.
St-Ephrem Tring.....	Quirion Jean.
“	Nadeau E.
“	Roy Octave.
St-François.....	Bolduc Charles.
“	Busque Charles.
“	Fortin Jean.
“	Jolicœur Philippe.
“	Veilleux Philias.
St-Frédéric	Plante F. X.

St-Georges
“
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“
St-Joseph.....
“
“
Ste-Marie.....
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“
St-Sébastien..
St-Victor de T
“
Tring Station.
St-Louis de Gc
Buckland.....
St-Charles.....
“
St-Gervais.....	.....
St-Michel .....	.....
St-Raphaël Est.
Berthier Joncti
Berthier Ville..
“
“
St-Barthélemy
“
St-Cuthbert
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“

St-Georges	Garneau Fulbert. 1
"	Gendreau Louis.
"	Gendron Joseph.
"	Montminy Révd. M.
"	Peltier Joseph Emile.
"	Veilleux Pierre.
St-Joseph.....	Lambert Joseph.
"	Roy Noël.
"	Tardif Ephrem.
Ste-Marie.....	Lacroix.
"	Lindsay Charles.
"	Pépin Fortunat.
St-Sébastien.....	Marceau Ed.
St-Victor de Tring.....	Bolduc Phil.
"	Mercier Bernard.
"	Turgeon F. D.
Tring Station.....	Gagnon P.

BEAUHARNOIS.

St-Louis de Gonzague.....	Symons Jos.
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BELLECHASSE.

Buckland.....	Roy Révd. M.
St-Charles.....	Blais D.
"	Couture Cléo.
St-Gervais.....	Tanguay, Docteur P.
St-Michel	Roy Arsène.
St-Raphaël Est.....	Gonthier P.

BERTHIER.

Berthier Junction.....	Thibault J.
Berthier Ville.....	Chenevert Jos.
"	Tranchemontagne L.
"	Piette Jos. Alex.
St-Barthélemy	Brunet Ernest.
"	L'Écuyer Joseph.
St-Cuthbert	Courchesne Ulric.
"	Denis Sullivan.
"	Dubois E.
"	Grégoire Joachim.
"	Robert Antoine.

St-Gabriel de Brandon..... Dubeau Geo.
 St-Norbert..... Ayotte Jos.

BONAVENTURE.

Port Daniel..... Gagnon Révd. M. A.
 Little Cascapédia..... Peltier Marius.

BROME.

Eastman..... Lacaillade Louis.
 Knowlton..... Fisher S. A.
 St. Etienne de Bolton..... Bachand Ludger.

CHAMBLY.

CHAMPLAIN.

Batiscan..... Gouin Charles.
 "..... Lacoursière L. P.
 "..... Massicote Geo.
 "..... Trudel Philippe.
 Champlain..... Clément N. E.
 N. D. du Mont-Carmel..... Ducharme Luc.
 Ste-Anne de la Pérade..... Mercier J. F.
 Ste-Flore..... Lavergne Benjamin.
 St-Luc..... Beaudoin Anselme.
 St-Maurice..... Nobert Oscar (2).
 St-Narcisse..... Boulanger Wilbrod.
 "..... Cossette J. F.
 "..... Trudel Trefflé.
 St-Prosper..... Cloutier Désirer.
 "..... Ebocher Victor.
 "..... Trudel Alfred.
 "..... Trudel F. X. O.
 "..... Trudel J. T.
 St-Stanislas..... Jacob Jean.
 St-Séverin..... Jacob Joseph.
 "..... Bordeleau Majorique.
 St-Tite..... Grenier J. B.
 "..... Fisette Delphis.
 "..... Jacob Léger.
 "..... Moreau Philippe.
 Vincennes..... Beaudoin O.

Baie de St-P
 La Malbaie..

Ste-Martine ..
 "
 "
 Aubrey.....
 Howick.....
 Ormstown....
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 "
 "
 St-Chrysoston

Bagotville....
 "
 Chicoutimi...
 "
 "
 Jonquière.....
 "
 "
 N. D. Laterrière
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 Rivière aux Sa
 "
 St-Alexis.....
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 "
 St-Alphonse de
 "
 Ste-Anne de

 East Clifton....
 La Patrie.....
 Lingwick Goul

CHARLEVOIX.

Baie de St-Paul.....	Martel Charles.
La Malbaie.....	Bradette Jules.

CHATEAUGUAY

Ste-Martine	Gervais Jos.
“	McGowan Ed.
“	Pruneau Louis J.
Aubrey.....	Currie W.
Howick.....	Brown Alex.
Ormstown.....	Collum C.
“	Elliot U.
“	Hooker E.
“	Macdonald C.
St-Chrysostome	Boyd John.

CHICOUTIMI ET SAGUENAY.

Bagotville.....	Côté Wilfrid.
“	Perron Joseph.
Chicoutimi.....	Brassard François.
“	Jean Ernest.
“	Méridé Fortin.
Jonquière.....	Brassard Jean.
“	Fortin C. J. B.
“	Gagnon Alf.
N. D. Laterrière.....	Tremblay Albert.
“	Tremblay Thomas.
Rivière aux Sables.....	Angers Paschal.
“	Girard Jean.
St-Alexis.....	Bluteau Jos.
“	Gauthier Jules.
“	Maltais George.
“	Maltais Joseph.
St-Alphonse de Chicoutimi.....	Paradis F.
“ “	Tremblay Elie,
Ste-Anne de “	Coté Henri.

COMPTON.

East Clifton.....	Lussier E. S.
La Patrie.....	Piché M. A.
Lingwick Gould P. O.....	Painchaud J. L.

St-Edwidge.....	Gerin M. A.
Ste-Cécile.....	LaPlante Hormidas.
St-Malo d'Auckland.....	Aganière J. A.

DEUX-MONTAGNES.

St-Augustin.....	Charbonneau F. X.
“	Duquette Osias.
“	Forget J. B.
St-Benoit	Fauteux Samuel.
St-Hermas.....	Pilon Anthime.
“	Pagé Honoré.

DORCHESTER.

Frampton.....	Blais J. B.
St-Anselme.....	Mercier Ursin.
St-Claire.....	Richard Geo.
St-Isidore.....	Chabotte Achille.
“	Guilmette Eus.
“	Paradis Louis.
“	Pomerleau Philibert.
St-Odilon.....	Doyon Thomas.

DRUMMOND.

Durham.....	Préfontaine Fulgence.
“	Mongeau Ulfery.
Kingsey French Village.....	Benoit Geo, 3.
“ “ “	Cartier T. C.
“ “ “	Le Febvre J. P., 5.
St-Cyrille.....	Raymond Napoléon.
St-Eugène.....	Lapierre Honoré.
St-Germain de Grantham.....	Blanchet Olivier.
“ “	Delaney Thomas.
“ “	Fontaine Louis.
“ “	Le Maître Olivier.
St-Guillaume d'Upton.....	Fagnan Hormidas.
Wickham West.....	Lafrance Euchariste.

GASPÉ.

Mile End.....
 Montreal.....
 St-Joseph Riv

Huntingdon..
 Kilbain

“

Ste-Agnès de
 Athelstan.....
 Cazaville.....
 Dewitville.....

Dundee.
 “

“

Helena.....
 Huntingdon...

“

Herdman.....
 “

“

Kelso.....
 Kinsington.....

Laguerre.....
 “

“

Portlewis.....
 Powerscourt....

“

Ste-Agnès.....
 St-Anicet.....
 Trout River....

“

St-Alexandre...
 “

“

St-Brigide.....
 St-Grégoire.....
 Ste-Sabine.....
 “

HOCHELAGA.

Mile End.....	Charest Rév. M. F. M. A.
Montreal.....	Dellicour Alfred.
St-Joseph Rivière des Prairies.....	Adam Delvica.

HUNTINGDON.

Huntingdon.....	MacFarlane P.
Kilbain.....	Currie J. D.
".....	Welch Jos.
Ste-Agnès de Dundee.....	Marthus W.
Athelstan.....	Brown Chs.
Cazaville.....	McGibbon J. J.
Dewitville.....	McNaughton M.
Dundee.....	Dennis Meade.
".....	Fraser D. J.
".....	Hoyd E.
Helena.....	Walker G.
Huntingdon.....	Smellie Jos.
".....	Thomson A.
Herdman.....	Anderson Jos.
".....	Anderson Wm.
Kelso.....	McFarlane Jos.
Kinsington.....	Tully John.
Laguerre.....	Macpherson Angus.
".....	Finn H.
Portlewis.....	Cluff R.
Powerscourt.....	Wallace Alex.
Ste-Agnès.....	Rowley Thos.
St-Anicet.....	Leehy M. W.
Trout River.....	Morrison Dr.

IBERVILLE.

St-Alexandre.....	Brault, Fils, Narcisse
".....	Labrecque Fils A.
Ste-Brigide.....	Tessier Godefroy.
St-Grégoire.....	Barrière Thos., fils.
Ste-Sabine.....	Bouchard Ephrem.
".....	Vigeant François.

JACQUES-CARTIER.

JOLIETTE.

Joliette.....	Durocher Joseph
St-Alphonse.....	Trudeau Emisaël
Ste-Beatrix.....	Boucher Onésime.
“	Lapointe Alfred.
St-Charles de Lachenaie.....	Allard François.
Ste-Elizabeth.....	Richer Lafèche Jos.
Ste-Emelie de l'Energie.....	Boucher Jérémie.
St-Jean de Matha.....	Asselin Anselme
“ “	Beaudry Adolphe.
“ “	Blouin Léon.
“ “	Brault Joseph.
“ “	Gravel L. J.
“ “	Roy Moise.
St-Thomas	Lessard Pierre.
Rostock Kildare.....	Archambault Anatole.

KAMOURASKA.

Kamouraska.....	Ouellet Cyrias.
Ste-Anne de la Pocatière.....	Gendron Frs.
“ “	Levesque Emile.
St-Denis en bas	Bouchard Chrs.
“	Chapais J. C.
“	Gagnon Frs.
St-Paschal.....	Blais J. A.
“	Lavoie Cyriac.
St-Philippe de Néry.....	Soucy Louis.

LAC ST-JEAN.

Chambord.....	Le François Octave.
Hébertville.....	Hudon Philippe.
Normandin.....	Trottier Lucien.
Roberval.....	Dechêne Az.
St-Félicien.....	Girard David.
St-Jérôme.....	Gagnon Joseph.
“	Plourde Adélar.
St-Prime.....	Perron Adélar.

LAPRAIRIE.

.....

L'Assomption

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St-Paul l'Herr

St-Roch l'Ach

St-Martin.....

St-Vincent de

L'Islet.....

“

St-Roch Village

Trois Saumons.

Lotbinière.....

“

Leclerville.....

St-Appollinaire.

“

St-Antoine.....

Ste-Croix.....

St-Edouard.....

“

Ste-Emilie.....

St-Flavien.....

“

“

St-Louis.....

L'ASSOMPTION

L'Assomption.....	Collège d'Agriculture.
".....	Lessard Adrien.
".....	Lord Aimé.
".....	Longpré Alfred.
".....	Marsan I. J. A.
St-Paul l'Hermite.....	Chagnon Samuel.
St-Roch l'Achigan.....	Garreau J. J.

LAVAL.

St-Martin.....	Allard J. L.
St-Vincent de Paul.....	Paré Camille Elie.

LÉVIS.

L'ISLET.

L'Islet.....	Dussault Napoléon
".....	Guillemet Eustache.
St-Roch Village des Aulnais.....	Pelletier Auguste.
Trois Saumons.....	Leclair Olivier.

LOTBINIÈRE.

Lotbinière.....	Bernier Henri.
".....	Pépin Léger.
Leclerville.....	Lozé Evariste.
St-Appollinaire.....	Gingras Jos.
".....	Lambert Thomas.
St-Antoine.....	Aubin Alphée.
Ste-Croix.....	Rinfret Dr J. C.
St-Edouard.....	Daigle Théophile (2).
".....	Lord Hippolyte (2).
Ste-Emilie.....	Gagné Théoph.
St-Flavien.....	Bédard Lazare.
".....	Bernard D. U.
".....	Côté Saül.
St-Louis.....	Hamel Urbain.

MASKINONGÉ.

St-Alexis des Monts.....	Bellerose P. A.
“	Boucher P.
St-Didace.....	Lanois Philippe.
“	Morin Alfred.
St-Justin.....	Baril Pierre.
“	Gérin Révd. M. D.
“	Lacourse Jh.
“	Morin Hormisdas
St-Léon.....	Caron George.
“	Lefrançois Samuel.
“	Milot Léonard.
St-Paulin.....	Boucher Samuel.
St-Ursule	Bélangier David.
“	Boland George. (2
“	Lessard Arthur
“	Lessard Delphis.
“	Grenier Alphonso.
St-Ursule	Grenier Henri.
“	Ringuette J. G

MATANE.

CausapscaI	Chouinard.
Ste-Flavie.....	Blais R. A.

MEGANTIC

Plessisville	Drouin P. O.
“	Jutras Alf.
Richardville.....	Caron J. Ad.
Robertson Station... ..	Turgeon F. D.
St-Ferdinand	Beaudoin Nap.
“	Boucher Jos. (2)
“	Gilbert Louis.
“	“ Wilfrid.
“	“ Oscar.
“	Grégoire Pierre.
“	Laventure Jos.
“	Massé François.
“	Pelletier Barthélémy.
“	Simoneau Adolphe.
“	Thibault Louis. (2)

Ste-Julie
Sommerset.....
“
“
“

West Farnhar

Les Dalles.....
St-Esprit.....
St-Théodore de

Cap St-Ignace..
“ ..

Ile aux Grues...
“ ..

Montmagny.....

“

“

“

St-François.....

St-Pierre.....

“

St-Thomas.....

Chateau Richer .

Ste-Anne de Bea

St-Joachim... ..

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Villa Mastai.....

Ste-Julie	Comtois Georges.
Sommerset.....	Carrignan Ed.
"	Chabot Jos.
"	Deguisse F.
"	Lachance Elie.

MISSISQUOI.

West Farnham.....	Biladeau P. D.
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MONTCALM.

Les Dalles.....	Boucher Joseph.
St-Esprit.....	Beausejour Hormidas.
St-Théodore de Chertsey.....	Riopol Gilbert.

MONTMAGNY.

Cap St-Ignace.....	Dugal Samuel.
"	Jalbert Joseph.
Ile aux Grues.....	Lachaine Narcisse.
"	Roy Charles.
Montmagny.....	Bernatchez Naz.
"	Bernatchez Numa.
"	Choquette P. Aug.
"	Hébert Hubert.
St-François.....	Daignault F. X.
St-Pierre.....	Cloutier Michel.
"	Proulx Théo.
St-Thomas.....	Laberge J. O.

MONTMORENCY.

Chateau Richer	Gariepy Edouard.
Ste-Anne de Beaupré.....	Elzéar Fortier.
St-Joachim.....	Brown Hugh.
"	Fortin Célestin.
"	Fortin David.
"	L'Heureux Isidore.
"	Pépin Jos. Noé.
"	Thomassin Jos.
Villa Mastai.....	Hunt H. F.

MONTREAL.

Montreal.....	Calderhead A. L. rue St-Pierre 33.
“.....	Chénier Téléphore rue Island 195.
“.....	Gérin M. Léon, rue Dorchester 349
“.....	Langlois Ch. & Cie, rue St-Paul 241.
“.....	Libercent Chs. Torrance 11.

NAPIERVILLE.

St-Rémy.....	Latour Chs. Huguet.
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NICOLET.

Nicolet	Desfossés Napoléon.
“.....	Duguay Edouard.
“.....	Duguay Nestor.
“.....	Le Compte E.
“.....	Proulx Rév. M. G.
Gentilly.....	Houlde Eusèbe.
Ste-Brigitte des Saults.....	Lemire Jos.
St-Célestin.....	Camirand Drummond.
“.....	Duguay Philémon.
St-Grégoire.....	Desautels A. E.
“.....	Dufresne Hubert.
“.....	Forest Luc.
“.....	Hébert Olivier.
“.....	Montplaisir S.
“.....	Thibaudeau Luc, 4.
St-Léonard d'Ashton.....	Bergeron Paul.
Ste-Monique.....	Beauchemin J. B.
“.....	Milot Chas.
“.....	Milot Victor.
“.....	Pinard Jos.
“.....	Pothier B. A.
“.....	Raymond Nap.
“.....	St-Germain Evariste.
“.....	Therrien Alberique.
Ste-Perpétue.....	Girard Luc.
Ste-Sophie.....	Fortier Honoré.
“.....	Pellerin U.
St-Sylvère.....	Clément Alphonse.

Cap Santé.....
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Deschambault
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Grondines.....
Les Ecureuils..
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Pointe aux Tr
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St-Alban.....
St-Augustin....
St-Basile.....
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St-Casimir....
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St-Jeanne.....
St-Prosper....
St-Raymond....
“.....
“.....
“.....
St-Ubald.....

OTTAWA.

St-Pierre 33.
 le Island 195.
 orchester 349
 le St-Paul 241.
 nce 11.

PONTIAC.

PORTNEUF.

Cap Santé.....	Bernard L. P.
“	Ebocher Victor.
“	Falardeau Chs.
“	Leclerc Uld.
“	Vézina W.
Deschambault	Bédard Aubert.
“	Benoit Uldéric.
“	Massé P. A.
“	Naud Albert.
Grondines.....	Archambault Louis.
Les Ecureuils.....	Dussault Wilfrid.
“	Emond O
Pointe aux Trembles.....	Clermont Alfred.
“ “ “	Desrochers Wilfrid.
“ “ “	Hardy Philéas.
St-Alban	Perron Hubert.
St-Augustin.....	Rochette Phi.
St-Basile.....	Dérôme J.
“	Pelletier Chs.
St-Casimir.....	Guertin Jos.
“	Lebœuf Majorique.
“	Massicotte Jos.
“	Massicotte Roch.
“	Perron Jos.
St-Jeanne.....	Bussières Jos.
St-Prosper.....	Massé Noël.
St-Raymond.....	Doré Lucien.
“	Matte Edouard.
“	Paré Cyprien.
“	Proulx F. X.
St-Ubalde.....	Hardy Maxime.

QUEBEC.

Quebec.....	Lindsay Chs. P., rue Haldimand 13.	
"	Lachaine J. D., rue la Couronne 68.	
"	Thibaudeau J. B., rue St-Pierre.	
"	Vidal J. L. O., rue St-Paul	
" Barrière Ste-Foye.....	Paquet Chs.	
" Basse-Ville.....	Jacques Octave.	L
" Beauport.....	Lortie Pierre.	
" Lacanardièrre.....	Lortie Honoré.	P
" Séminaire.....	Gagnon Rév. M. F. C.	St
" St-Sauveur.....	Hôpital du Sacré-Cœur.	

RICHELIEU.

Ile du Pads.....	Lambert Aristide.	
St-Aimé	Lalancette Jos.	
"	Martel J. B.	
"	Sylvestre Sifvoi.	
St-Ours.....	Robillard François.	
"	Bonier Amédée.	L
"	Durocher Edouard.	St
St-Robert	Rousseau Anétold.	St
Ste-Victoire.....	Paul Hus, Hercule.	
Sorel.....	Brousseau Hertel.	
"	Bruneau Adolphe.	
"	Grandpré H. D. de.	St
"	Guevremont Séraphin.	
Visitation de l'Ile du Pads.....	Plante Louis Jos.	

RICHMOND.

Brompton Falls.....	Courtemanche S. E.	St
Danville.....	Duguay Nestor.	
Flodden.....	Stalker Duncan.	
St-Cyr.....	Charpentier Alexandre.	...
St-Georges de Windsor.....	Marcotte Adeldard.	
" " "	Richer Georges.	
Stoke Centre.....	Haerne A de	

RIMOUSKI.

Bic.....	Burns Auguste.	Sh
"	Voyer Zénon.	St

Ste-Cécile du Bic.....	Levesque Emile.
St-Simon.....	Bélanger E.
"	Nicole A. A.
"	Rioux Rév. Ludger.....

ROUVILLE.

L'Ange Gardien.....	Bourbeau Elie.
"	Brodeur Philius.
Pauline.....	Rocheleau Hormidas.
St-Césaire.....	St-Pierre Isidore.
"	Maynard Fred.
St-Jean-Baptiste.....	Baudry Pierre.
Ste-Marie de M.....	Gingras Hubert.
St Paul d'Abbotsford.....	Carignan Thos.
"	Morisson Gordon.

ST-HYACINTHE.

La Présentation.....	Beaudry Rév. C. A.
St-Damase.....	Marchesseault J. Z. (2)
St-Denis.....	Gareau Victor.
"	Gaudette Joseph.
"	Goulet Alph.
"	Phaneuf Lévis.
St-Hyacinthe.....	Chartier Rév. M. J. B.
"	Choquette Rév. M. C. P.
"	Côté Louis.
"	Rouleau Clément.
"	Taché J. de L.
St-Jude.....	St-Germain Pierre.

ST-JEAN.

ST-MAURICE.

Shawenegan.....	St-Louis Nap.
St-Barnabé.....	Eliotte Wilfrid.
St-Etienne des Grés.....	Lessard Hormidas.
"	Brunel U.

Yamachiche.....	Dorion Hercule.
"	Laberge J. O.
"	Lamy J. N.
"	Milot Adrien.

SHEFFORD.

Bethel North Ely.....	Brazeau Anthime.
Boscobel.....	Darby. A.
Granboro Granby.....	Fossy Andrews.
"	Fredette Louis.
"	Irvin Jos.
Laurenceville	Vadnais J. N.
Milton East.....	Ballard Herménégilde.
Montagne de Shefford.....	Boulé Gédéon.
"	Booth E. A.
"	Doonan E.
Racine Ely.....	Fleurent Magloire.
Rochelle.....	Campbell Jn.
Roxton Falls.....	Bachand Ludger.
"	Brazeau Louis.
Roxton Pond.....	Bachand Jérémie.
"	Vadnais Cléophas.
Roxton South.....	Reynolds Mrs. U.
Ste-Anne de Rochelle.....	Blanchard Henri.
"	Petit Aïma.
Savage's Mills.....	Purdy Henry.
"	Purdy W. S.
St-Valerien.....	Côté Rév. M. F. P.
"	Grandpré Louis.
"	Marsan Arthur.
"	Robert M.
Sheffington.....	Hayes J. Aug.
South Ely.....	Choinière Modeste.
Stukely North.....	Ruel Azarias.
Stukely South.....	Benoit J. B.
"	Gingras.
"	Scott R. E.
Valcourt Ely.....	Bombardier Hippolyte.
Warden.....	Allan H. J.
"	Richardson L. E.
"	Standish Chs.

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Waterloo.....	Boulé, père, J.
"	Boulé, fils, J.

SHERBROOKE.

SOULANGES.

Pont Château.....	Bourbonnais J. A.
St-Polycarpe.....	Leclaire J. Hector.
St-Telesphore.....	Chenier J. L.

STANSTEAD.

Coaticook.....	Mullins James.
Ste-Catherine de Hatley.....	O'Hareland Jos.
Baldwin's Mills.....	Baldwin W. K.
Barnston Corner.....	Hall Geo.
Coaticook.....	Martin A. W. (2)
"	McKee Jos.
Corliss.....	Corlias H. E.
East Hatley.....	Morrisson J. D.
Heathton.....	Heathton.
Katevale.....	Michon F. H.
Kingcroft.....	Carey U. N.
Magog.....	Wright A. L.
Martinton.....	Gustin E. R.
Minton.....	Johnson H. E.
Oliver Corner.....	Oliver Geo.
Smith's Mills.....	Taylor W. M.
South Barnston.....	Taylor C. F.
Stanstead Plain.....	Baldwin E. A.
Way's Mills.....	Taylor D. L.

TÉMISCOUATA.

Ile Verte.....	Labrie Simon.
"	Levesque David.
"	Préfontaine Chs.
St-Arsène.....	Saindon J. B.
St-Eloi.....	Godbout Cyrice.
St-Epiphane.....	Angers Paschal.
"	Dubé Eugène.
Trois Pistoles.....	Francœur D.
"	Gagnon Eugène.
"	Massé J. Oct.

TERREBONNE.

Ste-Adèle.....	Grignon Dr. W.
Ste-Thérèse.....	Desjardins Antoine.
“	Dion François.
“	Dion Israël.

TROIS-RIVIÈRES.

Trois-Rivières.....	Duval H.
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VAUDREUIL.

St.Lazare.....	Simard J. O.
Ste-Marthe.....	Monahan Peter.

VERCHÈRES.

Belœil.....	Pollin Felix.
Contrecoeur	Lamoureux Pierre.
St-Antoine.....	Gaudette Elie.
Ste-Julie.....	Daigneault Rév. J. C.
St-Marc.....	Chicoine Alexis.
“	Chicoine Arthur.
“	Le Roux Pierre.
Ste-Théodosie.....	Larose Bruneau.

WOLFE.

North Ham.....	Cloutier David.
“	Guertin H.
“	Morin Alfred.
St-Ange de North Ham.....	Martel Eusèbe.
St-Camille de Wotton.....	Lord Alphonse.
St-Julien de Wolfstown.....	Duguay Edouard.
“ “ “	Lahaie Edmond.
“ “ “	Simoneau Alexandre.

YAMASKA.

La Baie du Febvre.....	Belle-Isle Achille.
“ “	Duguay J. N.
“ “	Drouin Charles.
“ “	Lafond Georges.
“ “	Lefebvre Herménégilde.
“ “	Lemire Louis.

La Baie du Febvre.....	Lupien N. "
" "	Milot M.
" "	Martel J. B.
" "	Proulx Elie.
" "	Proulx Eusèbe.
" "	Vigneau J. B.
St-David.....	Cyr Chs.
"	Fontaine Herménégilde.
"	Mélangon Alberic.
"	Mélangon Odilon.
"	Richard Napoléon.
"	Sylvestre Sifroi.
St-Elphège	Hamel André.
"	Lépinne Ovide.
"	Lépinne Théogène.
"	Paquette Siméon.
"	P'arent William.
"	Raymond Hector.
St-François du Lac.....	Lefebvre Herman.
" "	Marcotte Joseph.
St-Guillaume d'Upton.....	Boucher Athanase.
" "	Fagnan Hormisdas.
St-Pie de Guire.....	Dauplaise Edmond.
St-Thomas de Pierreville.....	Desloriers Camille.
" "	Bibeau Roméo.
" "	Proulx Théodore.
St-Zéphirin.....	Boisvert Evariste.
"	Lahaie Edmond.
"	Raymond Noël.
Yamaska.....	Camiré Olivier.

ONTARIO.

Lancaster..... D. M. Macpherson.

FRANCE, (Côtes du Nord).

Langueux par St-Brieuc..... Aignel M. l'abbé J. B.

**NUMBER OF BUTTER- AND CHEESE-FACTORIES
BY COUNTIES.**

COUNTIES.	C.	C.	C.	COUNTIES.	C.	C.	C.
Argenteuil.....	1		15	Maskinongé.....	16	66	516
Arthabaska.....		1	45	Matane.....	1	2	30
Bagot.....			30	Mégantic.....	1	1	27
Beauce.....	1	4	44	Missisquoi.....			21
Beauharnois.....		1	13	Montcalm.....	1	5	6
Bellechasse.....		3		Montmagny.....		6	4
Berthier.....			31	Montmorency.....		7	3
Bonaventure.....			2	Montréal.....		1	
Brome.....			42	Napierreville.....		2	4
Chambly.....			5	Nicolet.....	1		34
Champlain.....	6		43	Ottawa.....			18
Charlevoix.....			3	Pontiac.....			5
Chateauguay.....		2	20	Portneuf.....		11	28
Chicoutimi.....		4	23	Québec.....		4	1
Compton.....		1	10	Richelieu.....		6	13
Deux-Montagnes.....		6	11	Richmond.....			17
Dorchester.....		5	9	Rimouski.....		4	7
Drummond.....		1	25	Rouville.....	1		27
Gaspé.....				St-Hyacinthe.....			19
Hochelaga.....			1	St-Jean.....		1	1
Huntingdon.....		6	34	St-Maurice.....		1	19
Iberville.....		1	11	Shefford.....			53
Jacques-Cartier.....	1	4	1	Sherbrooke.....			1
Joliette.....			33	Soulanges.....		9	1
Kamouraska.....	4		5	Stanstead.....			19
Laprairie.....				Témiscouata.....		9	
Lac-St-Jean.....			15	Terrebonne.....		15	1
L'Assomption.....	2	10	5	Trois Rivières.....			1
Laval.....		2	7	Vaudreuil.....		6	6
Lévis.....		3	2	Verchères.....		1	8
L'Islet.....		6	5	Wolfe.....		2	25
Lotbinière.....	1	6	20	Yamaska.....	1	1	31
	16	66	516		22	162	947

OF

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Alphabetical Table

OF THE LECTURERS AND REPORTERS, AND OF THOSE WHO
TOOK PART IN THE DISCUSSIONS.

		PAGES.
516 30 1 27 21 6 4 3 4 34 18 5 28 1 13 17 7 27 19 1 19 53 1 1 19 1 1 6 8 25 31 947	M. ALLARD, J. N..... ANGERS, Hon. A. R.... MM. AYER A. A..... " BARNARD, Ed. A. BEAUBIEN, Hon. Ls.... MM. BEAUCHAMP, M.P.P. " BOURBEAU, D. O. " BRODEUR, L. T..... " CASTEL E..... " CHAGNON, S.....	70 On the use of the Babcock.—79. Cheese-making.—104. Remarks on <i>French Cheese</i> .—140-144. Discussion on skim-cheese.—140-155-161. Discussion on the making and sale of butter, and on the machines used in its manufacture. 175 <i>French Cheese</i> ; Telegram. 104 Remarks on <i>French Cheese</i> .—140. Discussion on skim- cheese.—155-162. On the making and sale of butter, and on the machines used in its manu- facture. 28 Journal d'Agriculture; Farmers' Syndicate; <i>French Cheese</i> .—38. On Dr Grignon's lecture.—59. Discus- sion on reports of MM. McFarlane and Côté.—60- 61. On the Diplomaed Inspectors—62-67. On butter-making—70. On the Babcock.—72. The fat of milk.—74. The best season for cheese- making.—76. Paying for contents of milk.—77. Question on making butter or cheese.—86-88. Dairy implements.—94. Sympathy with death of M. Stanislas Tassé.—94-150. <i>French Cheese</i> .— 103. Commendation of M. Castel.—138. Agricultural Missionners.—202. Discussion on Dr Couture's lecture. 95 Telegram to excuse attendance. 42 Discussion on Dr Grignon's lecture. 39 Discussion on Dr Grignon's lecture.—82-83. On the richness of cheese.—86-88. Implements for the Dairy.—109. The Chicago Fair.—120. Ensilage. 41 Discussion on Dr Grignon's lecture. 103 Returns thanks.—183. Taking samples of milk.—218. Choosing cows.—The lectures and conventions of the Dairymen's Association. 79 Cheese-making.—82-83. Adding the rennet.

PAGES.

- MM. CHAPAIS, J. C.... 30 Motion in favour of Farmers' Clubs.—59. Discussion on Macfarlane's and Côté's reports.—60. On the diplomaed inspectors.—63. On butter-making.—94. Sympathy with the family of Dr Bruneau.—100. *French Cheese*.—103. Proposes M. Taché as a Director.—108. Chicago Fair ; Cartage of milk.—114. Division of the expenses of syndicates.—115. Methods of despatching silage-samples.—164-175. Lecture : On the prospects of the Dairy Industry; Motion on the sending of Canadian milch-cows to the Chicago Fair.—176. On condensed milk.—180. Payment for milk according to its richness
- " CHICOINE, ALEXIS 176 On condensed milk.
- " CHOQUETTE, Rvd. C. P. 83 Sending milk-samples ; programme of the Course of Chemistry at the St. Hyacinthe Dairy-School.
- " CLÉMENT, N. E... 140-144. Discussion on skim-cheese.—185. Question to M. Fisher.—187. Request for dispatch of report in May or June.
- " COTÉ, Révd. F. P. 61 On the school-factory.—78-79. The manufacture of butter and cheese as regards the fat-contents of milk.—82. Preparation of milk.—112. Syndicates.—153. The aerogenic churn.
- " COTÉ SAUL..... 55 Report on the travelling dairy-school.—80. Payment for milk according to its richness.—82. Ripening of milk and adding the rennet.—113. Inspectors of syndicates.—163. Machines used in butter-making.—179. Discussion on M. Lord's lecture : payment for milk according to its richness.—182. Taking milk-samples.
- " COUTURE, Dr..... 100 *French Cheese*.—188-206. Lecture : on the Physiology of lactation, and on the production of milk.
- " DALLAIRE, O. E.. 119 Discussion on ensilage.—123. Agricultural lectures, &c.—163. Machines used in butter-making.—183. Taking samples of milk.
- DELEGATE, A..... 152 Aerogenic churn.—161. Machines for butter-making, the Fargo-butter-worker. — 178-179. Discussion on M. Lord's lecture : payment for milk according to its richness.—182. Sample-taking.—186. Question to M. Fisher.—202-203. Discussion of Dr Couture's lecture.

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PAGES.

- MM. FISHER, S. A..... 59 Discussion on reports of Macfarlane and Coté.—69. Remarks on the use of the Babcock.—78-80. The richness of milk.—99. *French Cheese*.—Resolution thereon.—114. Report on silage-samples.—121. Ensilage.—152. The aerogenic churn—207-210. Lecture : the history of ensilage.
- " FOSTER, H. S..... 107 Canadian cheese for the Chicago Fair.
- " GÉRIN, Abbé..... 176 Condensed milk.—179. Payment for milk according to its richness.
- " GERMAIN, E. P... 89 Address of Welcome.
- " GIGAUT, G. A... 44 Address on Farmers' Clubs.
- " GRIGNON, Dr W.. 32 Working Agricultural Societies through Farmers' Clubs.—135. Farmers' Clubs.
- " HAYES..... 157-158. Machines for butter-making.—184. Remarks on paying for butter according to its richness.
- " JENNER FUST, A.R.211-216. Lecture : A rotation suitable to a dairy-farm.
- " LALONDE 66 Discussion on butter-making.
- " LECLAIR, J. D.... 62-66. Butter-making and discussion.—218. Report of the committee on machines and utensils used in butter- and cheese-making.
- " LEMIRE, J. L.... 118-120. Ensilage and discussion.
- " LORD AIMÉ..... 176-183. Payment for milk according to its richness : Lecture.
- " MARSAN, I. J. A.. 161 Machines used in butter-making ; the Fargo.—218. Report of the committee on machines and utensils used in butter- and cheese-making.
- " MONTMINY, Rvd. 29 Subscription to the Association.—91-92. Opening Address.—95-101. *French Cheese*.—103. Thanks to M. Taché.—108. Chicago Fair.—187. Farewell address ; closing the Convention.
M. T.
- " MCFARLANE, P... 50 Report of the Inspector-General.—74. The best season for cheese-making.—76. Calculations for the payment of milk according to its fat.—82. Adding the rennet.—218. Report of committee on the machines and utensils used in butter- and cheese-making.
- " NAGANT, H..... 67 Discussion on butter-making.—145-154. The aerogenic churn : Lecture.—183. Butter from frozen milk.
- " NANTEL, G. A.... 138 Letter on agricultural instruction.
- " NESS, ROBERT.... 100 *French Cheese*.—159. Machines used in butter-making.
- " PAQUETTE..... 64-65. Discussion on butter-making.

PAGES.

- MM. TACHÉ, J. DE L... 62 On the diplomas of Inspectors.—63-68. Discussion on butter-making.—73. The fat of milk.—74. Skimming.—80. The payment for milk according to its richness.—101. *French Cheese*.—101. Proposing M. E. Castel.—109-113. The Chicago Fair, and syndicates.—159-163. Machines used in butter-making.—Tubs.—175. Inspection of syndicates in 1893.—*French Cheese* again.—179. Discussion of M. Lord's lecture : Payment for cheese according to its richness.—186. Question to M. Fisher.—188. Explanation of the delay in sending out the report.
- " THIBAUT, F. X. 66 Discussion on butter-making.
- " TRUDEL, F. X.... 183 Butter from frozen cream.
- " TYLER, C. D..... 117 Essay on ensilage and the economical feeding of cattle.
- " VAILLANCOURT, A. 89 Dairy-utensils. — 97-99. *French Cheese*. — 112-113. Inspectors of syndicates. — 144. Discussion on skim-cheese.
- " WHERRY, ROBERT 216 Lecture : Different ways of making cheese.
- " WILSON, F..... 157-158. Discussion on the manufacture and sale of butter, and on the machines used.

Act p

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Alphabetical Table of Subjects.

	PAGES.
Act providing for the establishment of agricultural and dairy-associations.....	9
“ concerning associations, &c., for making butter and cheese or both combined	11
“ prohibiting the manufacture and sale of certain substitutes for butter.....	13
“ for the prevention of fraud in the delivery of milk at the factories.....	13
Address of Mr. G. A. Gigault.....	44
“ Rev. E. Montminy, the opening	91
“ Mr. C. D. Tylee.....	117
“ Mr. Foster.....	107
Babcock, Fisher on the.....	69
Board of Directors, the.....	24
Boxes, cheese.....	106
<i>Cheese, English</i>	29
“ <i>French</i> , Ayer on.....	104
“ “ again.....	175
“ Skim	140
Chicago Fair, Canadian Cheese for the.....	107
“ “ Canadian cows for the.....	174
Churn, the aerogenic	145
Clubs, the Farmers'	30
Competition of Canadian cows	223
Condolence with Dr Bruneau's family.....	94
Constitution of the Dairymen's Association.....	15
Diplomas of Inspectors.....	60
Direction and inspection of syndicates... ..	19
Discussion on <i>French Cheese</i>	95
“ on skim-cheese.....	140
“ on the lecture of l'abbé Choquette	85
“ “ of Dr Couture.....	202
“ “ of Dr Grignon.....	38
“ “ of J. D. Leclair	63
“ “ of Lemire.....	119
“ “ of Ensilage.....	119
“ on manufacture and sale of butter	155
“ reports of Macfarlane and Côté.....	59
Division of the province of Quebec for syndicates-purposes.....	18
Economical feeding of cattle, the.....	117
Ensilage, address on samples of.....	114

	PAGES.
Ensilage, M. Lemire on	118
“ history of.....	207
Farewell, address of ; close of convention.....	187
<i>Fibrin</i> of milk.....	147
Formation of butter- and cheese-associations.....	11
Influence of food.....	195
“ of rutting time.....	197
“ of cleanliness	197
“ of distribution of meals.....	199
“ of mode of milking.....	199
“ of daily number of milkings.....	200
Inspection of syndicates in 1893.....	175
Inspector of syndicates.....	22
“ general	22
Lactation	191
“ physiology of.....	188
Law authorising the establishment of an association to be known as The Dairy- men's Association for the Province of Quebec.....	6
Lectures by M. E. Castel.....	218
“ “ J. C. Chapais.....	164
“ “ l'abbé Choquette	83
“ “ Dr J. A. Couture, M. V.....	188
“ “ Dallaire	123
“ “ S. A. Fisher.....	207
“ “ Dr Grignon.....	32
“ “ J. D. Leclair.....	62
“ “ J. L. Lemire.....	118
“ “ A. Lord.....	176
“ “ H. Nagant.....	145
“ “ A. R. Jenner-Fust.....	211
“ “ R. Wherry.....	216
“ Convention of the Société d'Industrie Laitière par M. E. Castel.....	218
“ agricultural.....	123
Legislation for the Dairymen's Association.....	6
Letter on agricultural education, M. Nantel's.....	138
List of Directors by districts	104
“ of butter- and cheese-factories.....	226
“ of Members of the Association	249
Milk, condensed.....	176
“ according to its value, paying for.....	176
Motion of J. C. Chapais in favour of Farmers' Clubs	30

Motio.
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Offici
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PAGES.		PAGES.
..... 118	Motion of J. C. Chapais on sending registered Canadian cattle to the Chicago Fair	174
..... 207	Number of cheese- and butter-factories by counties.....	268
..... 187	Officers and Directors of the D. Ass. for 1893.....	5
..... 147	Official opening of the convention	89
..... 11	Oleomargarine.....	13
..... 195	Organisation and working of the syndicates.....	20
..... 197	Parafine, or <i>chandelle de baleine</i>	160
..... 197	Prospects of the D. Ass.....	164
..... 199	Powers and general duties of manufacturing associations.....	12
..... 199	Questions put to Mr. Fisher.....	185
..... 200	Receipts and expenditure of the association.....	223
..... 175	Reply to the President (the opening of the convention).....	90
... 22	Remarks of Mr. Ayer on the making and sale of butter.....	155
... 22	" " J. A. Hayes on paying for milk.....	184
.. 191	Report <i>in extenso</i> of the 11th Convention.....	27
.. 188	" of the Auditors.....	27
Y-	" of Mr. Macfarlane.....	50
... 6	" of Mr. Saül Côté	55
... 218	" of Mr. Fisher (silage).....	114
... 164	" of the committee on dairy utensils.....	218
... 83	Secretary, nomination of a.....	102
... 188	Supplement to the report of the meeting.....	207
.. 123	Syndicate of farmers	28
... 207	" of creameries and cheeseries.....	17
... 32	Tubs for butter.....	156
... 62		
... 118		
... 176		
... 145		
... 211		
... 216		
... 218		
... 123		
... 6		
... 138		
... 104		
... 226		
... 249		
... 176		
... 176		
... 30		

Table of Contents.

	PAGES.
Address.....	3
Officers and Directors of the Association for 1893	5
Legislation	6
Act constituting the Dairymen's Association.....	6
" providing for the formation of agricultural and dairy associations	9
" concerning the associations and firms for the making of butter and cheese, or of the two combined	11
" Prohibiting the manufacture and sale of certain substitutes for butter.	13
" for the prevention of fraud in the delivery of milk at factories.....	13
Constitution of the Dairymen's Association	15
Rules and by-law of the " "	16
Syndicates of creameries and cheeseries.....	17
Rules of these syndicates.....	17
Division of the province for the syndicates.....	18
Direction and inspection of the syndicates.....	19
Organisation and working of the syndicates	20
The Inspector general, and the Inspectors of the syndicates.....	21
Of the Board of Examiners.....	24
Report <i>in extenso</i> of the 11th annual Convention of the Association.....	27
Appointment of the committee.....	27
Report to the auditors	27
Motion of Mr. Chapais in favour of Farmers' Clubs.....	30
Lecture by Dr Grignon : The working of agricultural societies by means of the Farmers' Clubs.....	32
Discussion on Dr Grignon's lecture.....	38
" on Farmers' Clubs.....	44
Address by Mr. G. A. Gigault.....	44
Report of Mr. Macfarlane, in. gen. of syndicates.....	50
" " Saul Côté, director of the Travelling Dairy-School	55
Discussion on the reports of MM. Côté and Macfarlane.	59
Distribution of the Inspectors' Diplomas.....	60
Lecture, by M. Damien Leclair, on butter-making.....	62
Discussion of that lecture.....	63
Lecture by Mr. l'Abbé Choquette : on the sending of samples of milk.....	83
Discussion.....	86

Official
 The P
 Openir
 Resolu
 Remar
 Telegr
 Discuss
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 Lecture
 Discuss
 Lecture
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 Sample-
 Remark
 Question
 Farewell
 Lecture,

 Supplem
 Lecture,
 Lecture,
 Lecture
 Report o

	PAGES.
Official opening of the convention.—Address of the Mayor of St. Thérèse.....	89
The President reply.....	90
Opening address of the President, the Rev. T. Montminy.....	91
Resolution of sympathy with the family of the late Dr Bruneau	94
Remarks by Mr. Barnard	94
Telegram from M. Louis Beaubien	95
Discussion on French-Cheese	95
Election of the Board of Directors.....	102
Nomination of the Secretary	102
Directors.....	104
Remarks, by Mr. Ayer, on French-Cheese.....	104
Address, by Mr. Foster, on Canadian cheese for the Chicago Fair.....	107
Report, by Mr. Fisher, on the samples of silage.....	114
Address, by Mr. Tylee, on the Ensilage Association, &c.....	117
Lecture, by M. Lemire, on ensilage.....	118
Discussion of that lecture.....	119
Lectures, by M. Dallaire, on agricultural lectures.....	123
Letter, from M. Nantel, on agricultural education.....	138
Discussion on skim-cheese.....	140
Lecture, by M. Nagant, on the aerogenic churn.....	145
Remarks, by M. Ayer, and discussion on the manufacture and sale of butter, and on certain machines employed in the dairy.	155
Lecture, by M. Chapais, on the prospects of dairying.....	164
Motion, by M. Chapais, on the sending of Canadian cows to the Chicago Fair..	174
The inspection of syndicates in 1893.....	175
<i>French-Cheese again</i>	175
Remarks on condensed milk.....	176
Lecture, by Mr. Aimé Lord, on paying for milk according to its richness	176
Discussion on that lecture.....	178
Sample-taking.....	181
Remarks by Mr. Hayes.....	184
Questions put to Mr. Fisher.....	185
Farewell address.....	187
Lecture, by Dr Couture, V.S., on the Physiology of lactation and the production of milk.....	188
Supplement to the report of the Convention.....	207
Lecture, by Mr. Fisher, on the History of Ensilage.....	207
Lecture, by Mr. A. R. Jenner Fust, on a rotation suited to a dairy-farm.....	211
Lecture by Mr. Robert Wherry, ins. of syndicates for Brome.....	216
Report of the committee on machines and utensils used in the making of butter and cheese.....	218

AGES.

3

5

6

6

9

11

13

13

15

16

17

17

18

19

20

21

24

27

27

27

30

32

38

44

44

50

55

59

60

62

63

83

86

	PAGES.
Emile Castel on the lectures and meetings of the Dairymen's Association.....	218
Competition of registered Canadian cows	223
Receipts and expenditure of the Association during the year 1892.....	223
List of creameries and cheeseries.....	224
List of members of the Association.....	249
Number of creameries and cheeseries.....	268
Alphabetical table of the lecturers and of persons who have taken part in the discussions.....	269
Alphabetical table of subjects.....	273
Table of contents.....	276

PAGES.

... 218

... 223

... 223

... 224

... 249

... 268

the

... 269

... 273

... 276