

FOURTEENTH REPORT
OF THE
DAIRYMEN'S ASSOCIATION
OF THE
PROVINCE OF QUEBEC
SUPPLEMENT TO THE REPORT OF THE HON. COMMISSIONER
OF AGRICULTURE AND COLONISATION

1895

PRINTED BY ORDER OF THE LEGISLATURE



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

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DAIRY

To the Hon. Comm

SIR,

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St. Hyacinthe, Jan.

FOURTEENTH 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 1895, and of the Annual Meeting held at Waterloo 3rd, 4th and 5th December last.

THE SECRETARY-TREASURER OF THE DAIRYMEN'S

ASSOCIATION OF THE PROVINCE OF QUEBEC,

EMILE CASTEL.

St. Hyacinthe, Jan. 7th, 1896.

OFFICERS AND DIRECTORS OF THE DAIRYMEN'S ASSOCIATION

FOR 1896.

Honorary President: THE HON. P. B. DE LABRUÈRE, St. Hyacinthe.
 President: L'ABBÉ T. MONTMINY, St. George de Beauce.
 Vice-President: S. A. FISHER, Knowlton.
 Secretary-Treasurer: EMILE CASTEL, St. Hyacinthe.

DIRECTORS.

DISTRICT	NAMES	RESIDENCE
Arthabaska.....	Messrs D. O. BOURBEAU.....	Victoriaville.
Beauce.....	J. DE L. TACHÉ.....	Scott Junction.
Beauharnois	ROBERT NESS.....	Howick.
Bedford	H. S. FOSTER.....	Knowlton.
Charlevoix and Saguenay..	J. D. GUAY.....	Chicoutimi.
Chicoutimi.....	JOS. GIRARD, M.P.P.....	St.-Gédéon, Lac St.-Jean
Gaspé.....	L. T. BRODEUR.....	St.-Hugues.
Iberville.....	MICHEL MONAT.....	Mount Johnson.
Joliette.....	SAM CHAGNON.....	St. Paul l'Ermite.
Kamouraska.....	J. C. CHAPAIS.....	St. Denis en-bas.
Montmagny.....	GABRIEL DUMONT.....	Ste. Hénédine.
Montreal.....	ALEXIS CHICOINE.....	St. Marc.
Ottawa.....	J. A. VAILLANCOURT.....	Montreal.
Quebec.....	ED. A. BARNARD	L'Ange Gardien, Mtcy.
Richelieu.....	J. L. LEMIRE.....	La Baie du Febvre.
Rimouski.....	CHS. PRÉFONTAINE.....	Isle Verte.
St. François.....	J. A. CAMIRAND.....	Sherbrooke.
St. Hyacinthe.....	M. MACDONALD, M.P.P....	Acton Vale.
Terrebonne	DR. W. GRIGNON.....	Ste. Adèle.
Three Rivers.....	L'ABBÉ D. GÉRIN.....	St. Justin.

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LEGISLATION.

AUTHORISING THE FORMATION OF AN ASSOCIATION UNDER THE NAME OF "DAIRY ASSOCIATION OF THE PROVINCE OF QUEBEC."

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

1749. The Lieutenant-Governor in Council may authorise the formation for the Province of an association, having for its object to promote improvement in the manufacture of butter and cheese, and of all things connected therewith, under the name of the "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, s. 2 and 6; 50 v., c. 7, s. 12.

1751. Such declaration shall be made in duplicate, one to be written and signed on the first page of a book to be kept by the association for the purpose of entering therein the minutes of their proceedings, during the first year of the establishment of such association, and the other shall be immediately transmitted to the Commissioner of Agriculture and Colonisation, who shall, as soon as possible after its reception, cause to be published, a notice of the formation of such society in the Quebec Official Gazette. 45 v. c. 66, s. 3; 50 v. c. 7, s. 12.

1752. From and after the publication, in the Quebec 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.

"**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

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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 and 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.

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

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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 deserves public notice, and giving all the information which they deem useful in the interest of the dairy industry. 45 v., c. 66, s. 8.

SCHEDULE

MENTIONED IN ARTICLE 1750.

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

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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 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.

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" **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 employés, 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 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 the 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 employés 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 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 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 III, 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 intend to do business, such persons and all such other persons as may thereafter become members of such society, their heirs, executors, curators, administrators, successors and assigns, respectively, shall constitute a body politic and corporate, under the name of "butter and cheese manufacturing society (or both as the case may be) of (name of the place and number of the manufactory as mentioned in the declaration)."

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

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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 has been established, shall enjoy all the powers vested in ordinary corporations, especially that of choosing officers from among its members, of passing by-laws not contrary to the laws of this Province, to determine the number 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 meetings of the society shall be regulated by by-laws. 45 V., c. 65, s. 3.

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

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

5483. During the course of the month of December, in each year, a statement of its operations for the year shall be forwarded to the Commissioner of Agriculture and Colonisation by each society formed under this section. 45 V., c. 65, s. 7; 50 V., c. 7, s. 12.

SCHEDULE.

IN ACCORDANCE WITH ARTICLE 5478.

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

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

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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.

3. No person shall knowingly sell, supply, bring or send to a cheese, or butter,

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

or condensed milk is tainted or part

4. No person shall sell, supply or send to any factory, or to the owner or manager thereof, or to any maker of cheese, or condensed milk, any milk, to be manufactured into cheese, or condensed milk, which has been diseased at the time of its manufacture, or which has been diseased at the time of its sale.

5. Every person who contravenes any of the provisions of this Act, shall be liable to a fine not exceeding one hundred dollars, and not less than fifty dollars, and to imprisonment for a term not exceeding six months, unless the person is a corporation, in which case the fine shall be not less than one hundred dollars.

6. The person who contravenes any of the provisions of this Act, shall be liable to a fine not exceeding one hundred dollars, and to imprisonment for a term not exceeding six months, unless the person is a corporation, in which case the fine shall be not less than one hundred dollars.

7. For the purpose of this Act, the expression "milk" shall include any milk, whether or not it is pure, and whether or not it is sweetened, and whether or not it is condensed, and whether or not it is manufactured into cheese, or butter, or condensed milk, and whether or not it is sold, supplied, or sent, provided the test is applied in the manner provided in the Act, and provided the test is applied in the manner provided in the Act, and provided the test is applied in the manner provided in the Act.

8. In any case where a person is convicted of an offence under this Act, the court may, in its discretion, order that the person be declared a bankrupt, and that the person be liable to the provisions of the Bankruptcy Act, and that the person be liable to the provisions of the Bankruptcy Act, and that the person be liable to the provisions of the Bankruptcy Act.

9. No appeal shall lie from any conviction or sentence under this Act, and no writ of habeas corpus shall be granted in any case where a person is convicted of an offence under this Act, and no writ of habeas corpus shall be granted in any case where a person is convicted of an offence under this Act, and no writ of habeas corpus shall be granted in any case where a person is convicted of an offence under this Act.

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 costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding six months, unless the said penalty and costs of enforcing the same, be sooner paid.

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

7. For the purpose of establishing the guilt of any person charged with the 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 effected 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 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 interven-

tion 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 the milk was sent, sold or supplied for any of the purposes aforesaid, in violation of any of the provisions of this Act, to be distributed among the patrons thereof in proportion to their respective interest in the product thereof.

CONSTITUTION OF THE DAIRYMEN'S ASSOCIATION.

INCORPORATED BY 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 officer shall be re-elected

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1. The annual board of directors to each of the meetings of the association

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3. At the meeting of the president

4. The board audit the accounts

5. The order of the board of directors

6. No question placed before the board

7. The secretary \$400.00, which sec

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

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

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

10. To the secretary-treasurer shall be entrusted all the moneys and other valuables belonging to the association; he shall keep, in a special register, minutes of all meetings of the association as well as 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 meeting of the board of directors; the call shall be in the form mentioned above.

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

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

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

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

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

SYNDICATES OF CHEESE AND BUTTER FACTORIES.

BY-LAWS ADOPTED BY THE 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 authorised 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,

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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 :

1

DIVISION OF THE PROVINCE.

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

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

No. of Division.	Counties comprised in the division.
1.....	Gaspé, Bonaventure, Matane, Rimouski, Témiscouata.
2.....	Kamouraska, L'Islet, Montmagny, Bellechasse.
3.....	Dorchester, Levis, Beauce.
4.....	Lotbinière, Megantic, 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.....	Vercheres, 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, Maskinongé.
17.....	Montcalm, Joliette, Berthier, L'Assomption.
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 especially to the time of year following the issue of each number; it shall also contain general information in connection with the dairy industry.

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

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

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

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

3. The association does not pretend to exercise any control over the interior management of the financial 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 ;

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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 diffusion over the division in which it is formed of the best methods of producing milk and of manufacturing dairy products ; it may also aim at adopting and exercising all measures calculated to protect such interests of the patrons and proprietors as are to the general advancement of the dairy industry : the proprietors or representatives of the syndicated factories shall for that purpose engage to support between them, in a proportion left to their discretion, the expense of the hiring of one or more experienced inspectors, who shall superintend the production and supplying of the milk, as well as of its manufacture into cheese and butter in the syndicated factories. The inspector shall be under the direction of the Dairymen's Association, under the conditions hereinafter enumerated, and 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 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 representative 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 the service of inspection, this grant in no case shall exceed the half of the genuine amount of the expenses alone just mentioned, provided that half do not exceed two hundred and fifty dollars (\$250.00); and the payment thereof shall only be made at the end of the dairy-season, after the report mentioned in the preceding article shall have been made to the association by the syndicate.

12. A subscription shall be paid by the proprietors, or by the representatives of each factory to the 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 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

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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 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.

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§ 2. OF THE INSPECTORS OF SYNDICATES.

1. The inspectors of the syndicates are their servants, and as regards questions of interior management, such as wages, payment of expenses, &c., are under the control of the officers of the syndicates.

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

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

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

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

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

7. After having thus made himself acquainted with the situation of affairs and having helped each maker, in proportion to his needs, with his assistance and advice, the inspector shall arrange his visit 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 hindrances, the inspector shall be present every morning at some one factory, to receive the milk in company with the maker, and shall test samples of each patron's milk; he shall note the result of each test in a special memorandum book, which shall be preserved and handed 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.

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

12. The inspector shall daily note down all his travelling expenses, and give in the details once a week to the secretary-treasurer of the syndicate; adding the list of factories visited, and indicating the probable route of his next week's journeys, in order that the secretary-treasurer 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 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 forgoing 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.

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, 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 grave cause, shall be considered unfitted to discharge his duties properly.

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

56 VICTORIA, CHAP. 37, OTTAWA.

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

[Assented to 1st April, 1893.]

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

1. This Act may be cited as *The Dairy Products Act*, 1893.
2. No person shall manufacture, or shall knowingly buy, sell, offer, expose or have in his possession for sale, any cheese manufactured from or by the use of skimmed milk, to which there has been added any fat which is foreign to such milk.
2. Every person who, by himself or by any other person to his knowledge, violates the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labour, for a term not exceeding six months, unless such fine and the costs of enforcing it are sooner paid.

3. No person shall manufacture or sell any cheese manufactured from or by the use of skimmed milk, to which there has been added, in a legible manner, any mark, word, box or package value exceeding five cents, the height of which shall be not less than one inch high and the width not less than one-half inch.

2. No person shall sell or expose for sale any cheese or butter which is sold, offered for sale, or exposed for sale, in any box or package value exceeding five cents, the height of which shall be not less than one inch high and the width not less than one-half inch, unless such fine and costs of prosecution are sooner paid.

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

4. No person shall sell or expose for sale any cheese or butter which is sold, offered for sale, or exposed for sale, in any box or package value exceeding five cents, the height of which shall be not less than one inch high and the width not less than one-half inch, unless such fine and costs of prosecution are sooner paid.

2. No person shall sell or expose for sale any cheese or butter which is sold, offered for sale, or exposed for sale, in any box or package value exceeding five cents, the height of which shall be not less than one inch high and the width not less than one-half inch, unless such fine and costs of prosecution are sooner paid.

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

5. No person shall sell or expose for sale any cheese or butter which is sold, offered for sale, or exposed for sale, in any box or package value exceeding five cents, the height of which shall be not less than one inch high and the width not less than one-half inch, unless such fine and costs of prosecution are sooner paid.

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

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

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

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

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

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

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

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

2. Every person who, by himself or by any other person to his knowledge,

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1st April, 1893.]

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

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

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

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

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

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

LIST C

PARISH OR P. O.	ARGENT
Brownsburg.....	
Carillon.....	
Dalesville.....	
Cambria.....	
Cushing.....	
Lost River.....	
Grenville.....	
Harrington East.....	
Hillhead.....	
Lachute.....	
Lakefield.....	
Mabel.....	
Mille Isles.....	
St. Andrews [East] ...	
St. Philippe.....	
	ARTHA
Arthabaskaville.....	
St. Christophe.....	
Ste. Elizabeth d'An- } teuil.....	
St. Norbert.....	
St. Patrick's Hill.....	
	P
	R
	C
	A
St. Paul de Chester...L	
St. Philippe de Chester.J	
	N
	Pl

LIST OF MEMBERS OF THE ASSOCIATION
YEAR 1895.

PARISH OR P. O. NAME.
ARGENTEUIL.

Brownsburg.....	Morcy Kilborn
Carillon.....	Isidore Legault dit Deslauriers.
Dalesville.....	F. Derbyshire
Cambria.....	F. B. Mitts
Cushing.....	A. J. Kahala
Lost River.....	Walter Landon
Grenville.....	W. F. Walsh
Harrington East.....	G. L. McCullock
Hillhead.....	E. Lighthall
Lachute.....	William Brown Geo. Campbell Hugh McKinnon John Hay Robert McKinnon
Lakefield.....	Wilfrid Danis
Mabel.....	Walter Little
Mille Isles.....	F. S. Clarke
St. Andrews [East] ..	John Knox (2)
St. Philippe.....	John MacGregor

ARTHABASKA.

Arthabaskaville.....	David Dumond Dame Vve Pellerin
St. Christophe.....	Arthur Leblanc
Ste. Elizabeth d'Ar- teuil.....	} Joseph Boisvert Edouard Desfossés
St. Norbert.....	Alfred Ouellette Napoléon Tousignant
St. Patrick's Hill.	Zephirin Genest Philius Laroche Rev. V. P. Jutras Cyrille Lambert Alphonse Garneau
St. Paul de Chester. .	Louis Boulanger
St. Philippe de Chester.	Jos. Leclerc Napoléon Brunelle Placide Le Houillier

PARISH OR P. O. NAME.
ARTHABASKA—Continued.

St. Remi de Tingwick.	Jos. Proulx Edmond Levasseur Philippe Pepin (fils)
St. Valère de Bulstrode.	Honorius Grenier Blanchett and St. Lau- rent Bergeron and Trudel Joseph Trudel Pierre Leclerc & son Joseph Lupien
Walker's Crossing....	Adolp. St. Laurent (2) George Blanchette (2)
North River.....	Leclerc & Bro.
Stanfold.....	Calixte Dion Brissette & Beaudet A. Fortin Edmond Lord
Victoriaville.....	D. O. Bourbeau G. St. Pierre
Warwick St. Albert....	Albert Lainesse A. M. Méthot David Guillemette
" St. Médard.	Jules Lupien..... Dominique Babineau Alfred Bergeron Anselme Caron

BAGOT.

Actonvale.....	M. McDonald, M.P.P. Rev. L. L. Boivin
St. Andre d'Acton....	Leopold Lemire
Ste. Christine.....	Rev. J. Tourigny Jos. Dufault Camille Chalut Naud & Julien
St. Ephrem d'Upton..	Delphis Chicoine Jean Maurice
Upton.....	Marc MacDuff André Brasseur

PARISH OR P. O.	NAME.
BAGOT—Continued.	
St. Dominique.....	Norbert Frédette D. Bernard Louis Coté Charles Dandelin
Ste. Hélène	Eusèbe Dufault Alexis Sylvestre Emile Lefebvre Elie Sylvestre Rev. J. U. Charbonneau
St. Hugues	L. T. Brodeur Emery Lafontaine Louis Poulin Joseph Gaumont D. Lévesque
St. Liboire	Joseph Lemonde Simon Touchette
St. Nazaire.....	Aurel Leclerc Euchariste Lafrance
St. Pie.....	P. E. Roy Alphonse Morin
St. Rosalie.....	Jos. B. Grenier Augustin Lemonde
St. Simon.....	Narcisse Tétreau Hector L'Heureux Azarie Deslauriers
St. Théodore d'Acton..	Isidore Joboin Joseph Bousquet J. H. Houle Joseph Beaugard Moïse Roy Adrien Laflamme

BEAUCE.

St. Méthode d'Adstock.	Rev. M. J. Valin
St. Martin.....	Thomy Mahen
East Broughton.....	Pierre Gagnon Vital Champagne
Jersey Mills	Joseph Bolduc Jos. Maheu
Ste. Anges	Henri Giguère Edmond Grégoire
Lambton.....	Omer Lacombe Edouard Godbout
Le Bras	Vital Lessard Benard Mercier

PARISH OR P. O.	NAME.
BEAUCE—Continued.	
Ste. Evariste Forsyth.	Jos. Lechance & Blais Théodore Lehoux Jos. O. Nadeau.
St. Elzéar	Appollinaire Drouin Cléophas Gagnon Richard Lessard P. Gagnon
St. Ephrem de Tring..	Octave Roy George Bilodeau Alfred Dugal Gédéon Breton
St. Georges.....	Rév. Th. Montminy Evariste Poulin Joseph Poulin Joseph Paquet Pierre R. P. Paquet B. Poulin Absalon Poulin
St. Honoré de Shenley.	Louis Fortier Nadeau & Boutin
St. Côte de Kennebec.	Joseph Bolduc
St. François.....	Charles Bolduc Philius Veilleux Pierre Bolduc Joseph Bureau
St. Frédéric.....	Norbert Plante F. X. Plante
St. Joseph.....	Vital Roy John Gosselin Ephrem Tardiff Joseph Taschereau Vital Cliche. Clotaire Lessard
Ste. Marie.....	Ferdinand Pepin Louis Faucher Henri Havard Louis Marcoux Marcoux & Jolicœur Rév. J. T. A. Chaperon Gédéon Gendron Onésime Turmel Joseph Faucher Alfred Faucher Fortunat Pepin
St. Victor de Tring..	Marcellin Rodrigue Alexis Boucher

PARISH OR P. O.

BEAUCI

St. Samuel.....
St. Zacharie.....
St. Pierre Broughton

BEAUB

Beauharnois.....
Landreville.....

St. Etienne.....

St. Louis de Gonzague

St. Stanislas

St. Timothee

Valleyfield

BELLE

Buckland.....

Beaumont.....

St. Cajétan d'Armah..

St Charles.....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

BERTH

Berthier (junction)...

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

St Michael.....

St Raphael (Est).....

St Gervais.....

NAME.

PARISH OR P. O.

NAME.

BEAUCE—Continued.

St. Samnel.....	Gilbert Dallaire Alphonse Couture
St. Zacharie.....	Rev. L. R. Morrissette
St. Pierre Broughton	Arthur Mercier Alfred Gagné

BEAUHARNOIS.

Beauharnois.....	H. Roy
Landreville.....	William Durnin Thomas Durnin Liguori Vincent
St. Etienne.....	Jérémie Brosseau Laberge & Sauvé Gendron & Allard
St. Louis de Gonzague	H. Lapage C. Tait Jos. Symons
St. Stanislas.....	A. Leduc
St. Timothee.....	Rev. Aug. Martel A. Crevier (2)
Valleyfield.....	J. Poirier, son of Augustin Victor Pilon

BELLECHASE.

Buckland.....	Maximin Provost
Beaumont.....	Jos. Vallière
St. Cajétan d'Armah..	Olivier Leclerc Philibert Langlois Isabelle Protais
St. Charles.....	Onésime Mercier J. B. Paquet Wilfrid Couture
St. Gervais.....	Dr. P. Tanguay Rév. B. Richard
St. Michael.....	Alphonse Furoy
St. Raphael (Est).....	Joseph Langlois Joachim Gauthier Sévérin Cinq-Mars

BERTHIER.

Berthier (junction)....	J. F. Fernet Hormidas Brunette Octavien Tellier
L'Isle du Pads.....	Thomas Sylvestre

PARISH OR P. O.

NAME.

BERTHIER—Continued.

Lanoraie.....	A. Ferland Dosithee Bonin
Lavaltrie.....	Alexis Mousseau
St. Barthélémi.....	F. X. Mayer U Lécuyer Joseph Bacon W. Plante Arthur St-Piere Eduard Trudel Aquila Lefebvre Louis Riville
St. Cuthbert.....	Vve Antoine Robert Ulric Courchéne Joachim Grégoire
St Zénon.....	Eustache St Pierre

BONAVENTURE.

Little Cascapédia....	André Cyr J. André Cyr
St Alexis de Ma'pédiac	Rév J. E. Pelletier Denis Richard
St Jean L'Evangeliste	Jean Gauthier Philippe Morin

BROME.

Eastman.....	Euclide Phaneuf Louis Lacaillade
Knowlton.....	S. A. Fisher H. S. Foster
Mansonville (station)	Charles Wilkins
Sutton.....	Albert W. Woodward.
Sutton.....	W. A. Martindale
St Etienne de Bolton..	Ludger Bachant

CHAMBLY.

Boucherville.....	Rev M. J. A. Primeau
Chambly.....	J. Napoléon Raymond
Longueil.....	T. Millette (Cercle agric)
St Bruno.....	Napoléon Paquin

CHAMPLAIN.

Batiscan.....	L. P. Lacourcière Pierre Lapointe
Champlain.....	Jos. C. Félix Gustave Pintal

continued.

Lechance & Blais
 odore Lehoux
 O. Nadeau.
 pollinaire Drouin
 ophas Gagnon
 hard Lessard
 Gagnon
 ave Roy
 rge Bilodeau
 red Dugal
 léon Breton
 r. Th Montminy
 riste Poulin
 eph Poulin
 eph Paquet
 rre R. P. Paquet
 oulin
 salon Poulin
 is Fortier
 leau & Boutin
 eph Bolduc
 rles Bolduc
 lias Veilleux
 rre Bolduc
 eph Bureau
 bert Plante
 C. Plante
 al Roy
 n Gosselin
 rem Tardiff
 eph Taschereau
 al Cliche.
 taire Lessard
 dinand Pepin
 is Faucher
 ari Havard
 is Marcoux
 reoux & Jolicœur
 r. J. T. A. Chaperon
 léon Gendron
 isime Turmel
 eph Faucher
 red Faucher
 tunat Pepin
 cellin Rodrigue
 xis Boucher

PARISH OR P. O.	NAME.
CHAMPLAIN—Continued.	
Champlain.....	Jacques Doutigny
N. D. du Mont Carmel.	Luc Ducharme Oscar Lord Joseph Cossette Philippe Réault
Ste Thècle.....	Charles Audy
Ste Anne Lapérade..	Achillée Baribault N. E. Clément J. H. Gendron J. A. Foley Michael Loranger Alphonse Latour Onésime Ricard Joseph Godin C. B. Douville
St Flore.....	Uldaric Leblanc Hilaire Lupien Benjamin Lavergne Narcisse Beaubien
St Geneviève de Batis- can.....	Ernest acob Phillippe Trudel Onésime Marchand Eugène Massicotte
St Jacques des Piles..	Edmond Doucet
St Luc.....	Jos. O. Beaudoin Anselme Beaudoin
St Maurice.....	Oscar Nobert F. X. Blondin Ant. Laprise
St Narcisse.....	Isidore Derouin J. F. Cossette Dosithee Cossette
St Prosper.....	Alfred Trudel J. T. Trudel F. X. O. Trudel Désiré Cloutier
St Prosper.....	Henri Lacourcière
St Ubald.....	Alfr'd Trudel et Cie (2)
St Séverin.....	T. Veillet Narc. Bordeleau Majorique Bordeleau Epiphane Mongrain
St Stanislas.....	O. Trudel (fils de Michel) Jos. L. Jacob
St Tite.....	Jacob et Paquin

PARISH OR P. O.	NAME.
CHAMPLAIN—Continued.	
St Tite.....	Marchand et Massicotte J. A. Lambert Jacob et Lacourcière

CHARLEVOIX.

Baie St Paul.....	Alfred Gagnon Charles Martel Joseph Fortin Thos Potvin (Son Nap) Léandre Gobeil Wilfrid Simard G. W. Gauthier, dit Larouche Ernest Tremblay Henri Côté
Les Eboulements....	Jos. Bouchard Jos. A. Tremblay
Malbaie.....	Joseph Bouchard Jules Bradet Philippe Dufour Rev. M. Leclerc Odillon Pilotte
Misère.....	Clus. Tremblay
Ste Agnès.....	Trefflé Bergeron Thos. Bouchard
St Fidèle.....	Jean Perron
St Hilarion.....	Evariste Desmeules
St Irénée.....	Denis Bouchard Emilien Tremblay
St Urbain.....	Charles Fortin
St Placide.....	Gédéon Perron
St Siméon.....	Rvd. M. M. P. Hudon

CHATEAUGUAY.

Aubrey.....	W. Currie
Chateauguay.....	N. R. Laberge P. MacFarlane
Howick.....	Robert Ness E. Barrington
North Georgetown....	Etienne Marleau D. D. Marleau
Ormstown.....	W. J. Elliot C. Collum C. MacDonald A. S. Lloyd

PARISH OR P. O. CHATEAUG

Ormstown.....
Riverfield.....
Rivière des Fèves...
Stockwell.....
Russelltown.....
St Chrysostôme.....
Ste Martine.....
Ste Philomène.....

St Urbain.....

CHICO

Bagotville.....
Chicoutimi.....
L'Anse St Jean.....
N. D. de Laterrière...L
T
B

NAME.

—Continued.

archandetMassicotte
A. Lambert
cob et Lacourcière

VOIX.

lfred Gagnon
arles Martel
seph Fortin
os Potvin(Son Nap)
andre Gobeil
ilfrid Simard
W. Gauthier, dit
Larouche
nest Tremblay
enri Côté
s. Bouchard
s. A. Tremblay
seph Bouchard
les Bradet
ilippe Dufour
v. M. Leclerc
ilion Pilotte
s. Tremblay
efflé Bergeron
os. Bouchard
an Perron
ariste Desmeules
nis Bouchard
nilien Tremblay
arles Fortin
dion Perron
d. M. M. P. Hudon

GUAY.

Currie
R. Laberge
MacFarlane
bert Ness
Barrington
ienne Marleau
D. Marleau
J. Elliot
Collum
MacDonald
S. Lloyd

PARISH OR P. O.

NAME.

CHATEAUGUAY—Continued.

Orimstown John Gibson
E. Hooker
Riverfield..... John McGregor
Rivière des Fèves Trefflé Lécuyer
Alexandre Bourgerie
Wilfrid Lavigneur
Stockwell..... Rufus J. Patenaude
Russeltown..... Emile Beaudin
Narcisse Beaudin
St Chrysostôme..... Rév. A. W. Seers
J. P. Brown, M.P.
J. P. Brown
E. Gamelin
Ste Martine..... Ed. McGowan
Joseph Poirier
Louis J. Primeau
J. D. Barrington
Ste Philomène..... Delphis Lacoste
F. P. Laberge
J. B. Damour
Joseph Lefebvre
Jeseph Primeau
St Urbain..... J. A. Defayette
Israel Sabourin
Arthur Barette

CHICOUTIMI.

Bagotville Firmin Paradis
Elie Tremblay
Chicoutimi..... Dr. Z. E. Beauchamp
Méridé Fortin
Frs. Brassard
Joseph Maltais
Richard Gagnon
Jean Perron
J. D. Quay
George Maltais
Adélaré Lavoie
L. G. Belley, M.P.
L. Eugène Guay & Co.
L'Anse St Jean..... Zéphyrin Desgagné
Edouard Harvey
N. D. de Laterrière... Louis Aubin
Thomas Tremblay
Benjamin Gaudrault

PARISH OR P. O.

NAME.

CHICOUTIMI—Continued.

N. D. de Laterrière... Alfred Tremblay
St Alexis..... Rev. M. Ths. Roberge
Willy Tremblay
St Alphonse P. Tremblay fils de
Stanislas
Jos. Buteau
Révd. M. Sirois
Wilfrid Côté
Thos. Tremblay
Ste Anne..... Henri Côté
Louis Boucher
Ernest Gravel
St Charles Borromée.. Allec Larouche
St Cyriac..... Lazare Vaillancourt
St Dominique..... Chs. J. B. Fortin
Jean Girard
Nérée Bergeron
Pascal Bergeron
Jos. Brassard
D. Brassard
Sacré Cœur..... Charles Lapointe
St Fulgence..... Jos. Harvey
Grand Baie..... Jules Gauthier

COMPTON.

Chartierville..... Onésime Tremblay
East Clifton E. S. Lussier
E. L. Demers
Gould J. D. Painchaud
La Patrie..... Samuel Gobeil
Martinville L. J. Gibson
Moes River..... S. Courtemanche
Paquetteville..... Ludger Lazure
Jules Adam
Hormidas Chicoine
Perryboro Wm. Melrose
Randboro..... E. S. Lussier
Ste Edwidge..... Aug. Gérin
Louis Ladouceur
St Malo d'Auckland.. Joseph Lemieux
Joseph Roy
Pacifique Breault
Eugène Beloin
St Romain..... Cyrille Bourque
Waterville..... D. S. Davignon

PARISH OR P. O.	NAME.
DEUX MONTAGNES.	
Canuta.....	Alcide Renault
Oka.....	R. R. P. Trappistes
	Olivier Laurin
	G. Mivalles
	A. Laplante
	Rév. D. Jos. Lefebvre
	William Lalonde
	Raphael Charest
St Benoit.....	Samuel Fauteux
	Joseph Lacelle
St Canut.....	Ferdinand Rochon
	Joseph Cyr
	Eugene Brunet
St Eustache.....	O. M. Paquette
	Emile Laurin
St Hermas.....	B. Beauchamp, M.P.P.
	H. Pagé
	Eugène Constantin
	Félix Constantin
St Placide.....	Alphonse Dubreuil
Ste Scholastique.....	J. R. Dumoulin

DORCHESTER.

Frampton.....	J. B. Blais
" West.....	Joseph Lacasse
St Anselme.....	Amédée Grégoire
	Joseph Baillargeon
Ste Claire.....	Georges Richard
	William Laflamme
	J. A. Cayouette
	Joseph Roy
Ste Hénédine.....	Gabriel Dumont
	Arthur Morin
	Octave Martineau
	Edouard Journaux
	Alfred Fortier
St Isidore.....	Joseph Dumas
	Joseph Guillemette
	Ferdinand Thibault
Ste Justine.....	Philius Tanguay
	Charles Morin
	Fortunat Chabot
St Léon de Standon..	Emile Blanchette
Ste Germaine.....	Placide Larochelle
Ste Marguerite.....	Jean Boutin

PARISH OR P. O.	NAME.
DORCHESTER—Continued.	
Ste Marguerite.....	David Cloutier
	Joseph Moore
St Odilon.....	Louis P. Doyon
	Linière Maheux
St Prosper.....	Joseph Samson

DRUMMOND.

Drummondville.....	Samuel Johns
	J. A. Gosselin
	Paul Farlez
Kingsey French Vill..	J. P. Lefebvre
	T. C. Cartier
Kingsey Falls.....	Rév. G. E. Caron
	R. W. Leith
L'Avenir.....	Ephrem Charpentier
	Magloire Fleurant
	Adhémar Allard
St Cyrille de Wndov'r	Napoléon Raymond
	Paul Valois
	Albert Jannelle
	Emile Généreux
	Albéric Mélançon
St Germ'nde Granth'm	Edouard Gagné
	Olivier Lemaire
St Guillaume d'Upton	J. B. Vignault
	Moise Héroux
	Wilfrid Théroux
South Durham.....	Rév. Isidore Béland
	Fulgence Préfontaine
	Henri Côté
	David Hyde
Ulverton.....	J. A. Dunkerley
Wickham Ouest.....	Alphérie Vincent

GASPE.

Cap Chatte.....	Georges Roy
Grande Riviere.....	Rév. C. Duret

HOCHELAGA.

Côte St Lambert.....	Geo. C. Bellenger
Mile End.....	Rev. Frère Charest
Pointe aux Trembles..	Alfred Ladouceur
	Félix Gingras
Rivière des Prairies	
St Joseph.....	Delv. Adam

PARISH OR P. O.

HUNTI

Anderson's Corner....	
Athelstan.....	
Cazaville.....	
Dewitville.....	
Ste Agnes.....	
Dundee.....	
Franklin Centre.....	
Helena.....	
Herdmann.....	
Huntingdon.....	
Kensington.....	
Kilbain.....	
Kelso.....	
La Guerre.....	
Port Lewis.....	
Powerscourt.....	
Rockburn.....	
St Anicet.....	
Ste Barbe.....	
Trout River.....	
IBERVIL	
St Georges.....	
St Grégoire.....	
St Jean.....	
St Alexandre.....	

NAME

3—Continued.

David Cloutier
Joseph Moore
Louis P. Doyon
Thérèse Maheux
Joseph Samson

OND.

Samuel Johns
A. Gosselin
Paul Farlez
P. Lefebvre
C. Cartier
Év. G. E. Caron
W. Leith
Théophile Charpentier
Agathe Fleurant
Théodore Allard
Napoléon Raymond
Paul Valois
Albert Jannelle
Émile Génèreux
Léon Mélançon
Édouard Gagné
Émile Lemaire
B. Vignault
Émile Héroux
Wilfrid Thérèse
Év. Isidore Bédard
Marguerite Préfontaine
Henri Côté
David Hyde
A. Dunkerley
Thérèse Vincent

E.

Borges Roy
Év. C. Duret

AGA.

Bo. C. Bellenger
Év. Frère Charest
Alfred Ladouceur
Émile Gingras
Alv. Adam

PARISH OR P. O.

NAME.

HUNTINGDON.

Anderson's Corner....Jos. Anderson
Athelstan Jos. Stewart
Cazaville J. J. McGibbon
A. N. Castagnes'
Dewitville M. McNaughton
M. Connell
Ste Agnes..... J. B. Wales
D. E. Denneen
D. Meade
Dundee D. J. Fraser
Franklin Centre.... R. N. Tannahill
Helena..... G. Walker
Henry Hughes
Herdmann G. Van Camp
A. Mac Kay
Huntingdon Jas. Smilie
Jas. Walsh
A. O. Connor
R. S. Feeny
W. H. Walker
Kensington..... A. Lennan
Kilbain Jas. Welch
Kelso P. H. McIntosh
J. S. MacFarlane
John Small
La Guerre..... N. J. Barker
J. L. McDonald
M. Finn
Port Lewis..... N. Wylie
Powerscourt J. A. Plamondon
Rockburn..... Farqhar et Olivier
St Anicet..... Samuel Aubin
N. M. Leehy
Ste Barbe..... T. Daoust
Trout River..... Peter Paul

IBERVILLE.

St Georges Fromagerie de Henry-
ville
Oliva L'Ecuyer
St Grégoire..... Michel Monat
St Jean..... Jules Ménard
André Salefranque
St Alexandre A. Labreque
Narcisse Brault (fils)

PARISH OR P. O.

NAME.

IBERVILLE—Continued.

Ste Brigide..... Osias Archambault
Godfroy Tessier
Ste Sabine..... Rév. A. V. Roy
St Sebastien Pierre Brault (fils)
Sabrevois S. J. Roy

JACQUES CARTIER.

Isle Bizard Napoléon Boivin
Ste Geneviève..... Urgel Lauzon
Edouard Legault
J. B. Méloche
Ambroise Pilon et
Frère

JOLIETTE.

Ste Elisabeth..... Wilfrid Gingras
A. H. Beaulieu
H. Dudemaine
Louis Trudel
Octavien Guilbault
St Felix de Valois... Georges Asselin
Joseph Gravel
St Jean de Matha... Joseph Clermont
Ste Mélanie..... Jos. Clement
St Thomas de Joliette. Maxime Coutu
Alfred Goyette

KAMOURASKA.

Kamouraska Cyrias Ouellet
W. Lebel
St. Alexandre..... Alexis Bélanger
Ste Anne de la Poca-
tière College Ste Anne
Fois. Gendron (fils)
Joseph Boucher
St André C. Alf. R. Desjardins,
M.P.P.
St Denis de la Boutel-
lerie J. C. Chapais
Charles Bouchard
Joseph Dionne
Ste Hélène Luc Bélanger
St Paschal..... J. B. St Pierre
St Philippe de Nery.. Thomas Leclair

PARISH OR P. O.	NAME.
LAC ST JEAN.	
Chambord	Octave Lefrançois P. H. Dumais
Hebertville	J. Elisée Hudon P. E. Hudon Gonzague Girard Servule Tremblay Robert Lemay Clovis Lemay
Roberval	Euloge Ménard Rév. M. Lizotte Arthur W. Tremblay Andrew Scott Edouard Niquette
St Cyrille de Nor- mandin	Chs. Peltier
St Félicien	Louis Tremblay
St Jérôme	Geo. Perron Chs. Simard Joseph Gagnon Rév. M. Vallée M. Coté et Elie Gagné Octave Hudon
St Prime	Adélaré Perron John Cummins F. Côté et Lavoie
St Gédéon	André Bouchard Joseph Girard, M.P.P.

LAPRAIRIE.

St Constant	Joseph Fyfe
St Isidore	J. R. Pagé
St Jacques le Mineur	Patrick Girard

L'ASSOMPTION.

La Chesnaye (St Lin)	E. Desmarais
St Charles	François Allard
L'Assomption	I. J. A. Marsau Alfred Longpré Joseph Chevalier Ecole d'agriculture
St Paul l'Ermite	Samuel Chagnon
St Roch l'Achigan	J. J. Garéau
St Sulpice	Siméon Giguère J. Arthur Chicoine

PARISH OR P. O.	NAME.
LAVAL.	
St Vincent de Paul	Augustin Allaire Camille Elie Paré Hon. Jos. H. Bellerese Eudore Charbonneau F. X. Bastien Edmond Malepart
Ste Dorothée	J. Roch Couvrette
St Martin	Euclide Côté J. L. Allard
Ste Rose	Isaïe Ouimet Toussaint Dion Joseph Hurtubise O. E. Dallaire

LEVIS.

Lévis	Carrier Laine & Cie
St Etienne Lauzon	Chs. Turgeon Ubald Plante
St Romuald	M. Georg. St. Hilaire
St Henri	Aimé Fortier
St Joseph de Lévis	Theophile Ruel
St Lambert	Eugène Métivier
St Nicolas	Gabriel Desrocher J. B. Caouette Eugène Vézina Alphonse Filteau

L'ISLET.

L'Anse à Gilles	Eustache Ménard J. Alp. Langelier Eugène Métivier
St. Aubert	J. B. Daigle Barthélemi St Pierre
St Cyrille	Athanase Morin Désiré Mercier
St Eugène	François Deschênes Philiias Kirouac
St Jean Port Joli	Edouard Vaillancour Amédée Fortin Demétrius Lord
St Roch des Aulnaies	Joseph F. mile Pelletier M. Aug. Pelletier François Costonguay Dolard Gendron

L'ISLET

Lotbinière

LOTBI

St Agapit

St Agathe

St Edouard

Ste Emmélie

St Flavien

St Jean des Chaillons

St Gilles

St. Narcisse

Ste Philomène

St Louis

St Patrice Beauvillage

St Séverin

St Sylvestre

MASKIN

Maskinongé (Pont de)

Nancy

St Didace

St Justin

St Léon

St Paulin

Ste Ursule

Jo

NAME.

PARISH OR P. O.

NAME.

PARISH OR P. O.

NAME.

AL.

Augustin Allaire
 Camille Elie Paré
 Ion. Jos. H. Bellerose
 Eudore Charbonneau
 F. X. Bastien
 Edmond Malepart
 I. Roch Couvrette
 Euclide Côte
 I. L. Allard
 Isaac Ouimet
 Foussaint Dion
 Joseph Hurtubise
 J. E. Dallaire

IS.

Barrier Laine & Cie
 Chas. Turgeon
 Ewald Plante
 M. Georg. St. Hilaire
 Aimé Fortier
 Theophile Ruel
 Eugène Métivier
 Gabriel Desrocher
 I. B. Caonette
 Eugène Vézina
 Alphonse Filteau

LET.

Eustache Ménard
 J. Alp. Langelier
 Eugène Métivier
 J. B. Daigle
 Barthélemi St Pierre
 Athanase Morin
 Désiré Mercier
 François Deschênes
 Philias Kirouac
 Edouard Vaillancourt
 Amédée Fortin
 Demétrius Lord
 Joseph F. mile Pelletier
 M. Aug. Pelletier
 François Costonguay
 Dolard Gendron

L'ISLET—Continued.

Lotbinière Léger Pépin
 Joseph Beaudet
 Arthur Beaudet
 Eugène Perron

LOTBINIÈRE.

St Agapit..... Francis Roger
 Joseph Paquet
 Joseph Olivier
 St Agathe..... Octave Boulanger
 St Edouard..... Hyppolite Lord
 Ste Emmélie J. J. Beaudet
 Evariste Lauzé
 Philémon Bernard
 St Flavien Saul Côté
 D. U. Bernard
 Louis Bibeau
 Fulbert Garneau
 St Jean des Chaillons. François Hamel
 St Gilles..... Rév. S. Garon
 Nazaire Demers
 St. Narcisse..... Onésime Farlant
 Didace Kirouac
 Ste Philomène..... L. P. Bourret
 Ernest Lauzé
 St Louis Adélaré Plaisance
 St Patrice Beurivage. Francis Brousseau
 St Sévérin Samuel Laliberté
 St Sylvestre Siméon Maheux

MASKINONGÉ.

Maskinongé (Pont de) J. G. Héroux
 Edelmor Voizard
 Nancy F. Dionne
 St Didace..... Joseph Jolette
 H. M. Maigret
 St Justin..... Pierre Baril
 Rév. M. D. Gérin
 Dr. C. J. Coulombe
 St Léon Roy, Boisvert et Caron
 Geo. Caron
 St Paulin..... Samuel Boucher
 Ste Ursule..... Isaac Fournier
 Joseph Grenier

MATANE.

Causapsal..... Rév. G. M. Frère
 Amqui Elie Beaupré

MÉGANTIC.

Leeds..... J. G. Cummings
 St Ferdinand d'Hali-
 fax..... Louis Gilbert
 Oscar Gilbert
 Saul Martineau
 Zoel Lambert
 Evariste Beaupré
 Sacré cœur de Marie... J. O. Hébert
 Louis Châteauneuf
 J. E. Belanger
 Somerset Napoleon Proulx

MISSISQUOI.

Abbotts Corner..... E. H. Spoor
 Bedford..... Emilien Larocque
 Béranger..... Napoléon Girard
 Cowansville Arthur MacFarlane
 East Dunham C. M. Harvey
 J. G. Wales
 Farnham O. Z. Gingras
 Frelighsburg Rév. P. A. St Pierre
 N. D. de Stanbridge... Ovila Courtemanche
 J. B. Brault

MONTCALM.

Rawdon..... Edward Lane
 Magloire Barrette
 St Alexis O. Magnan, M.P.P.
 St. Esprit..... Raymond Lesage
 St Jacques l'Achigan. Alfred Goyette
 Ste Marie Salorné.... J. Ernest Gaudet

MONTMAGNY.

Cap St Ignace..... J. Eloi Jalbert
 Samuel Dugal
 Louis Gagné
 G. S. Dugal
 Joseph Gilbert

PARISH OR P. O.	NAME.
MONTMAGNY—Continued.	
Isle aux Grues.....	Charles Paul Roy Georges Roy A. Jos. Roy Jos. Alfred Vezina Georges Dancosse Alfred Dancosse
Montmagny St Thomas.....	Frs. Joseph Proulx Edmond Rémillard Cyrille Têtu Ludger Nicole
St Paul	Eugène Gourgue
St. Pierre	Octave Guimond

MONTMORENCY.

L'Ange Gardien.....	Ed. A. Barnard
Ste Anne de Beaupre.....	Cyrinus Marquis
St Ferreol	Rév. G. A. Lemieux
St. François, I. O.	Narcisse Roberge Rév. J. C. D. Leclerc
St Joachim	Isidore L'Heureux Célestin Fortin David Fortin Hugh Brown Antoine Thomassin Jos. Noé Pépin Rév. Jos. G. McCrea
St Pierre, I. O.	Liména Gauthier
St Tite des Caps	Ludger Leblond

MONTREAL.

241 rue St Paul	Chs. Langlois
Marché Ste Anne.....	J. A. Vaillancourt
A. A. Ayer, McGill.	John H. Scott
208 McCord	A. Laniel
176½ St Hubert	Wilfrid Frappier
214½ Panet.....	Joseph Michaud
65, 67, 69 William st.	F. A. Dorion
63 McGill street.....	Walter E. Hannan
4031 Dorchester street.....	Hon. W. Owens
66 McGill street.....	Jas. Alexander
93 St. Elizabeth street.....	J. A. Harel
489 St Dominique.....	Firmin Legault
190 Sanguinet.....	Isaie Renault
53 Dupré street.....	W. T. Wilkinson

PARISH OR P. O.	NAME.
NAPIERVILLE.	
Napierville St Cyprien.....	A. P. Tassé
St Michel.....	Henri Roy
St Rémi.....	Chs. Huguet Latour

NICOLET.

Bécancourt	Gaspard Côté
Gentilly	Eusébe Houle Onésime Fournier
Nicolet	Napoléon Desfossés Rév. M. G. Proulx Moïse Proulx Abraham Beaulac Narcisse Dorion
Ste Angèle de Laval.....	Jos. Hébert
Ste Brigitte des Saults.....	Joseph Lemire
St. Célestin	Cyrille Vigneault Phil. Duguay Lodger Piché Antoine Hébert Georges Ellison
Ste Gertrude.....	Henri Piché Henri Mailhot Noe Morrissette Eusébe Houle
St Grégoire.....	Gédéon Houle Napoléon Ricard Edmond Thibodeau Luc Forest Hubert Dufresne Olivier Hébert Luc Heou A. E. Desautels Luc Thibeau
St Léonard d'Astée.....	Jos. Hébert Ernest Doucet Rév. M. Dauth
Ste Monique.....	Chs. Milot B. A. Pothier J. B. Beauchemin J. B. Duval Napoléon Raymond Joseph Descoteaux Syndicat de Ste Monique Alfred Therrien

PARISH OR P. O.	NAME.
NICOLET.	
Ste Monique.....	
Ste Perpétue.....	
St Pierre les Beccuel	

Ste Sophie de Lévrain	
St Sylvère.....	

OTT

Angers P.O.....	
Boileau	
Buckingham	
Maniwaki	
Masham Mills.....	
N. D. de la Salette.....	
Montebello.....	
Montpelier	
Papineauville	
Poltimore.....	
St Amédee.....	
St André Avellin.....	

PONT

Calumet Island.....	
---------------------	--

PORTN

Allan's Mills.....	
Cap Santé	

NAME.
LLE.
P. Tassé
mri Roy
s. Huguet Latour
ET.
spard Côté
sèbe Houle
ésime Fournier
poléon Desfossés
v. M. G. Proulx
ise Proulx
raham Beaulac
rcisse Dorion
l. Hébert
eph Lemire
rille Vigneault
il. Duguay
dger Piché
toine Hebert
orges Ellison
mri Piché
mri Mailhot
e Morrissette
sèbe Houle
déon Houle
poléon Ricard
lmond Thibodeau
ic Forest
ubert Dufresne
ivier Hébert
ic Heon
E. Desautels
ic Thibodeau
s. Hébert
rnest Doucet
év. M. Dauth
as. Milot
A. Pothier
B. Beauchemin
B. Duval
apoléon Raymond
seph Descoteaux
yndicat de Ste
Monique
lfred Therrien

PARISH OR P. O. NAME.
NICOLET—Continued.
Ste Monique..... J. B. Nourri
Ernest Provencher
Ste Perpétue..... Luc Girard
St Pierre les Becquets.Fred. Cinq Mars
Alfred Naud
Noe Mercure
Ambroise Tousignant
Ste Sophie de Lévrard.Damase Dubuc
Georges Barabé
St Sylvère..... H. Sylvestre
Nestor Parent

OTTAWA.

Angers P.O..... Herméngilde Boilean
Josaphat Meilleur
Boileau Joseph Danis
Buckingham Geo. N. Robinson
Maniwaki Frère J. Laporte,O.M.I
Masham Mills..... Auguste Trudel
N. D. de la Salette.... Rév. M. Richer
Montebello..... Hurcher Huneault
Isaïe Legris
Montpelier L. Montpellier
Papineauville T. Bonhomme
Poltimore..... E. D. Hicks
St Amédee..... Robert Robertson
St André Avellin..... J. E. D. Gareau
Jos. B. Edn. Major
Edouard Prévost

PONTIAC.

Calumet Island..... Rév. G. A. Picotte

PORTNEUF.

Allan's Mills..... Adélarde Perron
Cap Santé J. M. Bernard
L. P. Bernard
Alfred Després
Félix J. Leclerc
Gabriel Hamel
Alfred Trudel et Cie

PARISH OR P. O. NAME.
PORTNEUF—Continued.
Ecureuils..... Joseph Augé
Donat Dussault
Grondiues L. Archambault
Emile Hamelin
Deschambault..... Uldéric Benoit
F. X. Paquin
Lachevrotiere..... Gédéon Laganière
Point aux Trembles.. Joseph Angers
Philius Hardy
G. A. Larne
Siméon Gingras
Poirè..... Aubert Bédard
George Bédard
Julien Hudon
Octave Naud
Pont Rouge..... Ambroise Bussières
St Alban..... John Savard
Hubert Perron
Azarias Gignac
Albert Naud
Joseph Naud
A. Baril
St Augustin..... J. E. Moisan
Phydime Rochette
Bélair Noel Massé
St Basile..... Joseph Dérôme
Rév. L. A. Gauthier
St Casimir Majorique Lebœuf
Roch Massicotte
Tessier et Rivard
J. A. Foley
Joseph Massicotte
St Casimir..... Esdras Néron
C. Th. Lachance
Jos. Perron
St Gilbert M. Morrissette
Eugène Gauthier
St Raymond..... Louis Lesage
F. C. Paré
J. Armand Plamondon
F. X. Proulx
St Ubalde Maxime Hardy
Alfred Thibault

NAME

-Continued.

n Stalker
fred Pard
nes Dnnbar
A. McLeod
W. Armstrong
L. Burt
W. Palmer
poléon Lemire
B. Martel
s. Dubreuil
nest Ledoux
Ledoux
lliam Houle
élaré Marcotte
né P. Morisette
rre Kirouac
red N. Pinard
eph Lépine
ana Thibault
uis Lapointe
rre Labbé

IKI.

guste Burns
mny Roy
élaré Blais
v. R. Brillant
red Belzil
gene Boucher
ouard Jean
magerie St Fabien
rménégilde Gagnon
Chouinard
hille Rioux
vid Rioux
O. Massé
v. E. P. Chouinard
arles A. Bégin
siré Bégin
v. Procureur du Sé-
minaire
nuel Coté
A. Nicole
eph Soucy

PARISH OR P. O.

NAME

ROUVILLE:

St Paul Ludger Laliberté
Thos. Carignan
L'Ange Gardien Napoléon Pratte
Elie Bourbeau
Napoléon Paquette
Joseph Lacoste
Magenta Henri Bonneville
Marieville F. X. Marcoux
Joseph Archambault
Joseph Daudelin
Pauline J. P. Rocheleau
N. D. de Richelieu ... E. Ménard
Rougemont Station... Emile M. Dion
C. E. Standish
Napoleon Birtz
A. Roy
Ste. Angèle Jos. Beauregard
A. Tétrault
St. Césaire Henri Normandin
Isidore St-Pierre
Hormidas Langevin
Frédéric Maynard
J. H. Vadnais
Louis Brodeur
Hormidas Provost
Simon Sénécal
St Jean-Baptiste Oscar Chagnon
L. Beauregard
St Mathias Ephrem Cardinal

ST. HYACINTHE.

La Présentation M. A. Piché
Joseph St Pierre
St Damase Fromagerie du Pont
Fromagerie de Corbin
Francis Racicot
St Denis Lévis Phaneuf
Hormidas Larue
St Hilaire Albert Dumler
St Hyacinthe Rev. M. Tétrault
Rev. C. P. Choquette
Emile Castel
J. C. Desautels
Emile Desjardins

PARISH OR P. O.

NAME

ST. HYACINTHE—Continued.

St Hyacinthe Hon. P. B. de la Bruère
Lambert Sarrasin
J. de L. Taché
Gabriel Henri
Carl Zetterman
Brousseau et Bergeron
Victor Beauregard
St Judes Pierre St Germain
Xavier Larivière
Aldéric Dupré
Ste Medeleine Jos. Richer Lafliche

ST. JEAN.

Lacolle Zephir Dupuis
L'Acadie Joseph Deland
Cercle agricole Ste
Marguerite
St Blais Delphis Brassard
St Jean d'Iberville... Henry Roy
St George Henryville. Oliva Lécuyer
St Valentin J. G. Bouchard
Alfred Nolin

ST. MAURICE.

Pointe du Lac Jos. Ant. Garceau
St Barnabé Edouard Paquiu
Arthur Milot
Pierre Corriveau
Alphonse Grenier
Thomas Lacerte
Philippe Gélinas
Honoré Lamothe
St Elie de Caxton.... Isaïe Dechène
Ludger Rivard
St Etienne des Grès .. Napoléon Ringuette
Marjorique Milette
St Maurice Maxime Cosette
St Sévère Euchariste Lamy
Pierre Lacerte
Victor Milot
Paul Pelletier
Alfred Ferron
Shawengan Telesphore Pellertn

PARISH OR P. O.	NAME.
ST. MAURICE—Continued.	
Shawenegan.....	Albert Corrivault Zacharie Lamy Napoléon St Louis
Yamachiche	J. Fortunat Côté Hercule Bourrassa Arthur Duchéne Thomas Munier
SHEFFORD.	
Bonsecours	Joseph Desmarais J. B. Roberge Alex. Gouin Hormidas Laplante
Dalling.....	L. Lawrence
Egypte	D. Chaput
Granboro.....	Andrew Fossey
Granby	Pierre Allard
Granby.	Chas. E. Booth Henri Allard Edmond Salois Geo. C. Boyd
Lawrenceville	William St. François
Mawcock	J. H. Rocheleau M. H. Robert
Ste Cécile.....	Azarie Côté
Racine Ely.....	Pelletier et Vincelette
Roxton Pond.....	Denis Casaubon
Roxton Falls	Chs. Brisebois Louis Brazeau E. Larocque Joseph Brun
St. Joachim.....	Napoléon Côte
Savage's Mills.....	Henry Purdy
South Ely.....	Hiram Darby Modeste Choinière
West Ely	A. J. Darby
Shefford St Valérien..	J. B. Dépôt Arthur Marsau Louis de Grandpré Maxime Robert Rév. F. P. Côte
Shefford Vale.....	Purdy et Porter Edward Doonan C. Desmarais

PARISH OR P. O.	NAME.
SHEFFORD—Continued.	
South Granby.....	James Duncan
South Roxton.....	Chas. Reynolds
St Anne de Stukely....	J. Campbell Henri Pontois W. Stanley Purdy
Valcourt Ely	Joseph Véroneau Hippolyte Napoléon Salois Joseph Racicot
Waterloo	Gédéon Boulé W. H. Bridge H. W. Boire James Hamilton D. Daigneau
Warden	J. A. Lewis Joseph Doonan
West Shefford.....	Joseph Duquette S. Lawrence
SHERBROOKE.	
Ascot Corner	Wilfrid Duplin
Sherbrooke	Pierre Bossé Rév. F. V e n a n t Charest Guil. R'Haven
SOULANGES.	
Côteau du Lac	Emeric Sauvé
Côteau Station.....	Jules Gauthier
Pont Château.....	J. A. Bourbonnais
Rivière Beaudette.....	Louis Méchet
St Clet.....	J. B. Marleau
St Dominique.....	Jules Séguin Em. Lécuyer
Les Cèdres	Samuel Leroux Hector Constant Rév. M. T. Chagnon
St Polycarpe.....	J. H. Leclair J. H. Gareau
St Téléspore.....	J. L. Chénier Louis Charlebois Rév. M. Reid

PARISH OR P. O.	NAME.
STANSBURY.	
Barnston	
Barnston, South	
Baldwin Mills.....	
Cassville	
Coaticook	
Dixville	
Fitch Bay.....	
Georgeville	
Heathton.....	
Hatley.....	
Kingscroft.....	
Magog	
Marlington	
Massawippi.....	
Minton	
Oliver	
Ste Catherine.....	
Ste Hermenégilde.....	
Smith Mills	
Stanstead.....	
Ways Mills.....	
TÉMISCOAMINGUE.	
Fraserville	
L'Isle Verte	
Old Lake Road.....	
N. D. du Lac.....	
Trois Pistoles.....	
St Arsène.....	
St Eloi.....	
St Epiphane.....	
St Modeste.....	

NAME.

PARISH OR P. O.

NAME.

STANSTEAD.

Barnston	J. B. Hall
Barnston, South	Geo. E. Searles
Baldwin Mills.....	L. E. Sutton
Cassville	A. Thompson
Coaticook	Edouard Morais
	Adélarde Trudeau
	L. Lévesque
Dixville	Remick et Grady
Fitch Bay.....	R. E. Scott
Georgeville	Chas. Gordon Boynton
Heathton.....	W. W. Heath
Hatley.....	A. J. McKay
	J. D. Morisson
Kingscroft.....	W. J. Nibloch
Magog	Jos. N. Gaudreau
Marlington	W. S. A. Buck
Massawippi.....	Luc. S. Colt
Minton	N. E. Fish
Oliver	G. B. Rexford
Ste Catherine.....	Pierre Ménard
Ste Hermenégilde....	J. P. Dupuis
Smith Mills	W. Taylor
	Hébert Gay
Stanstead.....	P. W. Baldwin
Ways Mills.....	D. L. Taylor
	F. L. Brown

TÉMISCOUATA.

Fraserville	Rév. M. Ed. Poirier
L'Isle Verte	Chs. Préfontaine
	J. Jules Bélanger
	Isidore Dumont
	Alfred Paradis
Old Lake Road.....	F. Soucy
N. D. du Lac.....	Louis Gagnon
Trois Pistoles.....	Jos. Bellesisles
	Rév. D. Vézina
St Arsène.....	Joseph Fournier
	Napoléon Bérubé
	Théophile April et cie
St Eloi.....	C. Godbout
Ste Epiphane.....	Auguste Breton
St Modeste.....	J. Bte. Thériault

PARISH OR P. O.

NAME.

TERREBONNE.

Piedmont St Sauveur.	Grégoire Belanger
	Edmond Brosseau
	Elie Desrochers
	Albert Lessard
Terrebonne	Bruno Dazé
Ste Adèle.....	Edmond Longpré
	Dr. W. Grignon
Ste Agathe	Rév. S. A. Moreau
Ste Anne des Plaines.	Théodule Corbeil (fils)
St Janvier	Joseph Desroches
	Xavier Sauriol
St Jovite	J. N. Geoffroi
St Jérôme.....	Louis Labelle
	Israël Dion
	Léandre Lauzon
	Henri Forget
	J. P. Nantel
	Eugène Taillon
	Will. H. Scott
	Joseph Laplante
	Arthur Lemay
	Wilfrid Dupuis
St Hippolyte.....	Napoléon Régimbal
Ste Lucie de Doncaster.	Israël Thouin
Ste Marguerite.....	Rév. A. G. Moreau
	Legault et Daniel
	D. Chartier
Ste Thérèse de Blain-	
ville.....	Rév. M. Labonté
	J. B. Waddell
	Chs. D. Tylee
	Antoine Desjardins
	J. D. Leclair
	A. E. Garth

TROIS-RIVIERES.

Trois-Rivières	Philippe de Bellefeuille
	J. A. Milot
	C. Bellemare
Banlieue de Trois-	
Rivières	Hormidas Duva
	Eusèbe Girard
	Albert Bellemare

-Continued.

ames Duncan
 has. Reynolds
 Campbell
 enri Pontois
 7. Stanley Purdy
 seph Véroneau
 Hippolyte
 apoléon Salois
 seph Racicot
 édéon Boulé
 7. H. Bridge
 l. W. Boire
 ames Hamilton
 t. Daigneau
 . A. Lewis
 oseph Doonan
 oseph Duquette
 . Lawrence

OOKE.

Vilfrid Duplin
 Pierre Bossé
 tév. F. Venant
 Charest
 inil. R'Haven

NGES.

meric Sauvé
 ules Gauthier
 . A. Bourbonnais
 ouis Méchet
 . B. Marleau
 ules Séguin
 Em. Lécuyer
 amuel Leroux
 ictor Constant
 rév. M. T. Chagnon
 . H. Leclair
 . H. Gareau
 . L. Chénier
 ouis Charlebois
 rév. M. Reid

PARISH OR P. O.	NAME.
VAUDREUIL.	
Beauvoir	A. O. Roger
Hudson	W. H. Hodgson
Isle Perrot, South.....	Azilda Daoust Eustache Pelodeau
Mongenais	L. Edmond Cardinal
Pointe Fortune	A. Catanach
Rigaud	J. Eugène Séguin Emmanuel Chevrier
Ste Justine de Newton.....	Ferdinand Besner Napoléon Decoste
Ste Marthe.....	Peter Monahan Delphis Legault Réy. F. X. Sauriol John McManus
St Rédempteur	Geo. Valois
Séguin	Rosario Séguin
Vaudreuil	Amédée Castonguay Rév. J. O. Godin Chs. B. Brosseau Basile Charlebois Honoré Robillard Moïse Boyer Joseph Pilon Georges Lalonde Arthur Wathier

VERCHÈRES.

Belœil	Hertel Brosseau
Contreccœur	Régis Pelletier
St. Antoine.....	Ovila Bonin Joseph André Giard Clément Laviollette
Ste Julie.....	Rév. J. C. Daigneault Vertume Phaneuf
St Marc	Alexis Chicoine Jos. Fontaine
Ste Théodosie.....	Bruno Larose
Varennas	Oscar Prevost
Verchères	Jérémie Handfield

WOLFE.

Fecteau Mills.....	Ludger Lavigne Jos. Lavertue
--------------------	---------------------------------

PARISH OR P. O.	NAME.
WOLFE—Continued.	
Fecteau Mills.....	Albert Lavigne
Ham, North.....	Jos. Lehouillier Joseph Cloutier Napoléon Patry
Garthby.....	Achille Richer A. A. Jacques
St Adrien.....	Albert Levasseur
St Hdolphe de Duds- well	Joseph Naudeau
Weedon	Joseph Fontaine Jérémie Fisette Henri Côté Victor Côté
Weedon Centre.....	Pierre J. Després Norbert Rondeau
Wotton.....	Lucien Doré

YAMASKA.

Châtillon	Ovide Lépine
La Baie du Febvre....	Thomas Lafond Ferdinand Vallée Thomas Bellisle Ed. Z. Duguay J. N. Lefebvre J. Louis Lemire J. Achille Bélisle François Demers Herman Lefebvre Elie Proulx Chs. Drouin Uldéric Lévesque Nazaire Lemire C. E. Jutras Eusèbe Proulx Nestor Geoffroy Théodore Proulx
Pierreville	Elisée Parent Ida Niquette Ally. Armand
St David.....	D. Larivière Fabien Vanasse Chs. Cyr Léopold Joyal

PARISH OR P. O.	NAME.
YAMASKA—	
St David.....	J. O. M. W. S. R.
St Elphège.....	W. S. R.
St François du Lac... F.	Ed. Jo. A. J.
St Michel.....	Th. M. En.
St Thomas Pierreville.....	Jo. Na. Ed. Ed. Fél. Jos.
St Pierre Deguire ...	Ed. Ed. Fél. Jos.
St Zéphyrin.....	Ev. Cyr. He. D. J. Ale. Ado. Jos. Wa. Zoë.
Yamaska.....	Nar.

NAME.

PARISH OR P. O.

NAME.

YAMASKA—Continued.

St David.....	Jacob Pare Odilon Mélancon Moïse Deblois
St Elphège.....	William Parent Siméon Paquette Roméo Hamel
St François du Lac...	F. O. Duhaime Elie Duhaime Jos. Marcotte Adolphe Duhaime J. O. Duhaime
St Michel.....	Thomas Delaney
St Michel.....	Moïse Verville Em. Cortier
St Thomas Pierreville.	Joseph Fortin Napoléon Verville
St Pierre Deguire	Edmond Dauplaise Edouard Desfossés Edmond Desfossés Félix Desfossés Joseph Desfossés
St Zéphyrin.....	Evariste Boisvert Cyprien Jutras Herman Lefebvre D. J. Parent Alexandre Simoneau Adolph. H. Parent Joseph Letendre Walter Parenteau Zoël Smith
Yamaska.....	Narcisse Parenteau

PARISH OR P. O.

NAME.

YAMASKA—Continued.

Yamaska.....	R. P. Parenteau Narcisse Théroux
--------------	-------------------------------------

ONTARIO.

Ottawa	Léon Gérin
St Anne de Prescott..	Joseph Blais Joseph Strasbourg
Lefaiivre, P.O.....	J. N. Bricault
Vankleek Hill.....	Chs. S. Bennett
New Dublin	Rodolphe Côté
Stoney Point.....	Rév. M. D. St Cyr

NEW-BRUNSWICK.

Bouctouche.....	Onésime Kirouac J. F. H. Michaud
Lorette.....	Emile Dubois
Eel River.....	A. Boucher

UNITED STATES.

Lordburg (S.D.).....	Alma Landry
Blooming Grove (N. Y.)	Carl. Zettermann

FRANCE.

St Brienc.....	L'Abbé Aignel
Lisieux, Calvados....	Edmond Groult
Onilly le Vicomte, Calv.	C. Morice
Ecole de Grignon	R. Lezé

Continued.

bert Lavigne
s. Lehouillier
seph Cloutier
apoléon Patry
hille Richer
A. Jacques
bert Levasseur

seph Naéau
seph Fontaine
rémie Fisette
enri Côté
ictor Côté
ierre J. Després
orbert Rondeau
ancien Doré

SKA.

vide Lépine
homas Lafond
erlinand Vallée
homas Bellisle
d. Z. Duguay
. N. Lefebvre
. Louis Lemire
. Achille Bêlisle
rançois Demers
erman Lefebvre
lie Proulx
hs. Drouin
ldéric Lévesque
azaire Lemire
. E. Jutras
usèbe Proulx
estor Geoffroy
héodore Proulx
lisée Parent
da Niquette
lly. Armand
b. Larivière
abien Vanasse
hs. Cyr
éopold Joyal

 RECAPITULATION AND TOTALS BY COUNTY.

Argenteuil	20	Mégantic	10
Arthabaska	43	Missisquoi	10
Bagot	42	Montcalm	6
Beauce	63	Montmagny	17
Beauharnois	16	Montmorency	14
Bellechasse	14	Montréal	14
Berthier	19	Napierville	3
Bonaventure	6	Nicolet	50
Brome	8	Ottawa	16
Chambly	4	Pontiac	1
Champlain	53	Portneuf	50
Charlevoix	26	Québec	9
Chateauguay	36	Richelieu	18
Chicoutimi	40	Richmond	28
Compton	20	Rimouski	20
Deux Montagnes	21	Rouville	29
Dorchester	27	St Hyacinthe	24
Drummond	26	St Jean	8
Gaspé	2	St Maurice	26
Hochelaga	5	Shefford	53
Huntingdon	35	Sherbrooke	4
Iberville	12	Soulanges	16
Jacques Cartier	5	Stanstead	26
Joliette	11	Témiscouata	15
Kamouraska	13	Terrebonne	33
Lac St Jean	26	Trois-Rivières	6
Laprairie	3	Vaudreuil	25
L'Assomption	10	Verchères	12
Laval	13	Wolfe	17
Lévis	11	Yamaska	59
L'Islet	20	Ontario	7
Lotbinière	23	Nouveau-Brunswick	4
Maskinongé	13	Etats-Unis	2
Matane	2	France	4
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FOURTEEN

DAIRYM

HELD AT WA

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REPORT "IN EXTENSO"

OF THE

FOURTEENTH ANNUAL CONVENTION

OF THE

DAIRYMEN'S ASSOCIATION

OF THE PROVINCE OF QUEBEC

HELD AT WATERLOO, DECEMBER 3RD, 4TH AND 5TH, 1895.

On Tuesday, December 3rd, 1895, at 2.30 p.m., the Rev. T. Montminy, President of the Association declared the Convention open.

THE PRESIDENT.— Gentlemen, in opening the 14th Convention of the Dairymen's Association, I have a special invitation to address to those delegates who are present for the first time at our function. Those who attend regularly know its importance and are aware that every individual is invited to take his part in it, either by putting questions to the lecturer, or by submitting his doubts and difficulties to the meeting; that we are always happy to extend every possible latitude to those who do us the honour to accept our invitation. We were formerly blamed for allowing all the time of our meetings to slip away in lectures and addresses; those, people said, who wanted to ask for information on important matters had no opportunity of speaking, and it is for the purpose of redressing these complaints that for several years, and again this year, we specially invite to take part in the discussion those who have never been present at our meetings: farmers as well as the makers of butter or cheese. Such questions, or objections, are an excellent method of imparting animation to our sessions; but however lively they may be desired to be, the discussions should never exceed the limits of kindly feeling. If, in the course of discussion, a spark threatens to set off the powder, do not forget that we have an aqueduct here, and that the firemen are ready on the first signal to run and moderate the enthusiasm.

Do not scruple about asking questions; that is what you are here to do; a

question-box is there before me, in which the bashful may put their questions in writing.

OUR LABOURS BEGIN BY THE APPOINTMENT OF COMMITTEES.

M. Chapais tells me that there are many English-speaking people present, and as it was announced that part of our programme would be gone through in the English language, such persons would probably like to understand our method of procedure; Mr. Barnard would, perhaps, be good enough to explain this to them in their own language.

Mr. Barnard (in English)—Gentlemen, you are all invited to take part in the discussions that follow the lectures. Moreover, you are requested to prepare questions or objections to be submitted to the lecturer, verbally or in writing, so that we may have animated discussions on the interests pertaining to this industry of ours. The nomination of the committees will take place at once.

NOMINATION OF THE COMMITTEES.

Mr. Barnard, moved, seconded by M. Chapais, and the convention decided unanimously:

That Messrs. W. H. Walker, Robert Ness, and D. L. Bourbeau, be on the committee for the examination of samples of silage;

And that the committee for the examination of apparatus, &c., of the dairy, presented to the convention, be composed of Messrs. Alexis Chicoine, Peter MacFarlane and Elie Bourbeau.

M. J. C. Chapais.—Mr. President, up to the present time we have proceeded directly, in our public sessions, to the election of officers and directors. Now, I have been present at several similar meetings in the States and in the other provinces of the Dominion, and I have remarked that these elections are always conducted on the report of a committee called "The Committee of Nomination," selected from the outgoing directors of the society.¹ It has been suggested to me that it would be well for us to proceed henceforward in this fashion, and I have the honour to submit this proposal to the meeting.

Mr. Barnard translated M. Chapais' remarks into English, and added:

I have learned, from long experience, that this plan has its advantages; among others, that of ensuring the nomination of directors thoroughly acquainted with the interests of their districts, by their selection by a committee likely, as our officers and directors are, to be well informed as to the qualifications of men as regards their power of serving the interests of the Society. If you have no objection to the proposition of M. Chapais, if it is carried, I shall be happy to submit to you some names which, in my opinion, ought indisputably to have a place in this committee of nomination.

¹ "Bureau Sortant" means those of the directors whose term of office expires.—A. R. J. F.

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*To the Members of the
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Dr. Grignon.—Will the candidates mentioned by this committee be definitely appointed?

Mr. Barnard.—Yes, after the selection has been ratified by the convention. In the societies that I am acquainted with, and at the meetings I have attended, and I have attended many, this plan has always given complete satisfaction.

The motion was carried *nem. con.*

REPORT OF M. EMILE BOURBEAU,

Assistant Inspector-General of Syndicates.

To the Members of the Board of Directors of the Dairymen's Association of the Province of Quebec :

GENTLEMEN,—I have the honour to submit to you my second annual report as Asst. Inspector-general of the syndicates of creameries and cheeseries.

I began my tour through the syndicates on May 11th, and my last visit was paid on the 11th October. Like last year, Mr. Macfarlane decided not to divide the province, so that I had to travel through all the districts in which syndicates subsisted. I must tell you at once that I did not find so much improvement as last season's work led me to expect. In consulting my notes of last year, as well as the reports of my predecessors, I find that it is the same kind of faults, almost invariably, that we have to denounce to you. Doubtless, we are not absolutely standing still in our manufacture of butter and cheese; our makers, generally speaking, are doing better, and know their work better, than they did a few years ago. Whence comes it that the progress is so slow, and that year after year we have the same faults to find? There are different causes for this state of things, one of which seems especially serious, and I feel that I must once more call your attention to it. There are a great deal too many small factories in the province. I seem to hear you say: "But we know that as well as you." I admit that this complaint has been frequently, too frequently, brought forward already, and if I mention it again it is because I consider that it is urgently necessary to find a remedy for it: the interests of our dairy business is at stake. The overcrowding of the market, of which we felt the ill effects last summer, makes this evil still more serious; wherefore, I entreat you, gentlemen, to take, without delay, the necessary measures for its suppression. Unless this is done, the cheese of this province, whose reputation is only just now being established in some parts of England, will certainly be one of the first to be

was called in, this summer, to a cheesery where the maker had just had to submit, in three successive sales, to a depreciation of $1\frac{1}{2}$ cents a pound on account of a *fault in the flavour*.

Whence did this fault arise? Chiefly because the whey-vat had not been washed out for several years, if the eye and the nose be any judge. I made the maker clean the vat thoroughly, and he has not lost a cent since. I cannot insist too strongly on this point; for, if the patrons of a cheesery carry back rotten milk in their cans, and only one of them forgets to wash his out before the evening's milking (which happens oftener than it should), it is utterly impossible for that patron to send in good milk the next day, and consequently it is impossible for the maker to turn out good cheese. That is the reason why we so pressingly beg the makers not to accept bad milk; to keep all their utensils in good order and perfect cleanliness, and above all not to omit washing out their whey-vats at least twice a week. If these precautions be observed, the quantity of "off-flavour" cheese will assuredly greatly diminish.

In my journeys through the syndicates, with the local inspectors, I visited 288 factories that I classify thus: 1st class, 131; 2nd class, 130; 3rd class, 27. In these, I examined 24,222 cheeses, of which there were 10,417 1st class, 11,655 second class, and 2141 3rd class. As the number of inferior cheeses is rather large, I think it right to explain the reason. It appears larger than in former years, and for the following reasons: 1. I thought it right to put all cracked cheeses in the second class, even when their insides were of good quality; 2. We had this year ten new syndicates, and it is not easy for an inspector the first year to arrive at once at perfect results; lastly, this extra number of inferior cheeses was still more increased by the fact that, during my visits in August, I found in the factories the cheese of the whole month of July unsold, and even some made in the last fortnight of June. A great deal of this cheese had been well made, but it had lost much by being kept such a time in factories that, generally speaking, are by no means fit for keeping cheese so long.

Judging from the figures I have just set before you, you might be tempted to think that the inspectors do not answer the purpose the Society intended them to fulfil, but, in my opinion it is not so. I beg you on the contrary to observe that circumstances are sometimes very much against them. You may judge yourselves. We have syndicates that work famously, and give excellent results, in proof of which take the syndicates that at the last Montreal Exhibition obtained, with 22 and 24 factories (*each?*), 95 and 94 marks out of a hundred, on the average. A good average, too, you will say; others were not so successful. True enough, but these inspectors were, chiefly, those who had among their factories many small ones. These small factories manage to exploit the syndicate-work against us in this way: under the pretence that they will belong to a syndicate, they do not hesitate to engage young inexperienced makers, reckoning upon the inspectors teaching them their business. You will agree with me that it is to ask a great deal of our inspector to expect him, in five or six lessons, a month apart, to transform an apprentice into

an expert, able to do him credit in an Exhibition like that of Montreal this September. Many people were surprised to see there cheese inferior to that expected from certain renowned inspectors. After what I have said, I trust, gentlemen, you will no longer be astonished.

The whole respectfully submitted.

ELIE BOURBEAU,

Asst. Inspector General.

At the end of the report M. Bourbeau continued:—Gentlemen, up to last year, provided the inside of a cheese was good, it passed as a cheese of the first quality; but this year, the dealers decided to lower the price of cracked cheese by half a cent a pound; so that this sort, even though well made, has to be classified as second quality. I examined some cheeses of this stamp, and I found, in one factory, as many as 600 of them. You see that this has increased considerably the proportion of cheeses of the second quality made this season.

The President.—If you have any questions or objections to lay before M. Bourbeau, he is at your service.

Mr. Barnard.—I understand, from what M. Bourbeau said, that there was some cheese so inferior in quality that the price was cut down by $1\frac{1}{2}$ cent a pound.

M. E. Bourbeau.—I saw some cheese that was worth even less than that. We find every season cheese that is worth from $1\frac{1}{4}$ to 2 cents a pound less than the finest quality of cheese. I did not found my statement on the average market price, but on the price of the best cheese. My impression was drawn between the best and the worst qualities.

Mr. Barnard.—On the Montreal market?

M. Bourbeau.—Yes.

Mr. Barnard.—Do you think that the Montreal market gives for our cheese a price equal to its value according to the real market rate?

M. Bourbeau.—It is very difficult to say positively, because, as a rule, each seller keeps his deals secret. For my part, I truly believe that enough difference is not made between good and bad cheese, and hundreds of times, in reply to my remarks about cheese, I have been told: "We are selling at the same price as others." I have even been shown reports, that certified that cheese that I had classified as *inferior*, had been sold and accepted as *good* cheese; and yet, this cheese was certainly worth $1\frac{1}{2}$ cent less than ordinary cheese.

Mr. Barnard (In English)—The question is important; it concerns the difference in price between good and bad cheese. In his report, M. Bourbeau says, that, in

some cases, the difference between good and bad cheese is not so great. M. Bourbeau will perhaps like the discussion to

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some cases, the difference might be $1\frac{1}{2}$ cent. As the question interests all of us, M. Bourbeau will perhaps be good enough to reply in both languages, and he would like the discussion to be held in English and in French.

The Rev. Abbé Montminy.—I think that one of the best means of improving our cheese would be to make an emphatic difference in the prices. If the buyer to-day pays 8 cents for inferior cheese, he tries to get good cheese at the same rate, so makers are not stimulated to improve their manufacture; if, on the contrary, he paid at one factory 8 cents for inferior cheese, and, at the next 10 cents for good, there is no doubt that he who had made the bad, would take pains to make better in future. However, I think that if a certain price is paid in a district, every one has to take the same. It would therefore be a good thing for the makers of a district to come to an understanding on the point.

Mr. Barnard.—I have too often heard of this difficulty, viz., that of finding out the real price paid for our best cheese, while we far more easily get at the price of common qualities; and that in general, the average difference between good cheese and cheese that must be sold at what it will fetch, is only a quarter cent.

My friend, M. Guay, will tell you to-morrow the difference that obtains in Chicoutimi. It is a very distant place, Chicoutimi, but still we have something to learn from it. I think you will be surprised to hear at what good prices they sell their cheese there, that they export it to England, and that they make a difference of as much as $1\frac{1}{2}$ cent between good and bad cheese. M. Bourbeau can, perhaps, throw some light on this point.

M. E. Bourbeau.—I said before that the dealers do not make difference enough between good and bad cheese; and I will add, in reply to Mr. Barnard, that an agent once told me that he had orders from his firm at Montreal, never to exceed the limit of a quarter cent, as the difference between good and bad cheese. This, he said, was the rule of his firm. I do not know if others do the same thing.

M. O. V. Bourbeau.—In Arthabaska County, where I live, my experience of the sale of cheese is that the buyers do not make so great a difference between the price of good and bad cheese as that just mentioned. There ought to be more difference than that in the prices of the different qualities of cheese. Looking at the price of the best quality of cheese in Britain, which, last season, was at least half a cent more than was paid here for the best Quebec cheese, we must arrive, in my opinion, at this conclusion, namely, that in only making a quarter cent difference between good and bad cheese in the rural parts of this province, as long as they can do business in this fashion there, and make a profit, the buyers do not care much about the consequences. They always pay less for our good cheese than for good Ontario cheese; and it is clear to us that they pay less than its value for our good cheese, while they pay in excess of its value for cheese of inferior class.

M. Charles Thibault.—I beg leave, Mr. President, to ask a question: I have the two-fold advantage of being a practising lawyer and a farmer, and as a lawyer, I

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both good and bad cheese is made, and what is the reason? It was the same man from who made it, and he treated all his milk in the same way. Why was the cheese one vat good, and in another vat bad? It was discovered later that the rennet was in fault. The most important of all things in cheese-making is the rennet. We have had bad rennet, and nine times out of ten, when cheese turns out badly, it is due to the rennet. Bad rennet will curdle milk as well as good. Such cheese, made with bad rennet, will preserve its consistency for nine or ten days, and then it will "cave in." You then taste it, the flavour is bad; the inspector may think that is due to whey, beyond the limits of the factory, when he inspects the cheese, but in more than one case, it has been found to be due to bad rennet. To get hold of the control of the rennet, no bottle of it should leave the shop for the factory without first having previously received the *cachet* of the Dairymen's Association or of the Government. By this, I believe that an improvement in the quality of the cheese would be ensured.

M. E. Bourbeau.—The gentleman who has just spoken does not seem to me to be *au fait* of the labours and objects of this Association. He does not know what takes place in the factories under its control; but if he would take the trouble to enquire, he would find that we have this year thirty-eight syndicates, with thirty-eight inspectors at their head, all under the direction of the Inspector-General and his assistant. The report you have just heard read is that of the Assistant Inspector. It is my duty to look after the local inspectors, of whom there are thirty-eight, charged with the duty of receiving the milk, testing it, and making cheese. If you will turn over the leaves of the reports of the Society, you will find, M. Poulin, that the inspectors are required to make cheese with the maker, and this I have often done.

M. Poulin.—My suggestion is that the Society ought to have control of the rennet and should appoint a special inspector, in order that no rennet should be received by the makers until it had been passed as good. I do not accuse any one of having failed in his duty. The inspector himself does not know what goes on, neither does he know whether the rennet is good or bad. And he is not a chemist. But what I wish, and I wish to be well understood, is to suggest to the Association, or to the Government, that they take the rennet under their control; that it be inspected by a man appointed for the purpose, and that not a single bottle of rennet be allowed to reach the hands of the makers till it has received the approval of the Association or of the Government.

M. D. V. Bourbeau.—It is always pleasant, Mr. President, to listen to suggestions such as have just been made. Mr. Poulin says that at his factory the fault lies with the rennet. That is the case sometimes; it also happens occasionally that the faults are due to the whey-vat, in the bad management of the factory, and sometimes even in the milk itself. There are faults on all sides, we are all full of faults, always excepting Monsieur, the Assistant Inspector-General. I do not know of many faults that he has, and I like to brag about him, perhaps because he bears the same name

that I bear. Anyhow, I can bear witness to this: he came into our county to find out what our inspectors were doing, and I believe he succeeded in his quest. He saw, and can say, if our inspectors were careless or attentive to their duties in connection with the different factories under their control; if they did or did not do their duty. I have seen M. Bourbeau at work, I have seen him make cheese himself, although he was not obliged to do it, and no better cheese was ever made in our factory than the cheese he himself made there.

M. J. de L. Taché.—As a proprietor of creameries, I have observed that care is taken at all the *creameries* of the province to pour the skim milk into a tin vat before its distribution to the patrons, while in the very great majority of *cheeseries* there is only a wooden tub to hold it.

M. E. Bourbeau.—It is difficult to say why this should be so. My vat is of tin. When men begin to see the real value of whey, more care will be taken of it.

I think it is very difficult to keep a wooden tub clean; tin is easily washed, and I observe that in the best factories in the province the vats are of tin: they ought to be universally made of that metal.

A maker came one day and asked our secretary to send me to his cheesery to see why some sales of his cheese had been cut down in price. I went thither, examined his cheese, and told him at once that the fault lay in his whey-vat. We went and looked at it: it was not a pleasant sight, and the smell was not by any means agreeable. There were four inches of rotten, clotted milk at the bottom, that had been there for I know not how long. It was late when I got there, so I could only have given him a little advice. I made him clean out the vat, and since then he has not lost a cent. People, generally, do not look after the whey-vat enough. The patrons especially should see that it is cleaned out frequently. But they ought also to look after their cans; if these are not well washed out, they become tainted, and the milk reaches the cheesery in bad condition.

M. D. V. Bourbeau.—In replying to Mr. Poulin, I forgot to relate to him, and to the meeting as well, how we, at our cheesery, manage to get good rennet, good wrappers, good wood for the boxes, good colouring, and good salt. We formed our syndicate, and at our meetings, in March, we invited the factory owners to join together, and this arranged, at the same time as we engaged our inspector for the superintendence of the factories during the season, we engaged a competent person to buy, wholesale, all things necessary for the factories in the syndicate. Charged with this duty, our agent bought for all the factories. Instead of buying salt by the ten or twenty barrels, he bought four or five hundred barrels, and paid four, five, and six cents less per barrel. The calico and the rennet were bought wholesale, and cost much less in consequence. The buyer being a good judge, he can decide as to the quality of the goods, and the syndicate may be sure of having good calico, good salt, good rennet, good colouring, and wood to turn out good boxes. We secured these things for our two syndicates, and all have been equally benefited, and all the goods

needed for cheese made much less, and with uniformity.

Mr. Walker (in During the last three paying for milk according to milk; there is much rising in the evening' method is a good one)

M. E. Bourbeau.—makers would have been convinced of that in districts the increase of same time the mode of the milk richer: two

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Mr. Macfarlane (after this system; it promises a great deal of pressing as regards the

Mr Walker.—Some richness. Meetings have could only introduce it practice became general people are not in accord to render the practice

M. E. Bourbeau.—milk according to its richness You have, perhaps, concluded you are right. In the milk from bad, and can

⁸ *Petit lait* in the original

needed for cheese making turned out of good quality, cost the members of the syndicate much less, and we thus secured a better quality in our cheese as well as greater uniformity.

Mr. Walker (in English).—I should like to ask Mr. Inspector a question. During the last three seasons that I have worked my factory by the system of paying for milk according to its richness, our patrons take much better care of the milk; there is much less gas in the whey¹; they do their best to prevent the cream rising in the evening's milk, by stirring it properly. Do you not think that this method is a good one?

M. E. Bourbeau.—Yes, I do think so. If the milk were better looked after the makers would have much less trouble in making good cheese. If the patrons could be convinced of that they would take more care of the milk. We know that in some districts the increase of care has improved the quality of the cheese, while at the same time the mode of payment led to an increase in the quantity of fat, thus making the milk richer: two great advantages.

An Unknown.—Would it not be as well for the Dairymen's Association to adopt some plan to make the Babcock test general throughout the country?

M. E. Bourbeau.—We have discussed it in the Dairy School. Every pupil there learns to use the Babcock in testing milk, and we recommend the paying for milk according to its richness. But, naturally, we do not advise any patron to introduce it against the wishes of his patrons. I think it is the patrons, above all men, who are opposed to the system. The makers would willingly take it up if the patrons would consent. Why the farmers object to it I cannot see, for it is fair and does justice to every one.

Mr. Macfarlane (in English).—Last year, 34 factories paid for their milk after this system; this year there are double the number, and the future promises a great deal of progress in this matter, so that there is no reason to be too pressing as regards this business.

Mr Walker.—Some syndicates have refused to pay for milk according to its richness. Meetings have been held and reports made against the plan. If we could only introduce it into each of the syndicates, it would not be long before the practice became general. But so long as the agreement is not general, so long as people are not in accord to bring about that which is best for all, it will be difficult to render the practice universal.

M. E. Bourbeau.—Having just answered the questions about the payment for milk according to its richness. I will now revert to the question of small factories. You have, perhaps, come to the conclusion that I am opposed to small factories: you are right. In these, we find men who are not even able to distinguish good milk from bad, and cannot, in consequence, apply the plan of paying for milk in

¹ *Petit lait* in the original, but *surd* may be meant. A. R. J. F.

accordance with its quality, as they do not know how to test it. The small quantity of cheese made will not admit of the proprietor paying the maker the fair salary of a competent man. And it is not fair to expect the inspector to do the work of testing; for, above all things, his duty is to look after the making of the cheese, and not after the way in which the milk is paid for. The syndicate, then, must engage a man to make the test and the dividends; for, if the inspector is overburdened with work, he will at last refuse to attend to the making and restrict himself to the testing of the milk.

M. D. V. Bourbeau.—I have studied this question for some years, and I have decided that it is impossible to do justice to the patrons, by paying for milk by the hundred pounds. To act fairly by all, it must be paid for without exception according to its richness. At every division of profits, we find that some of the milk is worth from 10 to 15 cents less than other milk at the same division, because there is some milk that tests $4\frac{1}{2}$ p. c. of fat, and other milk that tests only $3\frac{1}{4}$ to $3\frac{1}{2}$ p. c. The greater the difference in the quality, the greater is the difference when the payment is made. And so, for those who have at heart the welfare of dairying in their districts, who wish to deal equitably towards their neighbours as well as to be justly treated themselves; lastly, for those who are upright and respectable, for the farmers who aim, in caring for their milk, at supplying the best of food and pasture to their cows; let these men insist upon milk being paid for according to quality. If that is not done at their factories, they are simply paying part of what is their own due to the careless patrons of the same factories.

M. Trudel.—And as to the whey, would it not be better to boil it before vatting it?

M. E. Bourbeau.—Though I cannot speak from experience, I think it would be a good thing.

M. Trudel.—Could it not be put into a boiler and done by a steam injector?

Mr. Wm. R. Haven.—The steam must not come into direct contact with it, for that would cook it.

M. E. Bourbeau.—In that case, it would not be practicable. For my part, I have never boiled whey.

REPORT OF MR. PETER MACFARLANE.

Inspector-General of Syndicates.

To the President and Directors of the Dairymen's Association of the Province of Quebec.

GENTLEMEN,—I have the honour to submit to you my fourth annual report as Inspector-General of Syndicates for the season 1895.

I began my labours on the 1st of last May by holding, in the counties of Chicoutimi and Lake St. John, a travelling dairy in four places, two in Lake St.

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John and two in Chicoutimi. I had, in all, more than 80 makers and apprentices as pupils.

But, it will be said, why did they not go to our school at St. Hyacinthe? For a very good reason, there was no room for them there. Many seeking admission had been necessarily refused. It has since been enlarged, and the staff increased; there will be more room, but, nevertheless, I am still afraid that there will not be sufficient accommodation from now to next spring, so that I advise all those who wish to attend next winter to enter their names as early as possible.

The number of the syndicate has increased very perceptibly this year. There are ten more than last year. If we go on at the same pace for a year or two, the greater part of the province will be covered with syndicates, a most desirable thing. We had, last year, 3 butter syndicates, and 35 cheesery syndicates, *i.e.* about 780 inspected factories, or only about one-half of the factories in the province. We must, then, still push away at the wheel, until we get the chariot of progress as far as the utmost confines of the province, so that all the benefits of inspection shall reach them.

In all, I visited 360 factories, some of them twice. I examined 30,201 cheeses and 1,407 tubs of butter. Of cheeses, I found 5,984 inferior, or about $\frac{1}{4}$ of the whole, while of butter, there were only 14 tubs of inferior quality. Why is there so much inferior cheese? Doubtless, from carelessness, cheese sold so badly this summer that many patrons said to themselves:—Its not worth while bothering oneself about the milk, with such price; so they did not aerate their milk; again, because of the long draught, the poor cows had to drink water utterly unsuitable to them, and to eat any weed that came in their way.

We have had, then, a number of circumstances that all tend to the same results. There are not yet many patrons who profit by the advice given them to sow green-fodder crops for their cows. This season they have had a good lesson, and it is to be hoped that most of them will remember it next spring.

If a maker is to turn out good cheese, he must have sound milk, free from all bad smell, and it is only from cows that are fed on good food and drink good water that can produce good milk. This is a most desirable end to attain. Let us unite our efforts, patrons, makers, inspectors, to attain it.

The exports of cheese in 1895 are about the same as last year, while in the butter exports there is a perceptible increase, though not yet quite as we could wish, not even half of what was expected 15 years ago. Still we shall get back to that rate. The quality of our shipments of butter has decidedly improved, but I wish I could say the same of our cheese. The total cash received for butter and cheese is less than the average of the last three years; indeed, the price of cheese had not been so low for ten years, the only year in which the price was so low being 1886, which really gave an average of at least a cent lower. Still, there is a future for cheese, in spite of the present low price, if one looks at the price of other comestibles. Cheese is cheap and the consumption is good, so that better prices may be looked for

next year. Butter, in the early season, sold very badly, but the price was much better at the end of the summer. Some of it was sent, fresh made, to England, and the people of the United Kingdom know now that we can turn out good butter. Our conquering a prejudice was a difficult thing to do. I do not think "prejudice" is too harsh a word to employ, for many English people used to think, and many still think, that our butter is not fit for the table, but we must not be discouraged; let us work away until they learn that we can make as good butter as any people. At the Montreal show Mr. Perlee was very much pleased with the improvement in the quality of our butter since the Chicago exhibition. As to our cheese, at the same Montreal show, we doubtless had some as good as that at Chicago, but we had some worse, and some very much worse. The competition was between our syndicates, and the Exhibition Company had laid down the rule that the cheese shown must have been made between the 1st and the 15th of August, so that when the show opened a great many of the cheese were six weeks old. Every one knows that the greater number of factories of the province are not so constructed as to be able to keep the cheese so long as that, however well made they may be. In the other classes the cheese might have been made up to August 25th. Why these two weights and measures in neighboring competitions? I had rather that both should have been treated alike. Our inspectors, being obliged to see that the whole of each one's syndicate was represented, sent all their cheese, and consequently we had a great deal that was "off-flavour." No date was fixed for the making of the butter exhibited. Why not have treated the cheese makers in the same way? Give every one a chance to send their best goods, or fix a positive date, common to all, for one make. But this is a matter for arrangement with the Exhibition Company, and not with this convention.

About 100 factories this year have paid for milk by the Babcock test of quality, a marked progress since last season. Shefford is at the head of all the counties, with about 25 factories, having adopted this way of payment. Let us continue to recommend it until it has become the universal rule and all upright people have the satisfaction of seeing the advanced step in the road of progress accomplished.

I am waiting for the separate reports of our local inspectors, and shall annex them, when received, to our annual report. Up to the present time very few have reached me. However, I hope the delinquents will shortly send them to me. If the secretaries of the factories will not send their factory reports to their inspector he cannot send his report to me, and I myself am obliged to send in mine in an incomplete state.

The whole respectfully submitted.

PETER MACFARLANE,
Inspector-General.

St. Hyacinthe, Dec. 3, 1895.

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enter into particulars.

Mr. Robert Wherry (in English).—Would Mr. Macfarlane kindly tell us if the paying for milk according to its quality, as shown by the Babcock test, is admitted to be correct without dispute. I ask this because Professor Dean, after having carried out the system for a whole year, says it is not correct. On the other hand, Professor Van Slyke, of Geneva, N. Y., recommends the plan; and now comes another authority, John Gould, of Ohio, and he tells us it is not exact. In my county I have not been in a position, up to the present time, to assure the makers that the system is a good one, for I have not been able to impart to them any stable fact in support of the theory that the Babcock is the true test of the quality of the milk. I am perfectly satisfied that it is true and fair to pay for milk after this test in creameries, but in cheeseries it is a different thing. I ask the question to settle the point, because no one man of science will give me a convincing reply, and I cannot look upon the question as settled until I get a more definite solution.

Mr. P. Macfarlane.—Professor Dean's¹ rule is very peculiar. To the percentage of butter fat given by the Babcock he adds $\frac{2}{10}$ per cent. of fat. It is easy to see that the patron who has 3 per cent. of fat, and to whom is added $\frac{2}{10}$ per cent., is in a more favourable position than he who has 5 per cent. and to whom only $\frac{2}{10}$ per cent. are added. This rule seems to me to favour the man whose milk is poor to the detriment of him who sends in rich milk. In such extreme cases, I am aware that the dividend, formed on the quality of the milk, does not do perfect justice to the poor milk; but I will go further: in most of our factories we never find this great difference of from 3 to 5 per cent. unless, indeed, some patron has watered his milk, and in that case we can never pay the rogue too little. During the twenty years that we have been making cheese in this province, we have been paying the same for poor as for rich milk. Is it fair to pay for poor milk, which yields less cheese, the same price we pay for rich milk, the yield of which is greater by one or two cents more? By this new plan, rich milk may be paid for a little too high, and poor milk not high enough; but, as we have followed the old plan (payment by weight) for twenty years, I think it is high time to do justice between the two. And I will frankly say that I think it is fairer and more honest to take quality and weight together as a base for payment than weight alone. By this proceeding dishonesty is arrested.

Allow me to give you the result of an experiment made by one who was strongly opposed to the payment for milk in proportion to its quality. The process was not fair, he said; it was good for nothing, because he could make as much cheese from bad milk as from good. He went to the proprietor (who will contradict me if I am not exact) and got his leave to make an experiment, which he conducted in this way: He took 2,564 lbs. of milk, testing by the Babcock 4.10 per cent. of fat. I admit

¹ Mr. Macfarlane, pre-supposing that Mr. Dean's theory was known to the meeting, did not enter into particulars. An abridgement of it will be found at the end of this report.—E. C.

that his test was a fair one, in spite of his prejudice against the system, for I believe he made his experiment honestly. Again, he took 1,940 lbs. of milk, testing only 3·01 per cent. of fat, and with these two lots he made cheese. I visited the factory to examine the cheese, and he came to me to try it with the taster. "This cheese," said I, "seems to me to be rather too firm, too dry, but let us see when the taster is used." "And here is another," I added, "which seems too soft." "True enough," said he, "this is not very dry. The former is from rich milk, and the soft cheese is from poor milk." He had evidently tried to make as much cheese from the poor milk as from the rich milk; but what was the result? Only 8·50 lbs. of the rich milk was needed to make a pound of cheese as it left the press; while, of the poor milk, 9·33 lbs. were required. And the maker was so ill-pleased, that the next day he took the train and crossed the frontier, not being able to stand the result of his experiment.

This is, in my opinion, one of the best proofs of the value of the system: the skilful maker trying to upset our theory was obliged to acknowledge himself beaten. Had he been in favour of the theory, he would have already produced a strong proof, but disputing it as he did, his failure was a still stronger proof in its support. And so the patrons of that factory who, for the last two years have been paid according to the quality of their milk, have asked for the continuance of the system. Here, too, is another reason why they adhere to the plan. In August, two years ago, they thought one of them was in the habit of watering his milk; him they prosecuted. It cost them from \$1,200 to \$1,500, the defendant dying before the action came to an end. We must really have no more of these actions; none of the friends of dairying now present can wish to see patrons in court. The best way of putting an end to lawyers' bills is to pay for milk according to its richness in fat.

Mr. Wherry.—I have another question to ask; it concerns the relative richness of milk in the Province of Ontario and Quebec. The Quebec milk is the richer of the two, particularly if you take the district of Bedford as an example. I know there is nearly 1 per cent. of difference, but it seems to me that there is not an equivalent difference in the yield of cheese. This I can prove. Ontario cheese has a body firm and solid; it is a true model of a cheese. Hence, the trouble. Our cheese must be as firm and as solid as Ontario cheese, or we shall not be able to realise Ontario prices for it. If the Ontario people have $3\frac{1}{2}$ per cent. of fat in their milk, and we, in ours, have $4\frac{1}{2}$ per cent., we have 1 per cent. more of moisture to be got rid of—one pound more of moisture—because the extra pound of fat makes the cheese as much softer as an extra pound of moisture would make it. We have, then, a pound of moisture more to get rid of than Ontario makers have, to make our cheese as firm as theirs, so that we do not gain very much by our having an extra pound of fat.

Mr. Macfarlane.—Does not Mr. Wherry exaggerate a little by assigning to the Bedford milk 1 per cent. more fat than the Ontario milk has?

Mr. Wherry.—Perhaps so. This difference does not quite exist in it, but there

is more than one-half important, and I should cock test settled for it. To my mind, it is a hindrance to the milk inspectors and the milk attention to the milk

Mr. Macfarlane.—fat in its milk as Ontario

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Mr. Macfarlane.

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Mr. Wherry.—I was hard upon 1 per neighbourhood of 3 per

Mr. Foster.—Ontario and to select fair samples of the milk. We have method we now employ

Mr. Macfarlane.—is one of the most important take a fair sample un

Mr. Wherry.—But together on the surface

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I should just say to him the cream is not allowed will do you justice." take care of their mill

Mr. Wherry.—I know factories that whose makers use this to retain the patrons. with my milk to the n

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relative richness is the richer of ample. I know there is not an atario cheese has he trouble. Our all not be able to nt. of fat in their of moisture to be of fat makes the We have, then, make our cheese n extra pound of assigning to the t in it, but there

is more than one-half per cent., between one-half and three-fourths. The question is important, and I should like to see the question of the quality of milk and the Babcock test settled for good and all, for if we go to the bottom of it, we find nothing in it. To my mind, it is the greatest waste of time in the country, and the greatest hindrance to the making of good cheese, because it takes up the time of both the inspectors and the makers, who, in my opinion, ought to be devoting more of their attention to the making of cheese and the reception of the milk.

Mr. Macfarlane.—I believe the Beauharnois district has the same percentage of fat in its milk as Ontario.

Mr. Wherry.—Yes, even a little more.

Mr. Macfarlane.—Well, yes; perhaps $\frac{1}{4}$ per cent. more, that is a mere trifle. The townships, perhaps, have $\frac{1}{2}$ per cent. more than Ontario, but in Champlain we beat that. I find the Quebec milk in general to be richer than that of Ontario. In some parts we have as much as 5 per cent., but in other parts the average is much less.

Mr. Wherry.—I said that the average of my milk this year, in Brome County, was hard upon 1 per cent. richer than Ontario milk. Ontario milk is in the neighbourhood of 3 per cent., while mine is a good deal more than 4 per cent.

Mr. Foster.—One of the greatest difficulties is to get men able to make the test and to select fair samples, that is, to get an exact specimen representing the whole of the milk. We have not one man out of twelve able to make the tests with the method we now employ.

Mr. Macfarlane.—I confess that the taking of a good, fair representative sample is one of the most important points towards a fair test, and that it is impossible to take a fair sample unless the milk is most carefully stirred.

Mr. Wherry.—But if you stir the milk over night, the fat globules will have got together on the surface and you can never distribute them equally again.

Mr. Macfarlane.—If the milk is kept well stirred during the evening, very little cream will rise.

Mr. Wherry.—Still you will not get a perfect sample.

Mr. Macfarlane.—If a patron were to bring a lot of milk with the cream a-top, I should just say to him: "You do not attend properly to your milk; take care that the cream is not allowed to rise, for, in that case, your milk will not give a test that will do you justice." Then, that will support the Babcock plan and oblige people to take care of their milk.

Mr. Wherry.—I was about to say a word on what Mr. Foster has just observed. I know factories that use the Babcock and pay for milk according to its quality, and whose makers use this machine as an instrument of dishonesty. They have used it to retain the patrons. If a patron were to say: "Your test shows too low, I shall go with my milk to the next factory," another test is made next day and is made to be

as good as the rest. The milk ought to be treated by honest people, by men able to make tests, according to the methods followed by experts. If you allow the inspectors to look after the testing of the milk it gives them too much work. You would then need competent men to superintend the cheese making, for it is impossible to do both these things at once. Now, the reception of the milk and the making of the cheese must necessarily be carefully attended to, for upon them depends the quality of the cheese and upon that depends the price.

Mr. Macfarlane.—As regards the large proportion of inferior cheese, I think it was necessary to investigate the cause. For my part, in the course of my work, I found that a great many patrons were very negligent about their milk. I could name case after case, where the patrons paid no attention to the advice.

Mr. Wilkins.—(In English) There are innumerable instances where the whey is kept in the sun all day in the tin cans that carry the milk, and that, up to the moment of the evening's milking. Some means *must* be found to rid us of milk of that kind, and to prevent such stuff, that has been refused by a good maker, being accepted by his neighbour; otherwise, we shall always have plenty of inferior cheese.

M. Plamondon.—In my visits, I observed that the great trouble lay with the patrons. At the factories, where sour milk is left in the cans, I perceived a bad smell in the surroundings, in the cheese too, and defective drainage. I frequently pointed out to the people that all the damage arose from the leaving of the whey too long in the cans; that by leaving it thus all night it was impossible it (!) could be good in the morning; perhaps, too, in some cases the cows are not properly fed. I would remark all these things, and as soon as I saw signs of them, I would point them out to the patron with a request that he would attend to them, or if he would not, to stop sending in his milk. This would at any rate lessen the difficulties.

An unknown.—I have met with many makers unable to use the Babcock, men who cannot take a fair sample or prevent the cream from rising.

Mr. Wilkins.—I have observed, and M. Bourbeau will, I think support me, that one cause that makes the cheese inferior in quality, is that too much moisture is left in it. I know a maker who could never succeed in making prime cheese, and why? Because he had two rivals, one on each side, less than a mile from his factory. Three factories in three miles of road! The two outside makers turned out good cheese, firm and solid, taking the regular quantity of milk, or perhaps a little more, to make a firm cheese. The one situated midway between the two took perhaps half a pound less milk to make a pound of cheese, and sold it for the same price as the other two. M. Bourbeau visited this factory with me; the cheese was worth at least a cent and a half or perhaps two cents a pound less than that of his

¹ It cannot refer to the *whey*, though it seems so in the original. It must mean the milk.
--A. R. S. F.

neighbours; but he their milk. As long between good and in uniformly, cheese of the dollar, men like

M. Plamondon.—do not get the highest buyer. I asked him "Yes," he replied, "high for it?" "Because is no use your trying his for 10 cents; if you "But," I answered, "interest of the province ready to buy Quebec do, for half a cent less do not lay their head cheese, and ask a good

Mr. Wherry.—The being organised for the isation for that purpose certain to get good prices seasons, and it is with parts of this province cheese and bad both made is only trifling, Ontario gets half an organisation. Adopt and you will be certain

Mr. Castel read the Cheeseries, No. 2, of the

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Inspector of

I have great pleasure work began on May 1 during which I visited

neighbours; but he got the same price for it, and the patrons got a little more for their milk. As long as we do not succeed in obtaining a real difference in the price between good and inferior cheese, so long shall we continue to fail in producing, uniformly, cheese of the best quality in the province. Instead of men hunting after the dollar, men like these hunt after the cent.

M. Plamondon.—I think the sellers have themselves to blame a little in that we do not get the highest price for our best cheese. I had a conversation recently with a buyer. I asked him if he did not find as good cheese in Quebec as in Ontario. "Yes," he replied, "and even better." "Why, then," said I, "do you not pay as high for it?" "Because," was his answer, "we can get it for half a cent less." It is no use your trying to get 11 cents a pound for your cheese if your neighbour sells his for 10 cents; if yours bears the same mark you will have to take 10 cents for it." "But," I answered, "you do not pay according to its value, you do not work in the interest of the province." "Certainly not," replied he: "we are naturally more ready to buy Quebec cheese, because we make more profit out of it, buying it, as we do, for half a cent less. Why does Quebec take a lower price? Because the people do not lay their heads together. If they only were to agree about it, make good cheese, and ask a good price for it, they would get it, sure enough."

Mr. Wherry.—That is true. I think that the difficulty arises from your not being organised for the purpose of selling your goods. Had you a good organisation for that purpose, as the buyers have in making purchases, you would be certain to get good prices. It is the good cheese that suffers in this respect at all seasons, and it is with that quality that the buyers make most money. In some parts of this province, I do not think there is any difference in the prices, but good cheese and bad both sell for the same money. In some districts, the difference made is only trifling, whereas it ought to be at least a cent or more a pound. If Ontario gets half a cent more than Quebec, it doubtless owes the advantage to organisation. Adopt the system of Ontario, New York, and the States in general, and you will be certain of realising better prices.

Mr. Castel read the Report of Mr. Geo. W. Ferguson, Inspector of Syndicates of Cheeseries, No. 2, of the County of Shefford.

REPORT OF MR. GEO. W. FERGUSON.

Inspector of Cheesery-Syndicate, No. 2, of the County of Shefford.

I have great pleasure in presenting, as inspector, my third annual report. My work began on May 1st, and the season ended October 31, a period of six months, during which I visited the factories and made tests of milk during 156 days, besides

making 146 short visits. The syndicate comprised 21 cheeseries and 2 creameries and each factory received, on an average, 10 visits. The total number of milk samples tested was 8,000. Eighteen cheeseries, in addition to the creameries, pay their patrons according to the richness of the milk by the Babcock test, and the system has worked so well that a proposal to return to the old plans found few, if any, partisans. The adoption of the Babcock system had two good results: 1. It completely dispelled even the suspicion of skimming or watering, and every patron was convinced that he was paid for what he took to the factory, neither more nor less. In the second place, the system stimulated and encouraged the patrons to produce the richest possible milk, and, consequently, the quality of the milk was generally improved; so that the makers were able to turn out more and better cheese from a given quantity of milk. During last season, I had only four letters to write to patrons sending in milk below normal quality, and the notice was sufficient, no fine having had to be inflicted. Though the season was very full of difficulties, the makers succeeded, in spite of everything, in turning out a fine quality of cheese, which realised the highest market price. But the market, I regret to say, was discouraging and hardly profitable, almost up to the end of the season, when there was a slight rise, though it came too late to do much good. The syndicated factories kept faithfully to their engagement to sell their cheese "*subject to inspection at the factory,*" and the experience of the outside factories, which sold "*subject to inspection at Montreal,*" was cruel enough to confirm the Shefford makers in the opinion that they had chosen the wiser part, and adopted the best and most practical plan of selling their goods. The cheeseries made 660 tons of cheese, and the two creameries 73 tons of butter, compared with 610 tons of cheese and 71 tons of butter made last year; a pretty satisfactory result, if we consider the exceptionally dry season of '95, and the poverty of the pastures, due to the drought.

It would be an act of injustice were I to omit to praise the zeal, loyalty and skill of the makers, who, without exception, were most successful in their work. I may also mention that the Shefford makers won one of the three prizes offered by the Montreal Exhibition Company for the best syndicate of the province, and that in the presence of the most active competition.

In conclusion, I wish to acknowledge the hospitality and kindness invariably shown to me by both patrons and makers; they served to make the discharge of my duties a genuine pleasure.

The whole respectfully submitted.

GEO. W. FERGUSON.

Inspector.

Mr. President and

The St. Hyacinthe account of its labour encouragement it received than that accorded to of instruction and received to 312; 53 of whom more than 85 applied the middle of last season to increase the capacity were 80 youths desiring this, the Dairymen's in a position to answer work of progress in the rather considerable success it a fresh arrangement at their ease. I trust the number, will all find

We are doing our best to show them, as we find that if the management helps them to improve not show the same desire every means to improve employs, but he will always quantity or quality of material, goes along with his more simple, by giving any milk that is not of

The management Association, has thought milk. I mention this I consider of great improvement, in the name of perfection, and deliver to the maker the account, we have begun

REPORT OF M. J. D. LECLAIR,

Superintendent of the St. Hyacinthe Dairy-School.

MR. PRESIDENT AND GENTLEMEN,

The St. Hyacinthe Dairy-School, by its professor, is always happy to give an account of its labours during the year, at your annual conventions. Last year, the encouragement it received from all parts of the province was still more emphatic than that accorded to it in past years. The number of pupils that followed its course of instruction and received theoretical and practical instruction amounted, last year, to 312; 53 of whom in butter, and 253 in cheese-making. And there were, besides, more than 85 applications for admission that had to be refused. Moreover, towards the middle of last season, it was thought necessary, in order to give more satisfaction, to increase the capacity of each course by six pupils, and in spite of all, you see there were 80 youths desiring instruction at the school that could not be admitted. Seeing this, the Dairymen's Association decided to enlarge its present school, in order to be in a position to answer all demands, and to push forward, as regards our trade, the work of progress in the province of Quebec. This year, the Association has laid out rather considerable sums. It has raised and widened its building, its school, has given it a fresh arrangement (*of rooms*), and the pupils will certainly find themselves more at their ease. I trust that this year, the pupils who seek admission, whatever be their number, will all find entry.

We are doing our best, in our courses to instruct our pupils in all the improvements that have been introduced into the manufacture of butter and cheese. We try to show them, as far as possible, the progress of the art in that direction. But we find that if the makers, generally speaking, repay us for our teaching, because it helps them to improve in the making of butter and cheese, all those concerned do not show the same degree of interest in it. It is all very well for the maker to take every means to improve his factory, his machines, the quality of the materials he employs, but he will always remain in the same degree of inferiority, as regards the quantity or quality of his product, unless the farmer, who sends him the raw material, goes along with him in the path of progress, and tries to render the manufacture more simple, by giving every requisite care to his milk, and not taking to the factory any milk that is not of good quality and in good condition.

The management of the Dairy School, agreeing therein with the Dairymen's Association, has thought it right to insist earnestly on the quantity and quality of the milk. I mention this here, in order to attract your attention to this subject, which I consider of great importance, and also to show you what we can do, by way of improvement, in the making of butter and cheese. We cannot possibly reach the acme of perfection, unless the farmer, for his part, does all that he ought to do to deliver to the maker the raw material in as good condition as possible. On this account, we have begun a series of courses on this subject. These courses are

immensely important, and, joined to the syndicates, I believe that this system of instruction may be developed easily and rapidly throughout the whole of the province. In order that the improvement be distinctly perceptible in a very few years, the makers, who come to the school for a few days, a few weeks perhaps, to gain information, should be thoroughly convinced of the necessity of learning, not only their own duties perfectly, as well as what the farmer must do to improve the quality of his milk, but also that it is their bounden duty, as soon as they return to the factory, to share their information with the farmer. This, I feel, is the only way for them to secure the improvement of their goods, and in it they will be greatly aided by the local and general inspectors. I believe that it would greatly assist in giving our goods on the foreign market that position and reputation we wish them to obtain.

The Dominion Assistant Commissioner of dairying, who is in charge of the courses I have mentioned, also gives lectures upon certain points in feeding that will tend to reduce the cost of producing milk. Farmers must be convinced that nothing short of our whole united efforts will succeed in enabling us to gain our end—the possession of the English market. They must know that the victory will rest with that country that can produce the cheapest pound of butter or cheese. If the farmer fancies that at present there is neither advantage nor profit in keeping cows, he must not allow himself to be resigned to such discouraging feelings. He must find out exactly how much 100 pounds of milk cost him to produce, and then endeavour to reduce this cost to its lowest limit. All the nations that are competing on the English market can stand the contest only on condition of producing the 100 pounds of milk at the lowest possible price, and I believe that the farmer, when once convinced of this truth, will direct all his efforts to this end, and has yet, at home, as good a margin of profit as exists anywhere else.

Last year I gave some advice or said a few words on the properties that export butter should possess. I made some remarks on the way the Danes worked up their butter, and I promised the meeting to report on the possibility of our making butter in winter, as well as on some experiments I was about to make to ascertain if these methods, which are practised abroad, could really be followed exactly and with advantage here. I, immediately after this I may say, since the courses were then open, made trials at three or four different times before our pupils, on the two different ways of working up butter. The Danish way I found rather imperfect; their butter seemed to me to be greasy, and this greasiness of their butter appeared to me avoidable here at home by giving another working to our butter. These experiments I tried. I made them as much as possible at the beginning of each course, in order that the butters dealt with might be sufficiently advanced (*in age?*) towards the end of the course, to admit of the pupils judging of the difference between them, if there was any. In Denmark the butter is worked several distinct times. A good deal of salt is applied. After the last working, a good deal of brine has to be expelled in order that the butter may be mild (¹) as the English market

(¹) *Doux*, i.e., with very little salt in it, A. R. J. F.

requires it. I asked To this end, instead to it, I worked it at 1 from it as it emerge added the necessary taste requires, and I ment of all the pupil worked several times and had begun to be worked in the other much more colour.

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The Dairy Scho taken this year—wh have no other investi most advantageous to was our intention to gentlemen, that at t detailed report, and enable you to determ mentioned above.

Thanking you, g ready to reply to any

M. D. V. Bourbe being marbled; this l a long time. No dou be very glad to learn

M. Leclair.—The to make butter so as 1 to avoid them. Thes that have not become or its circumference, separator runs short o which harden in the and butter-worker wit cause white spots. O lumps more or less bi These bits of curd si best way of preventi butter to float at first butter-milk, replacing

requires it. I asked myself if we could not get the same result by another process. To this end, instead of not working the butter till a great deal of salt had been added to it, I worked it at first a little, a very little, so as to expel a small quantity of water from it as it emerged from the churn. After having thus freed it from water, I added the necessary quantity of salt, just sufficient to make it mild, as the English taste requires, and I found in all these cases, at the end of each course, in the judgment of all the pupils, that the butter that had received a heavy salting and had been worked several times, turned out to be invariably rather more greasy than the other, and had begun to be "off flavour" within the ten following days; while the butter worked in the other way still retained its flavour, contained no more water, and had much more colour. I am happy to be able to give you this, the result of my experiments, and to have fulfilled the promise I gave at last year's meeting.

The Dairy School regrets, gentlemen, that on account of the alterations undertaken this year—which have taken much longer to make than was expected—we have no other investigations and experiments to submit to you; it would have been most advantageous to have introduced an account of them to the meeting, and this it was our intention to do. It was a disappointment, but we could not help it. I hope, gentlemen, that at the end of next season we shall be able to give you a more detailed report, and to show you a good number of samples of butter, which may enable you to determine the relative value of one or the other mode of making up mentioned above.

Thanking you, gentlemen, for your attention, I am now at your command and ready to reply to any questions you may wish to ask me.

M. D. V. Bourbeau.—The Montreal buyers sometimes complain of our butter as being *marbled*; this happens chiefly in districts where butter has not been made for a long time. No doubt, want of experience is concerned in this fault, and I should be very glad to learn from you how to obviate it.

M. Leclair.—The first thing that I can say on this matter is to tell you the way to make butter so as to have none of these white spots in it. I think it is easy enough to avoid them. These white spots are, I believe, caused by small lumps of cream that have not become butter, the cream having dried in the vat, either at its surface or its circumference, or even in the separator itself. It sometimes happens that the separator runs short of milk, and in that case, the cream dries, gets into small lumps, which harden in the interior of the machine, and undergo the action of the churn and butter-worker without being converted into butter. It is these small lumps that cause white spots. Other white spots there are that are caused by curdling, those lumps more or less big that are found in the *taster* when it is thrust into the butter. These bits of curd sink to the bottom of the churn and remain in the butter. The best way of preventing these bits of curd from remaining in the butter is to allow the butter to float at first on the surface of the butter-milk itself, and then to draw off the butter-milk, replacing it by enough water to allow the butter in grains to float, so

that the bits of curd maybe drawn out along with the undercurrent of butter-milk and water.

There is also another cause on which I cannot pronounce a positive opinion; the *marbling* is sometimes attributed to the decomposition of the fatty matters. This is a point to be determined by scientists rather than by practical men: it is their business to enlighten us on this subject.

M. Chagnon.—The butter you call the better of the two has only been worked once?

M. Leclair.—Yes, M. Chagnon, only once.

M. Chagnon.—You assert then, that butter only worked once is the best?

M. Leclair.—I say that, in principle, the less greasy butter is the better it is, and I also say that the more butter is worked the more greasy it becomes, in spite of all the precaution you may take. So, if it be possible to have good butter, in which the salt is perfectly distributed, and entirely freed from the butter-milk and any excess of water by one sole working, I do not see the use of giving it two workings, or why, when the desired result is obtained, the operation should not terminate.

M. Chagnon.—But if you make your butter¹ drier than is usually done, you diminish the yield by taking out the weight of the water.

M. Leclair.—You lose some water, it is true, and water has its value on the Montreal market, for it is high-priced there. But in England, water does not sell well. Our butter for export must be above all things dry and mild. I think that those who had an opportunity of examining the samples of Danish and Swedish butter that was sent us to Montreal, must have been convinced that they were dry, as dry as butter can be made. It was butter made for exportation, and for that trade it was a model; just what our export butter ought to be. For Montreal, it is not required to be so dry, as that market is not so particular; consumers there will take butter with some water in it.

M. Chapais.—What proportion of water should there be in good butter?

M. Leclair.—Good butter should not contain more than, at the most, 14 per cent. of water.

Mr. Wilkins (in English).—I should like to ask M. Leclair a question about salting butter. Can butter be properly salted otherwise than with salt in powder? Is it right to do it with brine? Which is the better way?

M. Leclair.—(In English) That depends upon your customers, whose tastes must be consulted.

M. D. V. Bourbeau.—You stated, M. Leclair, that the *marblings* are caused by the cream drying in the machine.

M. Leclair.—Yes, Sir.

M. D. V. Bourbeau.—And this cream may also dry, I presume, in the vat, for want of enough stirring?

M. Leclair.—D

M. D. V. Bourbeau.

M. Leclair.—Th stirred pretty frequ the surface; but it n stirring, to allow th entirely vanished, th which we are talkin

M. D. V. Bourbeau. market to aid it, are

M. Leclair.—Ye

M. D. V. Bourbeau. the gallon or to the added to the cream?

M. Leclair.—Th When the milk is no of good quality, we chemical laboratories high-flavoured milk. the product of cows i their lactation. Gre ferments, because in depends the result at form. I have used b though I have not c products. The avera that depends upon th cultures," a certain q 175° F., and maintair the temperature as q proportion indicated mixture in a warm pl hours. You then hav continuing.

The preparation milk to cream; ten o up to 88° F. or 90° F. the curd is well form percentage for use is

Mr. Wm. Haven-

M. Leclair.—Doubtless, sir.

M. D. V. Bourbeau.—How many times a day should the cream be stirred?

M. Leclair.—The cream, especially immediately after separation, should be stirred pretty frequently, to get rid of as much as possible of the froth that comes to the surface; but it must be left quiet for at least five or six hours, after the thorough stirring, to allow the ripening to be well carried on. When the froth has almost entirely vanished, there is not much fear of the drying causing those bad effects of which we are talking.

M. D. V. Bourbeau.—As to the ripening of the cream, there are ferments on the market to aid it, are there not?

M. Leclair.—Yes, sir.

M. D. V. Bourbeau.—Where can we find them? How much is to be used to the gallon or to the 100 lbs. of cream? At what point in the process are they to be added to the cream?

M. Leclair.—There are several sorts of ferments which can be used to advantage. When the milk is not of good quality, when it is not likely to make, by itself, butter of good quality, we use what is called "pure culture," which is to be had at the chemical laboratories; or we use a ferment that can be made at home with very high-flavoured milk. In both cases, the milk selected to serve as "mother" must be the product of cows in a perfect state of health, and in the most propitious time of their lactation. Great care is required in the preparation of both these kinds of ferments, because in this, as in all kinds of cultivation, upon the choice of seed depends the result at harvest. The "pure cultures" are sold in either liquid or solid form. I have used both forms, and am equally satisfied with their respective effects, though I have not compared them rigorously with each other as regards their products. The average proportion to be added to the cream is about 5 p. c., but that depends upon the quality of the cream in question. To propagate the "pure cultures," a certain quantity of skim milk is to be *pasteurised*, by warming it up to 175° F., and maintaining it at that temperature for a quarter of an hour; then, lower the temperature as quickly as possible to 80° or 90°, add the "pure culture" in the proportion indicated by the directions sent with the packet or bottle, and place the mixture in a warm place, where the temperature can be maintained for 20 or 24 hours. You then have to keep it in a very cold place to prevent the fermentation continuing.

The preparation of the second sort of ferment is conducted thus: Set the selected milk to cream; ten or twelve hours afterward draw off the skim milk, and warm it up to 88° F. or 90° F., keeping it at that temperature for a score of hours. When the curd is well formed, divide it as firmly as possible, and it is ready to use. The percentage for use is about the same as with the "pure cultures."

Mr. Wm. Haven.—You mentioned just now that the Danish and Swedish butters

were dry and very smooth (*onctueux*). It is said that the Danes work their butter as often as three times. To what do you attribute the perfect texture of their butter, if you hold that an *onctueux* butter can be made with only one working?

M. Leclair.—It is because the Danes have the good fortune to be able to get their butter on the market more quickly than we, so that they do not churn at the same temperature as we do, but at a higher one.

Mr. Wm. Haven.—But, in general, the butter is worked twice?

M. Leclair.—Yes, almost universally in Europe, I have seen the butter worked a great many times, even 6 times, when a very dry butter was desired. But I do not think it necessary to work it as often as that. It depends on the temperature, and on the facility there is for getting rid of the buttermilk and water.

Mr. Haven.—What distinction do you make between Danish and our butter?

M. Leclair.—Judging from the samples I have examined, I must say that I never saw in Denmark butter with a finer flavour, more delicious, than in Canada. We are well able to compete with the Danes in this article, and I am certain that we shall succeed well, if, of course, we have good milk and work it up properly.

M. Chagnon.—Can you tell me to what you attribute the little bits of curd you mentioned just now?

M. Leclair.—If, for instance, you allow your cream to ferment too much, and it is thin cream, with some milk in it, you must be careful not to let it curdle. All fatty matter has a tendency to rise to the surface, on account of its feeble density, and the under-milk being a mass of curds, it will be very difficult to prevent having curd in your butter.

M. Taché.—In the conversations I have had with M. Leclair, I think I have remarked that he did not hesitate to say that the *marblings* may be caused by the insufficient working of the salt into the butter.

M. Leclair.—I did not hesitate to tell M. Bourbeau this. I told him what I thought was the cause of the "marblings." The difference is this: I know that some people seem to attribute these "marblings" to an imperfect admixture of the salt. I do not think that this is the chief cause. I do not quite agree with M. Taché on this point, and for the following reason: If we examine things from their starting point, we find that, all at once, the maker is astonished that he has got marbled butter; he traces back his mode of working, and finds that he has made no change in it; he has used the same salt, mixed it in the same way, in a word, the manual operation has been the same, and still, there is the fault, a fault that did not previously appear. Can we say that up to that time the salt had been always properly mixed, and that it is so no longer? Of all parts of the process it is certainly that which varies the least, and we can say with certainty that a good maker, or even an ordinary one, does not make mistakes in this point. It seems to me, then, more reasonable to look elsewhere for the cause of these marblings.

M. Taché.—You cream being allowed to the whole the crea

M. Leclair.—Ven

M. Taché.—Not marblings, how do yo of the surface of the more than that, I say these marblings. I h usual. When I disc fault must depend on butter regained its pr the lot to Mr. Ayer, after having examine the marblings are evi from the curd, for th been dried in the se be your assistant at t the past autumn.

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M. Leclair.—On suddenly, the ripenin tation of the cream v those parts cause ma ature, we can ripen t place, when there is such that the butter i difficulty by impartir that we should never

M. Taché.—Do y with the butter when

M. Leclair.—Th colour, but not marbl butter many and mar marblings to the imp

M. Taché.—Fron entirely to the way in

Mr. Haven.—If t may be an alteration

M. Taché.—You said just now that these marblings depend especially on the cream being allowed to harden in the vat. Will you tell me, please, what proportion to the whole the cream hardened in the vat represents?

M. Leclair.—Very little. Not more than a tenth.

M. Taché.—Not a tenth! No, not a hundredth! If that is the cause of the marblings, how do you account for my having seen marblings that occupied 75 p. c. of the surface of the butter, the yellow part only occupying about 25 p. c.? And more than that, I say it is impossible that dried cream can have been the cause of these marblings. I had once 30 or 35 tubs of marbled butter; it had been made as usual. When I discovered its defect, I told M. Dufour to work it over again, for the fault must depend on the imperfect admixture of the salt. It was re-worked; the butter regained its proper uniform colour. Having sent it to Montreal, I showed the lot to Mr. Ayer, and asked him what he thought of the butter. He replied, after having examined it: "I have seldom seen finer butter than that." Therefore, the marblings are evidently derived from the imperfect admixture of the salt and not from the curd, for there was no curd present, neither was there any cream that had been dried in the separator. M. Dufour is an excellent butter-maker: he used to be your assistant at the school, and he has won several prizes for his butter during the past autumn.

Mr. Haven.—Do you not think that the variations of temperature exercise some influence over the making of butter?

M. Leclair.—On that point, my opinion is that if the temperature changes suddenly, the ripening does not go on so well or so equally, and when the fermentation of the cream works unequally, some parts of the cream are not ripened, and those parts cause marblings. Still, I think that, by restoring the proper temperature, we can ripen the cream perfectly under all circumstances. In the second place, when there is a sudden, abrupt change in the temperature, and the change is such that the butter is hard to work, I say that it is still possible to obviate this difficulty by imparting a fit temperature to the water used to wash the butter, and that we should never allow ourselves to be vanquished by the temperature.

M. Taché.—Do you admit that the more or less thorough admixture of the salt with the butter when working, can produce marbling?

M. Leclair.—The imperfect mixing in of the salt may cause a difference of colour, but not marblings. That experience I have never had. I have worked butter many and many a time, M. Taché, and I never found cause to attribute the marblings to the imperfect admixture of the salt.

M. Taché.—From what you say, it would seem that the marblings are due entirely to the way in which the cream is ripened.

Mr. Haven.—If the salt used for butter is not pure chloride of sodium, there may be an alteration in the colour of the butter.

M. Salefranque.—And those white specks may very probably come from salt that has absorbed some of the cream.

M. Leclair.—If the working takes place when the butter is very cold, the proper admixture cannot be made.

M. Taché.—Here are authors who treat on this subject, among others, Gurler and Gosta Grotenfelt. By them we are told that these marblings are caused by the imperfect admixture of the salt, and by that exclusively. The little white specks are caused by the effect of cream that has dried in the vat. One can feel them on touching them with the finger.

M. Camirand.—Do you not think that these same marblings are caused by the butter being too cold when it is being worked?

M. Taché.—Certainly I do. It is chiefly during cold weather that the trouble manifests itself.

Mr. Haven.—I fancy I remember that, in some refineries, salt is refined by means of an acid. This may change the effect of the salt. It is certain that adulterated salt will change the colour of the butter, and it would be prudent to ascertain that the salt used for butter is pure. In Brittany, where the butter is excellent in quality, and where it never shows marblings, the makers use nothing but pure sea salt, taken in its natural state after a previous washing. It is pure chloride of sodium.

M. Chicoine.—I have always been most successful when I only worked my butter once. I never found marblings that were caused by the salt, except when the butter had not been worked long enough or at the proper time. When marblings are visible, they are due entirely to the way the butter has been worked.

The Rev. Frère Charest.—When you speak of working, do you mean the working that is produced by the effect of the salt on the butter, or simply the manual work?

M. Chicoine.—I mean the manual work.

M. D. V. Bourbeau.—I, too, think it is caused in the manual work. When one is obliged to use ice or ice water on the butter, and the maker is not careful to recommence the turning of the churn at once, thus leaving part of the butter in a prolonged contact with the iced water, instead of making this iced water enter into intimate association with the mass of the butter by churning; in such a case, may not the difference of temperature occasion a discolouration of the butter?

The session adjourned till 7.30 p.m.

SESSION

The Secretary,
Beaubien and Messrs

E. CASTEL, S. D. ASS

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with you to-morrow

And of a letter from

DEAR MR. CASTEL,—

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SESSION OF TUESDAY EVENING, DECEMBER 3, 1895.

The Secretary, M. Castel, read the following telegram from the Hon. Louis Beaubien and Messrs. Milton Macdonald and Jos. Girard, M.P.P.'s:

E. CASTEL, S. D. Ass., Waterloo,—

Detained at Quebec by the discussion of the budget of agriculture. Shall be with you to-morrow afternoon. Good luck to the meeting.

(Signed) Ls. BEAUBIEN,
 M. MACDONALD,
 Jos. GIRARD.

And of a letter from Mr. Sydney Fisher, Vice-President of the Association:

1018 SHERBROOKE STREET, MONTREAL, Dec. 2nd.

DEAR MR. CASTEL,—

I regret to have to inform you, and through you the directors and members of the Dairy Association, of my inability to be present at the convention at Waterloo. As you know, I have been quite unwell for some months back, and lately, for several weeks under the doctor's hands in Montreal. My adviser tells me he cannot allow me to risk the fatigue and excitement necessarily attendant on such a gathering, especially trying in the condition I am in. He orders me to go South very soon for a month or so, and says that such a meeting would be sure to undo the improvement lately made in my health and prevent my being able to leave probably for several weeks. It is important I should make this trip South at once, so I do not feel justified in disregarding the doctor's orders. I need not explain to you and my fellow-members of the Association my disappointment at not being present. As you and the directors know, I have urged your coming to the Townships, and you now are in our district in consequence of the kind consideration of my invitation. I feel therefore especially remiss in not being on hand to welcome and aid in entertaining the Association. I know, however, that in the hands of Mr. Parmelee and the Waterloo people you will be well taken care of. I am sure the meeting will be a success.

I trust you will not separate without a good appreciation of our district and people, and that your visit to us will awaken a still greater interest in our business and stimulate a closer intercourse between the various parts of our beloved and splendid province. Please convey to one and all my deep disappointment, coupled with my heartfelt wishes.

Yours respectfully,

—
SYDNEY FISHER.

M. Louis Bouchard, Mayor of Waterloo, read

THE ADDRESS OF THE CITIZENS OF WATERLOO.

To the Delegates of the Dairymen's Association of the Province of Quebec :

GENTLEMEN,—

The Convention that is on the point of being opened will constitute an epoch in the annals of the town of Waterloo by the good which it will beyond doubt produce, both as regards its inhabitants and the people of the surrounding country.

The Association represented by you, gentlemen, has already, with the concurrence and encouragement of our rulers, done much for the advancement of the farmers of the province ; and we trust that its success in this direction will go on always improving, for we feel that in working for the development of that class, the most numerous of our population, you are working for the advancement, the progress and the prosperity of the Province of Quebec at large.

Without doubt, thanks to the zeal of those enlightened men who are at its head, to the encouragement of our clergy, to the assistance of our public men, to the generous concurrence of all the friends of the farmer, your Association is called upon to do, what it has already given tangible proofs of its anxiety to effect, viz., to improve the lot of our rural population.

We are flattered, gentlemen, in the highest degree on the honour you have conferred on our little town in choosing it, this year, as the seat of your Convention, and we are supremely grateful to you for it. On the other hand, we may be allowed to congratulate you on your selection ; for, Waterloo is one of the important centres of the Eastern Townships, and from the point of view of your association, the Eastern Townships form a very important, not to say the most important, district of the Province of Quebec. Your selection, gentlemen, while deserving of our most lively and most sincere gratitude, is an evidence of the spirit of discernment and prudence on the part of those that direct the movements of your Association.

Gentlemen, in my capacity of Mayor of the Town of Waterloo, I bid you most heartily welcome, and I trust that the hospitality that you will receive here will have a happy remembrance in your hearts, and will win for us the pleasure of again seeing you in our midst, working ever and ever for the prosperity and happiness of our good agricultural population.

LOUIS BOUCHARD,
Mayor of the Town of Waterloo.

Waterloo, December 3rd, 1895.

MR. MAYOR AND GEN

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REPLY OF THE PRESIDENT.

MR. MAYOR AND GENTLEMEN :

In simple truth, you cover me with confusion by expressing such sentiments towards us, for we were far from expecting to receive here such a brilliant demonstration and such a cordial reception. I am really at a loss to express in proper terms our gratitude for the kind, the sympathetic words of welcome we have just heard from your lips. Still, without deserving all the praises you shower upon us, we may at least tell you that we know well how to appreciate the encouragement and sympathy of men of feeling like you, Gentlemen. You have been good enough to place at our disposal, for the holding of our sessions, this large and convenient hall of your Town Council; and more than that, you have carried your liberality so far as to allow us the use of "The Canada Hotel, where we are receiving such generous treatment.

Pray, Gentlemen, accept this expression of our lively gratitude; be kind enough to accept the office of imparting to your colleagues, the Councillors of this prosperous and pretty town of Waterloo, as well as to all your fellow-citizens, the expression of our deep gratitude.

We are always fortunate enough to encounter, wherever we hold our meetings, the sympathy of sensible people. I say sensible, because, indeed, men like you, who desire the prosperity of the country and labour to render more abundant and more fruitful the sources of progress in our province, have the best of rights to be so qualified. And no doubt, your kind words will be for us, for many a day, a real encouragement to pursue our object: the aim of our labours, and the work we have undertaken. It is a certainty, that with the encouragement of the most intelligent part of our population and the liberal assistance of our rulers, we shall be enabled before long, to restore our beloved country to prosperity and happiness; to obliterate emigration; to restore to the home of the farmer, ruined by routine cultivation and destructive customs, happiness and ease.

Mr. Mayor, we once more thank you sincerely for the truly royal reception you are offering us. We shall carry back to our homes a grand souvenir of this district, so advanced, populated by such enterprising people, and called "The Eastern Townships." We are fortunate, Sirs, in having accepted the reiterated invitation of him who represents you in our Association with so much zeal, Mr. Fisher, our Vice-President; and if we were unable to come hither before to-day, it was because other engagements hindered us. We are glad, now at last, to enjoy your frank and pleasant hospitality. Again, I say, we shall carry away with us a lively and agreeable recollection of our sojourn in your enterprising little town of Waterloo, and I trust, Mr. Mayor, that, if the Almighty grants us life, a few more years of existence, He will also give us an opportunity of revisiting this fine country. For this evening then, I will in conclusion, bid you not "Adieu" but "Au revoir."¹

¹ D'Artagnan when dying, wishes his friends Porthos and Athos "au revoir," i.e. we shall meet in heaven; but to Aramis he bids "adieu," as one doomed from his rascality to a warmer climate.—A.R.J.F.

ADDRESS OF M. PABBÉ MONTMINY.

President of the Dairymen's Association.

GENTLEMEN,

In spite of the idea that the word "Waterloo" conveys to a French mind, the Dairymen's Association of the Province of Quebec, although chiefly composed of French members, was not afraid of selecting for the place of meeting another Waterloo. What could it fear there, indeed, since it would meet in that place Canadians of English descent, not enemies, but allies contending side by side with them in the same patriotic struggle, with the generous object of making the Province of Quebec a rich and prosperous country for the benefit of all the Canadians that inhabit it.

On this new field of battle, where we are assembled, we intend, during the two days of our tourney, to inflict divers strenuous blows on our adversaries. These adversaries are routine, bad farming, carelessness in observing the rules that govern the economical production of food, and, especially the faults which, in the making of butter and cheese, may hinder us in deriving from dairying, which industry we are here to-day to represent, those profits that it ought to give us.

That we may meet these our enemies with advantage, it were well, first of all, to reconnoitre the field on which the battle is to take place, that we may thoroughly understand its peculiarities. Let us set about this together, by casting a glance over our position, as regards dairying, during the past year.

At our last meeting, at St. Joseph de Beauce, one conclusion we arrived at was, that we must determine, during the then coming year, to intensify three principal ideas in the minds of that numerous class of farmers who devote themselves to dairying.

First: That in order to raise the Province of Quebec to the height of the position demanded from her by the English market, as regards her dairy goods, pains must be taken to enlist the greatest possible number of the creameries and cheeseries in the ranks of the existing syndicates, or in others to be created where none already exists.

Secondly: To try to instil into the minds of farmers who produce milk, the conviction that the small factories, receiving but little milk, are not in a position to make sufficient profits to erect a proper building and to pay a good maker, so as to ensure first-class goods; that these are the worst obstacles to the uniform production throughout the Province of first-class butter and cheese, and that they must cease to compete, disastrously and deplorably from every point of view, with each other and with the really well appointed factories.

Thirdly: To show the greatest possible number of the farmers of the province the great advantages they can derive from the study and practice of the valuable

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information contained in the report of the tour undertaken last year in England, Denmark, and France, by MM. Gigault, Com. of Agriculture of the Province, and Leclair, the manager of our St. Hyacinthe Dairy School.

The Board of Directors of the Association wisely decided that, in order to impress these three ideas more emphatically on our people's minds, there was no better way than to hold, in each of the chief districts of the province, *comitia* of dairying, organised by the directors of the association, each in his own district. This decision of the Board has been thoroughly carried into effect.

Both our governments, the local and the federal, have assisted this work liberally, the former by furnishing the association with the sum needed to meet the expenses to be incurred at the meetings held by its official lecturers; the other by allowing the Asst. Com. of Dairying, Mr. Chapais, to place himself entirely at the command of the Association, in order to aid the successful issue of its *comitia*. Nineteen of these have been held in as many districts, and the immediate result has been the formation of 38 syndicates against the 25 we had last year. I only mention these figures *en passant*, as I see by our programme, that one of the lecturers at this meeting is to address full details to the audience. Still, I will mention the fact that in these *comitia*, the attention of our farmers has been drawn to the movement, made at our last convention, for the organization of a society for establishing good roads, a society the necessity for which I then mentioned in a few words I said in my opening address. I am happy to be in a position to state that some of the arguments advanced in favour of such an association by the speeches at the *comitia*, have been reproduced in some of the agricultural papers of Ontario and the States. Evidently, these papers imagine that we are already well advanced in the good road-question, while, unfortunately, we are still, as regards this business, in the ruts. It now concerns our honor to prove that we do not take out our payment in sound argument alone (*nous ne nous payons pas seulement de bons arguments*), but that we are men of action as well, in profiting by this convention to enrol ourselves in an association for the establishment of good roads.

Another point discussed at our last meeting, is the danger of overloading the cheese market, easily perceptible then, and the necessity arising from that danger of devoting ourselves more earnestly to the making of export butter, and the means to be taken to secure the exportation of this produce, of the finest quality, and in perfect preservation, to the English entrepôts. Our society, in convention, after having thoroughly studied this question, supported with all its energy a request from the butter-makers of the province to the federal and local governments, asking the former to organise a service of refrigerators on the railroad and steamers, to insure the perfect preservation of the butter during its transit to England; and asking the latter for a bonus on the butter thus exported, in order to prevent the exporting farmers from incurring losses during the time that must elapse before their butter shall have obtained a good reputation on the English market. This report was strenuously backed by resolutions passed by the dairy *comitia* I mentioned just

now. Without expatiating on this matter, I am happy to inform you that these steps have not been taken in vain, and that, judging from the results, we may hope that, thanks to the liberality of our governments, we shall take on the English market a place as advantageous to our butter trade as we already occupy in the cheese trade.

Some of you will probably be astonished to hear me speak of the satisfactory place we occupy on the English cheese market, when you look at the low price cheese sold for all last summer. But there is nothing surprising in such boldness. Undeniably true is it that we made but little profit out of our cheese last season, but we are no worse off in that than our neighbours of Ontario and the States.

The same lot befell all. And this lot, it may as well be said, was, in a great degree, caused by our own fault. We had observed, and when I say we, I speak of our association, by its board of directors, by its school, by its comitia—that if we kept on opening so many small factories, making, almost without exception, bad cheese, our cheese would lose its character in England, just as the States ruined the reputation of their cheese by its export of *filled cheese*.

We advised that only makers of the best cheese should be employed, so as to have nothing but first-rate cheese to export.

That every factory should join a syndicate.

To the objection to the small factories, the reply was to open this year about 300 of them, the greater part of which had no earthly reason for their existence.

To the objection against unripe cheese, the reply was, in some places, to continue selling cheese only from five to eight days old.

To the objection against incompetent makers, the reply was, in some factories, the engagement of third-class makers, on the principle that, since an inspector of syndicates had to be paid, it was his duty to teach inferior makers their duty.

Lastly, in some districts where they have been advancing backwards, instead of forming themselves into syndicates, those already existing were allowed to go to pieces. I am not citing this as if it were a general evil, thank God; no, but the facts of this kind are, unfortunately, too numerous to allow us to speak of them as exceptional, and have greatly contributed to render our position still worse than it would have been made by the bad state of the market this year. Now, there are some persons who will never accept the advice of the disinterested and experienced leaders of the dairy industry. To them I will say frankly that the crisis we have just passed through has been a blessing in the disguise of a curse. Be it far from me to rejoice at the misfortune of my fellows. My character of a priest forbids me, more than any one, to indulge such a sentiment; but I say that the small factories that, having made inferior cheese this year, sold it at such low prices that, after having ruined their owners, they had to close their doors before the end of the season. These factories, I say, have only suffered the fate that they, of their own act, prepared for themselves.

I say that those dealers in dairy apparatus who, to get rid of their implements,

sold, in season and out of season, what they knew, were at places where there was no recompense. Through their care, they collect their debts, chase, and they have a free will and act.

The result will be, before, less bad cheese, a great diminution of price, and, consequently, next season a more costly one, will at least be the result.

After the tour of inspection, and their report, we found that the Dairy School was not what we were only too glad to see. The Directors therefore turned your attention this year to what we had already done so much to do. The Hon. Commissioner of the question, got the result is that to-day we are in a position to get us from the cruel necessity of having 88 pupils, after, however usual this year, in the use of factory engines. butter-maker.

As I am speaking of those who have been made into a dairy school is only a part from the Dominion annually, ample grant of our Association to be able to ascertain easily the result. For that reason, this year, rather, has been replaced by Macdonald, of Bagot, of Agriculture; another appointed by the Ottawa Taché, was appointed to be grateful to the two gov-

sold, in season and out of season, by constant pressing, their goods to people who, they knew, were about to enter into competition with factories already existing in places where there was only room for one, these dealers have received their just recompense. Through the effects of last season's crisis, they have not been able to collect their debts, their customers not being able to pay for the apparatus purchased, and they have deliberately involved themselves in these losses of their own free will and act.

The result will be that next year we shall have fewer small factories and, therefore, less bad cheese, and a market less overcrowded in the spring, by reason of the great diminution of the turn-out of fall cheese, both in Canada and the States. Consequently, next season will begin under better auspices, and the lesson, a rather costly one, will at least be profitable to us.

After the tour of MM. Gigault and Leclair in Denmark, and the publication of their report, we found that, according to the information they brought back, our Dairy School was not perfect in some points, which is easy to understand, considering that we were only apprentices, so to speak, when we got it up. Our Board of Directors therefore thought that one of the most important of the things demanding our attention this year was to improve the faulty parts of this institution which has already done so much good in this province. The board then addressed itself to the Hon. Commissioner of Agriculture, M. Beaubien, and he, feeling the importance of the question, got a vote of the sum needed to make the necessary improvements. The result is that to-day the Dairy-School is on a much better footing than it was, and is in a position to accommodate a larger number of students. This will exempt us from the cruel necessity we were in last year of being obliged to refuse entry to 88 pupils, after, however, having admitted 312. The courses will be as thorough as usual this year, in the sense that special lectures will be given on the management of factory engines. The school-board has besides, engaged a Dane as assistant butter-maker.

As I am speaking of the school, I may as well acquaint you with some changes that have been made in the management. You are perhaps not all aware that our dairy school is only able to continue its work by the liberal assistance it receives from the Dominion and the Provincial Governments, from both of which it receives, annually, ample grants. Seeing this, it became the duty of the Board of Directors of our Association to enable the Departments of Agriculture, at Ottawa and Quebec, to ascertain easily the manner in which the association is expending these subsidies. For that reason, this year, the committee of the school has been reorganised, or rather, has been replaced by a Board of 3 managers; of whom one, M. Milton Macdonald, of Bagot, M.P.P. for Bagot, was appointed by the Quebec Department of Agriculture; another, M. J. C. Chapais, Dominion Asst. Com. of Dairying, was appointed by the Ottawa Department of Agriculture; and the third, M. J. de L. Taché, was appointed by the Board of Directors of our Association. We must feel grateful to the two governments for having had the delicacy to select their two

managers from among the directors of the association, a circumstance that renders the administration much more efficacious, seeing that these three gentlemen are all thoroughly acquainted with the duties incumbent upon them. Thanks to all these improvements, our Dairy school, which is still under the supreme direction of Prof. Robertson, Dominion Commissioner of Dairying, is in a position to render the public still greater service in the future than it has rendered in the past.

In touching on the different subjects I have mentioned in my address, I insisted on the fact that we have received that aid and encouragement that we needed to carry on the work that the Dairy Association of this province has undertaken, namely, the regeneration of our agriculture. I cannot sit down again without speaking of one of the means, and that a most powerful one, of agricultural regeneration that has been placed not only within our reach, but within the reach of all the farmers of the Province of Quebec, by our zealous Commissioner of Agriculture, M. Beaubien, during the present year. I mean the publication of the "*Manual of Agriculture*," by Mr. Edward A. Barnard, "*Le Livre des Cercles Agricoles*." I do not hesitate to declare that there is not one *agronome* in the province as capable as Mr. Barnard, who, for the last 25 years, has been the champion of progress in farming in the Province of Quebec. Turn over the agricultural papers of that period, open the reports of the Department of Agriculture, and of our different agricultural societies, question the farmers throughout the whole province, and you will read in every publication, you will hear from every quarter, that Mr. Barnard, long before our legislators had begun to institute any agricultural policy with that liberality of ideas they have since developed, had brought forward those ideas, had formed his own programme—he, a simple farmer—and had striven to inculcate these same ideas into the mind of his countrymen. Farm-lectures, dairying, beet-sugar industry, ensilage, the restoration of Canadian cattle, he was one of the first to attack all these questions, one of the first to all advocate in these causes. And, to-day it may be truly said that his book is the crown of this life of exertion, a life spent in striving against routine, and in making our farmers appreciate wholesome agricultural ideas.

Like all experimentalists, he had to meet with failures; like all men of strong convictions who pursue an object whose importance engrosses that entire intellect, Mr. Barnard may have, in striding towards his end, jostled some whom he found in his way, travelling more deliberately than he, coming along sometimes in an inverse direction, or, very frequently, not moving at all. Such things are inevitable; but looking at the good he has done to the farmer-class, these failures, these collisions must be forgotten, and nothing must be left in view, except the so noble, so splendid result, to which he, not alone but one of the first, and most effectively, contributed. This result is none other than the great movement of unintermitting, continuous progress in which our province now shares, one who, even by the confession of our Ontario neighbours, who, for a long period, thought themselves our superiors, is advancing rapidly in the path of the prosperity of the world at large, contending

with other nations as they of obtaining one, and this prevented it. On that account many points more desirable for us, by one of the climate, its wants now have. Thanks to this book, with the *manuel d'Agriculture*," may be in your library.

I have kept you always likes to have a book that I forgot myself. I apologise for my labours, for which I wish to be remembered.

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Dairying in Canada it has encountered since the war, supplying the factories, and arranged of them, will be a scene. It is doubtless will suffer serious loss on this side, since it will, in the case of cheese, which will fetch a higher price, and a more certain demand, selling for a higher price, a desirable feature in trade, request, on account of its excellent way of meeting both the English market, than many a long day.

At our last annual meeting, full warning that the price of cheese, could not fail to

with other nations successfully, and showing that she possesses quite as many means as they of obtaining the prize of the contest. Our country's climate is a very varied one, and this prevents us from following uniform rates of cultivation in all parts of it. On that account, books on farming, published in other countries, are often in many points more dangerous than useful. And, thus, we need a book of our own, written for us, by one of our own people, by one who knows thoroughly the country, the climate, its wants, and the methods of cultivation that suit it. This book we now have. Thanks and honor to its author! Thanks and gratitude to its originator. This book, with the manual, "La publication du fromage Cheddar," and the "Journal d'Agriculture," may constitute for our farmers the commencement of an agricultural library.

I have kept you a long time, gentlemen; we only meet once a year, and, as one always likes to have a long chat with our good friends one sees but seldom, I rather forgot myself. I apologise for my forgetfulness, and leave you to your important labours, for which I wish all the success they deserve.

LECTURE BY MR. ED. A. BARNARD.

How are the Profits of our Agriculture to be Increased?

BY IMPROVING THE QUALITY OF OUR GOODS.

Dairying in Canada is at present passing through one of the most serious crises it has encountered since its establishment. Already many patrons have left off supplying the factories, and many factories, particularly the poorer and worst arranged of them, will have to change their plans completely, or to vanish from the scene. It is doubtless a misfortune for the proprietors of these factories, for they will suffer serious losses; but this misfortune will indisputably have its brighter side, since it will, in no long time, facilitate the production of better butter and cheese, which will fetch more money, while creating for us an enviable reputation and a more certain demand for the products of this province. Now, gentlemen, selling for a higher price any article that has not cost more to make is a most desirable feature in trade; but to establish a reputation, a trade-mark that is in request, on account of its being connected with uniformly choice articles, is an excellent way of meeting boldly the fearful competition which we at present encounter in the English market, the sole market of any extent on which we can reckon for many a long day.

THE WARNINGS OF THE PAST.

At our last annual meeting at Beauce, as at our previous meetings, we received full warning that the production, in such large quantities, of inferior butter and cheese, could not fail to create for us, sooner or later, a good deal of trouble. Well,

gentlemen, this trouble, this positively ruinous fall in the price of our goods, did not delay its appearance, and I estimate at about \$2,000,000, the sum which we, the patrons of the cheeseries of the province, lost during last season's manufacture. Shall I surprise you, gentlemen, by stating that this too green cheese, this cheese made with a view to an over-great yield (without due consideration of its condition when the time for its consumption in England arrived), this inferior cheese disgusted the buyers, and greatly lessened the demand; and that the superabundance of cheese of this inferior quality was the cause of the fall in price that we have had to suffer? In consequence, we, the cheesery patrons of Quebec have lost, for our share, about \$2,000,000! Do we really form a just notion of what this sum represents? It is about one-half of the total cost of the annual administration of the province, justice, education, lunatic asylums, legislation, public works, etc., etc., in fact the whole of the Government's expenditure in the good management of the province. And, to think that this year, the cheesery patrons, to their own share, have lost such a sum, on a single item of our agricultural products!

In hopes that the following good advice may produce good effects, at least in the future, let me remind you of what M. Saül Côté, a friend as devoted as he is enlightened, said to us last year:

"I assert that neither purchasers nor inspectors are strict enough, because I am now speaking in favour of the general interest of the dairy industry. Is it likely to favour that trade if we send to the foreigners an article which must of necessity depreciate our products? Is it likely to be beneficial to the farmer and to improve our trade if we make a few more dollars of profit one year to lose twice as much the following year? And yet this is the inevitable result of the system of the buyers, and even of some inspectors; they close their eyes to the imperfection of an article, while all the time they know that the article in question is likely to depreciate us abroad."

HOW CAN THE COST OF PRODUCTION BE LESSENERED?

I am now about to try and show you that we can produce milk at much less cost than heretofore, and that, if we really give our minds to it, our entire system of farming can be made much more profitable. And I can do this with all the more confidence, since, in this meeting, I see before me an audience of superior class representatives of progressive, intelligent agriculture, flocking in their hundreds from all parts of the province, and ready to undertake the duty of carrying back to their respective homes "the good news," good news that I hope to give you to-day, and which may be condensed as follows: Every farmer who shall, in earnest, fully determine to do so, can double his crops in a very short time, without any serious increase in the present cost of his cultivation. And if he continues in this road, in a few years, he will see his crop yield tripled, and probably quadrupled. Don't cry out too vociferously, please; I repeat it without hesitation: If we are determined we, the farmers of Quebec, are now in a position shortly to double the yield of our

farm-products, and even if we ever reach such circumstances which, been the lot of the great, we choose double as missioners, priests as means of doing it in will be published with

The next day, M. much diffidence, the r in his new parish, and of us can imitate if I quote almost verbatim

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"From year to year 1,800 to 2,000 bundles o perfectly clean and good roots; 2,700 cabbages (bushel of beans; 40 gall 56 lbs. of honey, and 40

My five cows hav With whey, etc., ten hogs that br

"So, this fall, I recei ny year's crop; and, r

farm-products, and even to triple them before very long. I need not tell you that, if we ever reach such a result, it will be wealth for us, in the place of the too narrow circumstances which, up to the present time, at least during the last forty years, have been the lot of the greater number of us farmers. I affirmed this; that we may, if we choose double and triple our net incomes; and it was before the agricultural missionaries, priests as well as laymen, at Oka, last July, that I said it, and I gave the means of doing it in detail, in a lecture that, forming the second part of this essay, will be published with it in our next annual report.

The next day, M. L'Abbé Dauth, Curé of St. Leonard de Windsor, gave us, with much diffidence, the results that he himself had obtained, after three years farming in his new parish, and that with very moderate outlay in improvements, which any of us can imitate if he likes. In order that there be no possibility of error, I will quote almost verbatim what he said:

"Already, after only three years of improvement, I harvest as much on my small farm of 16½ arpents (14 acres) as are usually grown on farms of 40 or 50 arpents (33.85 and 42.30 acres.) The secret of my successful work lies in the cultivation of hood-crops and the continued restitution of manure.

"When I reached St. Leonard, in the summer of '91, I harvested that fall 75 bushels of turnips, 18 of oats, 8 of wheat, 3 small loads of hay, and my pasture could not carry my horse and cow.

"When autumn arrived, I put on my meadow and pasture about 8 bushels of lime to the arpent. The rest I ploughed a good depth and spread some 12 bushels of lime to the arpent. In spring I gave 300 lbs. of Victor fertiliser to each acre of pasture and wheat, sown down with clover and timothy, and on the rest of the ploughed land I put in peas, vetches and oats.

"I have continued this system ever since, ploughing up in the fall, the old meadow and pasture, liming, and in spring dressing the new meadow and the grain sown to grass-seeds with 300 lbs. of the Victor.

"From year to year my receipts have greatly increased. Last year, '94, I grew 1,800 to 2,000 bundles of hay of good quality, in two crops; 101 bushels of barley, perfectly clean and good measure; 600 bushels of mangels for my cows; 125 of other roots; 2,700 cabbages (*choux moelliers*); 70 bushels of potatoes; 2½ of corn; ⅔ of a bushel of beans; 40 gallons of cider; 11 gallons of grape-wine; 18 of rhubarb wine; 56 lbs. of honey, and 40 lbs. of tobacco.

My five cows have yielded me, in money for butter and cheese.	\$207 00
With whey, etc., clover-pasture, and a little grain, I fattened	
ten hogs that brought me in.....	261 00
	—————
Total	\$468 00

"So, this fall, I received \$4,680 in money, without reckoning what remained of my year's crop; and, remember, I do not count in the milk, vegetables, eggs,

poultry, and other little luxuries brought to the house, as additional rewards for our work."

There, gentlemen, is what a very modest, though very earnest curé has done himself, on 16½ arpents of land, without neglecting the souls of his parishoners !

Last spring, M. Dauth wrote me word that his people had bought three carloads of Victor fertiliser, at one order, besides ashes and lime in great quantities. See, again, the fruits of a good example !

I ask you now : has M. Dauth rested satisfied with doubling or tripling his crops in three years ? I have carefully computed his returns, and from a valuation of the two harvests of 1891, and 1894, I find that the latter is at least FIFTEEN TIMES as great as the former !

THE ECONOMICAL PRODUCTION OF MILK.

I shall speak to you presently about the manuring of the soil. To-day, I shall only enlarge on the care of stock so far as to say that, in summer, cattle require pure water and plenty of food, with shelter from the burning rays of our torrid sun ; in winter, warmth, light, and good ventilation ; and at all times, constant and kind treatment, scrupulous cleanliness, and great regularity in the feeding-times. As to the care to be taken of milk and the cleanliness to be everywhere observed, allow me to repeat the wise advice which, last year, our zealous and skilful manager of the Dairy School, M. Damien Leclair, gave us :

"Farmers, it is you who produce and deliver to us the raw material ; and, in spite of all their good will and skill, the makers will always be dependent upon you as regards the quality of the butter and cheese they turn out. You are, indeed, the most interested parties in this affair. The costs of making, of commission, of sale, will hardly vary much, and every rise in price will be to your sole profit. It is, therefore, your interest to produce and deliver well flavoured and well kept milk at the factories."

THE ECONOMICAL FEEDING OF CATTLE.

I now proceed to the very complex question of the food to be given to cows in order to make them yield plenty of rich milk at the lowest possible cost. Last year, when talking about the fattening of pigs, I imparted to you the principles that form the basis of the feeding of cattle in general. I shall, therefore, not go over that again, but I earnestly recommend you to review these principles, which you will find in the excellent report of our Association for last year, which was lately sent to you all by our very active and devoted secretary, on whom, allow me to say *en passant*, it reflects great credit. Recalling to your memory then what I said last year and what was published, on the rational principles of cattle-feeding, in the *Journal d'Agriculture*, it will be sufficient, I think, to give you some model-rations, which will enable you to prepare some of the same kind, without going aside from the different

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fodders and other feeding-stuffs you have at hand. The rations, when once prepared, in the proportion pointed out, are to be given according to the animal's appetite, rather than in a fixed quantity. Still, it will generally be found that the quantities mentioned in the following tables are very nearly what an average animal will consume in practice.

ECONOMICAL RATIONS FOR STOCK.

For the thorough apprehension of the following rations, I must ask you to observe these rules which apply to each of them :

1. The greater the products (*milk or meat ?*) of the animal, the richer must its ration be in the constituting principles of those products ;
2. The weight of dry matters in the food may vary from 2 per cent. to 4 per cent. of the live weight ;
3. These rations are calculated for an average temperature of 55° F.

ECONOMICAL RATIONS FOR CATTLE, ETC.
BY 1000 LBS. LIVE WEIGHT.

TABLE I.

FOOD-STUFFS.	Quantity. lbs.	Solids. lbs.	Carbo- hydrates. lbs.	Digestible.		REMARKS.
				Protein. lbs.	Fat. lbs.	
Theoretical Ration.		20 to 40	10.00	0.70	0.20	
1st PRACTICAL RATION.						THE STRAW MUST BE OF THE BEST QUALITY.
Oat-straw	10.00	8.57	3.42	0.17	0.10	This ration is perfectly proportioned. Other roots may replace the mangels. Salt the straw slightly.
" chaff	10.00	8.57	3.62	0.24	0.00	
Mangels	30.00	4.00	3.00	0.33	0.03	
Total	50.00	21.14	10.04	0.74	0.22	
2nd PRACTICAL RATION						Another good ration, much less costly. The excess of fat supplies the want of enough carbo-hydrates. The silage-clover represents only 2½ lbs. of hay.
Oat-chaff and straw ...	25.00	21.42	8.80	0.51	0.23	
Red clover silage	10.00	2.08	0.64	0.30	0.16	
Total	35.00	23.50	9.44	0.81	0.39	
3rd PRACTICAL RATION.						This ration must be chaffed and moistened previously. Cheaper than the second. The timothy had better be ensiled. So, half the hay will be saved and the cattle will like the ration all the better.
½ Straw and ½ Chaff of oats	20.00	17.14	7.04	0.41	0.19	
Timothy hay	5.00	4.28	2.29	0.35	0.11	
Total	25.00	21.42	9.33	0.76	0.30	
4th PRACTICAL RATION.						Observe: the straw without the chaff ¹ is not so rich. Half the clover would have been saved had it been ensiled, and the stock would infinitely prefer it.
Oat-straw	20.00	17.14	6.84	0.34	0.20	
Clover-hay	5.00	4.25	1.00	0.38	0.07	
Total	25.00	21.39	8.74	0.72	0.27	

¹ Balles, here rendered chaff, are the glumes in which the seed lies.—A. R. J. F.

Complete maintenance ration, without increase of weight or production of milk.

yielding 16 lbs. of milk or fattening heifers, increasing 2 lbs. live-weight a day on an average.

ECON

FOOD-STUFFS.

Theoretical Ra
Maintenance

10 lbs. of milk

Total

1st PRACTICAL RA

½ Oat-straw, ½

chaff

Timothy hay

Red clover-silage.

Total

2nd PRACTICAL RA

½ Oat-straw, ½

chaff

Timothy hay

Clover "

Mangels

Total

3rd PRACTICAL RATI

½ Oat-straw, ½ (

chaff

Timothy hay

Clover "

Cotton cake

Total

4th PRACTICAL RATI

Oat-straw

Corn silage

Timothy silage

Clover "

Total

ECONOMICAL RATION FOR CATTLE, ETC.

TABLE II.

FOOD-STUFFS.	Quantity. lbs.	Solids. lbs.	Carbo- hydrates. lbs.	Digestible.		REMARKS.
				Protein. lbs.	Fat. lbs.	
Theoretical Ration.		20 to 40				
Maintenance			10.00	0.70	0.20	
10 lbs. of milk.....			0.40	0.40	0.40	
Total			10.40	1.10	0.60	
1st PRACTICAL RATION.						THE STRAW MUST BE OF THE BEST QUALITY.
$\frac{1}{2}$ Oat-straw, $\frac{1}{2}$ Oat-chaff	15.00	12.85	5.28	0.31	0.14	This ration would be still better if composed of 20 lbs. straw, 30 lbs. of silage, $\frac{1}{2}$ timothy and $\frac{1}{2}$ clover, equal to about 8 lbs. of hay.
Timothy hay	6.00	5.13	2.75	0.42	0.13	
Red clover-silage.....	20.00	4.16	1.28	0.60	0.32	
Total	41.00	22.14	9.31	1.33	0.59	
2nd PRACTICAL RATION						This ration is poor in fat, so the milk will be all the poorer. The 12 lbs. of hay would have made more than 40 lbs. of capital silage. By not ensiling the hay, the equivalent of 20 lbs. of mangels and 10 lbs. of silage is lost.
$\frac{1}{2}$ Oat-straw, $\frac{1}{2}$ Oat-chaff	15.00	12.85	5.28	0.31	0.14	This is to be chaffed and moistened previously. Though costing more than the first, it will not produce more milk. Had the hay been ensiled, there would have been 40 lbs. of silage, rich enough in digestible matters to replace the cake.
Timothy hay	6.00	5.13	2.75	0.42	0.13	
Clover "	6.00	5.10	2.28	0.43	0.09	
Mangels	20.00	2.66	2.00	0.22	0.02	
Total	47.00	25.74	12.31	1.38	0.38	
3rd PRACTICAL RATION.						
$\frac{1}{2}$ Oat-straw, $\frac{1}{2}$ Oat-chaff	15.00	12.85	5.28	0.31	0.14	This is to be chaffed and moistened previously. Though costing more than the first, it will not produce more milk. Had the hay been ensiled, there would have been 40 lbs. of silage, rich enough in digestible matters to replace the cake.
Timothy hay	5.00	4.28	2.29	0.35	0.11	
Clover "	5.00	4.25	1.90	0.38	0.07	
Cotton cake	2.00	1.79	0.54	0.61	0.19	
Total	27.00	23.17	10.01	1.65	0.51	
4th PRACTICAL RATION.						
Oat-straw	15.00	13.85	5.13	0.25	0.15	A truly model ration; very much liked by the cattle; very digestible, and makes rich milk.
Corn silage	20.00	4.00	2.20	0.22	0.14	
Timothy silage.....	10.00	2.87	1.81	0.32	0.20	
Clover "	10.00	2.08	0.64	0.30	0.16	
Total	55.00	22.80	9.78	1.09	0.65	

10 lbs. of milk or fattening beasts, increasing 3 lbs. live-weight a day on an average.

Etc.

REMARKS.

RAW MUST BE OF THE BEST QUALITY.

ation is perfectly produced. Other roots may be the mangels. Salt the lightly.

er good ration, much tly. The excess of fat the want of enough ydrates. The silage represents only $2\frac{1}{2}$ lbs.

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ve: the straw with chaff is not so rich. e clover would have ed had it been ensiled, stock would infinitely

ECONOMICAL RATION FOR CATTLE.

TABLE III.

FOOD-STUFFS.	Quantity. lbs.	Solids, lbs.	Carbo- hydrates, lbs.	Digestible.		REMARKS.
				Protein, lbs.	Fat, lbs.	
For cows giving daily:						
20 lbs. of milk.						
Theoretical Ration.	20 to 40					
Maintenance			10.00	0.70	0.20	WELL PRESERVED STRAW!
20 lbs. of milk			0.80	0.80	0.80	
Total			10.80	1.50	1.00	
PRACTICAL RATION.						
Oat-straw	15.00	13.85	5.13	0.25	0.15	A model-ration, producing more than 20 lbs. of milk a day or fattening the animal; 12 lbs. of straw will do instead of 15 lbs. If no clover and timothy-silage, cotton-cake or other meal must be added.
Maize-silage	20.00	4.00	2.20	0.22	0.14	
Timothy "	20.00	5.74	3.62	0.64	0.40	
Clover "	20.00	4.16	1.28	0.60	0.32	
Total	75.00	27.75	12.23	1.71	1.01	
30 lbs. of milk.						
Theoretical Ration.	20 to 40					
Maintenance			10.00	0.70	0.20	This is an absolutely model-ration. It is complete, the excess of protein making-up for too little fat. It is also the most complete of all. Cotton-cake (3 lbs.) costs about 4 cents.
30 lbs. of milk			1.20	1.20	1.20	
Total			11.20	1.90	1.40	
PRACTICAL RATION.						
Oat-straw	10.00	8.57	3.42	0.17	0.10	This is an absolutely model-ration. It is complete, the excess of protein making-up for too little fat. It is also the most complete of all. Cotton-cake (3 lbs.) costs about 4 cents.
Corn-silage	20.00	4.00	2.20	0.22	0.14	
Timothy-silage	20.00	5.74	3.62	0.64	0.40	
Clover "	20.00	4.16	1.28	0.60	0.32	
Cotton-cake	3.00	2.69	0.82	0.91	0.29	
Total	73.00	25.16	11.34	2.54	1.25	
40 lbs. of milk.						
Theoretical Ration.	20 to 40					
Maintenance			10.00	0.70	0.20	Another equally model-ration; 3½ lbs. of cotton-cake will do. Here, hay is required to vary the food. A few roots, like parsnips, would here be useful and economical; 4 lbs. cotton-cake cost about 5 cents.
40 lbs. of milk			1.60	1.60	1.60	
Total			11.60	2.30	1.30	
1st PRACTICAL RATION.						
Clover-hay	5.00	4.28	2.29	0.35	0.11	This ration, recommended at p. 138, rept. of Association of last year, contains too much carbo-hydrates and not enough fat. It will hardly produce 32 lbs. of milk. Though much more costly than the preceding one, it is not nearly so good.
Timothy-hay	5.00	4.25	1.90	0.38	0.07	
Silage	60.00	13.90	7.10	1.46	0.86	
Cotton-cake	4.00	3.59	1.09	.22	0.39	
Total	74.00	26.02	12.38	3.41	1.43	
2nd PRACTICAL RATION						
Timothy-hay	10.00	8.56	4.58	0.70	0.22	This ration, recommended at p. 138, rept. of Association of last year, contains too much carbo-hydrates and not enough fat. It will hardly produce 32 lbs. of milk. Though much more costly than the preceding one, it is not nearly so good.
Clover "	10.00	8.50	3.80	0.76	0.14	
Bran	6.00	5.21	2.74	0.67	0.18	
Oats	6.00	5.14	3.34	0.62	0.31	
Total	32.00	27.41	14.46	2.75	0.85	

It being granted "smothering crops," clover, tares or vetch that kind. The peas that most successful and this is the pro "Good News" that I him, with a firm dete dredfold." And if the scale, are carefully en can give as much mil

In closing this p considered preparation of practical farmer, cro knows how to comp cess, will feed thre his business, can only give the proper quan dance of other elemen tive comparison will cult to seize in this m

Let us suppose th place has only 2 lbs. o good fat pork, and t confined to his own th of hard work. But s all their food in comm third supplies the b food-materials, each, s

And exactly so it a poor pittance, mal clover or of tares and

Hoed-crops form work. They afford a means of cleaning it,

LEGUMES.

It being granted that the farmer works too many acres, he must grow plenty of "smothering crops," the richest possible in nutritious matters. Legumes, such as clover, tares or vetches, lentils, horse-beans, haricot-beans, large kinds of peas, are of that kind. The peas and horse-beans can even be grown in rows and horse-hoed, and that most successfully. Too much importance cannot be attached to these crops, and this is the prominent point touched upon in this lecture. It is the especial "Good News" that I beg every one of my hearers to attend to, to carry it home with him, with a firm determination to spread it abroad, and to make it "bear fruit a hundredfold." And if these legumes, which I hope soon to see you all grow on a large scale, are carefully ensiled, you will soon have to admit that your cows, fed on them, can give as much milk in winter as in summer, and that at a moderate cost for food.

RATIONAL FEEDING.

In closing this part of my subject, which treats of the intelligent and duly considered preparation of cattle food, allow me to repeat with Jules Crevat, that learned practical farmer, crowned by the Association of the Farmers of France, that he who knows how to compound his rations so as not to give any nutritious element in excess, will feed three beasts equally well, where his neighbour, less skilled in his business, can only feed two. And the reason of this is that the latter, in order to give the proper quantity of certain indispensable elements, will give a superabundance of other elements; a superabundance not only useless but hurtful. An illustrative comparison will give you a better apprehension of the points that are most difficult to seize in this matter.

Let us suppose there are three wood-cutters met in a shanty. The owner of the place has only 2 lbs. of beans, in the way of food; another has for his share 2 lbs. of good fat pork, and the third has 3 lbs. of dry bread. It is clear, is it not? that if confined to his own things, neither of the three could feast luxuriously and do plenty of hard work. But supposing that, after talking the matter over, they agree to have all their food in common! The first cooks his beans with the second's pork, the third supplies the bread, and there they are: by a sensible use of the necessary food-materials, each, after dining copiously, is able to do a good day's work.

And exactly so it is with our cattle and their food; straw, which, alone, is but a poor pittance, makes an excellent basis for food, provided some good silage of clover or of tares and oats, cut green, be mixed with it.

HOED-CROPS.

Hoed-crops form the basis of all improving cultivation and of all really profitable work. They afford an opportunity of deep pulverisation of the land and the best means of cleaning it, and that by the whole series of preparatory work required for

REMARKS.

PRESERVED STRAW!

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their full success. They demand emphatically careful and repeated hoeings, by which the weeds are destroyed as soon as they show themselves and before they gain any height and strength of growth. They invariably produce crops of much greater abundance and value than those that can be grown without hoeings. Lastly, by the care they exact, they ensure during the remainder of the rotation, at whose base they lie, and without need of greater expenditure of labour, fuller and cleaner crops, that are, in consequence, grown at a cheaper rate. Now, to produce at the lowest possible cost, that is the sole means of contending with the strong competition we encounter on all the great markets of the world to which our chief products are sent.

HOW TO TRIPLE OUR CROPS.

It is by multiplying our average of hoed-crops well managed, and by manuring the land with commercial fertilisers as well as with farmyard dung, that the best farmers of those countries that are now celebrated for their agriculture have succeeded in tripling and quadrupling the average of the yield of their countries, and that, after centuries of exhausting crops. It will positively be the same with our province, from the day when our farmers shall give room and the necessary care to large fields of hoed-crops and commercial manures, as complementary to farmyard dung.

THE FAULTS OF OUR FARMING.

Our farms are, in general, badly drained; they are hardly pulverised at all; the pulverisation, ¹ in farms apart from towns, hardly reaches to a depth of more than 4 to 5 inches from the surface. Hardly any of these farms have ever grown a hoed-crop, or any other real cleaning crop; in consequence, weeds of all kinds are everywhere in possession of our land. Indeed, at least three-fourths of our occupied farms have never been properly manured, not even once, perhaps, since they were first cleared. While we are discussing the best way of preserving manure, it is being wasted everywhere, a great deal of it running away through the floors of our cattle-sheds. And does not a notable part of the dung when thrown out of the stalls take the most direct road to the nearest brook? Who will be bold enough to say that I exaggerate in these statements, and that farmers do not suffer by these faults?

THE CHIEF, THE ONLY REMEDY.

Let us grow hoed-crops, as many as we can; let us fearlessly use the artificial manure best suited to them; let us carry out this improved farming with courage and energy, combined with all necessary economy. Let us feed our stock intelligently, without allowing any of their manure to be wasted, and, before long, those

farmers who shall follow this course, yield double crops, yield double several successive years, and in a hundred-weights of produce per acre. Tradition, that hoed this province, be the advice to the wants.

And to these we preserve carefully all crops, let green-fodder stock and keep them the really good ones alone will double the seed free from weeds, farm bit by bit; do in a few years, you will be able to overcome all these circumstances.

There are four questions once put to himself, and resources, the extent of growth? 2. How much cleaned? 4. What of the recurrence of the

WHAT HOED-CROPS

As regards the early sowing of us with very hardy; as well as different soils and districts of the and require much less and beast, while they the proper amount of

A crop of early sown compared land, may yield 4 and stems, will average

farmers who shall follow these counsels will see their fields, thus improved by hoed-crops, yield double and triple crops compared with their former yield, and that for several successive years, without additional outlay, except for the purchase of a few hundred-weights of artificial manure. We may therefore affirm, without fear of contradiction, that hoed-crops are of the very greatest importance to all the farmers of this province, be they rich or be they poor. In what follows, we shall adapt our advice to the wants of the poorer class.

And to these we say: Grow as many acres of hoed-crops as you can manage; preserve carefully all the manurial matter you have at your disposal; after the hoed-crops, let green-fodder follow as far as you can profitably manage it; breed good stock and keep them well; sell off at once all those that do not pay, and only keep the really good ones; do your best to buy a little lime and phosphate, manures that alone will double the yield of your crops, if your cultivation is well done and your seed free from weeds; economise in every way, so as to find means to improve your farm bit by bit; do everything at its proper season and as well as possible; and, in a few years, you will have mastered your work, and be on the road towards comfortable circumstances.

FOUR QUESTIONS FOR SOLUTION.

There are four questions that every thoughtful farmer, rich or poor, should at once put to himself, and which he should quickly answer, according to his power, his resources, the extent and the requirements of his farm: 1. What hoed-crops can I grow? 2. How many acres each year? 3. How shall I manure the piece thus cleaned? 4. What crops will pay me best on these fields from the present time to the recurrence of the cleaning crop?

WHAT HOED-CROPS ARE SUITED TO THE MEANS OF A POOR FARMER.

As regards the economical feeding of men and farm-stock, Providence has endowed us with very favourable resources in certain especially hardy plants. Thus, several sorts of haricot-beans and broad-beans; pease of various kinds, more or less hardy; as well as different strains of maize, suitable to the peculiarities of different soils and districts of the province; all these are easy to grow in rows for horse-hoeing and require much less manure than root-crops, yielding products most useful to man and beast, while they tend to the perfecting of the cleanness of the land, providing the proper amount of work is expended on them.

COMPARISON OF CERTAIN HOED-CROPS.

A crop of early dwarf haricot-beans, with the rows two feet apart, in such prepared land, may yield 45 bushels an arpent (= 53 to the acre). The whole crop, beans and stems, will average in weight 4,000 lbs. and the value of the food-elements

therein may be \$30.95. The commercial value of the manurial matters carried off from the soil in this crop is \$4.53; but the nitrogen taken from the air by this legumen, and left in the land is worth \$25.60. By growing beans, and returning the potash, phosphoric acid, and lime they take from the land, the farmer has enriched his land by the pure nitrogen of the air to the amount of \$21.00, all expenses paid.

An average crop of mangels, about 15 tons, with their leaves $7\frac{1}{2}$ tons, 45,000 lbs. in all, contains food-elements worth \$32.20. But it robs the land of manurial elements worth \$25.87, without imparting anything to it, as mangels cannot utilise the nitrogen of the air. This will show what science has not yet given us, i.e. the exact value of the nitrogen imparted to the soil by the plant, the whole of which nitrogen is taken from the air; but, everything considered, we believe that our valuation is about right.

More profitable a crop of beans is, all things being equal, than a crop of mangels. And so with all leguminous plants, which are capable of conveying great richness to the land.

Moreover, every one knows how hardy a plant is the bean, how easy to grow, coming up vigorously in a few days and soon covering the whole ground; while the mangel and most of the other roots take a long time to come up, and are more subject to the attacks of insects than the bean. They (the roots) are much more easily smothered by weeds; they need more hoeing and thinning, wherein the hand-hoe must be employed; so, we may boldly affirm that one man alone with a good sowing-machine and a horse-hoe, can hoe and clean thoroughly ten arpents of beans, peas, or corn, sown in rows, more easily than he can cultivate properly one solitary arpent of mangels, or even turnips, roots much more easy of cultivation than carrots, parsnips, &c.

A COMPARISON OF OUR PRINCIPAL CROPS.

It is useful to observe that the food-value of a crop by no means depends upon the number of bushels or pounds taken from the land, but entirely upon the quantity and comparative value of the digestible matters the crop contains. In order to prove this to demonstration, we give in the following table (No. 4 p. 94) the comparative value of our different crops, taking the carbo-hydrates at $\frac{1}{2}$ a cent a pound, digestible protein at $2\frac{1}{2}$ cents, and digestible fat at 3 cents. These are the proportions that men of science allow as the points of comparison for these values, under the supposition that good timothy hay is worth \$9.45 a ton, as it is calculated in the tables. The quantity of nitrogen, derived from the air by the legumens, is here estimated at double what the crop contains, on account of the roots that remain in the land, which are estimated in the table, generally, at a price equal to that in the crop itself. Lastly, the same table gives the quantity of manurial matters taken from the soil, and their values according to market price. This table is very useful and deserves a thorough study.

For the above plants the poorer farmer chooses, clean perfect clean seed, he may heretofore infested

Roots have a sp to be estimated in they are fed upon the same, when they get that few of our farm fields of roots, and th by hoed-crops of this sufficiency of hoed-c possible profits from have the same value fodder for silage will

HOW MANY

It is a difficult land that is well drain and serious obstruct freely stated that the into pease, beans, ar less land will be put or lentils he grows fo and the sooner will h

The following ta if the principles ann early years, you will enough to them to se encouragement to th too great an exten taken; for the essenti them the care neede ones.

 PEASE, BEANS AND MAIZE.

For the above reasons, it seems clear to us that pease, beans, and corn are the plants the poorer farmer should select for his hoed-crops. With these he may, if he chooses, clean perfectly a considerable part of his arable land. And more, if he sows clean seed, he may hope to see disappear, in great part at least, the weeds that have heretofore infested his farm, and smothered so large a part of his crops.

SILAGE AND ROOT-CROPS COMPARED.

Roots have a special value; this is not mentioned in the table because it is not to be estimated in weight or in money. It is the thrift that the cattle show when they are fed upon them, and the quantity of *roughage* such as straw, &c., they consume, when they get plenty of roots, that show their value. But we must not forget that few of our farmers, even of the richer class, are yet in a position to grow large fields of roots, and that, consequently it would be almost impossible for them to clean by hoed-crops of this kind a sufficiently large part of their farms. Now, without a sufficiency of hoed-crops, it is impossible to clean a farm and to obtain the largest possible profits from it. Neither must it be forgotten that the legumens ensiled will have the same value as roots in cattle-feeding, and that these legumens and maize-fodder for silage will allow of a sufficient proportion of land being cleaned every year.

HOW MANY ACRES OF HOED-CROPS SHOULD BE GROWN YEARLY.

It is a difficult question to answer exactly, since hoed-crops can only pay on land that is well drained, well worked, sufficiently manured, and free from any large and serious obstructions, such as rocks, roots, brushwood, &c., &c. But it may be freely stated that the more land the poorer farmer can, with proper cultivation, put into pease, beans, and corn, in rows for horse-hoeing and sufficiently manured, the less land will he put into grain after grain without hoeing; the more clover, vetches or lentils he grows for green-meat, &c., the more profit will he derive from his stock, and the sooner will he and his family attain to a comfortable state of prosperity.

POSSIBLE YIELD OF 60 ARPENTS OF LAND.

The following table (No. 5, p. 96) shows what sort of crops will be soon grown if the principles announced above be followed to the letter. It is probable that, in the early years, you will not get the quantities given in the table, but you will arrive near enough to them to secure a notable improvement on the old system, and to afford encouragement to the farmer to continue the rotation he has begun to follow. And too great an extent of hoed-crops than can be properly worked must not be undertaken; for the essential thing is to prepare the land thoroughly for them, and to give them the care needed to get crops that should be very clean and altogether paying ones.

TABLE IV.—COMPARATIVE COMPOSITION AND VALUE OF THE CROPS TO THE ARPENT. (1)

KIND.	Solids per 1,000 lbs.	QUANTITY		FOOD-MATTERS OBTAINED.			MANURIAL MATTERS ABSTRACTED.								
		lbs.	Bushels.	Carbo-hydrates.	DIGESTIBLE.		Food Value.	from the air.		from the soil.					
					Protein	Fat.		NITROGEN.		Nitrogen.	Phosphoric Acid.	Potash.	Lime.	Total Value. (2)	
								lbs.	Value.						
Green clover.....	170	25,000	.....	1750	600	125	\$27.50	200	\$32.90	.....	28	97	96	.....	\$6.56
Clover hay.....	850	5,000	.....	1905	385	75	21.40	200	22.00	.....	28	97	96	.....	6.56
Timothy hay.....	857	4,000	.....	1832	284	88	18.90	.....	.....	57	15	70	33	.....	13.30
Beans—seed.....	852	2,700	45	1336	679	56	.....	.....	.....	.....	.....	.....	.....	.....	.....
“—straw.....	857	1,305	.....	564	100	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	.....	4,005	45	1900	779	66	30.95	160	25.60	.....	29	54	39	.....	4.53
Peas—seed.....	857	1,800	30	945	374	34	.....	.....	.....	.....	.....	.....	.....	.....	.....
“—straw.....	840	2,500	.....	850	90	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	.....	4,300	30	1795	465	46	21.95	100	16.00	.....	31	66	84	.....	5.39
Corn—seed.....	856	2,506	46	1612	241	155	.....	.....	.....	.....	.....	.....	.....	.....	.....
“—straw.....	850	4,500	.....	1651	72	27	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	.....	7,006	46	3263	313	182	29.49	.....	.....	67	25	69	20	.....	15.50
Swedes.....	136	33,000	550	3135	396	33	.....	.....	.....	.....	.....	.....	.....	.....	.....
“ leaves.....	116	15,000	.....	780	270	60	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	.....	48,000	550	3915	666	93	39.01	.....	.....	133	84	188	151	.....	35.70
Mangels.....	134	30,000	500	3000	330	30	.....	.....	.....	.....	.....	.....	.....	.....	.....
“ leaves.....	95	15,000	.....	600	150	60	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	.....	45,000	500	3600	480	90	32.70	.....	.....	95	35	189	37	.....	25.27
Carrots.....	150	22,000	366	2376	264	44	.....	.....	.....	.....	.....	.....	.....	.....	.....
“ leaves.....	178	7,500	.....	532	202	60	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	.....	29,500	366	2908	466	104	29.31	.....	.....	72	31	97	81	.....	18.21
Potatoes.....	250	12,900	215	2657	258	38	20.87	.....	.....	57	27	83	18	.....	14.63
Cabbage.....	180	60,000	.....	7140	540	120	52.80	.....	.....	139	117	243	139	.....	41.46

Swedes	136	33,000	550	3135	396	33									
“ leaves.....	116	15,000	.....	780	270	60									
Total		48,000	550	3915	666	93	39.01	.....	133	84	188	151			35.70
Mangels	134	30,000	500	3000	330	30									
“ leaves.....	95	15,000	.....	600	150	60									
Total		45,000	500	3600	480	90	32.70	.....	95	35	180	37			25.27
Carrots	150	22,000	366	2376	264	44									
“ leaves.....	178	7,500	.....	532	202	60									
Total		29,500	366	2908	466	104	29.31	.....	72	31	97	81			18.21
Potatoes.....	250	12,900	215	2657	258	38	20.87	.....	57	27	83	18			14.63
Cabbage	180	60,000	.....	7140	540	120	52.80	.....	139	117	243	139			41.46
Wheat—seed	890	840	14	518	138	15									
“ —straw.....	857	2,000	.....	652	30	10									
Total		2,840	14	1170	168	25	10.80	.....	28	12	15	5			5.99
Barley—seed.....	857	1,200	25	766	119	27									
“ —straw.....	857	2,000	.....	724	42	14									
Total		3,200	25	1490	152	41	12.48	.....	27	13	25	6			6.32
Rye—seed	857	1,064	19	717	112.7	20									
“ —straw.....	857	2,600	.....	774	28.6	15									
Total		3,664	19	1491	141.0	35	12.03	.....	29	14	27	10			6.82
Oats—seed.....	857	850	25	473	91	45									
“ —straw.....	857	1,500	.....	513	25	15									
Total		2,350	25	986	116	60	9.63	.....	23	9	10	6			5.03
Buckweat—seed.....	860	1,107	23	653	105	18.9									
“ —straw.....	840	1,400	.....	422	25	9.8									
Total		2,567	23	1075	130	28.6	9.46	.....	30	9	23	29			6.49

(1) The crop-yields in this table are not to be taken as the average of what the land can give. In many cases, much heavier yields can be grown. But these data allow us to calculate exactly how much is removed from the land in a given quantity of produce, together with the nitrogen conveyed from the air to the land by the growth of legumens. The table is also useful for comparing the total weight of the crop with the total of the various food-matters contained in the same crops.

(2) The manurial matters “soluble in water” are here valued thus: nitrogen, 16 cents a pound; phosphoric acid, 7 cents a pound; potash $4\frac{1}{2}$ cents a pound; lime, $\frac{1}{2}$ a cent a pound.

TABLE V—ROTATION OF 12 YEARS AND CROPS ON 60 ARPENTS. MANURIAL MATTERS REMOVED.

Years.	Arpents.	KIND.	CROPS.						MANURIAL MATTERS REMOVED.					
			Per Arpent.		Totals.		Nitrogen.		Phosphoric Acid.		Potash.		Lime.	
			Bushels.	Tons.	Bushels.	Tons.	lbs.	From the soil.	lbs.	From the soil.	lbs.	From the soil.	lbs.	From the soil.
1st	5	{ Oats.....	40	1	200	P. 5.00	502	178	72	146	48			
		“ straw.....	40		{ 100				125	220	188			
2nd	{ 4	Beans.....	215	0.75	{ 215	P. 3.00			52	83	18			
3rd	5	Barley and Rawdon Clover.	40		200	P. 6.25		218	98	196	48			
		“ straw.....				E. 62.50	500		140	488	480			
4th	5	Red Clover—silage.		12.50		E. 60.00	200		116	328	88			
	{ 4	Corn—silage.....		15.00			37		15	30	11			
	5	“ —seed.....	46		23									
5th	{ 5	“ —straw.....		1.25		P. 0.65			15	18	36			
		Lentils or vetches.....	20		10		64							
		“ straw.....		1.00		P. 0.50								
6th	{ 4	Peas—silage.....		10.00		E. 40.00	546		159	312	408			
	{ 1	“ —seed.....	30		30									
		“ —straw.....		1.25		P. 1.25								
7th	{ 1	Wheat.....				P. 2.50			49	27	10			
	{ 3	Rye.....							46	22	16			
		Wheat, ry., straw for silage with seeds.												
		for meadows and pastures.....												
8th	5	Clover—silage.....		10.00		E. 30.00	128		72	105	98			
9th	5	Mixed hay.....		2.00		E. 60.00	474		132	464	356			
10th						F. 10.00		285	75	350	165			
11th														
12th	15	Pastures, or hay, as required.			833		281.65	1261	1086	2827	1970			

Recapitulation—215 bushels of potatoes and 673 of grain, &c.—10 tons of hay, 19.15 of straw, and 252.50 tons of silage. In this table, the nitrogen extracted from the air, valued at the same price as before, represents a grain of \$354.24, and the matters taken from the land, a value of \$407.78. In principle, it would seem that the addition of \$83.24 worth of manure should suffice to replace in the soil the balance of manurial matters removed in the crops; but, as the atmospheric nitrogen can by no means supply the mineral matters wanting, the experiments mentioned further on must be made, in order that the soil may furnish to the plant all that is required for its perfect development.

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them, so that the cul...
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land the manures tha...

After the first ho...
with which the great...
manured, barley succe...
so short a time, clove...
fall, and if the young...
snows and prevent any...
can be cut, provided th...
By giving the land 3...
weight of ashes, with...
bushels of Canada-corn...
following season, the...
grain-crop, in which p...
and these may occupy t...
that requires cleaning...
grain, or pease, or oats...
ordinary rotation of 8...
fertility of the land wil...
But for those who...
rotation founded on th...
years, 3 hoed-crops, 3 o...
farm of 60 arpents sho...
grain-crops, and fodder...
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A VERY PROFITABLE CLEANING ROTATION.

In order that a rotation should be a cleaning one, hoed-crops must be repeated in the same fields often enough to destroy, as far as possible, all the weeds that infest them, so that the cultivated plants may enjoy the entire benefit of the working and manuring of the soil. You must also sow, between each two non-hoed crops, one or more *smothering* crops, such as pease, vetches, red-clover, etc. The farmer who, after mature reflection, shall adopt a system of rotation in which clearing and smothering crops shall be numerous enough to give him thoroughly clean crops, will be surprised at the profits he will reap from the practice from the very first season; profits that will increase from year to year, provided there be given, at the same time, to the land the manures that it demands to enable it to yield full returns.

WHAT CROP SHOULD SUCCEED HOED-CROPS.

After the first hoed-crop, we recommend a crop of grain; barley will do well, with which the great red-clover should be sown. When the land is well worked and manured, barley succeeds perfectly. In this crop, occupying, as it does, the land for so short a time, clover grows apace, especially if the piece was limed the previous fall, and if the young clover is not fed off in the autumn, it will detain the early snows and prevent any damage from the frost. The following year, two crops of hay can be cut, provided the clover is mown when the plant is just opening its flowers. By giving the land 300 lbs. of superphosphate, costing about \$3.00, and the same weight of ashes, without other manure, the next year, there will be from 50 to 60 bushels of Canada-corn, with 4,000 lbs. of stalks, worth as much as ordinary hay. The following season, the land being very clean, will be in a position to yield a capital grain-crop, in which plenty of grass-seed, for meadow and pasture should be sown, and these may occupy the land for several years of the rotation, if there is much land that requires cleaning. Lastly, both meadow and pasture are to be turned up for grain, or pease, or oats and vetches, according to the need of the farmer. Thus, an ordinary rotation of 8 to 12 years will have been followed, or even longer, if the fertility of the land will allow of it.

But for those who aim at better returns, in a well cleaned farm, we advise a rotation founded on the one given in table No. 5. There will therefore be, in 12 years, 3 hoed-crops, 3 of grain or fodder-crops, and 3 smothering-crops. An ordinary farm of 60 arpents should yield upwards of 200 bushels of potatoes, 670 of different grain-crops, and fodder enough to keep well at least 20 head of cattle; besides, with the skim-milk, grain, and fodder (*green-meat*), ten to twenty hogs should be fattened every year! Would not that be the golden age of our agriculture? And all this is the best certainly possible; it is even a comparatively easy task for the man who firmly, industriously, and perseveringly devotes himself to it.

Recapitulation—215 bushels of potatoes and 673 of grain, &c.—10 tons of hay, 19.15 of straw, and 252.50 tons of silage. In this table, the nitrogen extracted from the air, valued at the same price as before, represents a gain of \$354.24, and the matters taken from the land, a value of \$407.78. In principle, it would seem that the addition of \$53.24 worth of manure should suffice to replace in the soil the balance of mineral matters removed in the crops; but, as the atmospheric nitrogen can by no means supply the mineral matters wanting, the experiments mentioned further on must be made, in order that the soil may furnish to the plant all that is required for its perfect development.

IMPORTANCE OF STUBBLE-CLEANING.

When land is meant to be in the hoed-crops the following season, it must be stubble-cleaned immediately after harvest. If this were delayed, the land would become hard and rain would have to fall before the harrows could get an inch or two into it, in order to destroy the weeds already up and to excite germination in the weed-seeds that may have ripened and fallen to the ground. This harrowing should be repeated across the field a week or so afterward, and the whole should be followed by a good furrow, in the fall, as deep as the soil will permit. As a general rule, a good liming of about 20 bushels of lime to the arpent, well mixed, in small heaps, with earth, and then spread before frost, will thoroughly prepare the land for the spring work of hoed-crops.

PART II.

HOW TO MANURE THE LAND ECONOMICALLY.

I have now reached the most difficult and unpromising part of my subject ; that is, I must, in the interest of the farmer, urge him to expend money, with a view to the certain and economical improvement of his crops.

ORIGINAL FERTILITY OF OUR FARMS.

We are no longer living in the days when our ancestors profited by the first snows to draw to the river the encumbering piles of dung that had collected at the doors of the stables and cow-houses. This, from what we hear, was the ordinary use made of dung. Perhaps the younger part of my hearers will not believe me ; but I clearly remember many seasons when wheat after wheat yielded abundance to our Canadian families. I was then a child. Later, when I began to farm, I recall perfectly a rather amusing incident, which will show the extent of the prejudice against the use of dung on some farms.

PREJUDICE AGAINST DUNG.

On the splendid farms of the suburbs of Three-Rivers, wheat no longer yielded as it used to yield. Bazile Doucet, my uncle, colonel of militia, and one of the heroes of 1812, was one of those who used to sell a great deal of wheat, and he was in the habit—a pretty general habit in those days—of buying for the winter holidays a hogshead of good old rum. The wheat often failed—but the rum, never ! To judge

from the gaiety of
Well, one fine spring
wheat. Please God
My mother, who was
followed one on the
That year, the wheat
eighteen bushels !
by little, and my un-
the previous spring,
to the ice, as I had
exclaimed : " Now,
to spread the dung
as we always do.
a lot of thistles. Ge-
how little fruit my
well ! that was a ge-
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Nowadays, every-
especially when their
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cowhouses, piggeries
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from the gaiety of those days, it had at least the effect of taking away dull care. Well, one fine spring, Uncle Bazile said to my mother: I have sown 30 bushels of wheat. Please God, I shall easily get 400 bushels—but anyhow, I shall have sixty. My mother, who was worried about the too numerous bad harvests that had lately followed one on the other, did not see the joke, and imparted her fears to her brother. That year, the wheat turned out very badly; when it was threshed there were only eighteen bushels! Ruin stared them in the face, for debts began to accumulate little by little, and my uncle began to grumble. My mother then recalled the bad joke of the previous spring. I, intervening, advised that no more dung should be carted on to the ice, as I had seen done with my own eyes. My uncle, turning sharply to me, exclaimed: "Now, then, don't bother me. You advised your cousin Léon, last year, to spread the dung on the fields intended for peas, instead of carting it on to the ice, as we always do. He took your advice without consulting me, and all it grew was a lot of thistles. Get out with you, you and your dung!" You may judge from this how little fruit my first lectures bore; and they were purely gratuitous, too! Ah, well! that was a good forty years ago, and things, thank God, have very much changed for the better since that time.

DUNG LOST OR WASTED.

Nowadays, every one knows how greatly crops are increased by the use of dung, especially when there are not too many thistle seeds in the ground! But how ignorant farmers still seem to be that, through the drip from the roofs of the stables, cowhouses, piggeries, &c., and the leakage through the floors, too many allow the most soluble, and therefore the most valuable part of the droppings of their stock to run into the brooks, even if they do not cart it on to the ice! By using behind the cattle dry earth, particularly dried bog-earth, or if there is none, dried turves from a turned up meadow or pasture near the cattle sheds: in a word, by preventing the loss of urine, and the too great fermentation of the solid fæces, we shall greatly increase the efficiency of the manure. After having taken all these precautions—which we cannot too highly recommend—our best farmers will admit that they would need at least three or four times the quantity of dung they have at their disposal, if they were to aim at properly maintaining the fertility of their land under the plough. Let us examine, then, what we lose by continuing to cultivate worn out land.

A NEW SYSTEM OF CULTIVATION.

At the beginning of this address, I promised to speak of a new system of farming, by which we are now enabled to grow, at a very slight expense, far better crops, than those we have hitherto produced. In all well organised countries, the govern-

ments and the learned societies have been, for many a year, making great efforts to reduce as much as possible the cost of the production of foods. They have employed, each, several skilled practical men, aided by the most distinguished agricultural chemists. They have shown us by hundreds and thousands of experiments on different crops, in different countries, and in every kind of soil and climate, that bad crops depend, at least in great part, on the exhaustion of the soil. Such ocular demonstrations—that have been followed with great attention by thousands of interested persons in Europe and America, have clearly proved that the absence of one or the other of four distinct fertilising matters, reduce the yield in proportions quite astonishing, I may say alarming. These four precious matters are, luckily, within the reach of every farmer. They are: lime, potash, phosphoric acid, and lastly, nitrogen, which, alone, forms about four-fifths of the atmospheric air that we respire. In His divine wisdom, Providence has placed, almost everywhere in the arable soil, and in abundance, all the other elements that plants feed upon. Moreover, the Almighty has created in inexhaustible quantities, and placed pretty well everywhere, but within reach of the farmer, the four elements indispensable to plant-life, and which are not found in land naturally poor or exhausted by cropping. It is our duty then—be we farmers, gardeners, orchardists or florists—to study these laws of Providence more carefully, for they rule over every sort of cultivation; and then to impart to the soil the care, and especially the nutriment, of which it stands absolutely in need.

OCULAR DEMONSTRATION.

I would draw your particular attention to the engravings that follow. Let us see, in the first place, how it has been contrived that the yield of the potato, the food of the poor, has been doubled, even quadrupled.

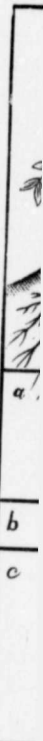
You observe in Fig. 2, an ordinary yield; still, a much better yield than is averaged in our long-settled parishes. These two cuts, we must remember, are the faithful reproduction of plants grown in the same field, in the same manner exactly, except that in one part of the plot (No. 1), the potato-crop was preceded by lupins a *legumen* that roots very deeply in the ground. The land being very light, and the subsoil dry and porous, the drought deprived part of the crop of moisture; this part is represented on the left—Fig. 2.

VERY DEEP PLOUGHING FOR POTATOES.

In order to ensure more humidity to the soil, and more food to the plant, the field in question was ploughed sixteen inches deep, a furrow absolutely unknown in this province. It is now proved, and that beyond all doubt, that in all light and in all well-drained soils, very deep ploughing will increase the crop of potatoes in a

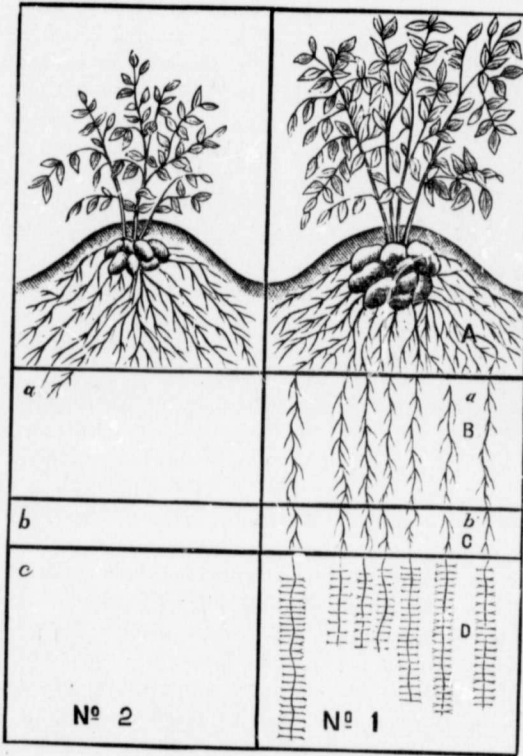
marvellous manner
thoroughly in a dee

Er



marvellous manner, as it is certain then that the potato can only develop itself thoroughly in a deeply worked, pulverised soil.

EFFECT OF LEGUMINOUS PLANTS ON THE POTATO.



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EFFECTS OF LEGUMINOUS PLANTS ON THE POTATO

In that part of the field (No. 1), in which the lupins grew, the year before, the roots of the potato penetrated the subsoil to the great depth of 40 inches, thanks to the tiny channels formed by the strong deep-sinking¹ roots of the lupins (fig. No.



FIG. 3.—THE LUPINE.

3.) The roots of the red-clover would have the same effect everywhere, when that plant precedes the potato. At that depth, the potato-roots can obtain an abundance of moisture even when the surface is quite dry. Hence, came the yield of 380 bushels an acre, or four times as much as the average yield of our worn out farms. In the "Journal d'Agriculture," August 1895, will be found all the details of this most interesting and, what is more, most profitable demonstration. Let it be our duty to repeat this experiment as soon as possible, in our fields or in our gardens, for our own good, first of all, but especially for the good of our neighbours.

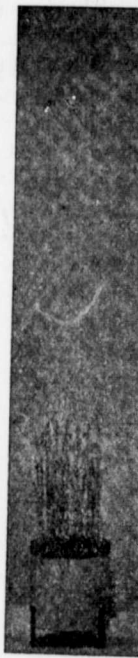
Here, then, are several very distinct lessons:

1. The necessity of affording to the potato-crop a deeply worked soil, containing all the necessary elements of fertility;
2. To grow this crop in succession to a good crop of legumens, with their deep-reaching numerous roots, which will ensure to the potato a fresh source of nutriment, deeply buried in the soil, and will give it full supplies of the much needed moisture, which is more frequently wanting in dry, light land which, with that exception is very suitable to those crops, and ensures them a flavour and quality very superior to potatoes grown on heavy land. Researches, conducted with equal intelligence, have enabled us to contend, nowadays, with great success against those various diseases that, for many years have rendered potato-growing so uncertain. Such, gentlemen, are some of the beneficial effects of science, applied to agriculture, as connected with this very important branch of our crops.

Let us see now, in Fig. No. 4, the effect of giving to the plant a dose, more or less great, of nitrogen, and a complete dressing of the three other elements mentioned above. In the growing crops of grain here represented, the soil and the cultivation were exactly the same.

¹ *Pivotantes*==tap-rooted, A. R. J. T.

Fig. 4.-

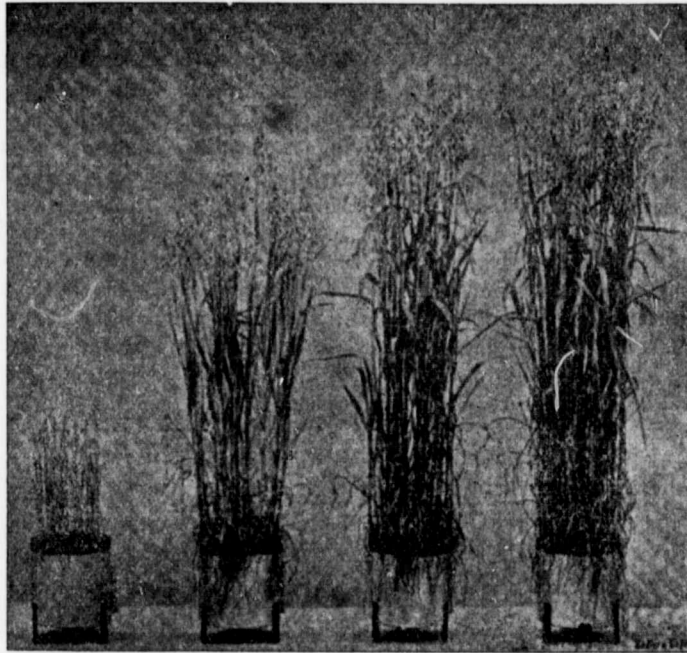


(a) Phosphate and potash
No nitrogen.

And yet, the yield of acid, potash and lime, which represents the grains or roots, the just bushels of wheat an acre produce of other grain

I stated, just now, trifling extra expenditure farmer, must, to begin he must have a lot of

Fig. 4.—EFFECTS OF NITROGEN ON GRAIN, TIMOTHY, ETC.



(a) Phosphate and potash
No nitrogen. (b) Phosphate and potash with $\frac{1}{2}$ gr. of nitrogen. (c) Phosphate and potash with 1 gr. of nitrogen. (d) Phosphate and potash with $1\frac{1}{2}$ gr. of nitrogen.

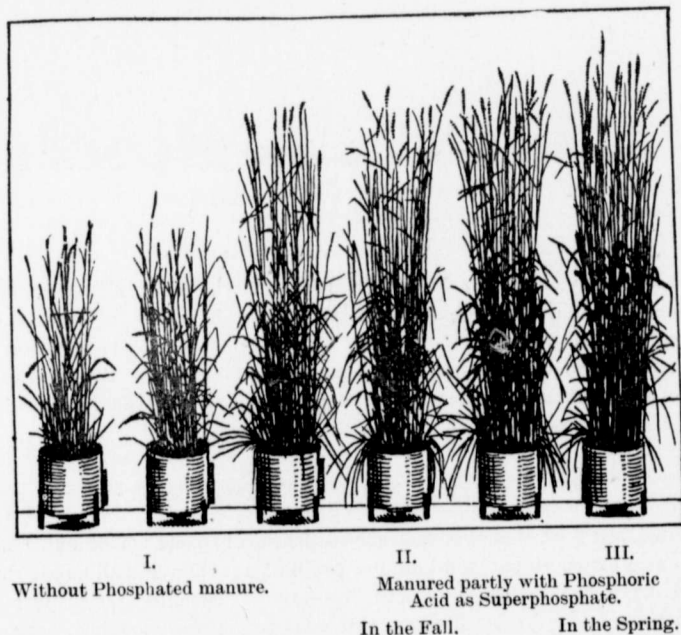
And yet, the yield is four or five times greater where the nitrogen, phosphoric acid, potash and lime are present. Instead of 7 or 8 bushels of oats per arpent, which represents the crop on the extreme left of the table, or its equivalent in other grains or roots, the judicious use of commercial fertilisers raises the yield to 28 or 35 bushels of wheat an acre, on an average of years, or an equivalent increase in the produce of other grains or roots.

THE EXTRA COST OF A SUPERIOR CROP.

I stated, just now, that this enormous difference in yield is obtainable at a very trifling extra expenditure; and here is a proof of it: You will all admit that every farmer, must, to begin with, provide for the general expenditure of his farm. First, he must have a lot of cleared land; this must be drained, ploughed, harrowed and

water-furrowed. He must also have farm-buildings, teams, ploughs, &c., together with seed, both grain and pulse. Then, the fields must be fenced to keep stock from damaging the crops. Lastly, if he really cares for his own interests, he must prepare his farm properly, by getting rid, as far as possible, of all weeds, the worst enemies of the farmer. There, so much for general expenditure, be the land rich or poor, whatever the crop may turn out to be, and I will add that, all this being provided for and well done, the farmer must next, if he be logical, provide emphatically for the manuring of the land. For, it is impossible, without miraculous interposition, to get abundant crops from a soil void of fertility; just as it is impossible, miracles apart, to feed a family without the proper quantity of suitable provisions. Do not, gentlemen, such truths strike you at once, or to use a common expression: do they not *crèvent les yeux* *i.e.*, make you stare? What, then, must we think of the almost invariable aspect of our farms, many of which have been under cultivation for more than a century, and yet seven-tenths of them have probably not received from the hand of man a single dressing of manure of any kind? Is it surprising that our average yields have diminished by one-half, and even by two-thirds? Is it not full time to provide, at any cost, for the improvement of our agriculture under this head?

Fig. 5.—EFFECTS OF PHOSPHORIC ACID.



I. Without Phosphated manure.

II. Manured partly with Phosphoric Acid as Superphosphate.
In the Fall.

III. In the Spring.

For, such a gradual calamity, that means to do so are

But before calculate precisely how soda; and to this end photographs of the grain-crops. As you proved by hundreds. Now, it is equally phosphoric acid, pot or the other of these acid we have the pro

This Fig. 5, shows, given in sufficient

The same result acid is wanting. The sufficient quantity of

For potash, let plants have suffered the crop is only about more or less potash,

Fig. 6.
Loam.



I. Without Potash.

oughs, &c., together
d to keep stock from
erests, he must pre-
all weeds, the worst
be the land rich or
at, all this being pro-
provide emphatically
aculous interposition,
impossible, miracles
provisions. Do not
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e think of the almost
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ure under this head

For, such a gradual and systematic impoverishment of land is in very truth a national calamity, that must be caused to vanish as soon as possible, and, fortunately, the means to do so are in our hands.

But before calculating how much the manuring of our farms demand, let us settle precisely how much our crops lose by the want of phosphoric acid, potash and soda; and to this end, we will examine carefully Fig. 4, 5, 6, and 7, taken from photographs of the natural objects. Fig. 4, above, shows us the effect of nitrogen on grain-crops. As you observe: no nitrogen, no good crop. This has been abundantly proved by hundreds of experiments in the different countries mentioned above. Now, it is equally proved that root-crops of all kinds demand nitrogen as well as phosphoric acid, potash and lime, the crop being absolutely nothing, as soon as one or the other of these four elements is wanting. Of this, in the case of phosphoric acid we have the proof in Fig. 5.

This Fig. 5, shows how necessary the phosphoric acid is, since potash and nitrogen, given in sufficient quantity, produce but little effect if phosphoric acid is absent.

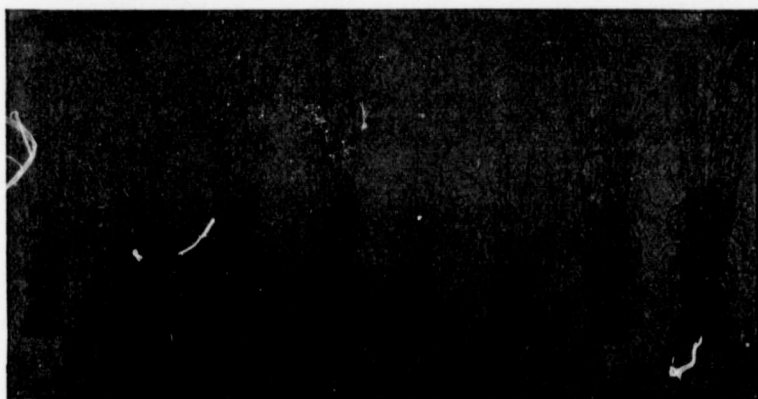
The same result will be produced on any kind of crop as often as phosphoric acid is wanting. The farmer, therefore, must never fail to supply his land with a sufficient quantity of phosphoric acid.

For potash, let us consider Figs. 6 and 7. In these engravings, we see that the plants have suffered much less than in Figs. 4 and 5; and yet, for want of potash, the crop is only about one-third of what it ought to be. Heavy land always contains more or less potash, easily soluble, according to the powers of the plant, the nature

Fig. 6.—EFFECTS OF POTASH ON GRAIN-CROPS.

Loam.

Sand.



I. Without Potash. II. With $\frac{3}{4}$ gr. Potash. III. Without Potash. IV. With $\frac{3}{4}$ gr. Potash.



III.

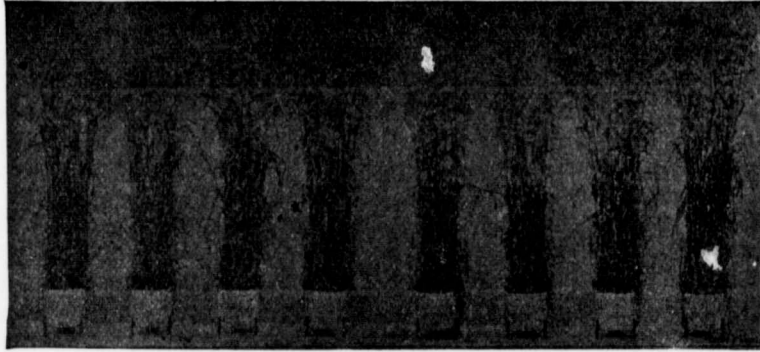
Phosphoric
sphate.

in the Spring.

Fig. 7.—EFFECTS OF POTASH ON GRAIN CROPS.

Loam.

Sand.

I. Without Potash. II. With $\frac{3}{4}$ gr. Potash. III. Without Potash. IV. With $\frac{3}{4}$ gr. Potash.

of the season, &c. Besides, even in our sandy soils, potash still exists, in greater or lesser proportions, especially where the bush has been burnt in clearing the land, for this operation must have left plenty of potash behind it. Still, the good effects of potash on our deficient crops must be tested by small comparative experiments. These distinct trials of each of the four fertilizing matters I have drawn your attention to will be most useful, and the attention of intelligent farmers cannot be too strongly drawn to them. They will be enabled thereby to reap great benefits to both themselves and their neighbours.

Here are two engravings, 8 and 9, which teach us a lesson, a lesson but little known until lately.

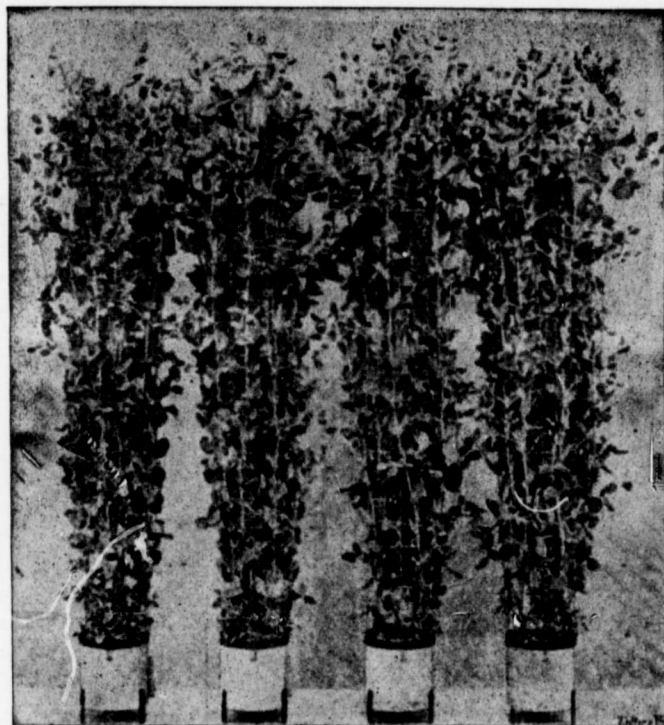
You saw just now, how necessary nitrogen is to the grain-crops and to every kind of root-crop. Now, let us attend to the legumens; pease beans, lentils, clover, and many other useful fodder plants that bear pods; here it is not the same. As soon as these plants can germinate and come up strongly; provided they have a plentiful supply of mineral food; phosphoric acid, potash, and lime; all leguminous plants can derive from the air the whole of the nitrogen they require for their perfect development. They will even leave after harvest, in their roots and the soil, a considerable surplus of nitrogen at the service of the grain and root-crops that succeed them in due rotation. Now, the dearest to buy in the market, or to produce on the farm, of all the four elements of fertility I have noticed is nitrogen; and more, most crops demand a plentiful supply of it. And what is that, but to say that Providence has, since the days of creation, been good enough to provide for the more pressing needs of the farmer, by enabling us to seize upon the free nitrogen of the air by

Fig. 8.—

I. Phosphate manure II. and Potash
No Nitrogen.

means of leguminous plants, plentifully supplied, though since, as you admit, the farmer must acknowledge his error, for, as an example, electioneering streets and houses beggarly, though thoroughly mastered it means, we are only just

Fig. 8.—EFFECTS OF NITROGEN ON LEGUMINOUS PLANTS.



I. Phosphate manure and Potash No Nitrogen.	II. Phosphate manure and Potash besides $\frac{1}{2}$ gr. Nitrogen.	III. Phosphate manure and Potash besides 1 gr. Nitrogen.	IV. Phosphate manure and Potash besides $1\frac{1}{2}$ gr. Nitrogen.
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means of leguminous plants, assisted by mineral manures, with which nature is plentifully supplied, though arable land is too often without them.

But, you will say: "This seems simple enough, and is by no means a novelty, since, as you admit, that all this has existed since the first days!" Man, gentlemen, must acknowledge his nothingness (*néant.*) It is with this fact as with many others, for, as an example, electricity has always existed, but how long ago is it that your streets and houses began to be lighted by it? And this power, this force, have you thoroughly mastered it yet? Has it shown you its last range of capacity? By no means, we are only just beginning to comprehend its power!

PS.

Sand.

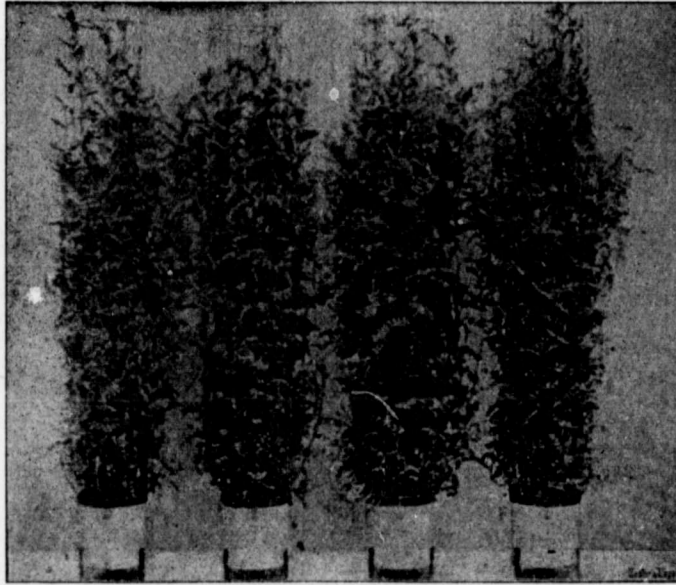
7. With $\frac{1}{4}$ gr. Potash.

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Fig. 9.—EFFECTS OF NITROGEN ON LEGUMINOUS PLANTS.



- | | | | |
|---|--|---|---|
| I. Phosphate manure
and Potash
No Nitrogen. | II. Phosphate manure
and Potash
besides
$\frac{1}{2}$ gr. Nitrogen. | III. Phosphate manure
and Potash
besides
1 gr. Nitrogen. | IV. Phosphate manure
and Potash
besides
$1\frac{1}{2}$ gr. Nitrogen. |
|---|--|---|---|

And so it is with agricultural chemistry. It hardly had an existence a hundred years ago; but, since that time, scientists have learned how to analyze foods, to weigh them, and to settle their exact value. Then, the different manures were attacked; and we were shown how to select them, and in what proportions they should be applied. Lastly, and that only recently, agricultural chemistry, has completed that grand page of its work, and shown us how to seize upon the atmospheric nitrogen; how it is transformed into nitrate, that chief of all the foods of plants.

LAWES' AND GILBERT'S EXPERIMENTS.

Every intelligent farmer should be fully informed concerning the results obtained by experiments, carried on for fifty consecutive seasons, by Sir John Lawes and Sir Henry Gilbert. These experiments, on the same farm, conducted with marvellous skill, have proved to demonstration that farmers, who do not impart to their

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playing a losing game
that they divided into
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soda and magnesia;
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and the elements of fertility they need to enable them to produce good crops, are playing a losing game. These experimenters began by selecting very fertile fields, that they divided into several plots, in which they conducted their different comparative essays. For fifty consecutive years, wheat followed wheat, barley followed barley, and oats, oats: and all without manure. Again in other plots 32,000 lbs. of the best dung was given every year to an acre; again in other plots, superphosphate, i. e., phosphoric acid and lime, was used; in other plots, superphosphate, potash, soda and magnesia; and lastly with these various mineral manures united, and certain quantities of nitrogen.

Besides these successive crops, the same kind of demonstrative enquiries were pursued with the same care, on rotations.

I cannot, within reasonable limits, show you all the valuable ideas that spring from these long and interesting labours, but the following is a summary of the results obtained. You will find in it most valuable instruction as to the best means of manuring your crops.

Let us remark in the first place, that every plot, on which the experimental crops were grown, was worked until it was perfectly pulverised and free from weeds. The difference between them consisted solely in the quantity and quality of the manures given to each of them. It is not necessary to say that the seasons and the manures caused the crops yielded to vary in a marvellous manner. Thus, in the wheat crop, the yield varied from $4\frac{3}{4}$ bushels an acre, without any manure, to 22 bushels with complete manures, in the worst yielding year; but, in the best yielding year, the produce was from seventeen and a quarter bushels of wheat an acre, without manure, to $55\frac{3}{4}$ bushels with complete manure. Here again, the effect of manures was to more than triple the yield in good seasons.

NTS.



Phosphate manure
and Potash
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CONTINUOUS CROPS OF WHEAT DURING 40 YEARS (1852-1891.)

TABLE VI.

DESCRIPTION OF MANURES. QUANTITIES TO THE ACRE (1½ ARPENT).	Best	Worst	Differ-	Average
	season 1863.	season 1879.			ence.	of 40 years.
	Bshls	Bshls	Bshls	Bshls
<i>Clean Grain.</i>				
Without any manure.....	17½	4¾	12½	13
14 Tons of dung = { Nitrogen.....200 lbs. Phosphoric Acid.....120 " Potash.....240 " }	44	16	28	34½
With mineral manures { Superphosphate....400 lbs. Sulph. of potash....200 " " " soda.....100 " " " magnesia..100 " } alone.....	19½	5½	14	15
" " " " + { 200 lbs. ammoniacal salts = 43 lbs. nitrogen..... }	39½	10½	29½	24½
" " " " + { 400 lbs. ammoniacal salts = 86 lbs. nitrogen..... }	53½	16½	37½	33½
" " " " + { 600 lbs. ammoniacal salts = 129 lbs. nitrogen..... }	55½	22	33½	35½
" " " " + { 550 lbs. nitrate of soda = 86 lbs. nitrogen..... }	55½	20½	35½	36½

* In 1885 and since, only 275 lbs. of nitrate of soda.

Sir John Lawes explains his great crops of wheat and barley during the fifty consecutive years, *without any manure of any kind*, by this fact alone: the land was well prepared, perfectly worked, and kept free from weeds.

Almost the same was grown; only, it was with less manure was needed much less labour. The following table shows:

CONTINUOUS CROPS OF WHEAT DURING 40 YEARS (1852-1891.)

DESCRIPTION OF MANURES.
QUANTITIES TO THE ACRE (1½ ARPENT).

Without any manure.....

No manure.....
Farm-yard dung 31360

With mineral manures

" " "

No manure.....
Dung, 31360 lbs. = { N
P
P

With mineral manures

" " "

TOTAL

No manure.....
Dung, 31360 lbs. = { N
P
P

With mineral manures

" " "

* The weight of the season, from 51 to 55, was added, producing the best crops.

Almost the same yields of barley, roots, and of rotation-crops, as of wheat were grown; only, it was shown that, by the practice of growing crops in rotation much less manure was needed to produce much greater yields, and that hoed-crops rendered much less labour necessary to keep the land free from weeds; as the following table shows:

CONTINUOUS CROPS OF BARLEY DURING 40 YEARS (1852-1891.)

TABLE VII.

Season	Difference	Average
1879	1879	40 years
Bshls	Bshls	Bshls
4½	12½	13
16	28	34½
5½	14	15
10½	29½	24½
16½	37½	33½
22	33½	35½
20½	35½	36½

fifty consecutive
all prepared, per

DESCRIPTION OF MANURES. QUANTITIES TO THE ACRE (1½ ARPENT.)	Two best years.		Two worst years.		Average of 40 years.
	1854	1857	1879	1887	
CLEAN GRAIN.					
	Bsh *	Bsh *	Bsh *	Bsh *	Bsh *
No manure.....	35	26½	6¼	7½	16½
Farm-yard dung 31360 lbs. = { Nitrogen.....200 lbs. Phosphoric Acid..120 " Potash.....260 " } alone.	50½	51¼	36½	26	48½
With mineral manures { Superphosphate....400 lbs. Sulph. of potash...200 " " " soda.....100 " " " magnesia.100 " } alone.	42	39¾	7¼	8½	22½
" " " " and 200 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	60½	57½	27½	22½	43½
" " " " and 275 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	62¼	147	25½	25½	45½
STRAW.					
	LBS.	LBS.	LBS.	LBS.	LBS.
No manure.....	2442	1425	.....	648	1044
Dung, 31360 lbs. = { Nitrogen.....200 lbs. Phosphoric Acid..120 " Potash.....240 " } alone.	4171	2649	.....	1842	3247
With mineral manures { Superphosphate....400 lbs. Sulph. of potash...200 " " " soda.....100 " " " magnesia.100 " } alone.	2595	1920	.....	630	1279
" " " " and 200 lbs. of ammoniacal salts = 42 lbs. of nitrogen..	4530	3120	.....	1705	2904
" " " " and 275 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	5487	4157	.....	2023	3186
TOTAL—GRAIN AND STRAW.					
No manure.....	4405	2878	.....	1043	1976
Dung, 31360 lbs. = { Nitrogen.....200 lbs. Phosphoric Acid..120 " Potash.....240 " } alone.	7298	5564	.....	3294	6015
With mineral manures { Superphosphate....400 lbs. Sulph. of potash...200 " " " soda.....100 " " " magnesia.100 " } alone.	4969	4111	.....	1088	2530
" " " " and 200 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	7058	6336	.....	2919	5365
" " " " and 275 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	9026	7734	.....	3455	5761

* The weight of the barley varied, according to the quantity and the sort of manure, and the season, from 51 to 54.8 pounds a bushel, the complete manure, with the sulphate of ammonia added, producing the heaviest grain.

FOUR YEARS' ROTATION AND SUCCESSIVE CROPS COMPARED.

AVERAGE CROPS DURING 32 YEARS (1852-1883.)

TABLE VIII.

DESCRIPTION OF CROPS.	WITHOUT MANURE.					WITH PHOSPHORIC ACID.					WITH COMPLETE MANURE.				
	Dry matters.	Azote.	Phosphoric Acid.	Potash.	Lime.	Dry matters.	Azote.	Phosphoric Acid.	Potash.	Lime.	Dry matters.	Azote.	Phosphoric Acid.	Potash.	Lime.
TURNIPS.															
Rotation	{ roots... 49	5.8 1.8	0.77 0.25	3.04 0.95	.....	1631 176	26.8 6.5	7.68 1.44	21.67 2.96	.....	3128 355	66.7 13.9	17.02 3.17	67.99 10.32	.....
TOTAL	277	7.6	1.02	3.99	.....	1807	33.3	9.12	24.63	.....	3483	80.6	20.19	78.31	.....
Successive Crops	{ roots... 49	6.8 2.0	0.88 0.25	3.48 0.94	.....	945 142	13.6 5.8	4.14 1.16	12.08 2.38	.....	1876 345	40.1 14.1	9.91 3.07	39.51 9.98	.....
TOTAL	285	8.8	1.13	4.42	.....	1087	19.4	5.30	14.46	.....	2221	54.2	12.98	49.49	.....
BARLEY.															
Rotation	{ grain... 1647	23.0 7.4	11.59 2.03	8.38 11.81	.....	1294 1355	17.8 5.7	11.91 1.85	7.85 9.50	.....	1987 2129	30.7 10.0	18.63 2.96	12.52 18.97	.....
TOTAL	3136	30.4	13.62	20.19	.....	2649	23.5	13.76	17.35	.....	4116	40.7	21.59	31.49	.....
Successive Crops	{ grain... 947	13.5 4.2	6.95 1.10	5.03 6.45	.....	1128 1052	15.5 4.5	10.00 1.33	6.59 7.03	.....	2298 2489	35.2 11.4	21.31 3.30	14.32 21.00	.....
TOTAL	1822	17.7	8.05	11.48	.....	2180	20.0	11.33	13.62	.....	4787	46.6	24.61	35.32	.....
Rotation	{ grain... 2296	23.7 9.1	11.18 2.73	8.08 17.94	.....	1514 2513	25.3 10.5	14.23 3.75	9.39 19.14	.....	1740 3137	30.1 13.6	16.50 5.46	10.82 27.47	.....
TOTAL	3664	32.8	13.91	26.02	.....	4027	35.9	17.98	28.53	.....	4877	43.7	21.96	38.29	.....
Successive cropping	{ grain... 1082	11.6 5.4	6.45 1.27	4.45 8.49	.....	766 1204	13.9 5.9	7.99 1.88	5.27 10.00	.....	1238 2142	23.9 10.1	12.40 3.62	8.12 18.81	.....
TOTAL	1729	17.0	7.72	12.94	.....	1970	19.8	9.87	15.27	.....	3380	34.0	16.02	26.93	.....

TOTAL.....	3136	30.4	13.62	20.19	.....	2649	23.5	13.76	17.35	.....	4116	40.7	21.59	31.49	.....
Successive Crops..	{ grain... 875	13.5	6.95	5.03	.....	1128	15.5	10.00	6.59	.....	2293	35.2	21.31	14.32	.....
	{ straw... 947	4.2	1.10	6.45	.....	1052	4.5	1.33	7.03	.....	2489	11.4	3.30	21.00	.....
TOTAL.....	1822	17.7	8.05	11.48	.....	2180	20.0	11.33	13.62	.....	4787	46.6	24.61	35.32	.....
Rotation	{ grain..... 1368	23.7	11.18	8.08	.....	1514	25.3	14.23	9.39	.....	1740	30.1	16.50	10.82	.....
	{ straw..... 2296	9.1	2.73	17.94	.....	2513	10.5	3.75	19.14	.....	3137	13.6	5.46	27.47	.....
TOTAL.....	3664	32.8	13.91	26.02	.....	4027	35.9	17.98	28.53	.....	4877	43.7	21.96	38.29	.....
Successive cropping	{ grain..... 647	11.6	6.45	4.45	.....	766	13.9	7.99	5.27	.....	1238	23.9	12.40	8.12	.....
	{ straw..... 1082	5.4	1.27	8.49	.....	1204	5.9	1.88	10.00	.....	2142	10.1	3.62	18.81	.....
TOTAL.....	1729	17.0	7.72	12.94	.....	1970	19.8	9.87	15.27	.....	3380	34.0	16.02	26.93	.....
HORSE-BEANS.															
Rotation	{ grain..... 631	27.5	5.15	7.26	1.15	640	30.4	6.81	7.35	1.10	1147	49.6	11.49	15.20	2.10
	{ straw..... 379	9.4	1.17	2.87	14.61	978	10.1	1.78	3.47	17.58	1487	14.0	1.99	6.96	24.47
TOTAL.....	1510	36.9	6.32	10.13	15.76	1618	40.5	8.59	10.82	18.68	2624	63.6	13.48	22.16	26.57
Successive cropping	{ grain..... 234	9.7	2.11	2.98	0.47	265	10.5	3.16	3.46	0.52	581	21.4	6.75	8.94	1.24
	{ straw..... 423	4.6	0.63	1.54	7.85	524	5.5	0.95	1.82	9.36	799	7.1	1.24	4.33	15.08
TOTAL.....	656	14.3	2.74	4.52	8.32	789	16.0	4.11	5.28	9.88	1380	28.5	7.99	13.27	16.32
Clover-hay.....	2309	55.0	8.04	34.18	67.84	4717	124.5	20.30	52.63	158.62	6714	167.0	31.09	123.12	181.75

TABLE IX.

COMPARATIVE TABLE.

OF THE AVERAGE QUANTITIES OF DRY MATTER PER ACRE IN THE ROTATION AND SUCCESSIVE CROPS RESPECTIVELY.
FROM 1852 TO 1883—32 YEARS.

DESCRIPTION OF THE CROPS.	WITHOUT MANURE.				WITH SUPERPHOSPHATE ONLY.				WITH COMPLETE MANURE.				
	Crops.		Extra		Crops.		Extra.		Crops.		Extra.		
	rotation.	continuous.	R.	C.	rotation.	continuous.	R.	C.	rotation.	continuous.	R.	C.	
Swedes.....	{ roots ...	228	236	.....	8	1631	945	686	.....	3128	1876	1252	.....
	{ leaves ...	49	49	.....	0	176	142	34	.....	355	345	10	.....
	Total.....	277	285	.....	8	1807	1087	720	.....	3483	2221	1262	.....
Barley.....	{ grain ...	1489	875	614	.....	1294	1128	166	.....	1987	2298	.....	.....
	{ straw ...	1647	947	700	.....	1355	1052	304	.....	2129	2489	.....	.....
	Total.....	3136	1822	1314	.....	2649	2180	469	.....	4116	4787	.....	.....
Fall Wheat.....	{ grain ...	1368	647	721	.....	1514	766	748	.....	1740	1238	502	.....
	{ straw ...	2296	1082	1214	.....	2513	1204	1309	.....	3137	2142	995	.....
	Total.....	3664	1729	1835	.....	4027	1979	2057	.....	4877	3380	1497	.....
Horse-beans.....	{ grain ...	631	234	397	.....	640	265	375	.....	1147	581	566	.....
	{ straw ...	879	422	457	.....	978	524	454	.....	1487	799	688	.....
	Total.....	1510	656	854	.....	1618	789	829	.....	2634	1380	1254	.....

We see by this table that, with the exception of the swedes, without any manure, the yield of which is a mere trifle, the rotation crops are at least one-half greater than the successive crops on the same land, and that with the same cultivation and manure. Nevertheless, barley, with a yearly dose of complete manure, in the successive crops, gave more. This fact is explained by the great appetite barley has for manure, the rotation crops receiving the manure all at once, in the hoed-crop year.

COMMERCIAL MANURE.

There is one fact, completely confirmed by the experiments of Sir John Lawes, that will probably surprise most of my readers, and which proves the correctness of the views of my friend, the Curé of St. Leonard, as opposed by some who, we

recently, were inclined to. Sir John Lawes showed that formerly, he obtained a greater yield with commercial manure than there is any difference in the use of commercial manure. It results then that the care of his dung, and that he does not desire to use of the crop it would be a cheap form of potash.

These three manures are valuable, and they are the best plants. Besides, by its influence will be properly manured and soluble phosphoric acid province, and if we find it twice and thrice more or less worn out those farms, once so much, and that without the old-settled parish.

But, I am detained by the whole course of agriculture being more profitable. The question: the improvement of the soil.

When, in 1881, they showed the effect, people raised a million of dollars. The future showed we expected. But

recently, were inclined to doubt his veracity, as to the effects of commercial manures. Sir John Lawes shows that, one year with another for 50 years, and now as well as formerly, he obtained and still obtains, after 50 years of cropping, about the same yield with commercial manures as with large dressings of the best dung. And if there is any difference, it is more frequently in favour of the crops grown with commercial manures, provided always that the land contains sufficient *humus*.

It results then from these demonstrations that the farmer should take the greatest care of his dung, and get as much good out of it as possible, but, that being done, if he does not desire to restrict the yield of his land to the poor one-third or one-fourth of the crop it would give when unmanured, he must use lime, ashes, or some other cheap form of potash, together with phosphoric acid.

MINERAL MANURES.

These three mineral manures, phosphoric acid, potash, and lime, are not expensive, and they are the only indispensable manures for clover and all other leguminous plants. Besides, by adding a little of these mineral manures to the farm-yard dung, its influence will certainly be doubled, and a much greater extent of land can be properly manured every year. As I said, these mineral manures, lime, potash, and soluble phosphoric acid are not costly. They can now be had in abundance in the province, and if we fearlessly employ them, we shall see our crops everywhere yielding twice and thrice as much as they yield now. Of course, I am speaking of the more or less worn out farms, which, unmanured, no longer give full crops. Besides, those farms, once so prolific, which used to yield largely of wheat, barley, oats, peas, &c., and that without any manure, at all, have become very scarce indeed in any of the old-settled parishes of the province!

CONCLUSION.

But, I am detaining you too long, gentlemen. My intention was not to read you the whole course of agriculture, but to show you how to proceed in making your farming more profitable. I aimed especially at interesting you keenly in this great social question: the improvement of the farming of our province.

DAIRYING, OUR ONLY LIFEBOAT.

When, in 1881, some earnest persons established our Dairymen's Association; when they showed the importance that which, in our province, this new industry could effect, people raised a great clamor about it, especially when mention was made of the millions of dollars that we hoped by this means to gain for trade and agriculture. The future showed we were right. We, by this trade, won twice and thrice as much as we expected. But, now, comes another utterly different problem; one that is

Sir John Lawes
he correctness
some who, ye

ROTATION AND

WITH COMPLETE
MANURE.

Crops.	Extra.	
	R.	C.
8	1876	1252
5	345	10
3	2221	1262
7	2298	.....
9	2489	.....
16	4787	.....
40	1238	502
37	2142	995
77	3380	1497
47	581	566
87	799	688
34	1380	1254

without any manure,
t one-half greater
e cultivation of
anure, in the same
ite barley has
hoed-crop year

intimately connected with the success of dairying. Not six months ago, several notable persons, men actuated by the best motives, assured us that this self-same industry was, almost entirely, our sole life-boat as regards agriculture. But they were greatly mistaken.

THE EXPORT OF FRESH MEAT.

Here, all of a sudden, a novel horizon, especially for us of the province of Quebec, opens itself to us; prospects of agricultural, manufacturing, commercial progress of the greatest importance. Since Australia—as was first noted, very recently, by two Quebec newspapers—since Australia has found means to export profitably to Britain, across the hot water of the Equator and the Tropics, a distance four or five times as great as we are from the English market; to send, I say, in a fresh condition, not only dairy-products, but her lambs, fresh meat of all kinds, even the rabbits whose marvellous fecundity used to menace with destruction all the products of her land,—since Australia has succeeded, before our astonished eyes in this enterprise, thereby securing an annual net profit to her farmers of several millions of pounds sterling, why cannot Canada, and especially the province and port of Quebec, do as much? Why not, indeed? since we enjoy advantages incomparably superior to those of the Australasian colonies?

THE NEED OF REFRIGERATORS.

This season we have had an abundant harvest. What did we see? We saw enormous quantities of food of the best quality, sold for low prices, even wasted, for want of modern refrigerators to hold them in safe keeping. And the same thing that happened this season, is repeated every year that Providence blesses the work of our farmers. And while our farmers are thus, for want of a good market, losing a large part of their profits; what is happening in the countries with which we are in constant communication; which steam enables us to reach in a few days?

There, gentlemen, millions of men, women and children are absolutely debarred from enjoying the very food that is sold here for next to nothing, or even thrown away. And why? Because the same goods are very scarce there, and sell for prices that their poverty prevents them from paying. Have you any idea how much it would cost to preserve our meats, &c., in perfection, to send them to Europe for sale? About $1\frac{1}{2}$ cents a pound! Do you think the English working-man would live any longer upon bread and cheese alone, for the latter of which he pays fifteen cents a pound, if he could get our best meats at 10 or 12 cents? And, at such a price, would there not be sufficient margin of profit to justify us in increasing our production to many times its present extent? Surely, gentlemen, the farmer would then have no reason to complain, if he sells at a profit the products of his fields transmuted into the form of butter, cheese, meat of every kind, fat poultry, new-laid eggs, &c., &c.?

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Again, if Australia has freighted several large steamers, every year, fitted up with perfect arrangements for refrigerating, and this for a voyage of about 40 days, have I not right to say that this same trade gives us the finest expectations for the future; especially to us of the port of Quebec, whose waters, cooled by the ice of the North, will immensely facilitate the freightage of these same exports.

DOMESTIC ECONOMY.

I referred just now to certain domestic manufactures: the production of butter, poultry, eggs, &c., which will be greatly benefited by the adoption of the new system. Allow me to mention here, casually, a very recent plan, one that promises, in a very short time, to bring about a most fortunate change in our farming. It concerns the thorough and finished education of the class, the most respected, most important, the most admired, even by our rural peasantry, class,—the class of young girls, the future instructresses of the children of our towns and country parts, the mothers of the Christian families of our agricultural population.

And, here, let us acknowledge, with respect and gratitude, the admirable work of the Rev. Ladies of the Ursulines of Roberval. May they have many imitators, and, before long, may the majority of our country schools teach their pupils, as these ladies are now teaching theirs, how to become useful members of society, as well as how to prepare themselves to become the happiness and blessing of those with whom they are destined to pass their lives. Need I ask if we wish complete success for this new and perfect system of education?

HOW TO TAKE POSSESSION OF THE SOIL.

Lastly, allow me to repeat, in my turn, a most valuable counsel, which we have heard many times: "Canadians, take possession of the soil!" Yes, indeed, let us take possession of the soil, but with courage, intelligence, and conviction. Let us do here, what is done by the leading classes in every well organised country. Let us have, for our own use, at least a small piece of ground, to which we may devote our leisure, and from which we may derive health, strength, and the finest of all pleasures. Yes, indeed, let us take possession of the soil.

HOW TO IMPROVE OUR AGRICULTURAL ORGANISATION.

Let a perfect education, adapted to our resources and needs, enable our sons to make farming flourish anew. Let our country parts, impoverished by a general and alarming emigration, be re-peopled by a better educated generation, making agriculture a perfectly profitable art and trade. Let the organisation of our rural districts go on from improvement to improvement, by their farmers' clubs, their farmers' syndicates, by their representatives perfectly prepared, by earnest study,

to promote invariably and to defend when needed, the most precious interests of agriculture and colonization. Let the farmers' *comitia*, where annually the wisest minds, the most earnest devotion of a whole district, organise, in future, in permanency, in order that the needs of agriculture and colonisation, so great so important, be studied thoroughly, with a view to the rapid discovery of the best means of providing for their requirements.

LET US BE, EITHER FARMERS, OR THE FRIENDS OF THE FARMER.

In conclusion, I assert that the prosperity of the province insists that we be either farmers in our own persons, or the earnest, the devoted friends of the farmer. Our national future, gentlemen, depends—need I affirm it?—on the more or less solid prosperity which we unitedly give to agriculture; on the more or less of intelligent education that our rural population combine with persevering, obstinate labour both of head and hand; on the more or less wise economy brought to bear on the daily management of our domestic affairs, both rural and national.

LET US IMITATE THOSE HEROES, OUR ANCESTORS!

Let us not forget what our fathers were: earnest (!) workers, Christians firm in faith, true heroes. Neither let us forget that they left France charged with a mission from Providence; we cannot doubt it. They carried this great, this beneficent news to an entire continent. Would we be sons worthy of such fathers, let us accept bravely, loyally, the splendid duty imposed upon us—*Gesta Dei per Francos*—in America, even if not in a new France.

OUR AGRICULTURAL MISSIONERS.

I feel, Messieurs les missionnaires agricoles, that I must, last of all, address you in particular; you who have been selected by the Bishops of the Civil Province of Quebec, and specially entrusted with a providential mission in the hard times we are now passing through. Their Lordships, in their admirable collective charge, dated, "Epiphany, 1894," called upon you to develop, as far as in you lay, a work of public charity, the needs of which are of pressing importance. You undertook to vulgarize and cause to be loved the teachings of both the science and practice of agriculture. By favouring as much as possible the establishment of high agricultural instruction in our rural districts, you will soon arrive at results of the most encouraging nature. As the final consequence of your devotion and labours, you will enjoy the lofty satisfaction of having continued, while extending it, the truly patriotic work of the clergy of this province since the origin of the colony. Prov-

(!) *Emerites*: When Roman legionaries had served their full time, they were classed by themselves, and designated as "Emeriti." A. R. J. F.

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President: ABBÉ
Vice-President:
Secretary-Treasu

DISTRICT.

Arthabaska
Beauce
Beauharnois.....
Bedford.....
Charlevoix and Sague
Chicoutimi.....
Gaspé

vidence will doubtless extol your work and show its appreciation of it by restoring productiveness to our worn-out farms, by social welfare thus created, by the good example that your addresses cannot fail to produce among our rural population, which will I trust, for many a day retain the old and noble reputation acquired by our ancestors of being *cultivateurs-gentilshommes*. Thus you will soon close the mouths of the too numerous slanderers of our faith in America, of all those who attribute to the religious instruction we receive our want of information and our past failures in agriculture.

From my heart, then, I include with this farewell: May the Almighty bless your labours and our labours too!

The session was then adjourned to the next day.

SESSION OF WEDNESDAY MORNING, DECEMBER 4TH

The President opened the session at 9 a.m.

Mr. J. C. Chapais read the report of the committee on nomination, and invited the members of the association to make, after each name, any remarks or objections that may seem good to them, or to signify their approval.

REPORT OF THE COMMITTEE OF NOMINATION.

WATERLOO, December 3rd, 1895.

The undersigned, members of the committee of nomination of this convention, have the honour to propose the following persons, subject to the approval of this convention, as officers and directors of the Association for the ensuing year, 1896:

Honorary President: HONORABLE P. B. DE LABRUÈRE, Quebec.

President: ABBÉ T. MONTMINY, St. Georges de Beauce.

Vice-President: MR. SIDNEY A. FISHER, Knowlton.

Secretary-Treasurer: MR. EMILE CASTEL, St. Hyacinthe.

DIRECTORS:

DISTRICT.	NAMES.	RESIDENCE.
Arthabaska	Messrs. D. O. BOURBEAU.....	Victoriaville.
Beauce	J. DE L. TACHÉ.....	Scott Junction.
Beauharnois.....	ROBERT NESS	Howick.
Bedford.....	H. S. FOSTER.....	Knowlton.
Charlevoix and Saguenay..	J. D. GUAY	Chicoutimi.
Chicoutimi.....	JOS. GIRARD, M.P.P.	St. Gédéon, Lake St. John.
Gaspé	L. T. BRODEUR.....	St. Hugues.

DIRECTORS:—Continued.

DISTRICT.	NAMES.	RESIDENCE.
Iberville	MICHEL MONAT.....	Mount Johnson.
Joliette	SAM. CHAGNON.....	St. Paul l'Ermite.
Kamouraska	J. C. CHAPAIS.....	Lower St. Denis.
Montmagny.....	GABRIEL DUMONT....	St. Henedine.
Montreal.....	ALEXIS CHICOINE... .	St. Mark.
Ottawa.....	J. A. VAILLANCOURT.	Montreal.
Quebec	ED. A. BARNARD.....	L'Ange-Gardien, Mtcy.
Richelieu.....	J. L. LEMIRE.....	La Baie du Febvre.
Rimouski	CHS. PRÉFONTAINE. .	Isle Verte.
St. Francis.....	J. A. CAMIRAND... .	Sherbrooke.

Carried unanimously.

DISCUSSION AND ADOPTION OF THE RESOLUTIONS OFFERED BY MR. ED. A. BARNARD.

Mr. Barnard.—Before reading to you, gentlemen, the resolutions I have prepared as corollaries of the principles I laid before you yesterday evening, as well as in justification of this long scientific statement, allow me to say a few words about the part played by

SCIENCE IN THE CULTIVATION OF THE SOIL.

From the earliest times, among the most distinguished nations of the earth great patriots have been drawn from the ranks of those living in the country. They engaged, first in the pursuit, afterwards in the propagation of the principles that govern agriculture. It was thus that the classical authors, both Greeks and Romans, after having themselves enjoyed the charms of rural life, left, as a heritage to future generations, their *Eclogues* and their *Georgics*.

Then, when the incursions of the Barbarians had covered the whole of Europe with ruin, bands of unassuming monks, skilful and robust workers, brought down blessings on themselves by applying to the art of cultivation enlightened ideas long buried under the oblivion of the ages. Selecting by preference the most inhospitable, even the most inaccessible places, the monks of the mediæval times cleared, slowly and with laborious exertions, a large part of Europe. While practising constantly the most sublime virtues, they recalled to life the lost sciences, among others the arts of drainage, of irrigation, of banking out the sea, of cultivating quicksands (?); in fact, all the great agricultural inventions of past ages. It is thus that, from epoch to epoch, agriculture has always had its investigators and savans, among the most distinguished practioners.

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AGRICULTURAL CHEMISTRY.

To omit all but modern progress, and among other things, the application of chemistry to agriculture, a system, utterly unknown 50 years ago, has been put before us, by which we are now enabled, at a trifling cost to produce, on apparently worn out land, the most abundant crops by means of legumens manured by minerals alone.

Agricultural chemistry, a quite modern science, is making daily progress of the most wonderful kind. It is throwing open, even to the outer world—outside the domain of agriculture—completely new views. In support of this, I may quote the very interesting essay that M. Laflamme, the Rector of Laval University has just published on that savant, that humble Christian, whose recent death caused universal sorrow throughout the whole civilised universe: I mean, of course, PASTEUR.

Have you noted, gentlemen, the first foundations of that reputation, so marvellous, so truly universal, which the illustrious savant so justly gained? First, he devoted himself to the study of chemistry, with thorough and conscientious energy. Herein, lay the distinction between him and the numerous *savants* around him, namely, that he sought, above all things, the exact TRUTH.

Before long, the French Government confided to his care an agricultural investigation, for which purpose he had for several years to forsake the laboratory, la vie Parisienne, the universities, and their learned professors, his friends, to lead an entirely new life, among the fields, in search of the solution of one of the innumerable secrets of Nature. His friends were full of solicitude about him. He will take a wrong line, said they; he is in danger of losing his way completely, in devoting himself to the investigation of a low problem of practical agriculture. This humble mission, so despised by the learned, really consisted in the discovery of the cause of the silkworm-disease, and the remedies to be applied for its cure.

Pasteur set to work, with ardour, in the search for several years: no one but God regarding him! And what was the reward of this ceaseless labour? He not only discovered the cause of the disease of the silkworm and its cure, but, as the immediate consequence of his researches, he found out the *germ of life* in ferments of every kind; the ferments of bread, wine, beer, cider, &c. Before long, by means of his different *cultures*, he showed under the microscope,—made them, so to speak, perceptible to the touch—the germs of the most terrible and ungovernable diseases, such as the anthrax, hydrophobia, &c., and shortly afterwards, he brought into the full light of day, the *elements of life*, that the Creator of the universe bestowed on the world, from its original foundation, with which to combat and mitigate, if not entirely to eradicate, these very diseases.

Is not this, gentlemen, the same thing as to say that the success of Nature, or more properly, the laws of Providence, are intimately associated with agriculture? And does it not show how worthy agricultural science is to occupy a place in the minds of the most intellectual, the most splendidly endowed of men?

A word, now, about

AGRICULTURAL SCIENCE IN THE PROVINCE OF QUEBEC.

It cannot be denied that the French clergy and friars, as well as the educated laity that accompanied our forefathers into this country, were, as regards the majority, men well acquainted with farming. As a proof, I may cite the fine orchards of the slopes of Beaupré, of the parishes on the south of the St. Lawrence, the Isle of Orleans, &c., many of which still yield good crops, after more than a century of treatment more or less imperfect. We also know that the gardens round the presbyteries, monasteries, seignorial manors, &c., yielded abundantly, up to the time of the *cession*, all the early vegetables then known in France. I have seen, in many parishes, Chasselas vines, planted under the French régime, that still produce good grapes. Now the Chasselas is not an easy vine to grow; it needs special care, even in the neighbourhood of Paris.

We know too, how prosperous farming was, in spite of the ceaseless wars, with the Indians first, and then with their allies, the English colonists. And the proof of this prosperity is doubled in force by the truly marvellous increase of the handful of heroes, grubbing away boldly with both hands on the mattock, but with loaded muskets at their backs.

Unfortunately for our agriculture, communication with the learned bodies of France ceased almost entirely after the cession of Canada. To complete the trouble, the most prominent educated laymen—up to that time the leaders of the nation—returned to France, many of the French priests accompanying them; so few were left, that those who did not leave us had often the charge of two parishes. Besides this, they often discharged the duties of magistrates, notaries, and if need were, of doctors and schoolmasters. More especially had they to help, to comfort, to encourage the farmers, who were almost utterly ruined by long and tiresome military service; by all the evils that accompany and succeed a merciless war; menaced, above all, by a future most mournful as regarded their hearts as Catholic Frenchmen. For three quarters of a century they had themselves to struggle with all their powers, and, besides, to form and instruct other contestants, to work for the preservation and continuance of what is the dearest to us of all things in the world: our religion, our language, our Christian laws.

Under these circumstances, gentlemen, is it surprising that the science of agriculture was neglected, even forgotten, during all this period, by our governing classes? It is perfectly true that, for more than a century, farming was completely abandoned to farmers (*aux hommes du métier*). So true is it, that 50 years ago, when I first went to college, I found that the pupils were at once classified according to their talents and their fitness for different occupations. Now, the less clever ones were always set down in this fashion—pardon me if I use the phrases used by the lads—"Oh! that fellow is too great an ass to become a learned man;

he'll have to be a farmer. Farming was ridiculous to our fathers, this is what education is for. Agricultural lectures are full of zeal; but you s

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What! Our province is aware that every farmer is a prosperous agriculturist. It grows rapidly, and costs less than wheat. It is not entirely, disappearing, but to thousands of educated inspectors of dairying and cheeseries established in the province. Certain progressive farmers soon hear their reply.

This self-same year, until lately to be worn to the extent, such as is rare in the province, may say this artist in the Quebec Centre. Honoured and distinguished citizens of the same time, they are several, who are respectively quoted as models of ec

Thank God, gentlemen, for the causes of agriculture. The Lordships, the Bishops, have condescended to join their names with agricultural missions, and much good. Many farmers hardly cared to read farm papers; but now they have adopted its teaching. Concerning agriculture, and I ne

Let us go on then, gentlemen, let us aid agriculture with our own hands. Let us aid agriculture with ourselves more and more. Let our provincial associations be established one for the

he'll have to be a farmer!" The idea of any connection between science and farming was ridiculous to their minds! As for what farming can do for this province of ours, this is what educated men, living in the country, have often said to me, after agricultural lectures at which they had been present: "You are, doubtless, Monsieur, full of zeal; but you seem to forget that

"OUR PROVINCE IS NOT AN AGRICULTURAL COUNTRY!"

What! Our province not an agricultural country? Were these gentlemen not aware that every farm-product of Scotland, Belgium, of the North of France, the most prosperous agricultural countries of Europe, grows here as freely as there, but more rapidly, and costs less to grow? Thank God, Sirs, these prejudices have almost, if not entirely, disappeared, since 1872, when dairying opened a new field of activity to thousands of educated youths; our agricultural lecturers; our teachers and inspectors of dairying; our proprietors and makers of the 1500 creameries and cheeseeries established since the above date in the Province. Go, now, and tell certain progressive farmers that agriculture cannot be made to pay here! You will soon hear their reply.

This self-same year, in the immediate vicinity of Quebec, on a farm supposed until lately to be worn out, an advanced farmer grew a crop of wheat of considerable extent, such as is rarely grown anywhere. This advanced farmer, this amateur, I may say this artist in farming, you all know: M. Victor Chateauvert, M.P.P. for Quebec Centre. Honour to him! But he is not the only one, among the most distinguished citizens of this province, who devote their leisure to farming, while at the same time, they enjoy the innumerable pleasures of a country life. I could name several, who are respected and admired by the farmers, and whose crops are already quoted as models of economy and heavy yields.

Thank God, gentlemen, our most distinguished men have at last united to assist the causes of agriculture and colonization to the utmost of their power. Their Lordships, the Bishops of the different ecclesiastical provinces of the country have condescended to join the movement. They have endowed the Province of Quebec with agricultural missionaries, whose patriotic and earnest labours have already done much good. Many hundred Farmers' Clubs have been created. Formerly our farmers hardly cared to be spoken to about agriculture. In general, they read no farm papers; but now, most of them read the *Journal d'Agriculture*, and freely adopt its teaching. Compared with the past, we find an immense advance in favor of agriculture, and I note a fresh proof of it in this present distinguished meeting.

Let us go on then, Sirs, hand in hand, and press onward even more earnestly; let us aid agriculture with all our power. Let every one of the educated class devote himself more and more to the study and practice of rural affairs, by joining at once our provincial associations of dairying, fruit-growing, not forgetting the newly established one for the improvement of our public roads—you will allow gentlemen,

that this newly born one is not superfluous—and we shall soon see our old parishes re-peopled; the same farms that hardly supplied the needs of one poor family, will end by providing several families with sufficient, though modest, means of livelihood. Then, when that time has arrived, the sons and daughters of the farmers—instead of deserting the country and becoming servants or labourers, and, too often, the very slaves of the factory-towns—will cause farming to put forth fresh buds in the old parishes, or direct their steps with courage and energy to our new centres of colonisation. Then, it will come to pass, that the true strength of the nation will be found most developed in the possession and intelligent exploitation of the land, insuring thus resolute independence to the greater number, conjoined with a noble and perfect self-reliance. (Cheers!)

The following are the resolutions I have to submit to you :

Resolution 1. Seeing that most of our farms are far from yielding all they could produce, profitably, were they better cultivated ;

Seeing that all possible means to destroy weeds and to properly manure the land are not everywhere employed;

Seeing that, too frequently, the plough-furrow is not deep enough to lessen the bad effects of a long drought, or of a superabundance of rain; and, also, that its shallowness prevents the complete utilisation of the manures, which sink into the sub-soil and are finally lost;

Seeing that our heavy lands would pay much better and be more easily worked, if an economical system of draining at a sufficient depth, were adopted ;

The Dairymen's Association begs to express a hope that all friends of agriculture in this Province, especially the agricultural missionaries, the directors of our farm-schools, lecturers, editors of the Journals, &c., will do all in their power to ensure, as soon as possible, notable progress in these matters, matters that are the more pressing in proportion to their possessing the power of rendering our farming much more remunerative than it now is.

Resolution 2. Seeing that the exhaustion of the soil by the too frequent repetition of the hay and grain crops, all of which are sold in the raw state, has rendered our farms more or less unproductive;

Seeing that farmyard dung, as it is made and preserved in general, cannot alone suffice to restore the fertility of the land, especially in those too numerous pieces of land that have rarely, if ever, been manured since they were cleared.

Seeing that all the authorities on this subject advise us to use four fertilising matters,—which up to the present time have been too often neglected here—either together or separately.

The Dairymen's Association recommends to all those interested the choice of the two following methods, which will permit them to manure their land sufficiently to make it grow very remunerative crops :

First, by the purchase of linseed- or cotton-cake, or any other farinaceous food, suited to the completion of the rations of their cattle, so as to get better milk

and more of it, to be profit, and also to be

And if this first need it, the Association acid, to be used either and legumens, either clover, pease, beans, not fail to produce excellent leave in the land, in a considerable quantity of vegetable

Resolution 3. See cheese economically (up, and under good contract ;

The Dairymen's Association that it is important to preferentially, and in factories thus fitted up

M. J. C. Chapais resolutions be adopted

Resolution 4. M. to the patrons of dairies of Quebec is earnestly the Dairymen's Association to sue as has every in

Gentlemen, this is and many attempts have of it is to find 40 persons

Government an act of individual can compel

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to do what they can. interest himself in this

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The law ought to municipality whose role

M. T. J. A. Marsol improvement of the role be done.

and more of it, to feed a larger number of cows more economically and to more profit, and also to obtain thereby a more copious supply of better dung ;

And if this first method shall not suffice for the manuring of all the farms that need it, the Association recommends the employment of lime, potash and phosphoric acid, to be used either conjointly with a smaller dose than usual of dung for grain and legumens, either mixed and used directly for the production of such plants as clover, pease, beans, &c., lentils, vetches, lupins, &c., which leguminous plants will not fail to produce excellent fodder, very rich in nitrogen, and, in their roots, will leave in the land, in addition to the four indispensable manurial matters, a considerable quantity of vegetable matter which will rapidly be converted into humus.

Resolution 3. Seeing that the best means of producing the best butter and cheese economically consists in the erection of large factories, well built, well fitted up, and under good management, as well as in the carriage of milk to them by contract ;

The Dairymen's Association, as represented by the members here present, holds that it is important that means should be adopted as soon as possible to encourage preferentially, and in such a way as to give guarantees for the future, the large factories thus fitted up and managed.

M. J. C. Chapais seconded by *M. Sam. Chagnon*, proposed that the above three resolutions be adopted unanimously.—Carried *nem. con.*

Resolution 4. *Mr. Barnard*—Seeing that improved roads are of vast advantage to the patrons of dairying and to farmers in general, the government of the Province of Quebec is earnestly prayed to amend the municipal code in such a way as to allow the Dairymen's Association, and its delegates, as such (*ès qualité*), the same power to sue as has every individual who sues in his own name.

Gentlemen, this resolution demands explanation. It was prepared last year, and many attempts have already been made with a view to its realisation. The gist of it is to find 40 persons to form themselves into an association to ask from the Government an act of incorporation, with power to compel the municipalities, as an individual can compel them, to keep the roads, in all places and at all times, in good order. In order to start such an association, some expenditure is needed, and for that purpose we must have the aid of those who have at heart the interests of agriculture. We need also active and earnest directors. You may say: "Our Directors have already too much to do." I only ask from them one thing, that is to do what they can. For if we do not find among ourselves some one who will interest himself in this project, experience of the past leads me to fear that we shall not find what we need outside our association. All I ask is that we should be authorised by the law to do what we can do.

The law ought to allow the new association to sue, by one of its directors, any municipality whose roads are in bad order.

M. T. J. A. Marsan—Evidently, the association will begin by asking for the improvement of the roads ; but to render its power effective, something more must be done.

The Rev. V. Charest—Am I to understand that the Dairymen's Association is to erect itself into an association for the improvement of the roads, or is it a new body, independent of the Dairymen's Association, that is to seek incorporation?

M. Chapais—No; it is an independent one.

M. Marsan—I was about to ask Mr. Barnard, just now, to explain the working of this association to us.

Mr. Barnard—I am all the more willing to give M. Marsan the explanation he seeks because I had the intention of asking the meeting to allow me to do so.

Having already, in 1878, begun the formation of a similar association, we had drawn up our constitution. The working of the "Association of good roads," would be about the same as the old one; when the existence of a dangerous spot in any road in a municipality is pointed out to it, whether by the school-master, the road-inspector, or even by the curé, the association would notify the municipality that its road was in very bad order, and that if, in ten days' time, the road was not repaired, the association would proceed against the municipality to oblige it to put the road in order.

The Rev. V. Charest—Would it not be a serious matter to establish an association like this with power to act over the whole Province of Quebec on the sole information of one individual in any parish? How could you notify at the proper time a mayor, or a secretary-treasurer, that such or such a road in the parish was in bad order? Before such a notification could reach the mayor, if the road were really in a dangerous condition, more time might be lost than is needed to cause the death of two or three people.

Mr. Barnard—Of course we do not mean to deprive all the people in the parish of the right to demand that a dangerous road should be repaired. We ask for the association the same right that each individual enjoys under similar circumstances. At present, no one being specially charged with the duty of seeing that the municipal authorities keep their roads in good order; no one having a special mission to compel these bodies to report them; they are, generally, in bad order. When the "Association of good roads" shall have obtained its powers of acting, its secretary, after the ten days' notice mentioned above, will be able to sue at once. There would be some one responsible for the cost of the proceedings, which would be a guarantee that they would not be simply vexatious, but that there would be witnesses in a position to prove that the road was in perilous, bad order. The municipality would be notified by the association that such or such a spot in the road was dangerous; that a carriage had been damaged there, or some one hurt there, and that if the road, or the bridge, in question,—if the accident were due to the bad condition of a bridge,—be not repaired within ten days, the Association would prosecute. The notices are printed, there is only to fill in the blanks, and for each notice the secretary receives a dollar, more or less, as an indemnification.

M. Chagnon—Might not this mode of procedure cause a law-suit in the case of a proprietor refusing to repair his road? We have had a parallel case in the county of

Joliette. Several acts belonging to Dr. For He brought his act persons had been u Dr. Forest, produc the road was M. l'av suit cost from \$700 t

Mr. Barnard.—I individual, for the m us make them under that we are prepared hard to obtain good of associations would the laws or regulatio deep in mud, it is al would be useless, and improvement of our enough to get fine, h sufficient to enable u will not succeed, or v know that we want g and our folk will not taxation, to allow th roads, we must first c would save them mu &c. And you will ha our people. Very fe bulk of the people d result can be obtaine discussion. Some St refused to follow the the general improv what has been its co

A thorny questio from good roads is fa Some farmers underst be applied to the pres

It is clear, Gentl only pointing out the over the province. I good example gradual would, in my opinion

Joliette. Several accidents had happened owing to a hole in that part of the road belonging to Dr. Forest; a man named Mercier narrowly escaped being killed there. He brought his action, and two or three witnesses swore that in that very hole other persons had been upset on the same day as that on which his accident took place. Dr. Forest, producing seven or eight witnesses in court, proved that that part of the road was M. l'avocat Faribault's, and that his own road was in good order. The suit cost from \$700 to \$800, and M. Mercier lost his cause.

Mr. Barnard.—M. Mercier ought to have sued the corporation, and not a private individual, for the municipalities are responsible for the state of their roads. So, let us make them understand our powers; all that we want is simply to notify them that we are prepared to make the law respected. In our district, it would be very hard to obtain good results by these means. All these appointments or formations of associations would fail to cure this evil in its earlier stage. It is the principle of the laws or regulations belonging to the roads that is in fault. Our roads are boggy, deep in mud, it is almost impossible to keep them in order at all seasons, and it would be useless, and perhaps unjust, to our people. We must then provide for the improvement of our roads by other means, by practical, legal means. It is difficult enough to get fine, hard roads at all times, and I fear that this resolution is not sufficient to enable us to reach that end. We need municipal laws; coercive laws will not succeed, or will with difficulty succeed, in bringing about good results. We know that we want good roads; but we also know that good roads mean taxation, and our folk will not hear of taxation. To succeed in getting them to submit to taxation, to allow the municipalities to do the work of improving the necessary roads, we must first convince the people that it would clearly benefit them, and would save them much money: in their carriages, their horse-keep, their harness, &c. And you will have great difficulty in driving this conviction into the minds of our people. Very few are those who believe that good roads are advantageous; the bulk of the people do not think so. It will take a good deal of talk before this result can be obtained. In the United States this question has been for years under discussion. Some States have passed a law to improve the roads; others have refused to follow their example. In France, did it not take centuries to arrive at the general improvement that now excites the admiration of all foreigners? And what has been its cost?

A thorny question is that of taxation. We know that the saving resulting from good roads is far greater than the cost of their making and subsequent repairs. Some farmers understand this; the progressive ones see the evil and the remedy to be applied to the present state of things; but, as I said, they are not the majority.

It is clear, Gentlemen, that I am not extricating you from this difficulty; I am only pointing out the up-hill work before us in our attempt to get good roads all over the province. Doubtless, the means suggested may do some good, because a good example gradually convinces people, but to adopt coercive measures at present would, in my opinion, be a premature step. It might perhaps be wise, too, if we had

the means, to encourage the municipal councils, or private people, who would improve their roads. At St. Jacques l'Achigan, the inhabitants have formed a society and macadamised their roads at the common expense. An excellent example to follow, but, sad to say, it has hardly spread, and progress does not travel rapidly.

M. Castel.—Do you not think, M. Marsan, that the creation of an association for the promotion of good roads would have the same results as the creation of the Dairymen's Association? Since its formation, fifteen years ago, it has undoubtedly made progress; progress has been made under the impetus it has given to this source of our income. It has grouped men together who have at heart the improvement of the industry, and these men, when once they had entered the association, have worked energetically for the common good. Can we not equally look for as devoted members of the association for the improvement of our roads?

M. Chapais.—I feel, Mr. President, that we must work with all our powers for the organisation of a "good roads association." We have before us the example of the United States. Several States of the Union have spent millions on the improvement of their roads. And the results, do you ask? The value of the landed property alongside these good roads has increased 300 per cent! Ontario is also an example to us; a like association was formed three years ago, with excellent results. Should we succeed in forming a similar society and get it incorporated by the Government, with the powers we propose to ask for, we shall be in a position to visit every place, to preach the doctrine of the improvement of our roads, and to drive into the minds of the farmers this idea: the roads must be improved. We shall find men in every municipality who will interest themselves in the cause, who will impart enthusiasm to it, and who, when they become municipal officials, will be in a position to aid in the execution of the law, first, by keeping their own roads in good order, thus setting a good example, and then by their influence as officials of the municipalities; and, in this way, we shall advance. If we make no attempt at improvement, if we lie on our oars, we shall indubitably remain in the rear.

M. Marsan.—It would be desirable, then, to select people capable of pushing on this project.

Mr. Barnard.—My object, in drawing up this resolution, was to cause a discussion on the matter, after having laid down the principle that the duty of labouring in such a cause appears to be more properly entrusted to an association than to individuals. If an association is formed, agreement in working is gained, and the efficiency of the work is in proportion to the talent and good management of the members. One solitary man is utterly unable to gain any good results in such an undertaking as this, and that is the reason why I say: Let us at once found the "Association of Good Roads."

M. J. A. Camirand.—(Sherbrooke) The question of good roads is really important one, even as regards the Dairy trade. We never shall have good roads, until the law which now governs our roads be changed. Says the proverb: "What is everybody's business is nobody's business." The number of those interested in this

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question must be limited. The present government of the roads in our Canadian parishes is still worse than that which obtains in the Eastern Townships. In the Canadian parishes, each man has his front-road, which each man manages as he chooses; so that one bit of road is made in one way by one proprietor, and in another way by his neighbour. Last year, I went through part of the parish of la Baie du Febvre. The roads I passed through were the worst I ever saw. With a little trouble, agreement, and intelligence expended, in this fine parish there might be capital roads, and at a less expenditure than that made on the dreadful roads I saw there. Those who live or travel in the Eastern Townships must have seen the work so easily done nowadays by the *Road machines*. Many of my hearers must have seen them in operation, and have noticed the work they do. This work does not cost one-fourth of the sum that the ordinary way of treating road-making costs, and it makes such roads as can never be made by pick or shovel. The hand can never do such work as these machines do.

In some municipalities, they have succeeded so well in the use of them for the construction and repair of the roads, that instead of paying a dollar a head for the work to be done on the roads, only twenty cents are paid and the roads are really excellent. I have travelled along the Hatley roads, and was surprised to see their good condition, and the perfect way in which the ditches drained off the water; these roads were more like a trotting-track than common roads.

In my township, Orford, we adopted, four years ago, the system of road-making with these machines, and our roads now are so completely changed, that even the newspapers compliment us upon them; this is entirely due to these machines. Our machine cost \$250.00; I think one could be bought now for \$225.00. It takes six good horses to work it, horses weighing from 1200 to 1300 lbs. each; a careful, intelligent man, with some experience in the work, to manage the machine, two drivers, and one or two men to clear away the stones the machine pulls out in its passage. Under these conditions, I start work on a mile of road; on another mile in the same State, you and fifty men with their picks and shovels shall go to work, and at night, I engage that I, with the machine, horses, and men just mentioned, will have done more work, my work be better done, my road be much better shaped, whether rounded or not, in any form you please; I shall, I say, have done four times more work than the fifty men on the other mile of road. The machine acts on the road as the razor acts on the face. Some say that on a road full of stone this machine cannot work, but they are wrong. I have the honour to be mayor of my municipality, and it was I who caused this machine we are now using to be bought. I must confess that when I made the proposition to the municipality that it should be bought, I narrowly escaped hanging. All sorts of objections were raised: they said I was going to ruin the parish, and I had to resort to all kinds of measures to procure funds so as to avoid over-burdening the taxpayers. M. Beaubien granted \$300, to be divided between the municipalities of Orford and Magog. The road I proposed to improve lies for about 7 or 8 miles in our municipi-

pality, and the rest is in Magog. It had been decided to vote \$200 for the adjusting of this road, and to hire the Hatley machine for \$50. I asked my council to allow me to buy a machine; "Give me," said I, "the \$50 that you propose to pay to Hatley, I will pay them on account of the machine, and the balance can be paid later. After a long discussion, they agreed to this; I paid the \$50 on the machine and it went to work on the road. This road was encumbered with a bush of all kinds of trees up to the very ruts. There were "second growths" of four, five, or even six inches in diameter. All this I had carried off from a width of 20 feet on each side of the ruts, 40 feet cleared in all. I built 19 little bridges (*ponceaux*) in the four or five miles of the improved road, and all this with the government funds, some of which I even handed over as a balance to the municipality; and I made the best and finest road to be seen anywhere. What we did, anyone can do; there is nothing wonderful in it. All that is needed is a trifle of good will on the part of the people, and a man in each municipality to take the thing in hand and carry it out. But we must go to work; if you wait till the work does itself, you will never have good roads. At Orford, it was I who put myself at the head of the movement, with a firm determination to succeed, and there are our roads. Now, all roads cannot be made in this way; for instance, the leading, or "high roads," that receive the traffic of the smaller ones. Such roads, from the heavy loads that often travel over them, always end by being ruined. It is therefore better to macadamise them.' This again, is that which we have done at Orford. What a battle there was when the proposal to macadamise was mooted? But there is no want of stone there, and I told the farmers to draw all the stones from their farms close up to the road. When the time came, we took three miles of road, every season we made 200 to 500 feet of macadam, last year 800 feet, and now we have nearly a mile, and that I can adduce as an example to any part of Quebec Province or even of the entire Dominion. One advantage we had: some gravel. We made what is called "Telford macadam," which is as good as any first-class macadam. First, we lay at bottom a bed of large stones; then a layer of smaller ones; and, on the top, broken stones small enough to pass through a ring about two inches in diameter, finishing with gravel last of all.

This place, where we macadamised the road, had already cost the municipality dear, in trouble if not in money. The council had been sued a dozen times. I am now often asked to make every road in our municipality as our main road is made. We intend to do so everywhere, but of course, in time, as our resources will permit. For that which I have done at home, I must tell you has been done with an expenditure even less than that spent uselessly on the roads during the 25 years previous to the purchase of the machine. Formerly, the repairs of the roads were done by men sent to mend places; the men held a picnic; they went to the spot and filled the holes with mud from the ditch! Quite a different state of things with the machine; work now begins at 7 or 8 o'clock in the morning.

Dr. Grignon.—Will the machine work on hilly bits of the road?

M. Camirand.—Anywhere, if there is enough earth above the rock.

Dr. Grignon.—

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Dr. Grignon.—In tufa, too?

M. Camirand.—Yes, even in tufa.

Dr. Grignon.—I suppose the road has to be ploughed up first?

M. Camirand.—By no means; we have never ploughed the roads in our municipality.

Dr. Grignon.—No doubt the stone must be taken up; will the machine work in stony land?

M. Camirand.—Yes, it will. There is no land so hard that it will not work in it; only the very large stones must be removed. I have seen the machine raise stones as big as a pail without the least injury to itself.

In future, our municipality will levy the road-tax in money. Now, it is payable part in money, part in labour. But, in future, it will have to be paid altogether in money, and, the spring arrived, the machine will be set to work. The people will have nothing to do with the roads; the municipality will do the entire work, and the roads will in future be kept up by the municipality and not by individuals.

We have also adopted another system for the high roads (*routes*).⁽¹⁾ The municipality has also taken possession of all the *routes*, and the work on them is done at the public cost like the others. The old method after which the road-work used to be done, was unjust to some individuals. For instance, a man residing five or six miles from a road (*route*), of which he made use perhaps once a year, was compelled to do a great deal of work upon it, in favour of other people who used it without at all contributing to its repair. When the *routes* shall be kept up by the municipalities, in less than five years they will be as good as the principal roads. If the Government would pass a law making this system binding on the whole province, you would find, in a few years, your roads so good that it would surprise you.

Mr. Barnard.—I will now put my resolution to the vote.

M. Chapais, seconded by *M. Taché*, proposed that Mr. Barnard's motion be adopted; carried *nem. con.*

M. Marsan's resolution:—Seeing that the power given by law to the municipal councils to subdivide and apportion the public work of the municipality between the tax-payers, or the ranges or concessions, or parts of the ranges or concessions of these municipalities, is a cause of numerous troubles arising from a failure of justice in the aforesaid apportionments, of the greater expense the system induces, of the imperfect and irregular manner in which the work is done, and therefore of the bad management of the said water-courses, roads, high-roads, bridges, &c., the Dairymen's Association trusts that the Government and the Legislature will be good

⁽¹⁾ The articles 763 of the Municipal Code of Quebec reads thus:—"All the roads (*chemins*) whether local, municipal, or country roads, are either front roads or *routes*. The front-roads are those that go across the lots of a range, and do not lead from range to range, in front or in the rear. All the other municipal *chemins* are *routes*.—E. C.

⁽²⁾ Impossible to translate the two words into English except thus: The *route* from Montreal to Toronto; the *chemin* is out of repair. Hardly satisfactory!—A. R. J. F.

enough to amend the Municipal Code, so as to place entirely in the hands of the municipality all the labour to be done on the public ways within the limits of the municipality."

M. Castel announced that he had just completed the list of 40 subscribers necessary for the obtaining of the incorporation of the "Good Roads Association."

The President.—I observe, according to the explanations given by *M. Camirand*, the working of the road-machine costs about \$12.00 a day. I should like to know how many arpents of road put in good condition this sum represents.

M. Camirand.—We hold that we can manage half a mile a day.

The President.—Among stones?

M. Camirand.—Oh! yes! anywhere. Of course, where there are no stones, in such parishes as Yamaska, we can do a mile a day. To make a really good road, with the machine, the big stones by the side of the ditch must be removed, for you know that the machine works with a knife (*coulter?*), and the big stones that are in the coulter's way must be dislodged: stones weighing as much as 300 pounds sometimes occur. It is true that I have seen the machine eradicate trees six inches in diameter, but we know, of course, that the eradication of trees is not the object for which the machine was made.

The first thing to be done, after the council has fixed upon the spot in which the work is to begin, is to notify the inspectors of divisions that the work is to begin in their division. They take away all the stones on each side of the road, and clear up the ditches properly, so that the machine can do its work with efficiency; for instance, all stones as large as a pail should be removed. The machine must do its work slowly but surely; it must not stop, but keep on constantly, regularly, not by fits and starts, if the work is to be done well and economically. It must not be forgotten that an expenditure of \$12 a day is going on. Ditches, much better than those made with shovels, can be dug on farms by this machine. It cuts the sides bevelled, or sloped, in any way you please. I myself have with the machine, after having ploughed the land, made a ditch from one end of my farm to the other, and so well made a ditch I never saw. The mower can work across it, so can the horse-rake, as if there was nothing there at all, so perfectly are the sides shaped.

Mr. H. S. Foster.—(in English). It seems to me that this association cannot do better than to ask the Government to buy a certain number of these machines for distribution, at cost price, among the municipalities. Once introduced, their usage will soon become general. Should the Government accept this plan, it will bring about more rapidly than by any other plan, the general use of this machine.

Mr. Robert Ness.—(in English). I was glad to hear all that *M. Camirand* has just told us about this road-machine. Every parish in our county has one, and I think we ought to be able to depend upon ourselves without running to Government for help in this matter. I think every municipality in this province can afford to

buy a machine, so as their being cared for

Mr. Foster.—(in machines at the disposal sale, the Government

Mr. Ness.—(in ought to leave it at p

A machine cost in the French count his land; but we take attend to his road, w it bought a machine cannot make it open farmer furnishes his *Camirand?*

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Mr. Barnard.—(heavy draught horse Clydes.

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M. Plamondon.— and I noticed there, a for a plank-road; and after his front road.

M. Camirand.—(of road a day, I mean to polish up the road to make a good road are often dangerous d eighteen inches high and more deep are ha into them, and that is

buy a machine, so as to be its absolute owner; for absolute ownership will ensure their being cared for properly and, therefore, their longevity.

Mr. Foster.—(in English) All I ask is that the Government should put these machines at the disposal of the municipalities at cost price. By buying them wholesale, the Government could get them cheaper than a solitary municipality could.

Mr. Ness.—(in English). The Government has plenty to do already, and we ought to leave it at peace, without bothering it about such a thing as this.

A machine costs \$150. In our parish, we adopted the system generally followed in the French counties, i.e., every proprietor has to keep in order the road in front of his land; but we take good care that the law be put in force, and if anyone neglects to attend to his road, we compel him to do his duty. The Council adopted this system; it bought a machine at our expense; it is not so difficult to work that a neophyte cannot make it operate properly. All it needs is two men who can guide it. Each farmer furnishes his team. How are the teams supplied in your municipality, M. Camirand?

M. Camirand.—(in English.) We tried to employ everybody's team, but that we found to be a loss of time; some teams would not work with other teams; so we had to hunt about for conformable teams, and that caused great loss of time; so we at once came to the conclusion that we must stop that, must hire three good teams, that would work well together; engage men who thoroughly understood the job; do the work ourselves, and do it well.

Mr. Ness.—(in English.) But farmers in general have a lot of teams lying idle that could just as well be doing this work. With our machine we do three miles of road a day, or at least two miles, and we use our own teams that otherwise would be in the stable eating their heads off, and we have men able to drive them. So we have no money to pay out, which is what I like, and what everybody likes.

Mr. Barnard.—(in English.) You, Mr. Ness, in your district have plenty of heavy draught horses; in M. Camirand's parish there are many trotters but few Clydes.

Mr. Ness.—(in English.) That is true; we have Clydes in abundance.

M. Plamondon.—(in English.) I have often passed through Mr. Ness' village, and I noticed there about four miles of the best road I ever saw. It might be taken for a plank-road; and yet they follow the system there of making everyone look after his front road.

M. Camirand.—(in English.) Of course, in speaking of only making a half-mile of road a day, I mean a road that has never been previously made. If you only had to polish up the road, a half mile would not be much; the difficulty lies in starting to make a good road out of a bad one. With the present way of road-making, there are often dangerous ditches. The machine makes capital ditches; it makes the road eighteen inches higher in the middle than the ditches. In winter, ditches two feet and more deep are hazardous; for one is very likely to fall, horse, carriage, and all, into them, and that is not pleasant.

Mr Barnard.—M. Castel having collected the 40 subscriptions necessary for the founding of the "Good Roads Association," I propose, to avoid loss of time, to nominate the Provisional Board of Directors at once. M. Camirand will, I think, make a good president, and we have two friends here, the Revs. MM. Charest and Richard, who interest themselves greatly in the question. These two, with Messrs. Ness, Guay, Dr. Grignon and Barnard, would do for the Provisional Board, with Mr. Dallaire as secretary. The promoters of the bill will be Messrs. Macdonald and Girard, very active friends of ours, and both of them directors of our Dairymen's Association.—*Carried unanimously.*

Resolution. 5. Seeing that the formation of co-operative associations with unlimited responsibility would be of great service to agriculture by enabling farmers to : 1. Improve the present creameries and factories, or to erect better ones ; 2. To buy, or to obtain on the best terms, everything they need for their own use, or for their crops ;

The Dairymen's Association trusts that the general laws governing such associations be, if necessary, amended, in order to permit farmers to organise themselves into such societies, so as to profit as largely as possible by the numerous advantages similar associations would afford them.—*Carried.*

Resolution 6. Seeing that those trans-atlantic steamers that are provided with the best system of refrigerators enable those living in tropical countries to send to England, with profit, not only butter, but other perishable goods, such as fruit, fresh meat, game, etc. ;

The Dairymen's Association trusts that the Dominion Government will take steps, as soon as possible to provide Canada with a system that is now endowing with wealth Australia and other countries much farther from England than we are.

You will be perhaps surprised to hear, gentlemen, that certain English colonies, five times as far as we are from the English market ; colonies that have to send their goods across the equator and the tropics ; colonies not nearly so wealthy as Canada, have succeeded in sending meat to England, even rabbits ! These beasts, I hear were devouring the crops, and large sums had been vainly expended in trying to destroy them. Then, the idea was formed to establish a system of refrigerator-vessels, to enable the people to send meat to England ; and this has been done, with profit, during several past years. Mutton, too, is being sent from these colonies to England. And we, we who are much nearer Britain than they ; we, who very soon shall be able to cross the Atlantic in six days ; cannot we do that, which Australia has done ? I cannot admit the impossibility ; and I would suggest, gentlemen, that the Association come to the front in this matter, and show foreign countries that not only have we butter and cheese to send to England, but meat as well.

There is plenty of room for our meat in Europe, notably in England. Here, the artisan eats meat every day ; there, he only eats it, at most, once a week on account of its high price. And if rabbits can be carried thither across the tropics, arriving in good condition, why cannot we, who have only a short voyage over cold

water, send a good one carried.

Resolution 7. S. may render from year to year public in general, by lecturers, local men ; the most pressing of these taken to expedite its

This Association a regular system by ensure the kindly attention of all friends of these comitia.

Mr. Chapais requested until he had finished

GENTLEMEN,—

The dairy-comitia of 1895, will form, to these meetings was the which has become the principles, to wit :

That the PATRO properly strained, and or that has a bad smell

That the MAKERS be imposed upon the article that is like to to manufacture more cheese in excess of the while accepting responsibility and insist that their responsibility to the time control.

That the Director making it his duty. to hold him responsible is under his control

water, send a good quarter of fresh pork, of beef, or of mutton. Resolution 6 was carried.

Resolution 7. Seeing that the Dairymen's Association rendered last year, and may render from year to year, notable service to its members and to the agricultural public in general, by carefully organising district *comitia*, at whose meetings erudite lecturers, local men as well as visitors, will be charged with the duty of promoting the most pressing of the interests of agriculture, and to show what means must be taken to expedite its progress ;

This Association trusts that these district *comitia* will be in future organised in a regular system by the directors of this Association, and that they be enjoined to ensure the kindly aid of the Government of this province, of the clergy, and, in general, of all friends of agriculture, with a view to ensure the complete success of these *comitia*.

Mr. Chapais requested that the carrying of this resolution should be postponed until he had finished his lecture on

THE DAIRY-COMITIA OF 1895.

LECTURE BY MR. J. C. CHAPAIS.

GENTLEMEN,—

The *dairy-comitia*, held under the auspices of our Association, during the winter of 1895, will form, to-day, the subject of my address. As you know, the object of these meetings was to discuss and endeavour to forward, in the interest of dairying, which has become the national industry of the province of Quebec, the following principles, to wit :

That the PATRONS must all take proper care of their milk ; i.e., it must be properly strained, aerated in a pure atmosphere, and cooled. All milk that is sour, or that has a bad smell, should be pertinaciously rejected.

That the MAKERS reserve to themselves the right, if responsibility for their work be imposed upon them, to refuse all milk that is unfit for the making of a good article that is like to redound to our credit on the English market ; that they engage to manufacture more with regard to quality than to the obtaining of a weight of cheese in excess of the average yield of factories in general ; that the same makers, while accepting responsibility for their own make, decline responsibility for others, and insist that their cheese be accepted at their factory, so as to limit their responsibility to the time in which they themselves have their cheese under their own control.

That the *Directors of Factories* pass resolutions authorising the maker, and even making it his duty, to reject all milk that is sour, unsound, or of bad smell, and only hold him responsible for his own personal errors during the time in which the cheese is under his control in the factory ; that they never sell unripe cheese, and refuse

even offers from buyers ready to accept delivery of too fresh cheese ; and that, in the delivery of cheese at the factory, they seek for a remedy for all these disputes that result from the present system, namely, the selling always cheese of the best quality subject to inspection at Montreal ; the patrons, it is true, have suffered less by this system than the poor makers, who, up to the present time, alone bear the penalty of a "cut in price," as if the cheese could only be damaged by them during the process of manufacture. The would-be pretext of saving the reputation of the maker is only the source of ruin for him, who, supposed in the eyes of the patrons to be a first-rate workman, cannot but compromise himself in their opinion were he to ask for a visit from an expert with a view to the improvement of his defective method ; so he often continues to make inferior cheese during a whole season,—that "French" or "Joseph"—which injures our reputation, and will end in closing the market to our goods the very first time there happens to be an over-supply.

In this system, the maker settles the price with the dealer privately, and the patrons are too often unaware that their maker has turned out bad cheese ; were the cheese *bought at the factory, according to its quality*, there would be in this an element of improvement for the maker, whom the patrons, while still holding him responsible for his make, might compel either to do better or to resign his situation.

That the BUYERS be asked to consider seriously the part that they, in their own interest, and in the interest of our provincial trade, can and even ought to take in the improvement of our dairy-products ; they ought never to accept delivery of cheese before it has sufficiently mature in the factory ; let them buy as soon as they choose, if they think it an advantage, but they should not accept delivery or authorise the despatch of the cheese until its proper age has arrived ; let them show that they value good cheese a little more, and that they are ready to pay a higher price for such than for cheese of inferior quality ; the fact of paying the same or nearly the same price for moist cheese acts as a premium, and encourages too often the makers to work for great yields, and thus to make an article that will compromise not only their own trade but our national industry.

Let SYNDICATES be encouraged, as the only sure means of arriving at uniformity of the best quality ; up to the present time, their action has been embarrassed by the want of distinction in quality, a reproach we just now made to the buyers, the makers frequently refusing to follow the advice of the inspectors, under the pretext that by making an inferior article they got as good a price and made more of it out of a certain quantity of milk.

Lastly, as to the BUTTER TRADE, that it would be advisable to place butter on the English market under the better conditions ; that provision be made for refrigerating compartments on steamers, and that regular shipments of fresh butter be made weekly, so that our butter may reach the English consumer in all its freshness, the disfavour it still encounters on that market being derived especially from the fact that, up to the present time, butter was only exported after having passed the summer in storage at Montreal, and thus only reached the consumer several months

after making, in a manner to gain the price of tab

The comitia, too, the visit of Messrs. Giga, in view to the developm

These comitia, at Terrebonne, Ste. M. Roberval, St. Jérôme, Nicolet, Arthabaska, were the Rev. Messrs. Coulombe, Macfarlan, local speakers, priest, etc.

The first comitia in the district, I am sure that for their superintendence formed here, in 1891, had a good effect. This shows how well his good effect. The district won the contest with Ontario. A development of dairying in the district, dairying in this district, labour of these two in

The second comitia congratulated the Dai at this meeting. This did not have.

One of the most interesting was got up by Dr. C. The district were present. 1000 being present, an interest taken there in this district, we met constant efforts ; he has interests. M. Jos. C. Quebec Government for

At Ste. Martine, C. to whom its success was that the numerous parts, rarely attended. Our next visit was

after making, in a more or less off-flavour condition, which made it hopeless for it to gain the price of table-butter, and relegated it to the rank of cooking butters.

The comitia, too, enjoyed the advantage of listening to a detailed report of the tour of Messrs. Gigault and Leclair through England, Denmark and France, with a view to the development of our relations with foreign markets for our farm products.

These comitia, 19 in number, were held at Granby, Lachute, St. Jérôme de Terrebonne, Ste. Martine, Vaudreuil, Belœil, Rimouski, Ste. Anne La Pocatière, Roberval, St. Jérôme du Lac St. Jean, Chicoutimi, St. Jean d'Iberville, Sorel, Joliette, Nicolet, Arthabaska, Richmond, Sherbrooke. The lecturers who took part in them were the Rev. Messrs. Côté, Secors, and Reid, Messrs. Fisher, Tyler, Dallaire, Coulombe, Macfarlane, Grignon, Bourbeau, Castel and Chapais, besides a number of local speakers, priests, members of parliament, Directors of the Dairymen's Association, etc.

The first comitia was held in your district, Bedford, at Granby. As for this district, I am sure the proper management of its syndicates will not be neglected, for their superintendence is entrusted to devoted friends. The first syndicate was formed here, in 1891, by Mr. Foster. He "beat the march," and his example had a good effect. This syndicate now has thirty-seven associates. You will find by this how well his good example has been followed. Progress here has been marvellous. The district won the first prizes at our exhibitions, and proved its equality in production with Ontario. Mr. Fisher, too, has worked most energetically for the improvement of dairying in these parts. He is our Vice-President, and the progress made in dairying in this district is in great measure due to the constant efforts and intelligent labour of these two indefatigable friends of farm and dairy.

The second comitia, held at Lachute. Dr. Christie and Mr. Owens warmly congratulated the Dairymen's Association on the work it had undertaken in holding this meeting. This district is in charge of one of the best inspectors of syndicates we have.

One of the most important meetings was that held at St. Jérôme de Terrebonne. It was got up by Dr. Grignon, who took the chair, and almost all the clergy of the district were present. The attendance at the sessions was large; never fewer than 400 being present, and we had to hold supplementary meetings, so great was the interest taken there in dairying. In justice to Dr. Grignon, I must say that if, in this district, we met with so much enthusiasm and interest, it was thanks to his constant efforts; he has always been devoted to our cause, to the injury of his own interests. M. Jos. Girouard, M.P. for Two-Mountains, proposed thanks to the Quebec Government for having organised these meetings.

At Ste. Martine, Châteauguay, the comitia was under the direction of Mr. Ness, to whom its success was chiefly due. Mr. Ness is one of our directors. He informed us that the numerous audience there was composed of French-Canadians who, in these parts, rarely attended agricultural meetings as they were held in English.

Our next visit was made to Vaudreuil. There we had a valuable testimony from

the members for the counties of Soulanges and Vaudreuil. In some very few places, and among still fewer people, it is supposed that dairying is made an affair of politics. These two members told us, at the Vaudreuil meeting, that it was absolutely untrue; that if our labours could be in any way called political, it would be the politics of agriculture that were concerned, and thus our politics could be endorsed by both parties.

Thence, we went to Belœil. There, they send milk to Montreal, and, unfortunately, sell too much of their hay-crop. Still, we found the milk-sellers very willing to listen to us. They begin to see that their trade is not so remunerative as it used to be, and the hay-dealers say they have nearly ruined their farms; so they are inclined to follow our trade instead.

After Belœil, we went to Rimouski, where we were hospitably treated at the College, and where the Seminarists were good enough to place their hall at our disposal for the meetings. This district, in spite of its being so far away, had the advantage of having one of the first factories ever established. It was established, in 1884, at St. Fabien, and when I visited it, I found it to be one of the model-factories of the province. The example was set in this place by the Rev. M. Audet. There, there was great need of syndicates. After our meetings, we were requested to do our best to get one up, and we succeeded in doing so. This is one of the best districts for dairying, and no other business can pay the farmer. Owing to the hilly face of the country, sheep feeding could be profitably joined to dairying. The farmers have, besides, immense resources for the production of abundant food for their cows. Excellent manures abound here in the form of sea weed and capeling.¹

These are capital manures; their composition is, as follows, compared with farmyard dung:

	Capeling.	Varech.	Dung.
Nitrogen.....	2.34	0.37	0.48
Phosphoric acid.....	1.70	0.26	0.32
Potash.....	0.40	0.62	0.43

The Rimouski farms, with their manures, can grow potatoes, which are excellent food for cows. I hope that, when they read the Society's report, their attention will be drawn to this.

From Rimouski, we went to Ste. Anne La Pocatière, Kamouraska. There again we were allowed to hold our meeting in the College Hall. Mgr. Bégin was good enough to begin the day with a Pontifical Mass, at which nearly all the farmers in the neighbourhood were present. At the evening session, there were from 700 to 800 people. There were no syndicates in this district when we got there, but, after we left, one was formed.

¹ Sea-weed, varech, is the "wrack" Prospero speaks of in the lines:

"And, like the baseless fabric of a vision,
Leave not a wrack behind."—*The Tempest*.

In Kamouraska importance to the da In mentioning this e quarters, it has been that the Canadian co other cows; but the Canadians. The gre Canadian cows in all luteley ever having sp

We next visited there, it is always a our most advanced d sessing there two of

In very truth, al and Chicoutimi, in 11 made since that date.

of our visit in the dis very peculiar charact Guay, the Mayor, in neighbouring farmer pupils at the college,

We saw there sc scale, that, without fi when I say that the r progressive and prosp ing syndicates there. parish to parish, orga clubs. The work in Girard or Mr. Guay h the precise sums. I example.

Thence, we visite a great deal of hay ve found so many o ears and years to ov ng nothing but hay, fi And yet, if we look ertility caused by th oil. In a ton of hay 6.40 lbs. of potash; bs. of fertilizing mat worth \$6.35. The da

In Kamouraska and Rimouski, we remarked with pleasure a point of great importance to the dairy-trade; there are a great many Canadian cows in those parts. In mentioning this excellent little cow, I am constrained to observe that, in some quarters, it has been asserted that, at the Ste. Anne La Pocatière meeting, I said that the Canadian cow was only fit for small farmers, who had no means of keeping other cows; but that those who could keep other cows had better get rid of their Canadians. The great number of farmers, who heard me loud in my praises of the Canadian cows in all my lectures, need not any assurance from me that I deny absolutely ever having spoken against her.

We next visited the district of Lac St. Jean and Chicoutimi. Every time I go there, it is always a renewed pleasure to me, for I know that I am visiting one of our most advanced districts. Moreover, our Association has the advantage of possessing there two of its most eminent members—Messrs. Guay and Girard.

In very truth, all those of us who had been through the district of Lac St. Jean and Chicoutimi, in 1880, were astonished at the wonderful progress that has been made since that date. We held meetings at Roberval and Chambord, but the climax of our visit in the district was one held at Chicoutimi, for there we had a meeting of very peculiar character. It was held in the town itself, under the presidency of M. Guay, the Mayor, in the presence of an audience of 800 persons, composed of all the neighbouring farmers, a great many distinguished members of the clergy, and the pupils at the college, in the College Hall.

We saw there so much enthusiasm, and the work was carried on on so large a scale, that, without fear of wounding any one, I am certain I am speaking the truth when I say that the region of St. Jean and Chicoutimi is positively one of the most progressive and prosperous in the Province of Quebec. There are four most thriving syndicates there. Messrs. Guay and Girard are traversing the region from parish to parish, organising meetings, and attending the assemblies of the farmers' clubs. The work in this district is so exact, so kept in detail, that if you ask Mr. Girard or Mr. Guay how much profit is realised in each factory, they will give you the precise sums. I wish all the districts of the Province would follow such an example.

Thence, we visited a district where for many a day the farmers have been selling a great deal of hay; it is made up of Napierville, Iberville, and St. Johns. There we found so many obstacles and impediments to be surmounted that it will take years and years to overcome them. The farmers have got so into the habit of growing nothing but hay, for sale, that they hate the idea of undertaking any other system. And yet, if we look at the value of the hay sold and compare with it the loss of fertility caused by the sale, it is easy to see how soon this system must exhaust the soil. In a ton of hay, we have 31 lbs. of nitrogen, 8.20 lbs. of phosphoric acid, and 6.40 lbs. of potash; then, when you sell a ton of hay, you take from the land 65 lbs. of fertilizing matters which, at the present price of commercial manures, are worth \$6.35. The dairy-farmer gets from the consumption of a ton of hay 80 lbs.

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of cheese, which only robs the land of 3.60 lbs. of nitrogen, 0.90 of phosphoric acid, and 0.20 lbs. of potash, in value not more than 57 cents. What a difference! Every farmer who sells a ton of hay, if he would reason and farm so as not to impoverish his land, must feel compelled to restore to his fields \$6.35 worth of manure for each ton of hay he sells; while he who dairies need only restore fifty-seven cents worth to his land. The waste-products of the manufacture of butter and cheese remain on the farm, and permit the farmer to restore to the land what it has been deprived of at a very cheap rate.

We next proceeded to Sorel. The audience there was small on account of a storm that was raging on the day appointed for the meeting. This district has retrograded this year. There was a syndicate there; now, there is none.

From Sorel we went to Joliette, via Berthier, where we saw the beet sugar factory. Heaps of pulp lay there, neglected by the farmers; very little of it has been carted by them. Still, it contains a good deal of nutritious matter; for example:

Water	89.91
Protein.....	1.08
Fat.....	0.08
Sugar	6.19
Cellulose.....	2.08
Ash	0.72

A ton of pulp is worth \$1.08 for cattle-food, and its residue in manure is worth \$0.54. It is a very useful food for milch cows especially, moist and rich, and farmers who have used it in winter for their cows have found it answer. There is enough pulp to supply a great many farms, for it cannot all be used in the neighbourhood, at least not within a reasonable distance from the factory.

At Joliette, we again unfortunately found that the syndicate had not been renewed this year; but our meetings were attended by deeply interested audiences. My attention was called to the fact that, if the dairy is in some degree suppressed in these parts, it is due to another crop, another industry. Indeed, the farmers there wanted to talk tobacco rather than dairy work. A great deal of tobacco is grown here. I had to impress upon the minds of the people that tobacco-growing impoverished the land enormously, and I trust that I proved the necessity, in most cases, of devoting several years to the task of restoring to the land that which this crop had robbed it of. No crop deprives the soil of so much rich, fertilising matter as tobacco. Plants that supply 100 lbs. of tobacco take from the soil 66.75 parts of nitrogen, 8.68 of phosphoric acid, 85.41 of potash, 68.94 of lime; in all 229.78 parts. As you see, you will find very few plants that carry off from the land as much rich fertilising properties as tobacco. To grow tobacco profitably, the preceding crop must be one that does not require any potash, or as little of it as possible.

and then, in the rotation, have the advantage of

Wherever tobacco is raised in the States, what is the state of the land? What is the state of the soil? What is the state of the farmer? What is the state of the country? What is the state of the people? What is the state of the nation? What is the state of the world? What is the state of the universe? What is the state of the whole? What is the state of the nothing?

At Three Rivers, from the lips of Mgr. that all those who list of his 75 years, he did not descend enough to farming, and his country domestic economy, should be to equal indoors as in former days, such a boom. He condemned nowadays, when this man play the piano and to and weave. These incidents to take his money, the subject he spoke like a

Since I am speaking of our visit to "School," kept there by the management. There, the well as to have won a before us a long list of such connection with these questions. We were both touching and concrete, were learning first-hand wool, to spin flax, domestic products, the cooking, too, is taught in his house, everything we saw a young damsel how much it is to be v

(¹) Turluter probably a person who sings with

and then, in the rotation, keep as clover; legumens, &c., must succeed tobacco, as they have the advantage of absorbing nitrogen from the atmosphere.

Wherever tobacco is grown, the land is impoverished, ruined. Look at the land in the States, where this crop has been cultivated; what are they like now? What is the state of the tobacco farms of Virginia, for instance. The lands no longer produce anything; so completely worn out are they by the constant cropping with tobacco, that, in spite of all the exertions of their owners, they no longer yield any profit.

At Three Rivers, we had the honour and inappreciable advantage of hearing, from the lips of Mgr. Lafêche, one of those addresses, so touching, so sympathetic, that all those who listened to the good father of agriculture know so well. In spite of his 75 years, he did not hesitate to make one of our audience, and more, he was condescending enough to impart to us much good advice. He is acquainted with farming, and his counsels go straight to the root of the evil. He gave us an essay on domestic economy, showing how much could be saved by the farmer's wife, if she were to equal indoors the external work of the husband and the sons, by practising, as in former days, such duties as the manufacture of cloth, flannel, stuffs, &c., on the loom. He condemned the system, followed almost universally in the province nowadays, when this work is no longer done at home, but the girls are taught to play the piano and to sing (*à pianoter et à turluter*) ⁽¹⁾ instead of learning to spin and weave. These industries carried on at home would save the farmer from having to take his money, the produce of his crops, and spend it at the shop. On this subject he spoke like a man who understands his subject.

Since I am speaking of this matter, I will repair the omission I made when, talking of our visit to Roberval, I meant to say a word about the "Household School," kept there by the Ursuline nuns, in which girls are taught domestic management. There, the good sister, who manages the convent farm, and who does it so well as to have won a silver medal at the "Agricultural Merit Competition," set before us a long list of questions, and Mr. Peter Macfarlane, who has not generally much connection with nuns, had, owing to a little trick I played him, to reply to these questions. We visited the household-school, and there we witnessed scenes both touching and consoling; a great number of girls, from six to twenty years of age, were learning first, reading, writing and arithmetic; next, and especially, to card wool, to spin flax, to weave flannel and cloth; we were shown the finest possible domestic products, the work of the skilful hands of these youthful house-keepers. Cooking, too, is taught; how to prepare meals, and how to manage the dairy. In this house, everything was in such perfect order that we were utterly wonderstruck. We saw a young damsel making butter in a style that admitted of no reproach. How much it is to be wished, gentlemen, that the number of these excellent houses

(1) *Turluter* probably means "to sing badly," as *turlutaire*, the same as *serinette*, signifies a person who sings without expression."—A.R.J.F.

should be increased in this province, to form our wives and daughters, not to teach them to play the piano and to embroider, but to learn the duties of household management, and to know how to practise all the domestic industries with science, skill and economy.

Next, Nicolet was our object. At this visit, we were shown figures demonstrative of the great success gained by the farmers of the county, who keep their cows as well in winter as in summer. Ten farmers of St. Guillaume, whose names were shown me, with an account of the yield of their cows, made from April 10th to February 14th of the following year, ten months, a profit per cow of from \$59.42 to \$41.22.

Now, gentlemen, when one meets in a district a great number of farmers who keep herds of cows as well as these men, and who therefore get such yields out of them, one feels at once that one is in a prosperous part of the country.

At St. Guillaume, such cows are very numerous, and the maker conceived the ingenious idea of keeping a book to register all the heifers or cows bred from superior milkers, thus creating a local register of those cows that spring from the best milkers.

At our Nicolet meeting, we had the honor of reckoning Mgr. Gravel among our audience, and of listening to a fine speech from his lips on the grand part the farmer plays in the world.

At Athabaska, where we were to hold our next meeting, a new syndicate was formed this year. M. Bourbeau, one of our directors, has been at work in this district with intelligence, and people have profited by his exertions. The new syndicate is due to his efforts.

An innovation exists in this syndicate which all these bodies should imitate. It consists in clubbing together to buy everything needed by the factories of the district such as rennet, calico, salt, boxes, coloring, all in a lump, and of the best quality, at the wholesale price, delivering these goods to the makers at wholesale price, with the carriage added. I quote this good example because it should be imitated. The same system is carried out at Lac St. Jean, and by it a sufficient saving has been made to pay the salary of the inspector of the syndicate.

The District of Richmond. There, and elsewhere in the Townships, our attention was called by numerous letters as well as by direct personal observation, to the disease that makes its appearance especially on the legs of the cattle, which become too feeble to support their frames; it is called "ostiomalacie." There is not enough lime or phosphate in these soils. To cure this, it is advised to give the cows bones dust as well as salt in their food, and the farmer should use plenty of lime and phosphoric acid as manure. Everywhere, I recommended giving salt to cows, as it has the effect of notably increasing, from 14 per cent. to 17 per cent., the yield of milk, of making it less likely to turn sour, and the cream easier to churn. Farmers ought to salt their cows daily, even when on pasture.

At Sherbrooke we found a very good creamery. I am highly pleased to be able

to testify to the excellence made there. M. C. an establishment of this nature, especially where pork, but elsewhere. It is a fine prospect this arise in our province farmers carrying on is economically done in addition to clover in

If care is taken to Tamworths, pork fine

This was the last

As for the result of last year, we have more syndicates; I syndicates. Among only a *pro tempore* requisite qualifications they have answered

Since I am speaking M. Poulin told us of the purpose of factories of good cheese and the factories for the to see that the most important of salt, etc., but if you you will never get

When the inspection platform judging the milk tells the ought to be very str milk. Of course the solely in being able too advanced or not, it, in fact. Accidents milk, and the cause has delivered bad milk right and properly at this factory; so others red, and this

to testify to the excellent manner in which it is kept, and how good are the profits made there. M. Camirand, one of our directors, is the manager. We also visited an establishment where is carried on a trade that has very much interested our association, especially during the past year. This is the factory of the Messrs. Hovey, where pork, but chiefly bacon, is salted and packed. Good hams, too, are made. It is a fine prospect that stretches before our farmers when such establishments as this arise in our province. Many a time have we insisted on the importance of our farmers carrying out all the details of the dairy to their extreme limits. Pig-feeding is economically done with the milk brought back from creameries and factories, in addition to clover in summer, and plenty of cooked roots and ground grain in autumn. If care is taken to breed from such pigs as the Yorkshires, crossed with the Tamworths, pork fit for bacon can be made for a very moderate cost.

This was the last visit made by our party.

As for the results, this is what we find them to be : instead of the 28 syndicates of last year, we have now 38 ; and if we had five more inspectors we should have five more syndicates ; but as we had no more inspectors, we could not have the five new syndicates. Among the inspectors we have, we are obliged to employ men who hold only a *pro tempore* certificate, and who, consequently, are not possessed of all the requisite qualifications. But we need not repent of this step, for generally speaking they have answered the purpose very fairly.

Since I am speaking of inspectors, I should like to say a word or two to them. M. Poulin told us yesterday, that instead of passing their time in tasting the cheese for the purpose of finding fault, they should rather devote themselves to the making of good cheese and to the instruction of the makers in that art. Our inspectors visit the factories for the purpose of seeing how things are carried on there. They have to see that the makers attend to the reception of the milk, for this is one of the most important of points in the business ; it is all very fine to get good rennet, good salt, etc., but if you do not get good milk from the patrons, nothing but good milk, you will never get good butter or cheese.

When the inspector visits a factory, he ought to be found on the reception platform judging the milk as it arrives. By taking off the can-cover, the smell of the milk tells the inspectors at once whether it should be received or not. They ought to be very strict on this point, so as to compel the makers to take in only good milk. Of course the inspectors must be good judges of milk, and this does not consist solely in being able to tell if the milk is or is not sour, but in being able to say if it is too advanced or not, too old or too young, clean or foul ; they must know all about it, in fact. Accidents happen, and in numerous cases the cause of the evil is bad milk, and the cause of its badness is hard to trace. It has happened that a farmer has delivered bad milk at a factory ; it was clean, well cared for ; the cows were all right and properly milked ; still, the milk was bad. Every sort of trouble occurred at this factory ; some days, the milk would not curdle ; on others, it was bitter ; at others red, and this was frequently the case this year. The cause of these accidents

could not often be found out, because the maker was not well instructed in his duties. Sometimes these accidents are caused by the water the cows drink, sometimes by the causes already mentioned. The grass is sometimes in fault; there is a small yellow flower, common enough in the pastures, called the bitter ranunculus, if this is eaten by the cows it makes their urine bloody, and the milk brought to the factory will be red. This may seem to be a rather insignificant cause, and yet it ought to be known. Many other plants, growing in our pastures and meadows, have the same effect on milk. Perhaps, in some cases, there is a disinclination to remedy these things. In the lectures I have given, I always seek to establish a system by which the maker can remedy those inconveniences. It should be understood that it is sought for for the good of all. The maker is to ask questions of the patrons, in order to discover how the cows are fed, what water they have to drink, if such or such a plant grows on the farm, etc. He must tell the patrons that he asks these questions to find out the cause of their bad milk, and to suggest means for the avoiding of the losses it involves; not at all are they interrogated for the purpose of inflicting a fine, but for their own good. Let him do this, and he will, I make no doubt, get an honest, thorough confession from the patrons.

As I said just now, the syndicates, thanks to our comitia, have increased in number from 28 to 38. We have other good results of our meetings to state.

Last year our Association had 1,057 members; our numbers have increased, by something like 40 per cent., that is, 395 new members were elected this year; our present membership is 1,451. That is, we sallied forth and enlisted 395 good farmers as recruits. At our meetings, we have had 8,000 attendants, whom we should never have met, had we not gone to their homes, and there talked to them personally.

We saw more than 500 makers, and it is owing to our direct intercourse with them that we succeeded in organising so many new syndicates.

During the year 1893, the St. Hyacinthe Dairy School imparted instruction to 214 pupils, last year to 268, and this year—1895—to 312, after having been obliged to reject, on account of want of room, 124 applications more than were made last year. This inconvenience has vanished, the school has been enlarged by the liberality of the local government, and we shall be able to accommodate all the applicants of next season.

In conclusion, I beg to lay before you a statement in which are shown the different divisions of the syndicate this year; by it you will see how much work remains to be done before, in this line, we reach perfection:

Division No. 1: 21 creameries, 9 cheeseries. Considering its great extent, this division, which has only one syndicate, ought to have two.

Division No. 2: 23, creameries, 29 cheeseries. Besides the one cheesery-syndicate already established, there should be a creamery-syndicate.

Division No. 3: 15 creameries, 71 cheeseries. There is room for two syndicates in addition to the two already existing.

Division No. 4: more.

Division No. 5: at present at work.

Division No. 6:

Division No. 7:

Division No. 8: failed last year; it sh

Division No. 9:

Division No. 10:

Division No. 11:

Division No. 12:

Division No. 13:

Division No. 14:

Division No. 15:

Division No. 16:

Division No. 17:

is wanted.

Division No. 18:

Division No. 19:

Division No. 20: hardly enough.

This, gentlemen, at the work of our c them, and that we all to the success of the v including the Hon. Ls

As a corollary to read you the resolution there was a dissentien

"That the Dairy butter, and pray the steamers; and also pr ion of fresh butter."

At Roberval, St. ne above resolution: grants for the encoura

(1) Omitted in the I

Division No. 4: 104 factories, two syndicates. Not enough, there should be two more.

Division No. 5: 87 factories. There should be one more, in addition to the two at present at work.

Division No. 6: 73 factories. One more syndicate could be supported.

Division No. 7: 2 syndicates. About enough.

Division No. 8: 62 factories, only one syndicate. In this district a syndicate failed last year; it should be revived and another organised.

Division No. 9: Only one syndicate; two are needed, as there are 60 factories.

Division No. 10: The last in the province from all points of view.

Division No. 11: One more syndicate than there is here might be useful.

Division No. 12: (1).

Division No. 13: 2 syndicates, the most prosperous in the province.

Division No. 14: A very well organized district.

Division No. 15: Better if it had one more syndicate.

Division No. 16: 3 syndicates, but one more needed; 113 factories.

Division No. 17: 105 factories. Here, there is one syndicate; at least another is wanted.

Division No. 18: 55 factories. Only one syndicate; it needs another.

Division No. 19: 47 factories. Another syndicate might be useful.

Division No. 20: Creameries 14, Cheeseries 27. There is a combined syndicate; hardly enough.

This, gentlemen, is how things stand. I think we have reason to be gratified at the work of our comitia; I feel that our Association was right in organising them, and that we all owe thanks to the government of Quebec, which contributed to the success of the work, as well as to many of the members of the Legislature, including the Hon. Ls. Beaubien, who kindly put their influence at our disposal.

As a corollary to this address, which I am now about to close, I beg leave to read you the resolution passed unanimously at all the meetings, except two at which there was a dissentient vote:

"That the Dairy Committee approve unanimously the request of the makers of butter, and pray the Dominion government to establish refrigerators on board the steamers; and also pray the local government to grant a premium for the exportation of fresh butter."

At Roberval, St. Jérôme, and Chicoutimi, the following proviso was added to the above resolution: "Provided that this premium does not interfere with the grants for the encouragement of new cheeseries in the colonisation districts."

(1) Omitted in the French copy. A. R. J. F.

SESSION OF WEDNESDAY, DECEMBER 4TH—AFTERNOON.

Mr. Barnard again read the seventh resolution (see p. —). It was carried unanimously.

Eighth resolution.—With a view to the perfecting of its work, which is year by year achieving fresh conquests, the Dairymen's Association appeals to all well-disposed people in the country, without respect to person or party. In order to gain its end, which is exclusively in the interest of the public, it requires an increasing amount of pecuniary means. It therefore respectfully invites all the friends of agriculture in this province to contribute their mite (*obole*), either once for all, by becoming members of the Association, or by paying annually the membership subscription of one dollar.

Ninth resolution.—That the Board of Directors of the Dairymen's Association be directed to realise, as far as possible, the attainment of the objects of these resolutions.

LECTURE BY M. DE J. L. TACHÉ.

NOTES ON BUTTER-MAKING.

The remarks I am about to make to you concern the construction and management of creameries; but from a specific point of view, that is the making of the best qualities of butter.

I leave aside the question of economical management, and that of good yields.

GENERAL REMARKS.

From the study of recent authorities on dairying, one principal fact emerges, that, in butter-making, as in a host of other trades, microbes, or ferments enact the leading part.

These agents are workmen, of infinitesimally small size, that exist everywhere. Some favour the production of good butter, others, on the contrary, are detrimental to its quality.

Through scientific experiments supported by long continued investigation, it has been ascertained that at certain temperatures, and in certain conditions, the favourable ferments that work, but at other temperatures and in other conditions, the unpropitious ferments exert a superiority and prove injurious to the quality of the products. Science has even endowed our trade with these good ferments, which are for sale in the market, or can be made at home, and which act with the certainty that always distinguishes a truly scientific proceeding.

Thus, the installation of a creamery and the work to be done therein must be so arranged as to secure the presence of the favourable ferments; and it is the conditions necessary to this end that I shall enlarge upon in this address.

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THE BUILDING.

From one special point of view, the value of any creamery is to be estimated not by the cost of its erection, but rather by the site, drainage, proximity to ample supplies of pure water, the arrangement of the rooms, and certain qualifications in construction.

SITE AND DRAINAGE.

A creamery should never occupy a site difficult to be drained, and all possible care must be taken to carry off the drainage water to some distance from the building, through wooden or stone ducts that can easily be washed out. Never use closed conduits, which open into the creamery, even if the vents are guarded by siphons. An open *chute*, that takes the drainage out of doors by passing right through the water, is far better. Never put the ducts near the partitions.

The washing out of the creamery will always send along with the water used more or less milk, which will putrefy in the ditches. This defilement is of all things the most injurious to the creamery; we must send it off as far as possible.

The well that supplies the creamery should be situated some distance from the drains and ditches, lest the washings of the building should flow thither and settle.

NEARNESS TO WATER.

A good spring or a good well are essential to a creamery. Between a spring at 50° or 60° and a well of good water at 45°, I think the choice should be given in favour of the well, at least in hot weather.

The well and the spring have each their special duty; running water in a creamery, if it can be made to flow under the vats, allows the cream to be kept at a regular temperature. Spring-water, too, is generally preferable for making steam.

Still, temperature and purity being equal, *good well-water* is perhaps more useful than spring-water for washing butter, since it is less charged with oxygen or air; air is the deadly enemy of butter. Nevertheless, if the spring comes from the lower formations, and if its water is not collected in closed ducts, it is as good as well in this case, all other conditions being equal.

A well, cleared out in the spring, and emptied and refilled frequently by constant free use, generally supplies very pure water. The dangerous microbes or bacteria develop themselves with difficulty in a temperature of 45° to 50°, and the daily renewal of the well-water hinders under these conditions their multiplication and therefore the creation of a centre of infection. The deeper the well, the freer from microbes and ferments.

Very cold well-water is still more specially useful, and even necessary, to finish churning, or for washing the butter at a very low temperature.

DIVISION OF THE BUILDING.

The plan of a creamery should be so laid out that the cream may have a room to itself isolated, well ventilated, and far from all smells of steam, oil, warmed milk, &c. In very few creameries is this attended to. There must also be a fitting room, easily cooled in summer and warmed in winter, for the churning and working of the butter.

The ice house should be roomy, so as to hold a good quantity of ice. An ordinary creamery, here, should have at least 60 tons in store, or the contents of the ice house should be 2,500 cubic feet. Reckoning in the spaces left in packing, a cubic foot of space in an ice house should give 50 to 60 lbs. of ice.

The intense and rapid cooling of the cream, on its leaving the separator, is one of the points most neglected in our manufacturing operations. Without ice, of course it is not practicable. We shall return to this subject.

CONSTRUCTION.

The creamery should be erected on a stone foundation (*solage*), or on stout pillars (*rentourés*), and the walls should be thick enough to be easily warmed in winter as to keep out the winter's cold. Between the floors there should be at least ten feet clear. They should be quite tight, tongue-and-grooved, laid with paint in the joints to prevent leakage into the cellar, and oiled with two or three applications of boiled oil to prevent the wood from absorbing milk. The ventilation must be very bright for a damp warm temperature has a powerful influence on the development of dangerous microbes and ferments.

FITTINGS—IMPLEMENTS.

There is hardly any creamery in this province so badly fitted up that gooder the finer quality cannot be made in it; still, some defects in the maintenance of repairs, or of the installation may have an unfavorable influence from this point of view. An erratic engine, or a boiler of insufficient capacity, may produce variations in the pace of the separator and thereby cause defective cream. By taking too long about the skimming, the milk standing in cans at the door of the creamery, or in the sun, may suffer.

The heating of the milk before separating ought to be done carefully on surfaces heated by water or steam rather than by naked steam let into the milk. I observe this latter method practised by some very good makers, but emphatically blamed by others. I should be glad to see some special experiments made at our school on this point.

A neglected churn, or any wood long tainted for the same reason, ought to be laid aside. The cream-vats should be built so as to be capable of cooling the cream

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apidly, or at least of keeping it cool after having been once lowered in temperature. The fittings ought to be so arranged as to be easily washed. Easy washings and cleanings infer that every part can be reached by steam, water, and dish-cloth, and consequently, one must firmly condemn the use of long closed pipes in the circulation of milk, and much more of cream.

Before leaving the question of fittings, I may add that the *cream-refrigerator* does not exist in nine creameries out of ten; and I must confess that I myself have none in my creameries.

Inventors may devote themselves to contriving one, but they must remember that it must be handy and easy to clean.

SUPPLIES.

Before beginning to work, good supplies of necessary articles must be provided. Good salt is not hard to find; buy it in barrels, they are better than sacks. Never use doubtful salt in butter-making.

The use of parchment paper must not be neglected; it has been used lately for the top, bottom, and sides of the tubs. Our tubs and boxes are far from being staunch, and the parchment on the butter, underneath it, and round the sides, protects it from the air. This paper absorbs the brine, becomes impregnated with it, and prohibits the entry of microbes from outside. It also guards the butter from the taste of wood, which is often imbibed by badly soaked boxes or tubs. Employ only good tins properly shaped, of equal breadth, not rusted, and use tinned nails that will not leave a black stain on the wood.

Now we come to the most important of all supplies, that of ice.

We seem to be condemned, henceforward for many a year, to keep on producing especially summer-butter. You will forgive me if I translate to you a passage from a Swedish work, by Prof. Grotenfelt, published by Mr. Wall, of the University of Wisconsin:—

“In my opinion, ice is the secret why we Swedes, so far removed from the markets of the world, can compete successfully with other countries more fortunately situated than we are. For instance, in Denmark ice is dear, indifferent in quality, and, it often happens, not to be had in sufficient quantity.

“Our conditions are the very reverse; from our numerous lakes and streams we can get any amount of ice; the cartage is cheap, and the quality perfect. The lake ice, more than two feet thick, can be had here every winter, and so grand is the quality that it leaves no deposit after melting.

“In Denmark, but especially in France and Ireland, the three countries that with Sweden supply the English market, the farmers are generally obliged to cool their milk with water alone, a practice that is doubtless better than not cooling it at all, but which is not prohibitory against certain bacteria. I have often observed in Denmark, in some co-operative creameries, that, even at its arrival at the creamery,

the milk was a little sour, or had at least lost its freshness; and that the butter when packed was soft and tasteless; all this came from want of the milk being cooled."

And the author adds:

"Our creamery-patrons and dairymen may learn a useful lesson from these facts." I add, on my own account, that we too, like the Swedes, may learn a useful lesson from these facts.

The time may come, perhaps, when we shall have so well discerned the true value of ice, that not only the creamery, but each patron of a creamery or cheesery will secure his provision of ice to cool his milk, so as to be able to deliver it at the factory in perfect condition.

I shall return shortly to the use of ice, but I may add at once: I am convinced that the daily expenditure of from 500 to 1,000 lbs. of ice more than we use now would, in addition to an increased yield, cause a considerable improvement in quality; this would be an investment of 10 to 25 cents a day, to gain, for the proprietor, a double profit, and, for the patrons, a profit four or five times as great.

MAKING BUTTER.

We are now about to enter upon the operation of making butter.

Reception of the milk.—Without perfect raw material, it is impossible to make perfect goods; the making of butter must then start from the farmer. The milk must be drawn from cows in perfect health, into clean vessels, and in a place where the atmosphere is not foul and tainted. The milker should wash his hands before he begins his work, and not only afterwards. The milk is to be strained through sieves that are scalded after each milking; it must then be not only aerated but cooled.

The cans should be kept as cool as the vessels for making butter at home; here we must note the culpable negligence of some makers who do not daily wash out their whey-vat (which should be of tin). When cleanly habits are recommended to the public, one ought to practise them oneself.

One advantage our creameries have over cheeseries is that the milk when skimmed is poured into tin vats, instead of into wooden puncheons or troughs. Great pains ought to be taken by the patrons not to let the skim-milk be long in the can after its arrival from the factory, so as to prevent the formation of ferments that will prove injurious to the new milk next to be put into them. The morning's milk should be cooled before being mixed with the milk of the previous evening, because the latter, even if cooled, will have become populous with ferments during the night, and the warming of it up by the morning's milk would give a fresh impetus to the multiplication of these ferments.

At the creamery, the maker must exercise very particular care in the reception of the milk; and I trust that, within a few years, we shall see a complete alteration in this respect, but of the fourteen or fifteen masters of factories in this province there are hardly twenty-five who are as strict in punishing patrons for the careless

treatment of their milk and I have no hesitation in saying that money through taking dishonest patrons one

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1. In 1 cent. cube cowhouse, examined were counted; half an hour 980; an hour and a half up with a perfectly clear

2. In a dirty cowhouse minutes after milking,

3. In experiments drawn milk, containing found:

3 hours after	.....
6 " "	.....
9 " "	.....
24 " "	.....

This table shows that at the temperature of 60° try to insure that milk of 60°, especially in summer

treatment of their milk as they are in punishing them for skimming or watering it; and I have no hesitation in saying that our factories have lost very much more money through taking in foul milk, than in letting themselves be robbed by the few dishonest patrons one meets with here and there.

Why then be so severe with these poor wretches who forget themselves, when we are so lenient with such a number of model folk, who are so neglectful of cleanliness.

The law punishes careless treatment of milk as it punishes fraud, but there are probably some points to be amended in the federal statute, before it can be so applied as to render its dispositions unattackable in this respect before the courts.

I ask myself, should we not petition our Government to appoint, at the disposition of our Association, inspectors of milk exclusively enjoined to put those negligent patrons to rights, whom our syndicate-inspectors and our makers are afraid of prosecuting after having warned them.

I have been rather long over this chapter, but I will not quit it before giving you some instances, that I look upon with stupefaction, of how much injury can be done by careless treatment of milk. In the Swedish book I quoted from just now, we find, among many others, the following examples :

1. In 1 cent. cube, or in the 15th of a cubic inch, of milk from a very clean cowhouse, examined with a microscope immediately after milking, 160 bacteria were counted; half an hour afterwards, in the same bulk of milk, there were reckoned 980; an hour and a half after 3655, or 35 times as many. The can had been covered up with a perfectly clean cloth, and had remained in the cowhouse.

2. In a dirty cowhouse, were found in the 15th of an inch of milk, examined 45 minutes after milking, 670,000 bacteria.

3. In experiments conducted at Rutti, Switzerland, Nov. 14th, 1895, on fresh-drawn milk, containing 9,300 bacteria in the 15th of a cubic inch, what follows was found :

	Kept at 59° F. Increase.	Kept at 77° F. Increase.	Kept at 95° F. Increase.
3 hours after	1. times.	2. times.	4. times.
6 " "	2.5 "	18. "	1,290. "
9 " "	4. "	107. "	3,734. "
24 " "	163. "	62,097. "	5,376. "

This table shows the monstrous damage that may be produced by keeping milk at the temperature of warm summer nights, *i.e.*, 75° to 80°. As a rule, we ought to try to insure that milk delivered at the factory should never exceed a temperature of 60°, especially in summer.

The milk delivered on Monday morning and on post-festal days consists often of three milkings; moreover, on those days the skimming takes more time, on account of the greater quantity of milk. The maker, then, should put a piece of ice into each can of milk, not only to prevent loss, but to prevent injury to the cream.

I end by an observation made by the buyers of cheese this summer: it is, that many makers have had to pay for losses incurred in the making, the sole cause for which was the bad condition of the milk received by them at their factories.

SKIMMING.

It often happens in summer that the milk needs no warming up, but in certain seasons it has to be done; and, in my opinion, it is not wise to use the injector, or any other means by which naked steam is thrown into the milk, for fear of giving a burnt flavor to it. The *bain-marie* plan, that is, a double vat with hot water between, is the best.

Take the cream as thick as possible, and for several reasons:

1. Because the growth of the ferments is slower in thick than in thin cream.
2. Because one is not so likely to have curdled milk in the cream.
3. Because thick cream is needed if the churning is done at a low temperature.

The rule to follow is, that the cream, even the thinnest, should be thick enough that no skim-milk separates from it.

There is less trouble caused by having a little thinner cream in autumn, because then it is necessary to push on the ripening. The proportion of cream may vary without inconvenience: in summer, 12 to 15 per cent., and from 15 to 18 per cent. in winter, showing that the volume of cream must be to the fat it contains in the proportion of $3\frac{1}{2}$ to 1, and no more.

Allowing the cream to rush from the skimming-pipes into the pail must be avoided, because thereby is caused to form a froth that hardens in the air, becomes dry, and is hard to mix with the cream; it would be better to let it run down a little trough sloping to the bottom of the pail. It is also advised that the cream should be run over a tin trough or funnel pierced with holes, or over a sieve; but I have never practised or even tried this plan.

These precautions must not be neglected, if one desires to have cream uniform, easy to stir, easy to manage, and easy to churn.

COOLING CREAM.

That which I said just now *à propos* of the growth of dangerous ferments in milk, applies also to cream. In practice, skimming is done generally at temperatures above 70°. It may be said that without prompt cooling the cream is in certain and proximate danger of deterioration; hence one of the reasons for cooling. But there is another as well. It has been practically proved that the aroma of butter will be so much the better in proportion as the fermentation of the cream, its maturation or ripening, is produced at a lower temperature; which comes to the same thing as

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Other reasons tl more body, more soli Danish butter, accor told you yesterday. this quality, and no cooling of the cream.

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to say that at a low temperature the ferments which transmit a good aroma are the only ones that multiply.

Other reasons that it is wise not to lose sight of: Canada butter is held to have more body, more solidity, than most foreign butters, American or others, even than Danish butter, according to the quotation I made just now, and to what M. Leclair told you yesterday. It is, therefore, to our interest to see that all our butter possesses this quality, and no means is so sure of obtaining it as the immediate and low cooling of the cream.

These are the theoretical reasons assigned for this: Butter melts at about 93° F.; reciprocally, melted butter becomes solid when its temperature falls below 93°. The fat, worked up in the body of the cow at about 98°, is therefore existing in a melted state in the milk we draw from her. In consequence of a physical phenomenon, these globules of fat, very finely divided in the milk, remain melted, even when the latter falls to temperatures very much lower than 93°; this is called *the state of over-melting (surfusion)*.

Two causes will bring on the solidification of the globules of over-melted (*surfondus*) fat: a disturbance of the milk, as in churning, or a cooling relatively low. But it has been observed that the degree of solidity or *body* of the fatty matter, thus coalesced (*figée*), is in a direct ratio to the intensity of the cooling that either produces or accompanies that solidification. You know, for instance, that butter churned at 55° has more body than that churned at 65°. For the same reason, butter made from cream that has been cooled down to 45° and churned at 55°, will have more body than if it had been churned at 55° without having been previously cooled down to 45°.

Another reason: The perfectly round globules in milk or cream change their shape in coalescence; and the lower the temperature to which the cream or milk is cooled, the more angular or crystalline will be the form to which coalescence brings them. This crystalline form admits of easier drainage, and the drier butter is, the less soft or greasy it is. Churning cream at a high temperature, and uncooled previously, produces a butter that takes in lumps, instead of grains, and too full of water, of buttermilk, and even of curdled caseine divided throughout the whole mass. Churning cream cooled to a very low temperature, gives a butter in fine grains or crystals, easy to wash, and freeing itself without difficulty from both water and caseine under the butter-worker.

Cooling the cream then facilitates the working of butter, and diverts the danger of working it too much.

It is hardly necessary to add, that in winter, when milk arrives either frozen or nearly so, there is no need to cool the cream as low as in summer.

The cooling of cream in summer has been too generally neglected here. Try it, then, and I am certain it will be a step in the right road.

 RIPENING CREAM.

In summer, it is advised that cream be kept at 45° for at least two, or better, four hours. But ripening is only just the commencement, the working of the ferments must be attended to. In summer, the trouble is to keep them back: in the fall, and in winter they have to be stimulated. Science has come to our assistance, and the trade now supplies good, selected ferments, isolated from the injurious ones, and which serve the purpose of inoculating the cream to hasten the maturation. One can even prepare an excellent ferment oneself with well-selected milk. M. Leclair spoke of it yesterday, and as in this there is matter for a whole lecture, I will insert in our annual report some notes as a supplement to this address. It is positively certain that the use of ferments, purchased or home-made, will become universal; in summer they cannot be used without ice, because the cream would work too quickly and unequally at varied temperatures; but in autumn, the use of ferments becomes imperative; our nights are too cool, and when, in the season of bad roads, the milk is delivered only every other day, ferments are absolutely necessary.

What is the best way of watching the cream so as to see if it is working too fast or too slowly? I confess at once how difficult it is to lay down rules for the purpose in words. Still, we may say that cream during ripening is to be treated from two points of view:

1. To get it to that point that ensures perfect aroma to the butter.
2. To get it to that point of perfection that ensures efficient and easy churning.

And these two results are obtained by different ferments.

The best outward sign that the cream is fit to churn, is its gelatinous, homogeneous or uniform thickness. If there are clots of curd in the cream, it is too far advanced. From our observation, in summer cream ought to be so managed that the first signs of thickening should only appear towards evening; at that moment, the froth, that always exists a little on the cream, is mixed with it by stirring; and then there is put into the vats enough ice to ensure that the next morning the cream shall be at the churning temperature of 52° to 54°, in summer. During the day, the cream is to be often stirred up to the time when it is becoming gelatinous; after that, the Danes say it should be let alone, but I am in doubt about it.

The acidity of the cream and its aroma are by no means the same thing. You may have a vapid cream that is not acid; but, on the other hand, a cream that is acid enough has generally plenty of aroma. If the butter is off flavour, flat and without briskness, ripen the cream at a lower temperature by means of ferments. If it is too sweet, and if the cream does not churn well, you may, if you are careful, ripen at a higher temperature, but I think with the milk our creameries get in summer, it is very difficult to make too sweet butter. In autumn and in winter, ripening must be carried on at a higher temperature, and always with ferments.

Of all the points in butter-making, from what I have seen, the fermentation of the cream is the point that has been the least studied, the least understood, in the

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past. I could name to you makers who imagine that, the cream once in the vat, with a supply of water, never mind at what temperature, their attention is no longer needed; and our dairy-school has made many a maker take a vast stride in advance, because, there, this point is well understood, and the proper way to ripen cream is alone practised. I think that the use of the organ of smell is desirable, if one is to become master of this part of the business. There are makers who will never distinguish themselves, for want of a sensitive nose. Useful as this organ is everywhere, it is as much needed by the maker as by the fox-hound.

There are apparatus and preparations for determining the degree of acidity of the cream. They will be very useful when practice shall have settled the rules to be observed in their employment.

Instead of laying down rigid laws, it were better to leave it to the experience of each to discover the conditions best suited to his factory and to the milk he receives there. The conditions under which the best butter is made should be noted, and he must try to repeat these conditions from day to day.

CHURNING.

All that I have said about the cooling of the cream applies equally to the churning. The cooler the cream churned, the finer the butter; the more thoroughly the cream was cooled on leaving the separator, the easier will be the churning. Churning is now practised at 50° or 52° by several model makers; it is advisable to do so in summer, and it is possible with thick cream, well cooled and well matured.

In winter, on account of the exterior cold, churning must be done at a higher temperature, 60° to 65°.

Should we wash butter? Yes, I think so, since washing is a sure and easy means of expelling the buttermilk; still, many authors and practical men do not counsel it, especially when the butter is to be used very fresh.

But there are makers who exaggerate the process, by leaving the butter soaking in water for hours, under the pretext of preventing it from cooling. This is a mistake. Two rapid washings are all that should be allowed; in almost all cases, one is sufficient; it is always enough with cream well cooled, well matured, and churned at a low temperature. Be very particular about the quality of your water. Hard and sulphur-tainted water, if they are both clear, are not, apparently, injurious.

WORKING BUTTER.

Butter ought to be worked as soon as possible after churning; nowadays, it must never be allowed to stay long in the churn. Buyers often complain of a want of taste in butter, and I should not be surprised if these defects should be found to arise from the custom of some makers, who leave the butter in the churn all the time the skimming is going on. If the maker does not get up early enough to finish off his butter before skimming the day's milk, he should at least gather it and salt it, so as to put the last touch to it as soon as skimming is over.

Should butter be worked once or twice?

The answer is simple; M. Leclair gave it yesterday. If, with one working you can turn out your butter without marblings, and very dry, only give it one working.

The sooner it is in the tub or box, the better. But you may find it difficult to work it perfectly in one working without stopping; if your room is not very cool in summer, it would be useless for you to persist in working your butter when it has become too warm, and consequently too soft; you can get no more water out of it then. Stop work, then, and let the butter harden in a refrigerator or a tub of ice.

I am now convinced, that when there is a cool room, it will suffice to prolong the working a little to get a dry butter, without marblings, and therefore, with this granted, one working will always be enough.

To expel these marblings of which we spoke yesterday, the working, in summer, must either be continued rather longer, or the butter must be allowed to grow firmer and attacked a second time. An interval of two or three hours will make the marblings easily visible, and the work of getting rid of them can be much more certainly carried out. In autumn, it suffices to work the butter either a little longer or at a rather higher temperature. These marblings appear to be a discoloration of the fatty matter produced by an excess of salt in certain parts of the mass. This discoloration is produced in layers or in veins; hence the names *marblings* or *veins*.

These marblings are of more frequent occurrence in the fall, because then the butter is generally drier and cooler, and, consequently, the salt is more loath to dissolve. The salt should be rather spread by means of a small sieve than by the hand. As to the proportion of salt, follow the taste of your customers; but for fresh export-butter the dose formerly used must be diminished, 3 to 4 per cent is enough. Even less is sometimes wanted, if for the English market. But, once more, consult your customers, and do as they would have you.

Here, makers must be reminded that the dose of salt as weighed, by no means indicates the proportion of it that will remain in the butter. It is the degree of dryness of the butter, when the salt is added, that regulates that proportion. Moist butter takes more salt, dry butter takes less.

What is the cause of the various stains in butter? The marblings are always caused by the salt, as I have just explained. The spots, more or less large, *par flaques*, have the same source. (1) The little dots almost always proceed from cream that has dried, becomes hardened and discoloured by the air on the surface of the vat; this must be corrected by watching the skimming, and even by straining the cream, to get it uniform; by stirring it very often till it has begun to thicken, and straining it again before pouring it into the churn. It is also asserted that these little white dots may be produced by curd deposited on the bottom of the vat of cream, when it has been skimmed too thin or has ripened too much.

And wherein arises the *cheesy-taste* in butter? Sometimes from bad milk, some-

(1) *Flaque* is a puddle, or small pool of water; this does not seem to fit here.—A.R.J.F.

times from too thick times from inefficient butter. Low cooking putably cure this butter be observe

A very important M. Leclair said, that our superior makers in England so much

Butter that in a fortnight, at as well to give it pound on the turrisk of losing the

Our school wmanent dairy-con

One piece of then do not a great it is made? Even scoop; then, examine to study it and the symptoms that arise have to scold his maker who does not blame, and even vintins on the tubs at will not rust; the want to examine t

The question than it used to be ordinary Canadian to want boxes.

The box is a not paid sufficient

If practicable, steep, whether those that are soluble in should finish by st

times from too thin cream, or from cream kept too long, especially in the fall; sometimes from inefficient washing or working, which leaves too much buttermilk in the butter. Low cooling of the cream, and ripening it at a low temperature will indisputably cure this defect, if the proper precautions in washing and working the butter be observed.

A very important point is, the proportion of water to be left in the butter. As M. Leclair said, the water in butter sells high at Montreal, 20c. a pound; but I believe our superior make for the Montreal market does not differ from the best make for England so much as to entice us to leave too much water in the butter.

Butter that retains much water loses as much as two or three pounds to the tub in a fortnight, at the end of which time the butter is no longer first-class; it is just as well to give it the proper amount of working, for you will thus often save a half-pound on the turn of the scale which it is the custom to allow, without running the risk of losing the pound.

Our school will probably attend to this matter in connection with the permanent dairy-competition that the Quebec Government intends to establish.

One piece of advice *en passant*. Makers are responsible for their work; why then do not a great many of them make a strict rule to examine their butter after it is made? Every day the butter made the previous day should be tested with the scoop; then, examine the same butter, in the same tubs, five or six days afterwards to study it and to learn how to recognise the changes that occur in it, or the symptoms that are produced in it. It is not pleasant for a creamery proprietor to have to scold his maker and to make him pay for a loss when any occurs. But the maker who does not look after his own duties, by testing his butter, is very much to blame, and even very imprudent in regard to his own interests. Do not put the tins on the tubs at once; wait till the butter is on the eve of being sent off; the tins will not rust; the nails, if they are not tinned, will not stain the tub, and if you want to examine the butter, you will not be hindered by having to unnailed the covers.

PACKAGES.

The question relating to the kind of package to be used is of less importance than it used to be. If there is no special demand from customers, I think the ordinary Canadian tub of good quality will do very well; but the export trade begins to want boxes.

PREPARATION OF THE PACKAGES.

The box is a more recent invention than the tub, and our makers have perhaps not paid sufficient attention to it.

If practicable, the box is to be soaked like the tub; it is prudent to let them steep, whether boxes or tubs, for two or three days, so that those juices of the wood that are soluble in water may have time to dissolve; but I think this preparation should finish by steaming. A table, through which pass the ends of pipes, leading

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and it difficult to is not very cool utter when it has water out of it or a tub of ice. affice to prolong arefore, with this

rking, in summer, allowed to grow urs will make the be much more er a little longer a discoloration of the mass. This rblings or veins. ecause then the ore loath to dis- han by the hand. for fresh export- is enough. Even ore, consult your

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lings are always less large, par ceed from cream ie surface of the by straining the n to thicken, and erted that these m of the vat of

1 bad milk, some- here.—A.R.J.F.

from a main pipe attached to the boiler, is a very good apparatus for scalding boxes or tubs. The box or tub is turned topsy-turvy, the mouth lying flat on the table, and the steam is turned on for four or five minutes. As soon as the steam is turned off, the inside of the box or tub is to be rubbed briskly with a clear solution of salt and hot water; while the wood is still hot, fill the tub or box with water or a weak brine, cold, and three or four minutes afterwards, the wood will have absorbed this fresh liquid, after having surrendered, through the action of the steam, that which had served to dissolve its juice.

Of late, antiseptic powders have been recommended, but they never should be added to the salt used for salting butter; their employment in the solution for rubbing the tubs or for moistening the parchment paper, would probably be more useful. If the box will not hold water, it must be plunged into a bath of water, or of brine, and all that will be needed in this latter case is to wash off the salt that adheres to the outside. However, this latter proceeding does not make the boxes look well.

In every package, box or tub, make use of parchment-paper. We are advised to thoroughly soak the papers when they are placed. They can be sufficiently moistened inside, by means of a sponge or an atomiser. Buyers like butter to be damp on the surface and not stuck to the paper; this weak brine evidently seems to hinder the action of the wood on the butter.

M. Chagnon.—Can M. Taché tell me if water charged with gas is dangerous to use for butter? I have an artesian well in my place, whence the water gushes out a foot above the ground, and rapidly, too. It is a spring, and I fancy the water is expelled from the ground by the gas.

M. Taché.—Is no gas produced?

Mr. Barnard.—Does it bubble up?

M. Chagnon.—It does not bubble at all; but a flame can be started when you please; it seems to have the flavour of gas.

M. Taché.—Does it taste like sulphur?

M. Chagnon.—No, it is more saline in taste.

M. Taché.—If it is a mineral water, I should not like to use it for butter; but sulphurous water is innocuous if it be allowed to remain in the vat half an hour before it is used.

M. Chagnon.—I have succeeded well this year with this water; at least I think so.

M. Taché.—Mr. Ayer tells me that he thinks that brine made with hard water would do no harm. He also thinks it better to wash the butter with brine in place of plain water, brine having the property, temperatures being equal, to harden the butter more than water will.

Prof. Thutt.—(in English) I understand that this discussion turns upon the question of knowing if it is proper to use, in the dairy, mineral water, *i.e.*, water almost saline, and which at the same time disengages a great deal of inflammable

gas. Different mineral sulphur, stinks like good for the dairy. give you good butt springs, when it is hold strong opinion time for this discuss used by farmers in use water that shot stock to drink, wat lastly, that is sure washing dairy vess injuring a good art use, as for its cows. without seeing the with precision about phurous.

Dr. Grignon.—creamery? Do you

M. Taché.—It

M. Chapais.—I Trees, when they a they purify the air near creameries or round factories wor

M. Castel.—It diplomas, framed, unfortunately, the (who took the troub succeed, we publish

DIS:

Messrs. J. G. Wales
C. M. Harv
Chas. Wilk
H. W. Palm
Chas. Stand
Alf. Gagnor
Samuel Au

gas. Different mineral waters disengage different gases. Some water, containing sulphur, stinks like rotten eggs. This is maybe a good medicinal water, but not good for the dairy. I am satisfied that the use of water strongly sulphurous will not give you good butter, and so of other mineral waters. The best water is that of springs, when it is not contaminated by the drainage from houses or cattle-sheds. I hold strong opinions about this question of water, and I am glad I arrived here in time for this discussion. For six or seven years, I have been examining the water used by farmers in their dairies, and I have come to the conclusion that most people use water that should not be used for the purpose in question, water, not fit for the stock to drink, water more fit for use on hotbeds than for any other purpose, water, lastly, that is sure to injure such fine goods as butter and cheese. The simple fact of washing dairy vessels with impure water will induce a fermentation capable of injuring a good article. It is as essential for a farm to have good water for dairy use, as for its cows. I strongly advise you not to use mineral water. Naturally, without seeing the water itself, and testing its proper character, I can say nothing with precision about it, but I presume that the water in question is saline and sulphurous.

Dr. Grignon.—Would you advise that people should reside in a cheesery or creamery? Do you approve of planting trees round creameries?

M. Taché.—It is not advisable that cheeseries or creameries be inhabited.

M. Chapais.—It is very advisable that trees should be planted round creameries. Trees, when they are high enough to afford shade, have an excellent effect, because they purify the air and also absorb part of the effluvia which are always abundant near creameries or cheeseries; from this double point of view, the planting of trees round factories would be an excellent thing.

M. Castel.—It has been the custom to distribute annually, at our meeting, their diplomas, framed, to the newly appointed inspectors of syndicates. This year, unfortunately, the diplomas have not yet arrived; still, in order to do justice to those who took the trouble to prepare for their examination, and were fortunate enough to succeed, we publish their names here, that they may appear in our annual report:

DISTRIBUTION OF THE DIPLOMAS OF THE INSPECTORS.

Inspections of Cheeseries.

Messrs. J. G. Wales.....	East Dunham.....	<i>Optime.</i>
C. M. Harvey.....	".....	"
Chas. Wilkins.....	Mansonville.....	"
H. W. Palmer.....	Richmond.....	<i>Bene.</i>
Chas. Standish.....	Rougemont.....	"
Alf. Gagnon.....	Baie St. Paul.....	"
Samuel Aubin.....	St. Anicet.....	"

Inspections of Creameries.

Messrs. Gabriel HenryQuebec*Optime.*
 Georges Duncasse..... “

LECTURE BY M. V. E. DALAIRE.

THE LAW OF LABOUR.

To this law of labour Adam had to submit. The Almighty said to him: "In the sweat of thy face shalt thou eat bread." If we sometimes repent of our decisions, it is not so with God, as regards the condition of the human race. We have to work, and he who frankly accepts his daily task is infinitely less susceptible of fatigue than other men. There is in the heart of man an intense satisfaction which is in itself a precious reward for his useful labour.

It is now-a-days more important than ever to recall to our minds the law of work, because many of us are being continually deceived in their hopes. They imagine that, with study, with improved, almost perfect implements, with the system of modern cultivation, etc., etc., men will at last be clever enough to free themselves from the law of work. No; we shall each of us vanish from the scene before this problem is solved. Why, then, devote ourselves to study? Why such perfection in our work? Because the law of work impels us thither. He who, for instance, does not strive to improve the quality of his cheese, runs the risk of losing his sales, and so on. He, then, who will not study, who does not improve, who will not work, in fact, finds himself incapable of earning his own subsistence; he becomes a burden to himself and to others.

It is necessary now more than ever, and in the future it will be still more necessary to reverence the law of work, because our population is on the increase, and the competition with foreign countries we have to encounter is likely to be still more arduous than at present. Must not this be terribly grievous to the indolent man? Must it not drive to desperation the man who thinks he was born into this world for the sole purpose of enjoying himself? The dollars and cents we receive in exchange for our work are only instalments. God, who has imposed upon us the law of work, only desired to have a motive to make us happy. The blessing of an eternal rest would be but a trifle for those that are tired of doing nothing, and, indeed, our Lord has said that the idle make their happiness impossible. Ennui will perhaps be the "worm that dieth not" of the reprobates. Let us work, then, that, when harvest time arrives, we may reap abundantly the fruits of the harvest.

Finding myself, one day, near the hall in which an agricultural lecture was about to be given, I heard several farmers trying to persuade another to attend the meeting. "Lecture," said he; "what for? I am not paid by the Government, and, in spite of that, I'll give you a lecture in two words: Work, you set of lazy-bones! Do you need to be told to draw out your water-furrows, to repair your

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roads, to feed your cows, to take care of your manure? Work, I tell you. It is folk like you who are the cause of these people being sent here to preach to us! I have made money, and made it by hard work, by economy, and my children I have taught to do likewise! All the same, I mean to go there, to see what this man has to say."

After hearing this, I set to work teaching things that it is not easy to understand in practice; a very slight piece of advice does so much good sometimes, and the want of information is so injurious to people who really aim at improvement. At the end of the lecture, our friend, a man full of energy and intelligence, rose: "Sir," said he, "I was afraid I was wasting my time in coming hither, (time is money to an active man); but I am glad I come, for I have learned things that will be useful to me: Thank you, sir; try to come hither often; it will do good, *allez!*"

To pay, farming needs now more work than ever, and, allow us to say, very often it happens that less and less work is given to it.

Butter is no longer made at home; wool and flax are no longer spun there; and but too often people are too lazy to strain the milk or to wash the cans. No *separator-strainer* is used, because it makes another vessel to wash! more time is given up to the reading of one or more romances of a dangerous character; novels, about murders, suicides, divorces, harlotry, drinking, scenes in the police courts, scandalous lawsuits, disgraceful exhibitions, and such-like; but there is no time for knitting stockings; besides, there is no wool! still less time is there to read the "Journal of Agriculture," which, when it reaches the house is torn already! Where in all this is the law of work?

A good kitchen garden would be so good for the health in every respect; but it would take work. Siloes have been talked about for ever so long; true, the benefit, it is clear, would be great, but it would take work to make one. Growing root-crops has become indispensable, if we want to produce milk and pork profitably; true enough, but it cannot be done without work. The roads are in an awful state generally: true, every one is complaining about them, even those who have not to repair them, because they do not like to be singular, but all that takes work to do it properly. Doubtless, but we must not think every one is afraid of work. Oh! no; there are plenty of good examples, many indeed. Still it is necessary to oppose the idea, that some fine day, work will be only a pastime; no, work is not only useful, but absolutely necessary to the well-being of the life of man, both physical and moral. What is the state of morals when conscientious work is not practised? Idleness begets pride, vanity, luxury, extravagance, gluttony, insubordination, debauchery, in fact, everything that can degrade a being created in the image of God, whose activity is limitless.

All that precedes is not new, but to know it is not everything.

I know that to work unsuccessfully is discouraging; therefore, study more deeply; following the example of the successful ones, try to discover their secret; we

should be astonished perhaps to find out that work, constant work, is the key to the whole business.

Consider the work of the Diarymen's Association for the last few years; look at the organisation of 554 parishes with Farmer's Clubs; think of the 60,000 subscribers to the Journals of Agriculture; ponder our schools of agriculture full of pupils; look at all the present improvements in stock farms, etc. All this, done under the incentive of our governments, all, I say, is work.

And yet there are people who emigrate to the States, for want of work at home, they say.

Our daughters go and work at the loom; they will not keep sheep here: it is work. Let us, then, all work together to raise up a strong, active people, and who knows, if we are deserving of its care, what may be the views of Providence for our future. At all events, there is nothing comparable to those great families living under the same belfry, that people call a Canadian parish. To work, then great and small, and hand-in-hand, let us always remember that "Union is Strength."

During Mr. Dalaire's lecture, the Hon. Louis Beaubien, Commissioner of Agriculture, and Mr. Jos. Girard, M.P.P.; Milton Macdonald, M.P.P. and others entered the hall.

The President:—We remark constantly the unlimited devotion of the Hon. Commissioner of Agriculture of the province of Quebec to the cause of Agriculture. He has given us a clear proof of it to-day, coming as he does from the House while it is in full session, and in spite of his numerous duties, to honor us with his presence. We must show him how wholly grateful we are by begging him first to be good enough to address at at once, and we will then prove our gratitude to him afresh by putting into practice on our farms the valuable advice he will be kind enough to give us.

The Hon. L. Beaubien, spoke in French, and held his audience under the spell of his eloquence for a too brief half-hour. As he had just been addressing the English evening session, M. Beaubien aimed at condensing and blending into one the two addresses. Our readers will find this abstract further on.

LECTURE BY D. B. BOURBEAU.

CREAMERY AND CHEESEERY SYNDICATES.

Mr. President and Gentlemen:—

As it is my duty to supply you with some information on the formation of syndicates and their usefulness, allow me to say, first of all, how delighted I am to be able to tell you that, last season, there were thirty-eight syndicates in operation in this province.

Thirty-eight different divisions, combining to promote the improvement of our dairy products and to gain that end as surely as possible by the selection of com-

petent men to inspect and achieve the perfect that must rejoice the dairying? Let us ho long, each county will our butter and cheese l

In a division, the watchful supervision, t with exactitude; the n patrons, by sending no

And in order that Association appoints a the local inspectors; so out, and the remedy not very high, so some as conflict between pe syndicate under the i should be paid such v engagements. With s his assistant will compe

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petent men to inspect the several factories of the division, to reform their defects, and achieve the perfecting of that which is already good ; is not this a step in advance that must rejoice the hearts of all those who are interested in the great work of dairying ? Let us hope that this progress will go on increasing, and that, before long, each county will find it its duty to have its own syndicate. Then, we shall see our butter and cheese holding a high position on the markets to which we export it.

In a division, the inspector is the soul of success, since, under his strict and watchful supervision, both makers and patrons will be compelled to fulfil their duties with exactitude ; the makers, by devoting the proper care to the manufacture ; the patrons, by sending no milk that is not of the best quality to the factory.

And in order that the inspector himself be obliged to fulfil his obligations, our Association appoints an inspector-general, and a sub-inspector, who have control over the local inspectors ; so that the least negligence on the part of the latter is pointed out, and the remedy applied at once. The salary of the inspectors is occasionally not very high, so some of them, to increase their incomes, engage in other business ; as conflict between personal interest and duty might injure the progress of the syndicate under the inspection of one of these men, it is desirable that inspectors should be paid such wages as to enable the directors to interdict all such double engagements. With such conditions, the supervision of the inspector-general and his assistant will compel the local inspectors strictly to fulfil their engagements.

Up to the present time, as a general thing, we are satisfied with the services rendered to the dairy trade by the local inspectors ; I am sure that their services will be more highly appreciated in time, when people can form a better judgment of that which they are called upon to do.

To form a syndicate, it is only necessary to write to the secretary, M. Emile Castel. He will always gladly furnish the documents containing the rules to be observed. And, as I hope before long to see many new syndicates arise, I would beg those who wisely intend to form one to make haste, so as to be able to engage their inspector, at least before the end of March.

These are some of the advantages they will gain by doing so :

1. The inspector will visit the different factories to see if there is not urgent need of some repairs in the buildings or the apparatus ;
2. During a week he will hold a meeting of the makers in a factory already at work, and give them instructions conducing to uniformity of make ;
3. He will also call together the proprietors of the factories, and get them to appoint a fit person to purchase the goods that belong to the manufacture, such as lialio, salt, rennet, boxes, tubs, etc. The purchase of these things wholesale by one and the same person will prove a great saving. The large quantity bought will secure him low prices, and make, I hesitate not to say, a saving of at least 15 per cent. in the price, besides a superior and uniform quality in the goods. If the inspector has to collect the makers together, in order to teach them useful, necessary things about the process of manufacture, so he ought to make it his duty to assemble

the patrons, to give them rules to guide them, that the milk they take to the factory may be in proper condition.

If all this work is finished before a single factory is at work, it will certainly be a great saving of time and a means of ensuring a product of better quality, provided everyone profits by the good advice given.

It is an established fact, well known to the intelligent among us, to all those who are interested in the material progress of our country, and especially of this province, to all those, indeed, who have at heart the advancement of our industries and emphatically of our dairy industry; it is a fact, I say, that the butter and cheese makers who, little anxious for instruction, remain stationary, instead of trying to improve in the processes of manufacture, invariably retrograde.

In vain do they, for the sake of brazening it out, viciously criticise those who follow up progress and those who teach it. The public will soon be convinced that they are behindhand, that others keep their cheeseries in better form than they, make goods of better quality, and will, without doubt, be richer in the end than they.

The same defect is unfortunately met with in certain farmers. A malevolent disposition induces them to depreciate those who are heartily trying to improve themselves. Whether from carelessness, from idleness or from ignorance, they persist in preserving the old routine—that is, they keep on working a farm worn out by a long-continued sequence of the same crops, without ever dreaming of returning to the land a part of the riches they have carried off from it.

Fortunately, the number of routine-followers is diminishing since Farmers Clubs have come into existence in our parishes, where our intelligent farmers mutually exchange ideas and relate the results of fresh experiments, while filling their minds with the information imparted by our learned lecturers.

Our "Journal d'Agriculture," too, is an abundant spring, whence they may imbibe good advice as regards improved cultivation of the soil.

Still, routine-followers there always were, and there always will be.

If it is proposed to establish a syndicate in a county where the need of novel scientific processes is felt, we shall not fail to hear a cry from a maker or from the farmers against what they call "an attempt against their freedom of action." The maker opposes the syndicate because he dreads the visit of the inspector, and the patrons oppose it because they dread pretty often that he will expose the frauds committed, such as watering and skimming, to which the milk has been subjected, or certain faults concerning the cleanliness of the milk or the vessels that hold it, neglect of straining, æration and cooling of the former; neglect of proper washing of the latter.

Pray believe, Mr. President, that the number of these careless makers, of these dishonest patrons, is very small; but even if only two or three are found in a syndicate, even only one, it is more than enough.

The inspector is become scrupulously

The inspector, with patron and gently given question sends to the and the testimony of case rarely gets so far allowing the roguerie money he has stolen from his rascality.

The inspector making milk pure but per except the cows.

The inspector finally by special study acquire and the proper instructions.

I will venture to say I will point out a defect cows drink, having a guarantee to be as pure as possible.

During the great heat particularly in the low pool, in the lower part water, heated by the sun both taste and smell; milk that as it gets old cannot be got rid of, that causes it to be put knowing the origin of the too, that the older it gets

The price of this quality of the milk, when the cooled milk is up part of his salary to price." It would be a farmers who attend to from the faults of the

This would be a liability already to perform the of the milk. But I do not or, paid by the patrons course be lower. If c

The inspector is of use in that he obliges the dishonest patrons to amend and become scrupulously honest.

The inspector, when he meets with a case of fraud, writes at once to the guilty patron and gently gives him warning. If, after this warning, the milk the patron in question sends to the factory does not improve, he is prosecuted according to law, and the testimony of the inspector against the accused is overwhelming. But the case rarely gets so far as that, for the patron, not wishing to disgrace his family by allowing the rogueries he has been guilty of to be published abroad, restores the money he has stolen from the other patrons before the law has become cognisant of his rascality.

The inspector may also support the good name of an honest farmer, who, delivering milk pure but poor in fat, may be suspected of fraud, while no one is to blame except the cows.

The inspector finds out these things more easily than the makers, since he has by special study acquired more knowledge about testing milk, and has at his command the proper instruments and knows how to use them.

I will venture to make a remark, *en passant*, about the water given to cows, and I will point out a defect that often injures the quality of our cheese. The water cows drink, having a great effect on the quality and flavor of the milk, ought always to be as pure as possible.

During the great heat of summer or during a long drought, water becoming scarce, particularly in the low lands, some farmers, to save the cartage of water, dig out a pool, in the lower part of their farms for the cows to drink at. This stagnant water, heated by the sun, muddled by the trampling of the cattle, becomes odious to both taste and smell; the cows forced to drink at these murky places, pools, yield a milk that as it gets older emits a taste and smell like that muddy water, a taste that cannot be got rid of, and which communicates itself to the cheese; and this it is that causes it to be put down as of inferior quality by the buyers, who, without knowing the origin of the defect, declare that the cheese is "off flavor," and know, too, that the older it grows the worse it will become.

The price of this cheese being lower, the maker who did not detect the bad quality of the milk, which, by-the-by, is almost imperceptible in the fresh state when the cooled milk is delivered at the factory; the maker, I say, is forced to give up part of his salary to reimburse the parties for the loss caused by the "cut in price." It would be a good thing if every farm were visited now and then, for the farmers who attend to their own interests and the makers would no longer suffer from the faults of the negligent.

This would be a little too much perhaps to expect the inspector to do, as he has already to perform the onerous duty of looking after the factories and the inspection of the milk. But I do not see why each syndicate should not have an assistant-inspector, paid by the patrons. He would have less responsibility, and his wages would of course be lower. If divided among the patrons, it would be a mere trifle to each.

The inspector often has too many factories to visit, and cannot afford to each of them all the time required to give certain details of information that are not without importance.

The assistant would replace him in these details, would look after all this business; he would see that the factories were kept clean, inside and outside, the whey-vat, the drains, the cheese-boxes, the carriage of the cheese from the factory to the boat, or to the railroad, making sure that every waggon has a water-proof cloth over it, to guard the cheese against the sun, the dust, or the rain; he would inspect the pastures, the springs or wells that furnish the cattle with water. He might cast an eye on the cows, but do it quietly, so as not to bother any one with his visits. The most perfect of the patrons not needing these visits, knowing that they always do their duty to the letter, would still be interested in allowing their farms to be inspected as well as their cows and watering places, so as to have a right to insist that the same visits should be paid to the careless patrons.

All these things can only be obtained through a syndicate.

I may add that, to do justice to the patrons, that each may receive the real value of his milk delivered at the factory, it is impossible to secure these things in any other way than by paying for milk according to its richness. In one of my syndicated factories, where milk is paid for in that way, it was proved that the value of milk by the hundred pounds falls by ten to fifteen cents, from the richest to the poorest quality of milk. Is this clear enough to convince patrons that it is to their interest to demand that their factory be syndicated and the milk paid for according to its richness?

During last season, we heard that the exporters found many defects in the cheese; the makers must have suffered enormously, and the whole wages of some of them must have been lost. With the help of the inspector and his assistant, the losses would certainly have been less, their superintendence would have removed many of the defects in the cheese; the reputation of the butter and cheese of this province would have been thereby enhanced, and the patrons would have found their future profits increased.

At the Columbian exhibition at Chicago, we earned a good reputation; why do we not strive to persevere and increase it? Would not the best way to do this be to establish syndicates, thereby bringing about good and uniform manufacture, a quality highly esteemed by exporters?

Some syndicates, that have been established for years, have, after improving the quality of their goods, apparently lost their primitive ardour, and even some of their prestige; it was, sad to say, discovered that in this the fault lay with the inspector, who, not finding his pay sufficient, had too many irons in the fire, and neglected his duty of looking after the factories under his control. This is a great misfortune, and the inspector-general had before been obliged to remark upon it.

New syndicates, only started last spring, have proved by the excellence of their cheese that they have largely profited by their inspector's teaching and that he has done his best to do his duty.

Let us have syndicates for dairy-products, and fetch.

To attain this result, the number of inspectors should be redoubled, and the number of inspectors be increased.

Besides, market prices and sellers might rise, as well as the business of the skilful and competent.

Pray, Mr. President, your kind attention, and I shall be glad to have all my powers conferred upon this province.

ADDRESS

Gentlemen, our object is to do you good. I do not know of any agricultural lecture; my conduct in that capacity at the convention was halfhearted. I have discharged my parliamentary duties, I have entrusted their care to the convention when I was present. I ensure the presence of the convention had not intended to spend the time with the agricultural bureau for the purpose of devoting time before the House. I was before last, I was called upon to oppose the projected export duty. I was happy to be able to inform the Hon. the Commissioner of the Hon. the Commissioner of trade in butter.

So well did the Commissioner of trade in butter do his duty in getting a grant for the benefit of the farmers of the province that the Commissioner of the Farmers' Clubs, but it is not a fitting

Let us have syndicates in every county in the province, to raise the level of our dairy-products, and enable us to sell them for as good a price as the Ontario goods fetch.

To attain this result, the zeal and watchfulness of all engaged in dairying must be redoubled, and the good understanding between the patrons, the makers, and the inspectors be increased; this will insure success.

Besides, markets must be organised in our chief country towns, whither the buyers and sellers might resort, at a date agreed upon beforehand, as the boards in Ontario do, as well as the boards already established in this province. A lecture, by a more skilful and competent lecturer than I, should be read before you.

Pray, Mr. President and Gentlemen, accept my most grateful thanks for your kind attention, and believe in the great satisfaction I should feel if the exertion of all my powers could tend to the development of dairying in our grand and beloved province.

ADDRESS OF MR. MILTON MACDONALD, M. P. P.

Gentlemen, our worthy president has just told you that I am about to address you. I do not know whether he is calling upon me to speak as a farmer, in an agricultural lecture; or as a director of an association, to give an account of my conduct in that capacity, and explain my reason for not being with you until this convention was half over. Summoned to Quebec, as you all know, by my parliamentary duties, I have not neglected there the interests of the farmers who have entrusted their care to me, I have not been idle there. I was thinking, too, of this convention when I was working with my colleagues, MM. Savaria and Girard, to ensure the presence here, to-day, of the Hon. the Commissioner of Agriculture. I had not intended to go to Quebec this week, having other engagements, and hoping to spend the time with you; but a glance at the orders of the day, showed me that the agricultural budget was inscribed for this week; so I went to Quebec, for the purpose of devoting my poor abilities to the service of the agricultural interest before the House. I have the pleasure to inform you that at the session of the night before last, I was called upon to defend the request of this Association in favour of the projected exportation of butter. I know that several members of the House were opposed to this bill; I therefore put forth all my zeal in its favour, and I am happy to be able to inform you that a sum of \$15,000 has been placed at the disposition of the Hon. the Commissioner of Agriculture, for the encouragement of the export-trade in butter.

So well did the Commissioner plead the cause of the Farmers' Clubs, when asking for a grant for next year, that not a single member opposed it. You know well that the farmers of the Province of Quebec are the object of the earnest solicitude of the Commissioner. The Dairymen's Association is, so to speak, the mother of the Farmers' Clubs, but the Hon. Commissioner may well be termed their foster father; and is it not a fitting opportunity of calling him by this epithet, now that he has

succeeded in getting so nice a little sum as \$40,000 for the use of the Clubs, every one of which may in future reckon upon a grant of 50 cents a member, with a maximum limit of \$75 a club; this, I think, is very encouraging. A farmer's club that receives \$75 from government, in addition to the members' subscriptions, can give its members an infinity of things, such as, newspapers, publications, samples, seeds, etc., etc., for the improvement of the farmers' position. The smallest club can now reckon upon a grant of 50 cents a member, and the Journal d'Agriculture will be sent gratuitously to each of the members. We are trying to persuade the Commissioner to have the Journal published twice a month, we also want him to have it sent gratis to all the members of this Association; he has not yet assented to this proposition, but if the Association pass resolutions to that effect and send them to the Commissioner, we are almost sure to succeed.

I am not here, gentlemen, to deliver a lecture. I am a farmer as most of you are, and I have need of instruction: that is the reason why I am present with you at this Convention. I may tell you that are present, that the work of the Association is favorably regarded by our government, and that it is disposed to assist us. But I would persuade all present to support the efforts made by the government to assist agriculture by becoming the apostles of our principles among the farmers who are not members of our Association and encouraging them to become enrolled in it. The subscription is only a dollar a year, and gives each member a right to the Journal d'Agriculture, the Annual Report, etc., which is a whole treatise on agriculture at the service of every farmer anxious to improve in his business.

And now, Gentlemen, as regards the project for exporting our butter, I find it involves great advantages, for the farmers as well as for the country. All those who have considered it, acknowledge that the plan is of vast importance; for every one now admits that we make enough cheese, and that we must not increase our make of that article. Out of 25 millions of dollars' worth imported into England, we send, for our share, 18 million dollars' worth of Cheddar; but though the butter imports of that country are about 60 million of dollars' worth, we only send one million dollars' worth. To help us to make our butter absolutely fit for the export trade, and suited to the taste of the English consumer, Professor Robertson has provided us with a Danish maker. You know, of course, that Danish butter is the finest on the market, and sells for the highest price. Mr. Robertson imported two casks of Danish butter for the last Montreal Exhibition, and placed them alongside of our butter; our butter was found to be as fine as the Denmark butter.

This evening, you will listen to Mr. A. A. Ayer, who will address you on the future of our butter-trade with England. If our butter enjoys so good a reputation in England, it is due in part, to the firm of Ayer & Co., which took great pains, last year, to introduce it into England and to make it known there.

One thing, too, that we ought to strive to accomplish is to establish local syndicates, for the sale of our butter and cheese. In the district of St. Hyacinthe, we have determined to start a local market, thereby following the good example set

us by the Eastern market, like the "cheese" market, all the cheeseries of the cheese is sold the probably have from chasers of the Dominion followed such a system

ADDRESS

I must inform you address you, it is not In the first place, as I come from Lac St and, consequently, have to teach, but to learn the interests of my country am here to-night. A of conscience, that population, is, at present each in its own sphere I would play the part strive to do my little

In our country, succeeded in organizing but had always failed. as well as a syndicate not perfect; far from these circumstances. Am with orders to sell at burdensome, we sell them have on hand, asking a bidder, who has to a We are well satisfied with er than usual, but with at the time we sell.

As we live far away as useful as possible, to cheese, called together with the intention of goods needed for the

us by the Eastern Townships. We mean to form at St. Hyacinthe a great cheese market, like the "cheese board" your district has established at Cowansville. There, all the cheeseries of the district are represented; the buyers flock thither, and all the cheese is sold there. The advantage to a whole region is very great. We shall probably have from 200 to 250 factories represented there; thither will all the purchasers of the Dominion be invited, and, doubtless, we shall succeed, as success has followed such a system at Cowansville, in Ontario, and other places.

ADDRESS OF M. JOS. GIRARD, M. P. P., (LAC ST. JEAN.)

I must inform you, Gentlemen, that in accepting the invitation made to me to address you, it is not my intention to make a speech; and that, for several reasons. In the first place, as your president who just introduced me, took care to tell you, I come from Lac St. Jean; so as you see, I reside far from the populous districts, and, consequently, have nothing new to tell you. My reason for coming hither was not to teach, but to learn new things. By my position as member, I am bound to look after the interests of my constituents, both here and at Quebec, and it is on this ground I am here to-night. As things are at present, I hold it to be the duty, almost a duty of conscience, that public men should discharge their obligations, wholly and everywhere, to their extreme limits. The Province of Quebec, especially its agricultural population, is, at present, like a hive of bees, in which every individual is at work, each in its own sphere of action, in its respective part. And in this hive, Gentlemen, I would play the part, not of a big drone, but of even the smallest of the bees, and strive to do my little share of work according to my capacity.

In our county, out there, it is only within the last two years that we have succeeded in organising a cheesery-syndicate. We tried to do so several times before, but had always failed. Now, we have had a cheesery-syndicate at work for two years, as well as a syndicate for sales there, 200 miles from Quebec. Our organisation is not perfect; far from it; but it is that which we thought the best to be done in the circumstances. Among the members of the syndicate, sale-agents were appointed, with orders to sell at the highest possible prices. In order not to make the selling too burdensome, we sell the cheese at home by telegram; we offer the buyers the lot we have on hand, asking them how much they will pay for it, and we sell to the highest bidder, who has to accept delivery, *i.e.*, the weight and quality, at our own station. We are well satisfied with this way of selling cheese. This year, it was rather cheaper than usual, but we have always succeeded in getting the highest prices current at the time we sell.

As we live far away from any of the great towns, and to make our Association as useful as possible, the Directors, who buy the goods used in making butter and cheese, called together all our tradesmen at our syndicate meeting last spring, with the intention of making, in common, at that meeting, the purchase of all the goods needed for the season. Some of them were present, others sent their prices

by letter; in short, we had offers from five or six different firms; and thus we succeeded in obtaining an average difference in the cost of these goods of 18 p.c. in our favour. As for the purchases we used formerly to make in Montreal, we had to pay freight on a distance of 380 miles; we can now buy goods delivered at our own place. This arrangement gives us, as a final result, a saving of \$392.05, divided among 23 patrons belonging to the syndicate in operation in our region last year. The expenses of our syndicate, amounting in all for the salary of the inspector and other outlays to \$500.00, the share of the factories, or \$250.00, being deducted, was paid for by this economy, and we had \$142.05 of clear profit. This proves the value of the proverb, Union is Strength. And the advantage of this system is, as M. Bourbeau says, that by it we also ensure uniformity in all the factories; we have the same rennet, the same salt, coloring matters, calico, and boxes. With an inspector who closely superintends the working of all the factories, all the makers, we succeed in getting a more uniform style of cheese. This is an indisputable advantage for our goods. Looking at the necessity, under which we labor to-day, of contending against competition by improving our products, this is a fact of the highest importance.

Such, Gentlemen, are the details I have to lay before you in proof of the fact that we, although far removed from the great centres of population, are also doing our best to insure that the goods we have to market, while being of the best quality and most carefully made, are brought out at as low a cost as possible both as regards the farmer and the maker. The system seems to have answered well this year, and I doubt not will be as profitable next year.

I must say that I was rejoiced to hear those who preceded me speak of the efforts making to improve our roads, and to learn from the Hon. Commissioner of Agriculture that which he had concealed from me up to this day, how great an interest he took in this important question.

I have remarked with pleasure the serious attention with which this enormous audience follows the proceedings of the Convention. It is a proof that, everywhere, farmers appreciate the importance of the people of the Province of Quebec devoting themselves more earnestly than ever to the work of agriculture, to the products of the farm.

Simple farmer, as I am, and by no means the wealthiest in my parish, I left the plough-stilts to go to Quebec, there to associate with public men, and with them to work for the benefit of the farmer and to closely watch over the interests of the agricultural population. The interests of the farmer; this is a subject to which I never fail to draw the attention of our public men, as often as an occasion of doing so presents itself, for I consider that to work in the interests of the farmer is to work in the interest of the country, of our province. Thus, when I see numbers of our public men devoting themselves to the interests of agriculture and watching over the interests of the farming population, I am deeply gratified; still more so, when I see good old gray-bearded fathers of families quitting their work and coming hither to gain information that will aid them in being successful farmers, then, indeed, is my

heart filled with joy when the agriculturists be prosperous too.

[In consequence we hope, however, to

The Rev. M. Cou when listening to M association and union how desirable it is that a bond which might our movement in favour Dairymen's Associationing successfully for men, that it is its duting resolution:—

Resolution proposed fully prays the Agriculture a delegation from Dairymen's Associational Canada Agricultural Roads Society, so as action in common, with the quickest, the improve

Carried unanimously

M. J. de L. Tac will ordain that make year that the Association and control its use. imposing a trade-marking to reiterate the mark for butter and c

Carried unanimously

heart filled with joy! For, to be successful the farmer needs earnest study, and when the agricultural population is prosperous, the province, the whole country will be prosperous too.

LECTURE BY M. J. D. GUAY.

[In consequence of a sad mistake, M. Guay's lecture cannot be inserted here; we hope, however, to be able to include it in the present report.]

The Rev. M. Cousineau (Superior of the Seminary of Ste. Thérèse).—Gentlemen, when listening to MM. Bourbeau, Girard and Guay addressing you on the subject of association and union, of that sort of union that makes strength, I began to think how desirable it is that there should exist among our different agricultural societies a bond which might unify their action, and by that very fact intensify the force of our movement in favour of the progress of agriculture in our province; and as the Dairymen's Association is indubitably the most prominent, and as it has been working successfully for many years for the advancement of agriculture, I think, gentlemen, that it is its duty to bring about that union. Wherefore, I propose the following resolution:—

Resolution proposed by M. Cousineau.—"That the Dairymen's Association respectfully prays the Agricultural Missioners to call together at each of their annual meetings a delegation from the executive committee of each of the following societies:—Dairymen's Association, Farmers' Syndicates, Canadian Breeders' Association, Central Canada Agricultural Society, Horticultural and Pomological Society and Good Roads Society, so as to concert, in agreement with these delegates, a method of action in common, with a view to the securing, by means at once the surest and the quickest, the improvement of the lot of the agricultural population."

Carried unanimously.

M. J. de L. Taché.—It is probable, gentlemen, that this year the Government will ordain that makers shall be obliged to brand their cheese. We proposed last year that the Association should register a special trade-mark for butter and cheese, and control its use. As it is almost certain that next summer a law will be in force imposing a trade-mark on butter and cheese, I think it right to propose to this meeting to reiterate the resolution passed at St. Joseph de Beauce concerning the trade-mark for butter and cheese. (See 13th Annual Report, page 172).

Carried unanimously.

SESSION OF WEDNESDAY EVENING, 4TH DECEMBER, 1895.

M. Castel.—Our worthy President prefers asking Mr. Foster to preside at this meeting. He thinks he could not speak English so fluently as he would like. I believe we shall all be pleased to see Mr. Foster act as President.

Mr. Foster.—I feel highly honored at being called upon to occupy the chair, and I can assure you it affords me great pleasure, as I think we are holding one of the most important meetings ever held in Bedford. As the hour is advanced, I will not take up your time any further, but will call upon Mr. Greig, M.P.P., to offer a few remarks before Prof. Robertson addresses you.

Mr. Greig.—Mr. Chairman and Gentlemen: I might say it is very unexpectedly I have been invited here to make any remarks. I cannot say, like my colleagues, Messrs. McDonald and Girard; they claim the honor of bringing the Hon. Minister of Agriculture here to-day. But I may say that, about 10 o'clock last night, our worthy Minister of Agriculture came to me in the House, and asked me if I would accompany him to your Dairy Convention at Waterloo. After he had insisted a little, I made up my mind to come. I have come, and am happy, in coming, to see so large an assembly.

I think that I will make a few remarks with reference to our butter and cheese factories. I have listened to a good deal of discussion this afternoon; but it strikes me that the great point to arrive at is some way in which we can have our farms and factories run to better advantage, and produce a superior quality of butter and cheese. I don't pretend to be able to state to you a better way; but we might devote our efforts a little more to that end. In Ontario, they have a system a little different from ours here, and it works well. Large manufacturers employ a man to manufacture their cheese, and he is interested in the result; he manufactures cheese for a certain sum, and arranges for the hauling of the milk. Now, in different parts of Ontario, (I think Prof. Robertson will be in a position to confirm what I say, and perhaps throw a little light on the subject), I understand cheese factories haul the milk, and make the cheese for two cents a pound. The question, then, is this: one man may be five miles from a given factory, and the other half a mile. By this system, every man pays the same price for the hauling, and it brings every man on an equal footing with regard to cheese and butter manufacture, and puts away this idea of small factories. It is proved that large factories produce a better quality of cheese than small ones, and for butter the same. It has got to this stage in the Province of Quebec, and it pleases me very much that you have come to it. I feel very sorry that the Hon. Minister of Agriculture, in connection with butter and cheese factories, at first encouraged so many to establish factories, and did not

restrict them, so that to-day, we have five There was a remark building a factory, and diately going and b thinks it is his own n this work in such a r This cheese goes on t cheese suffers on acc

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I might say a fe culture upon the qu think, since dairying have good roads. W There was considera against it. But to-d corroborate me in so it is used it is giving for ten times what it we have yet tried in introduce it into eve butter factories. Wh better or faster than I I do not intend t lowed by Prof. Robo information than I ca something which I fe it serious consideratio

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Mr. Foster :—I t Dairy Commissioner, will be of special inte all over the province.

Mr. Chairman and Ge

I come with som Convention, upon Hou Province of Quebec. Y of Canada, with the ex

restrict them, so that there should be only one or two to a parish in districts where, to-day, we have five or six in a parish. It would have been a great advantage for us. There was a remark made by one of the gentlemen this afternoon, about one man building a factory, and another saying: "Halloa! he is making money," and immediately going and building another factory on the opposite side of the road. He thinks it is his own now, and he will run it. Then, these factories cannot afford to do this work in such a manner as to make cheese of good quality, and we all suffer. This cheese goes on to the market, and brings more than it is worth, and the good cheese suffers on account of the bad.

Now, if the time had arrived when we had more cheese of good quality, we should have better prices, and all would benefit by it.

I might say a few words in regard to the attitude of the Hon. Minister of Agriculture upon the question of roads. I am much in favor of good roads. And I think, since dairying is suffering, it is much to the interests of the dairy industry to have good roads. Where I come from we bought, three years ago, a road machine. There was considerable kicking about it at the time; some were for it and some against it. But to-day I say this, and I think the neighboring municipalities will corroborate me in so saying, that the people are to-day highly pleased, and wherever it is used it is giving the greatest satisfaction. To-day, we would not be without it for ten times what it cost. It has been a greater benefit to our roads than anything we have yet tried in our part of the country. I think it would be a grand thing to introduce it into every part of the province, especially where there are cheese and butter factories. When roads have got into a bad state, their repair cannot be done better or faster than by these machines.

I do not intend to occupy your time any longer, since I know I am to be followed by Prof. Robertson, who will be able to give you a thousand times more information than I can. I understand he has something new to bring before you, something which I feel will interest us all very much, and I hope we shall all give it serious consideration and encouragement.

I thank you, gentlemen, very sincerely, for your kind attention.

Mr. Foster :—I take much pleasure in calling upon Prof. Robertson, Dominion Dairy Commissioner, to address you on the resources of the Province of Quebec. It will be of special interest to everyone in this district, and not only this district, but all over the province.

ADDRESS OF PROF. ROBERTSON.

Mr. Chairman and Gentlemen :—

I come with some diffidence, but with a good deal of pleasure, to speak at this Convention, upon *How to make the most of the food-producing resources of this wonderful Province of Quebec*. You may not know that this is the largest of all the Provinces of Canada, with the exception of British Columbia, where they have so much land

that it is said the good Lord had to double it up and down the hillside to make room for it.

In many other respects this is a prodigious province. It is full of good things; and of all the good things in this wide and beautiful province, I do not know of anything that cannot be made still better than it now is by the intelligence, industry, skill, labour, patience and justice of the men and women who live in it. Your soil and your grasses are both excellent, and they can be made more productive. Improvement can still be made in your grains and your foddery; you can still improve and increase the yield of your roots and your fruits; you can make more money and more comfort out of your trees; and with your flowers you can make the province better worth living in. With your pigs and your poultry, your cattle and your sheep, you can feed and clothe your families more abundantly, and provide the where withal to make them live more comfortable and more usefully. With your horses and cows you can increase wealth and enlarge the capacity of these to serve you, that you may better fill your place and serve others through the improvement of your Province. You can make your land better, more beautiful and more valuable, on account of the patience, persistence, kindly intelligence and frugal habits of your men and your women and their capable management of these resources.

While you have marvellous resources, from the lowly soil up to the lovely women, you have to be a marvellous people to make the most of them. How to make the most of these resources is still a problem of the farmer and the problem of life. To make the most of the soil, of the climate, of the plants, of the animals, to make the most of yourselves, these are the tasks worthy of your best talents.

THE POSSIBILITIES OF IMPROVEMENT.

The more I learn from frequent travelling of the almost unlimited resources of the Dominion for profitable agriculture, the more admiration I have for the Province of Quebec. Sometimes the people of Quebec have a little inclination towards a tendency to suppose, or to have it said that they do suppose, that if a man speaks very well of the fruit-producing resources of British Columbia, that therefore he has less liking than before for the fruits of Quebec. But only a man who knows Canada from ocean to ocean can appreciate Quebec at its best and true worth. And so, while I have something to do with all the provinces of Canada, I come back every year to the Province of Quebec with no abatement of my admiration for the resources of this beautiful Province. Still, of all the good things Quebec possesses, I do not know of anything that cannot be made better than it now is by the intelligence and the industry and the skill and the patience and the justice of men and women, and just so far as this Dairyman's Association can stimulate the cultivation and exercise of these things, so far does it become one of Quebec's valuable resources for wealth. There is an opinion sometimes that the sources of wealth are all material things that can be weighed and measured and bought and sold. It is not quite so. While the

natural resources for materials, these cannot application of intelligence the Province to exert make the resources of sunshine acts upon the to the doing of something up the farmers through As inert material is a plant and the application wakened up and lifted such organizations are in these things. They sufficient answer to the the beauty of flowers, these and many other

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Some people try country by looking into If increase in numbers the most progressive of population annually that is not necessarily are there of you?" by means of measuring a country to determine it be a land good to live in estimate it by its bread who live in it, except by to the people than can I take it mainly to be a butter, and abundance of which we want. That is here; we would go else to measure a country's high or noble ideal, but people at the present responsible for the standard complaint of a few literate an all-surrounding and a deeply in advancing the

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natural resources for wealth may be spoken of as soil, water, climate, and building materials, these cannot be realized upon into forms of usable wealth except by the application of intelligent labor. In so far as this Association causes the people of the Province to exert themselves in right directions, in so far does it enable them to make the resources of the Province available for the well-being of the people. As sunshine acts upon the latent life of seeds which are planted, and wakes them up into the doing of something, so the kindly energies of this Association have been waking up the farmers throughout the Province and causing them to bring things to pass. As inert material is quickened and glorified through the contact of the life of the plant and the application of sunshine, so the great masses of the population are awakened up and lifted up by the humanized sunshine which finds expression through such organizations and conventions as this. Of course, some few people see no good in these things. They are those who never go into the sunshine business; and the sufficient answer to their unbelief is that the presence of a blind man does not abolish the beauty of flowers, nor prevent the sweet sunshine from enriching the earth with these and many other good things.

STANDARDS FOR MEASURING PROGRESS.

Some people try to measure our progress in developing the resources of the country by looking into the statistics of blue books, to see how many there are of us. If increase in numbers be a fair way of measuring a country's progress, China is the most progressive country in the world. So far as I know, it has a larger increase of population annually and less emigration than any other land the sun shines on; that is not necessarily progress, or evidence of progress. It is not "How many are there of you?" but "What are you each good for?" Since that is not a fair means of measuring any advancement we may make, what rule shall we apply to a country to determine its progress? How shall we measure it to discover whether it be a land good to live in, or whether it becomes more so from year to year? Let us estimate it by its bread and butter opportunities. There are few people in Canada who live in it, except by choice; so there must be something here more pleasant to the people than can be found elsewhere, to induce them to stay. What is that? I take it mainly to be a chance of making a good living and getting good bread and butter, and abundance of them. I mean by bread and butter all the material things which we want. That is how most of us have measured the land, or we would not be here; we would go elsewhere. Someone says that is a very low standard by which to measure a country's attractions and opportunities. It may not express a very high or noble ideal, but is it not the rule for every-day life, which actuates most people at the present time? I would rather be responsible for the statement than responsible for the standard of measurement. I have no sympathy with the flippant complaint of a few literary, so-called learned people, who say we are going over to an all-surrounding and all-absorbing materialism. I find many men who are engrossed deeply in advancing the material interests of a country, who by that means are

reaching up towards an attainment of their ideal of an honest and noble living ; and I find others of the super-ultra literary sort, who are reaching out towards material and sordid ends through what are called ideal means. Would not an honest man, with a high ideal of life, rather dig drains, shovel coal, saw wood, break stones, and certainly bake bread, make butter and enjoy the luxury of realizing his high ideal of an honest living, giving the world more value in service than he got or took of substance, than follow a genteel calling for the sake of escaping toil and thus become a parasite, getting more than he gave. To be engaged in advancing the material welfare of a country is not sordid, but sublime.

THE POWER OF THE SUN ON THE PRODUCTION OF FOOD.

I hold in my hand some bread and milk. What is bread ? You can weight it and measure it. You can feel it and taste it. But where did it come from. A scientist might call this bread "manna." I call it something gotten out of the heavens, out of the unseen, for ninety-eight pounds out of every one hundred came originally from the atmosphere and not from the soil. It is atmosphere and sunshine rolled up together.

In saying a few words about wheat, it is well to know that little things, insignificant in themselves, sustain the life of the world's civilization. It takes between 20,000 and 25,000 grains of wheat to make a two-pound loaf of bread. Grains of wheat may not be much singly, but collectively they are the bread of the nation. 3,500 grains of wheat are swallowed when a boy disposes of his bowl of bread and milk. Wheat may make good flour and good bread and good food, yet if the grains were planted they might not grow. When wheat is four or five years old it is not likely to grow. The story of grains of wheat being held in the hand of an Egyptian mummy for thousands of years and then growing is all legendary. Some seeds which have oily skins may retain their reproductive powers for years, but it is not so in the case of wheat. Wheat grains with vitality are more than substance, they are latent life, suspended animation. The vibration of the sun's rays are so inconceivably rapid that they cannot be understood. But what a gentle yet effective power they possess ! I might say to a wheat grain, "Wake up," and I might crush it in the effort to make it obey. But the sunshine says in the sweetest yet strongest way, "Wake up!" and the wheat wakes up and lives—does something. That is sunshine gentle. Sunshine boisterous, mad, illtempered, uncontrolled, is a house on fire. As long as a grain of wheat remains in the granary, perfectly contented, eminently respectable and undisturbed, it enjoys no romance ; but as soon as you put it on a field and harrow it, and let the damp soil hold it, and the sun's vibrations thrill it through and through, it feels the aspiration of romance and lives.

THE USING OF SUNSHINE FROM FOODS.

And so it is with boys who are sent out into the world. I would have a boy believe that everything in the world is possible to him. I do not like a lad whether he be sixteen or sixty, to think that there is no romance in life, no unselfish nobility

of life possible for him therefore brutish man service, he may have t the wheat plant. Wed say, "Oh, it is so nice all the time." There palms of the hands to utterly false. A ha washes them, has mo who soils his hands return. Every part o for something that is chaff to provide food f bread. Man eats the coarse part to elaborat I wind energy into m stalks hold its strengt which has been rolled cow. The warmth is The wheat plant is say have capacity and pov comforting and more butter are sunshine m ized that it may be a l life does not pay you happiness. One hund bread is such an impo of a girl being require she ought to be able to be allowed to seek h bread appears to weigh

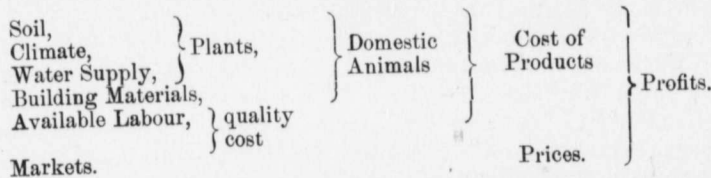
It is admitted by e try and to promote it resources, through inte of Canada are mainly resources of all countri such as soil, climate a soil itself ; the former i exhaustible resources and the supply of mine

of life possible for him; for just as soon as he believes that he becomes a selfish and therefore brutish man. But if he steps into the grave of unselfish renunciation for service, he may have the romance of growing up into a beautiful useful life like that of the wheat plant. We do not like dirty jobs, especially if they soil our hands. You may say, "Oh, it is so nice to have soft hands, and wear a white shirt and nice clothes all the time." There is a notion that life is meaner and rougher for having the palms of the hands tough and callous and the backs of them brown. The notion is utterly false. A hard-working boy who soils his hands by honest toil and then washes them, has more to recommend them and him than the lily-handed fellow who soils his hands by accepting money for which he practically gives nothing in return. Every part of the wheat plant is useful for the next crop, and, failing that, for something that is between itself and a higher form of life. There are straw and chaff to provide food for the cow, and thus to enable the boy to get milk for his bread. Man eats the fine part of the plant direct, and the cow or sheep eats the coarse part to elaborate it into finer forms. The sun winds energy into the plant as I wind energy into my watch. The sun rolls its energy into the leaves, and the stalks hold its strength. These are taken by the cow, and they carry the sunshine which has been rolled into them into the cow, the sun lets go inside and warms the cow. The warmth is the sunshine stored up in plants and afterwards liberated. The wheat plant is saying to us, "Go into the sunshine business, it may be that you have capacity and power for giving back sunshine to the world, more helpful and comforting and more easily transferable than I have in my stalk." Bread and butter are sunshine materialized; when eaten they should become sunshine humanized that it may be a blessing to the world; and if the playing out of sunshine into life does not pay you always in cash, it will pay you in the richer currency of happiness. One hundred pounds of flour will make 136 pounds of bread; and since bread is such an important factor in the happiness and health of the people, instead of a girl being required to play sixteen pieces on the piano before being engaged, she ought to be able to make good, wholesome, dainty bread before any man should be allowed to seek her in marriage. (Laughter and applause.) Sometimes the bread appears to weigh about two tons after you have eaten it.

TO REALISE ON NATURAL RESOURCES.

It is admitted by everybody that the sure way to increase the wealth of a country and to promote its prosperity is for its people to realize on their natural resources, through intelligent skilful labour. The natural resources of Quebec and of Canada are mainly those which can be realized upon through agriculture. The resources of all countries may be classified as, first, those which are inexhaustible, such as soil, climate and water supply. Fertility of the soil is different from the soil itself; the former is a resource which may be exhausted. Secondly, there are exhaustible resources which are not restorable, such as the coal fields, natural gas, and the supply of minerals which once exhausted cannot be restored. Again, there

are exhaustible resources which may be restored but which are liable to deterioration, such as the supply of fish in our lakes and streams and the supply of water in our rivers,—for water-power may be lessened by the denudation of the hillsides of their trees, and the consequent irregularity of drainage and of rainfall. Moreover, there are resources which are exhaustible and are still capable of restoration, with improvement and increase by use. Among these are the resources of fertility of soil, building materials, available labour, and educational attainments on the part of the people. These, while easily exhaustible, can still be improved and increased by use. Coming to point out the resources that Canada possesses for the production of perishable food products, let me use this chart for a moment to show that, for the production of such fine food products as will give Canadian farmers a fair and good chance with their competitors in other countries, we have excellent resources :



In soil Canada has no superior among all the countries where the people follow farming for a living; but fertility of soil is not always a source or assurance of wealth to the people who live on it. I shall use only one illustration to make my meaning clear with reference to that. The people who dwell on the Delta of the Nile live on the richest soil, I think, that lies anywhere under the sun; and they are among the poorest of people who follow the tilling of land for their living. Even with the fertility of the land of Egypt the people stay poor, chiefly because they have not realised upon other available resources, mainly perhaps that of intelligent labour as applied to their calling.

THE CLIMATE OF CANADA FAVOURABLE FOR AGRICULTURE.

We in Canada have a climate which is admirably adapted for growing very large quantities of such plants as are suitable for the cheapest production of cattle products. I don't know any land superior to Canada in that regard. Other countries can grow plants that we cannot produce with success at all, but I don't know any that can produce under the influence of its climate and soil plants that will yield larger quantities of products per acre with a larger margin of profit to the people who produce them. Our water supply is fairly reliable in nearly all parts of the Dominion. These resources enable us to grow fodder plants economically, and, with the added resource of cheap building materials, they enable us to add to the growing of the plants, the feeding of domestic animals with profit. I need only mention that the provinces that lie eastward of Lake Huron are perhaps better off than the prairie provinces of the Dominion, in possessing plenty of building materials easily

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has been certainly ch under difficulties; bu that enabled the peo with the production which was not of a hig ducts well and cheap. minds of the members matter. I should not available labour I ha smething. I should bu have no available lab mean that I cannot c ability of high order : order for such work as

The labour has be proportion to the pri thing which we have b horse-power and have so far as the labour ele

PROFIT BE

Now, I come to a fine food products from work, and no matter ho posal, the profits after themselves, and the pr markets to which they : reducing the cost of the farmers are applying : methods to the making however, there is still a also to the men who h and difficulties that stan commodities,—that stan price paid by the ultima wages of the producer, a consumer.

available for the shelter of cattle during the period of the year when they must be housed in some comfortable way. Then we have a resource in available labour, which is improving in quality every year. It needs much further improvement.

THE LABOUR OF THE CANADIAN FARMERS

has been certainly characterised by diligence and every kind of forceful persistence under difficulties; but it has not been of that order until recently in most sections that enabled the people to turn out fine food products. It was largely concerned with the production of grain, fodder and primitive products, by means of labour which was not of a high quality in regard to the experience to turn out fine food products well and cheap. You will allow me to use one illustration in order to get the minds of the members of the Committee into sympathy with my own in viewing this matter. I should not be using a disparaging word about myself in saying that the available labour I have is of a very poor quality as applied to the work for blacksmithing. I should burn a great deal of coal, waste iron, and make clumsy shoes. I have no available labour of high quality for that class of work; but that does not mean that I cannot do other things very well. The farmers in the past have had ability of high order for the work they had to do; but not of good quality or high order for such work as they have to do now and will have to do in the future.

The labour has been of such a nature that the cost has been comparatively low in proportion to the price of the products, mainly because in the production of the thing which we have been selling and exporting, we have applied a great deal of horse-power and have used labour-saving machinery. Thus, we reduced the cost, so far as the labour element was concerned, that entered into the cost of our products.

PROFIT BETWEEN COST OF PRODUCTS AND SELLING PRICES.

Now, I come to a point that bears directly on this subject—the exportation of fine food products from Canada. No matter how well the farmers may do their work, and no matter how excellent the quality of products they may have for disposal, the profits after all will depend on two things, the cost of those products to themselves, and the prices which they can obtain for those products from the markets to which they are sent. I think the farmers of Canada are in the way of reducing the cost of their products as low as they can be brought. I think our farmers are applying as much of labour-saving skill by the use of the best of methods to the making of what they have to sell, as any farmers are. I think, however, there is still a great loss of possible profit to the farmers of Canada, and also to the men who handle the farmers' products, by the obstructions, obstacles, and difficulties that stand between the producer and consumer in the interchange of commodities,—that stand between the cost of the product to the farmer and the price paid by the ultimate consuming buyer, that unreasonably reduce the profits or wages of the producer, and at the same time unnecessarily increase the price to the consumer.

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LAW OF SUPPLY AND DEMAND.

It may be said there is no use inviting the farmers to go on producing more butter or more cheese, or more beef, or more mutton, or more bacon, or more eggs, or more fruit, unless there is a market for those things, not merely at some price, but at a price which will pay the man who produces them fairly well for his labour. If the price of these products can be raised, you can at once increase the production.

That is the law of supply and demand; not merely a demand for a product at some price, but a demand at such a relatively high price as will leave the man who produces satisfactory returns for his labour and his capital. Then, the demand itself depends upon two things. It depends, I think, largely upon excellence of quality, and then on relative cheapness or lowness of price. If everybody in Ottawa could get strictly fresh-laid eggs during the winter at 20 cents a dozen they would use that kind, instead of eating other eggs at 15 or 16 cents a dozen; and the demand would be so greatly increased that there would be no possibility of overstocking the market at that price. Excellence of quality would make a larger consumption per head by present customers, and lowness of price would lead the common people to eat what only the rich can now afford. And therein lies, I think, a great deal for the Canadian farmers to examine;—whether they could not get the large class of consumers of high-priced foods in England to prefer our fine food products, and so get for a portion of our exports somewhat near the prices paid by the wealthy classes for very dainty food. The production will respond to relatively high prices or profits. Just as soon as the profits increase, just so quickly is there a great enlargement in the production. Let me give an illustration. The high class consumers of beef in Great Britain pay rather more than a shilling a pound for the best cuts, eight pence a pound for the second cuts, and four pence for the third class of cuts of their beef. They often pay higher prices than these, but as far as I can learn that is a moderate average for the very best quality of beef. That leaves an average equal to 17 cents a pound, by the carcass, after allowing for the loss in weight in the retailing of the pieces. In figuring out the actual cost of retailing beef and leaving a wide margin for profit, I find a retailer could sell beef with an excellent revenue for himself if he had clear a cent and a half per pound, after allowing for the loss in weight in cutting up. That is a profitable business. I have allowed nearly a hundred per cent above the actual cost of wages and rent. As the business is done now, it costs a little less than two cents a pound of dressed beef in Great Britain, to pay all the expenses of shipping cattle alive from Montreal, slaughtering them on the other side, refrigerating them there, and selling them on commission. The actual cost during the past year, reckoned on the net weight of beef from animals shipped alive, was rather less than 2 cents a pound from Montreal outwards. Allowing the retailer what I call a liberal margin for his services in this business, and counting the cost for transportation, killing, etc., at what it actually cost last year, the total charges incurred in conveying the live cattle from Montreal and the beef from them to the consumer would be 3½ cents a pound of beef. Taking

the 3½ cents from 17 consumers in Great might be available for very best quality of

Nobody can create corn or silage, or grass. Milk contains nearly almost perfect food. If I put in pepper, h milk there are fat globules can hardly be seen, but in a drop of milk the from which butter is made we shall be able to make

The following of weight 148 pounds:

Water.....	.....
Albuminoids.....	.....
Fats.....	.....
Carbohydrates.....	.....
Mineral matter.....	.....

Water is the vehicle material from one place "proteoids," or "nitrogen" per cent. of nitrogen. well known to us as also is also a constituent of while they may be consumed nourish and repair the contain nitrogen. A livid skin and other parts of albuminoids are worn off in the sewerage system what is worn off, else sufficient quantity of finished.

Then, in the human living body is composed fuel to maintain the work

the 3½ cents from 17 cents, which is the average price paid by the best class of consumers in Great Britain, leaves 13½ cents per pound, which, it seems to me, might be available for the farmers of the provinces of Ontario and Quebec for the very best quality of beef.

THE ORIGINAL SOURCES OF FOODS.

Nobody can create anything. The cow can change the form of grass or hay, or corn or silage, or grain or roots, into milk. The cow can improve or degrade food. Milk contains nearly every material of which we are made, and thus the milk is an almost perfect food. If I put sugar into milk it disappears, it is then in solution. If I put in pepper, however, it stays in its own form, and is in suspension. In the milk there are fat globules which are in suspension. They are so small that they can hardly be seen, but when milk is set they come to the top and form the cream. In a drop of milk there are millions of these fat globules, and these are the things from which butter is made. The more we are able to recover of these the more butter we shall be able to make from milk.

The following chart shows the composition of the human body of average weight 148 pounds:

	Pounds.	Percentages.
Water.....	90.0	60.9
Albuminoids.....	26.6	17.8
Fats.....	23.0	15.5
Carbohydrates.....	.1	.1
Mineral matter.....	8.3	5.7
	<hr/> 148.0	<hr/> 100.0

Water is the vehicle used oftenest by nature for the carrying of portions of material from one place to another. The albuminoids, sometimes called "protein," "proteoids," or "nitrogenous compounds," are those which contain about sixteen per cent. of nitrogen. They get the name "albuminoids" from a typical albuminoid, well known to us as albumen, the main constituent in the white of eggs. Albumen is also a constituent of milk. The albuminoids of foods are the "flesh-formers," and while they may be consumed to produce heat in the body, their main function is to nourish and repair the muscles, nerves, skin and other parts of the body which contain nitrogen. A living body needs these compounds to form the muscles, nerves, skin and other parts of the body. In performing the functions of life some portions of albuminoids are worn out from the skin, the muscles and nerves, and are carried off in the sewerage system of the body. We must swallow something to replace what is worn off, else we shall wear out. Therefore we must take in our food a sufficient quantity of albuminoids to maintain the albumoids of the body undiminished.

Then, in the human body are fats for heating and for lubrication. While the living body is composed of certain compounds, every living organism must consume fuel to maintain the warmth or heat.

COMPOSITION OF NUTRIENTS, IN PERCENTAGES.

	Nitrogen.	Carbon.	Oxygen.	Hydrogen.
Albuminoids	16.0	53.0	24.0	7.0
Fats	none	76.5	11.5	12.0
Carbohydrates } starch	none	44.4	49.9	5.7
} sugar	none	42.0	51.0	7.0

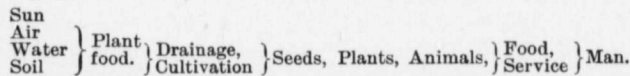
The albuminoids, fats and carbohydrates come from four elements or sources. Albuminoids only of the three contain nitrogen. Four-fifths of the atmosphere everywhere may be termed nitrogen. The albuminoids contain sixteen per cent. of it, and if we can grow any sort of a plant that will glean it from the atmosphere and make it palatable to cows or other live stock, then we may use the nitrogen from the atmosphere, through the plant first, and the cow or other domestic animal afterwards, for the use of man.

There is almost always such an abundance of mineral matter in the common foods which are consumed, that I may pass over it without further remark.

The uses of food may be stated as :

1. To form the fluids and tissues of the body.
2. To repair waste.
3. To be consumed as fuel.
4. To be stored in the body for future consumption.

The sources of all nutrients, or nourishing ingredients in food are depicted on the following chart :



In fact, the production of food and the whole range of agricultural operations are but the conversion of some natural force from one form into another.

The following chart shows the quantities of nutrients which may be obtained per acre :

QUANTITIES OF NUTRIENTS PER ACRE.

	Albuminoids.	Carbohydrates.	Fats.
	lbs.	lbs.	lbs.
Indian corn (9000 pounds dry matter)	873	7,371	288
Horse beans (twelve tons, green)	653	1,814	167
Sunflower heads (seven and a half tons)	352	2,373	729
Hay (mixed, two tons)	271	2,888	97
Roots (carrots or mangels, twenty tons)	480	4,320	68

One object sought these crude nutrients in buys milch cows and f able to drink cream. conversion; and the ob

After providing ff fodders into finer forms might sustain five persc

The following char

COMPOSITI

Oatmeal
Rice
Pease
Beans
Pork, fat
Potatoes
Beef, rather lean
Milk
Wheat bread
Butter
Cheese

Of the nature and ff known as "flesh-formers the "heat-producers." obtained in vegetables, ce of the fat of meat, the bu sources.

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The term "nutritive minoids or flesh-formers i heat-producing or fuel val that of carbohydrates, suc greater than albuminoids.

One object sought to be gained by the feeding of cattle is the elaboration of these crude nutrients into finer forms of food fit for human use. An intelligent man buys milch cows and feeds them on cornstalks; the cow eats cornstalks, and he is able to drink cream. The soil, the plants and the animals are all instruments of conversion; and the objective is an abundance of food and service for mankind.

After providing food for the domestic animals required to elaborate coarse fodders into finer forms, the crops from five acres under a high class of cultivation might sustain five persons in abundance of good food.

The following chart shows the composition of some common foods:—

COMPOSITION OF SOME COMMON FOODS, IN PERCENTAGES.

	Water.	Albu- minoids.	Carbo- hydrates.	Fat.	Ash.
Oatmeal.....	10.0	15.0	69.0	5.0	1.0
Rice.....	12.4	7.4	79.4	.4	.4
Pease.....	15.0	22.9	57.8	1.8	2.5
Beans.....	15.1	25.5	55.0	1.6	2.8
Pork, fat.....	10.0	3.0	.....	80.5	6.5
Potatoes.....	75.5	2.0	21.3	.2	1.0
Beef, rather lean.....	66.7	23.0	.....	9.0	1.3
Milk.....	87.0	3.5	5.1	3.7	.7
Wheat bread.....	32.7	8.9	55.5	1.9	1.0
Butter.....	12.0	1.0	.5	83.5	3.0
Cheese.....	35.0	25.8	2.3	34.0	3.7

Of the nature and function of albuminoids I have already spoken. They are known as "flesh-formers" in foods. The carbohydrates and fats of food are termed the "heat-producers." They are the starch, sugar, gums and fibre which are obtained in vegetables, cereals, fruits, etc., and the fat which we obtain in the form of the fat of meat, the butter fat of milk, or the oils from cereals or other plant sources.

CORRECTLY BALANCED FOODS ARE WHOLESOME.

The term "nutritive ratio" is the one used to denote the proportion of albuminoids or flesh-formers in food to the sum of the other nutrients in the food. The heat-producing or fuel value of fat in food is two and a quarter times as great as that of carbohydrates, such as starch and sugar, and also two and a quarter times greater than albuminoids.

Oxygen.	Hydrogen.
24.0	7.0
11.5	12.0
49.9	5.7
51.0	7.0

elements or sources, of the atmosphere sixteen per cent. of the atmosphere and the nitrogen from domestic animal

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Man. cultural operations other. may be obtained

Carbohydrates.	Fats.
lbs. 7,371	lbs. 288
1,814	167
2,373	729
2,888	97
4,320	68

That the "flesh-forming" and "heat-producing" parts of our food should be in correct proportion to each other, is important for the health and well-being of the race. In the food of the well-nourished peoples of Europe the proportion is about one of the "flesh-forming" to four or six of the "heat-producing" constituents. In the diet of Americans the ratio is usually from one to six and a half, or from one to eight or nine. If you compare rice with oatmeal you will find that the difference between these has meant a great deal for the race. If a person uses a well-balanced ration, then, barring accident or disease, he will be a well-conditioned, effective individual.

In our experimental work in the feeding of animals, we find that the vigor, healthfulness and apparent contentment of the animals, as well as their profit-yielding capacity, are in a large measure determined by the proportions which these two classes of nutrients bear to each other, as well as to the palatability and digestibility of the food which is consumed. I think that the same principle might correctly and beneficially be applied for the guidance of people in purchasing and preparing food for themselves.

THE ECONOMICAL USE OF FOOD.

The proportion of waste in some foods is very great. In beef the inedible or waste portion from bones is from ten to twelve per cent.; in mutton, eighteen per cent.; in eggs, from shell, 14 per cent.; and in poultry, from forty per cent. upwards. Three and a half pounds of potatoes have nourishing material equal to one pound of rice; and there are about equal quantities of nutritive material in one quart of milk, in three-quarters of a pound of beef, and in five ounces of wheat flour or oatmeal. The nourishing value of these three quantities may not be quite equal, as the body is sustained by what is digested, and not by what is swallowed; but, since a quart of milk (costing five cents), three-quarters of a pound of beef (costing ten cents), and five ounces of flour or oatmeal (costing about one cent), contain nearly equal quantities of nutrients, there may be a great deal still to learn on the economical use of foods and the preparation of them in such a way as to make them both palatable and digestible in the largest measure.

I have put on a chart, illustrations by lines of different lengths the food value of twenty-five cents' worth of several common foods. The black lines represent calories, indicating the force value or the fuel value of the food. A calorie is a unit designating the amount of heat which would raise the temperature of a pound of water four degrees Fahr. The number of calories which a man needs to sustain him at hard labor is about 3,500 per day. In twenty-five cents' worth of beef at fifteen cents per pound the food value is equal to 1,620 calories. The food value of one dozen eggs at fifteen cents per dozen is 1,860 calories. The food value of five quarts of milk at five cents a quart is 4,062 calories. The food value of twenty-five cents' worth of cheese at fifteen cents a pound is 3,455 calories, so that a pound of cheese is the equivalent of about two and one-fourth pounds of the best beef you can buy

for food purposes. To him a well-balanced why, although the output of cheese is a with other foods. M they like best and w for the price paid for

Nutritive ingredients

Beef, sirloin, 15 cents per
Eggs, 15 cents per dozen
Milk, 5 cents per quart..
Cheese, 15 cents per lb ..
Butter, 25 cents per lb ..
Skim-milk, 3 cents per qt
Oatmeal, 3 cents per lb ..
Beans, 5 cents per lb....
Cornmeal, 3 cents per lb
Wheat flour, 3 cents per l
Wheat bread, 5 cents per
Potatoes, 1 cent per lb ...
Rice, 6 cents per lb.....
Sugar, 5 cents per lb.....
Standard ration per day f

*For some of the information by W. O. Atwater, Ph.D., D.C.

for food purposes. That is why the Englishman's diet of bread and cheese gives him a well-balanced ration at the very lowest cost. That is the reason, you see why, although the cheese market may temporarily pay a low price for it, a large output of cheese is a safe thing in coming years, because it is a cheap food compared with other foods. Men who have to study economy in buying, buy the foods which they like best and which at the same time contain the largest quantity of nutrient for the price paid for them.

TABLE I.*

Nutritive ingredients contained in 25 cents' worth.	Albumin-	Carbo-	Fat.	Calories.
	oids.	hydrates.		
	lbs.	lbs.	lbs.	
Beef, sirloin, 15 cents per lb.....	.25	.....	.27	1,620
Eggs, 15 cents per dozen .....	.34	.....	.29	1,860
Milk, 5 cents per quart.....	.45	.58	.50	4,062
Cheese, 15 cents per lb .....	.47	.03	.59	3,455
Butter, 25 cents per lb .....	.01	.....	.85	3,615
Skim-milk, 3 cents per quart .....	.72	1.00	.07	3,495
Oatmeal, 3 cents per lb	1.22	5.70	.59	15,370
Beans, 5 cents per lb.....	1.16	2.96	.10	8,075
Cornmeal, 3 cents per lb .....	.77	5.88	.32	13,705
Wheat flour, 3 cents per lb.....	.91	6.24	.09	13,705
Wheat bread, 5 cents per lb.....	.44	2.82	.08	6,400
Potatoes, 1 cent per lb .....	.45	3.80	.62	8,000
Rice, 6 cents per lb.....	.31	3.31	.02	6,795
Sugar, 5 cents per lb .....	.....	4.89	.....	9,100
Standard ration per day for man at moderate work .....	.28	.90	.30	3,455

*For some of the information in Tables I. and II., I am indebted to Farmers' Bulletin No. 23, by W. O. Atwater, Ph.D., issued by the United States Department of Agriculture, Washington, D. C.
















































r food should be in well-being of the roportion is about " constituents. In alf, or from one to hat the difference ses a well-balanced iditioned, effective

nd that the vigor, s their profit-yield- ns which these two y and digestibility e might correctly ing and preparing

ef the inedible or utton, eighteen per n forty per cent. material equal to ive material in one nces of wheat flour not be quite equal, is swallowed; but, id of beef (costing one cent), contain ill to learn on the y as to make them

is the food value of k lines represent A calorie is a unit re of a pound of eds to sustain him of beef at fifteen food value of one alue of five quarts twenty-five cents a pound of cheese beef you can buy

TABLE II.
NUTRITIVE Ingredients contained in twenty-five cents' worth.

	Albuminoids 	Carbo-hydrates. 	Fats. 	Calories. 
Beef, sirloin, 15 cents per lb.				
Eggs, 15 cents per dozen.				
Milk, 5 cents per quart.				
Cheese, 15 cents per lb.				
Butter, 25 cents per lb.				
Skim milk, 3 cents per quart.				
Oatmeal, 3 cents per lb.				
Beans, 5 cents per lb.				
Cornmeal, 3 cents per lb.				
Wheat flour, 3 cents per lb.				
Wheat bread, 5 cents per lb.				
Potatoes, 1 cent per lb.				
Rice, 6 cents per lb.				
Sugar, 5 cents per lb.				
Standard Ration per day for man at moderate work.				

I have observed that many people buy extravagantly or considerably more of no one knows anything about than the skilled laborer who earns his earnings for food. In C of his earnings for food out sixty-three per cent

Woman is and always through her skill or effort is thus made strong to Amid the clamor of one can still hear the unment on the part of the form of civilisation. Tlitions which are termed est worth doing well.

erve well than to shintivities, financial managely great, it is unpardecome careless at that todies, the highest possibleneration to generation little every time by the Whosoever will be grea chiefest shall be servant eces can be made to act

In the light of historthe possession of adventitcrease in material wealtore danger of temptatio

Under conditions liklabor and should labor. Jnal activity and effort tlents. Wealth stands fersonal endowment, whcomply more in life thone. Simplicity of life

Let us have more plaid depend upon it that b

I have observed the diets of some of the people of Canada, who cannot afford to buy extravagantly or carelessly, and I find that one can buy for twenty-five cents considerably more of nourishing food than many of these poor people who do not know anything about the nutritive value of foods buy for one dollar. In England, the skilled laborer who earns \$500 per year pays about fifty-one per cent. of his earnings for food. In Germany a similar artisan or laborer pays fifty-five per cent. of his earnings for food, and in Massachusetts men in similar stations in life pay about sixty-three per cent. of their earnings for food.

THE WOMAN'S RIGHT.

Woman is and always has been essentially the nourisher of the race. When, through her skill or efforts, the community is well fed, even to its poorer members, it is thus made strong to stand all the strain of our modern life upon it.

Amid the clamor of the new-fangled call for new chances for the New Woman one can still hear the unspoken cry of half-nourished bodies asking for better equipment on the part of the women in the discharge of the duty laid upon them in our form of civilisation. This is a much harder class of work to do than those occupations which are termed fashionable and genteel; but, because it is hard to do, it is most worth doing well. It is as much harder to do, as it is harder and nobler to serve well than to shine well; and while the claims of social life, intellectual activities, financial management, domestic duties and artistic tastes become increasingly great, it is unpardonable that the hand of the nourisher of the people should become careless at that task. When boys and girls are grown in well-nourished bodies, the highest possibility will be realised in passing the torch of life on from generation to generation with a clearer, more kindly, unselfish light and life, exalted a little every time by the hallowed nobility of self-sacrifice and intelligent service. "Whosoever will be great shall be your servant, and whosoever of you will be chiefest shall be servant of all." That is how those silent, strong and constant forces can be made to act for good and not for ill.

In the light of history the advancement of nations is often in inverse ratio to the possession of adventitious resources, and while in Canada there is a very great increase in material wealth and in the availability of means for acquiring it, there is more danger of temptation to lose the ideals of useful nationality.

Under conditions like ours, it is still true that most men and women must labor and should labor. The rich man is no more absolved by his wealth from personal activity and effort than is the poor man by his lack of material embarrassments. Wealth stands for accumulated power, and hence a wealthy man with personal endowment, who also can control wealth, is under double obligation to accomplish more in life than a poor man who is responsible for his personal power alone. Simplicity of life makes for nobility in life.

Let us have more plain and wholesome diet for the boys and girls of Canada, and depend upon it that bread and milk will lead not only towards more perfect

health, but also towards more beautiful living, and more earnest and effective labor.

The following table shows the total number of animals which are available for food, and whence the supply may be obtained :—

THE WORLD'S LIVE STOCK.

	Cattle.	Sheep.	Swine.
In the world	298,873,657	534,848,924	102,172,224
United Kingdom	11,207,554	31,774,824	3,278,000
Canada	4,060,662	2,513,977	1,702,785
Australasia	12,632,018	116,153,632	1,026,014
United States.....	52,378,283	42,273,553	46,094,807

This chart was arranged to illustrate whence Great Britain might obtain the food supplies of a fine sort which she needs. It is Australasia that we have more to fear in the competition with cheese and butter than any other quarter. The numbers of cattle there have been increased within the last eight years by more than our whole stock. Their increase in eight years has been over four millions of cattle, and they are going to be very formidable competitors of ours in cheese and butter products. In the United States there are large herds of cattle, sheep and swine. I point out this fact, also, that it is no wonder that the Australians possess the English market for preserved and frozen mutton, because they have such enormous flocks of sheep compared with any other country.

BRITISH MARKETS FOR FOODS.

The British people, as seen through their markets, are great eaters. That is their chief characteristic, and they talk about their food more than any people whom I have ever met. They do not confine all their talk to their food; still, they talk a lot about what they eat. The British people have won for themselves the most distinguished place in civilisation. In our little social circle we arrange those who sit at the table and those who wait at table into two classes, and we think in our little way that those who sit at the table are a little better off than those who wait at table. The producers of all civilised nations are to-day seeking the privilege of waiting at the tables of Great Britain. Do not you go about the country in Canada thinking we are a little folk who do not amount to much. The people of the United States, France, Germany, Austria, Italy, Spain, Denmark, and all the rest of them, are the waiters at the table of Great Britain and are seeking the favor of doing it. We are a part of that Empire on whose table the peoples of the earth are waiting. We ought to have a rather better show in our mother

house than other folks. In the near future we shall be better to get pure butter from our own place; that it is better to get it from our own borders than to import it, but if we cannot frighten you to get butter from Canada; and now we have plenty and of excellent quality the most opportune time for the consumers, for colonial. The imports of fine butter are following table:

- Animals living (.....)
- Dressed meats.....
- Butter.....
- Margarine.....
- Cheese.....
- Lard
- Milk (condensed.....)
- Poultry.....
- Eggs.
- Fruit (apples, pl.....)

These ten items of food. Let me make one remark while Canada sends to us imports, the cheese imported and we might somehow get butter in 1894 we see. We might also get a share. The difficulty in manufacturing condensed milks are a great proportion to the advertisement began to introduce their products because the advertising expenses meet them from the sale of this product could be paid by advertising they would soon

earnest and effective
which are available for

ep.	Swine.
48,924	102,172,224
74,824	3,278,000
13,977	1,702,785
53,632	1,026,014
73,553	46,004,807

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house than other folks. We have not been having it in the past, and I hope that in the near future we shall be able to let our mother know that it is wiser and safer and better to get pure butter from Canada than oleomargarine from Holland or any other place; that it is better policy to plan to get her fruit and flour and meat from within her own borders than to leave other nations in a position to say, "we can starve you out if we cannot frighten you out." Canadians should say to Great Britain, it will pay you to get butter for your market from Canada and cheese for your market from Canada; and now is our chance to show that we can supply these things in plenty and of excellent quality and capture this market. I say this because now is the most opportune time to get some advantage, if only a preference on the part of the consumers, for colonial rather than foreign products.

The imports of fine food-products into Great Britain in 1894 are shown in the following table:

BRITISH IMPORTS, 1894.

	Value.
Animals living (for food).....	\$ 44,237,455
Dressed meats.....	110,594,951
Butter.....	65,489,268
Margarine.....	14,818,075
Cheese.....	26,644,708
Lard.....	13,424,292
Milk (condensed and preserved).....	5,252,277
Poultry.....	2,340,246
Eggs.....	18,426,118
Fruit (apples, plums, pears, grapes).....	12,459,544
	<u>\$313,686,934</u>

These ten items of England's bill for foods imported, come to over \$313,000,000. Let me make one remark before I leave this part of the subject, that while Canada sends to Great Britain a very large proportion of the cheese she imports, the cheese item in Great Britain's bill is one of the smaller items; and we might somehow and soon get a larger share of some of these bigger items. Of butter in 1894 we sent from Canada \$438,000 worth out of \$65,500,000 worth. We might also get a share of the item for condensed milk.

The difficulty in making any headway with that in Great Britain has been that condensed milks are a good deal like patent medicines in a way. They are bought in proportion to the advertising they receive. When the Nova Scotia company began to introduce their product a few years ago it met with no commercial success, because the advertising expenses were so heavy the company could not continue to meet them from the sales. If a few depots could be started in Great Britain where this product could be put before the public continuously, at a small cost for advertising they would soon recognise the excellence of the product, as they have recog-

nized the excellence of our cheese, and thus we should get a good demand for condensed milk from Canada.

FOODS CONSUMED PER HEAD IN GREAT BRITAIN.

Of beef the annual consumption is estimated at $65\frac{3}{4}$ pounds per head of the population. The following table will illustrate the point I desire to make. It is the estimated consumption per head of population in the United Kingdom for the year 1892:—

	Lbs. Consumed per Head.	Lbs. Imported per Head.	Lbs. Home Products, per Head.
Beef.....	65.7	15.4	50.3
Mutton.....	28.3	5.4	22.9
Pig Meat.....	28.6	14.3	14.3
Other Meats.....	2.2	2.2	....
Butter.....	15.0	9.5	5.5
Cheese.....	13.5	5.5	8.0

The prices obtainable in Canada for cheese are largely determined by the output of cheese from the dairies of England and Scotland, where it is estimated they make 8 lbs. for every $5\frac{1}{2}$ lbs. imported from other countries.

Great Britain obtains her supplies of dairy products from the countries shown hereafter:

BRITISH IMPORTS, 1894:—BUTTER AND CHEESE.

	BUTTER. Quantity cwts.	BUTTER. Value.	CHEESE. Quantity cwts.	CHEESE. Value.
From Canada.....	20,887	\$ 438,589	1,142,104	\$13,086,204
“ United States.....	29,996	612,942	672,347	7,827,571
“ Denmark.....	1,102,493	23,440,576	.....	.....
“ Australasia.....	292,097	6,959,221	54,375	669,225
“ France.....	424,645	11,445,753	52,909	794,897
“ Sweden.....	266,306	6,880,391	.....	.....
“ Holland.....	165,157	4,048,828	298,693	3,702,730
“ Germany.....	137,755	3,421,072	.....	.....
“ Other countries.....	135,999	3,241,896	45,657	564,081
Total.....	2,327,474	\$65,489,263	2,266,145	\$26,644,708

Canada is well in 50 per cent. of the to mainly by the excelle Canadian cheese and i to the consumers. Th ments of fresh-made current year have giv A very large trade in t

The little country which certainly has no Great Britain buys, and on the part of the Dan but afterwards attentio revenue of over \$30,000 the exports of dressed r all the nations of Europ

Australia too, has o butter to England. Pec half so far off as Austr into the British market France sends more than

England buys fro the lowest price. There The British are great s the food-products they b good food from two cou respectable name. The p things; he has got into t over there and found the Scotch Sheddar was sel Canadian cheese was sup rties. That was 14 year s it is now. You can n there is no discounting i stance, in beef and mea labelled “best Scotch.” sibly a good deal of it own Northwest country, reaches the hands of the r

Canada is well in insupplying cheese to Great Britain. She now furnishes over 50 per cent. of the total quantity imported there. That has been brought about mainly by the excellent quality and by the means which have been taken to get Canadian cheese and its quality recognised under its own name all the way through to the consumers. The Canadian trade in butter is a growing one, and the shipments of fresh-made creamery butter in cold storage compartments during the current year have given it a better name than it had been able to attain hitherto. A very large trade in that product is coming in the near future.

The little country of Denmark, which is not nearly so large as Ontario, and which certainly has not so intelligent a population, sends nearly half the butter that Great Britain buys, and this is the outgrowth of not more than twenty years' effort, on the part of the Danish people. Twenty-four years ago they were not "in it," but afterwards attention was directed that way, and now they have the magnificent revenue of over \$30,000,000 a year for butter sent to England, and have increased the exports of dressed meats tremendously. They are among the best off people of all the nations of Europe.

Australia too, has come into the markets and sends an appreciable quantity of butter to England. People say to us sometimes, "You are too far off." We are not half so far off as Australia, and Australian butter comes fresh flavored and sweet into the British market. Distance is not so difficult to overcome as it is said to be. France sends more than Australia; Sweden sends some and Germany sends some.

PREFERENCE FOR NAMES.

England buys from whoever sends her the best quality of what she wants at the lowest price. There is one peculiarity, in this connection, that I may mention. The British are great sticklers in the old country for respectability in name, as to the food-products they buy and eat. The English purchaser will not buy equally good food from two countries at the same price, unless the food bears an equally respectable name. The purchaser over there is guided a good deal by the names of things; he has got into the habit of buying in that way. I once went into a shop over there and found the best Canadian cheese selling at 6d. per lb., while the best Scotch Sheddar was selling at 10d. per lb. at the same counter.; and yet the Canadian cheese was superior in quality, flavour, appearance and nourishing properties. That was 14 years ago, when the name of Canadian cheese was not as good as it is now. You can now get Canadian cheese offered under its own name and there is no discounting it on that account. But in other things it is not so, as for instance, in beef and meat products. The meat which sells best in the retail shops is labelled "best Scotch." I do not know that it is raised and fed on Scotch farms; possibly a good deal of it is brought up and reared as far west as Calgary, in our own Northwest country, and acquires the good name of "best Scotch" when it reaches the hands of the retailer who deals in it.

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ted	Lbs. Home Products, per Head.
	50.3
	22.9
	14.3

	5.5
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SE. cwts.	CHEESE. Value.
104	\$13,086,204
347	7,827,571
....
375	669,225
969	794,897
....
693	3,702,730
....
657	564,061
145	\$26,644,708

TRANSPORTATION CHARGES.

Before passing on to the next point let me refer to the opinion which has prevailed in the minds of a great many of our people, that distance from market was the great obstacle to successful admission to the British markets, and also that the great absorber of profits was the circumstance of being so far away from market. I have made some examination of that question and do not find that distance bears any special relation to the cost of transportation. Those of you who have studied political questions in the larger sense, will remember a remark made once about the British farmer, that he would be sufficiently protected always by the circumstance that his competitors had to pay freight on the goods which they sent in from abroad. Now, the freight charges on our fine food products are a very small proportion of their value to the farmers here. I am going to base my statement on the prices the farmers here realise, and not on the prices the consuming purchasers pay, on the other side of the Atlantic. The actual freight charges on cheese shipped from Ontario and Quebec, whence the most of our supplies are sent, do not exceed 5 or 6 per cent. of the value of the cheese as sold at the factories. That is the total cost for freight charges between the nearest shipping station in Ontario and Quebec and the ports of London, Liverpool, Bristol and Glasgow. I doubt very much if the English and Scotch farmers or dairymen get their cheese carried to the markets for more than one or two per cent less than we do. I have not at hand the details of transportation charges in Great Britain, but I have enough information to show that the average cost of freight over there will be nearly 3 per cent of the value of their cheese, while the average cost of ours is about 5 per cent. In that respect Canadian farmers are not far behind their English and Scotch competitors.

The average freight charges on our creamery butter before cold storage was put on did not exceed $2\frac{1}{2}$ per cent to us, and with cold storage it would not exceed 4 per cent, on the value of the product at the station of shipment, from Ontario and Quebec to Great Britain. I am not speaking of charges for commission, etc.; I am speaking simply about transportation services and charges.

The average transportation expenses on live cattle, from stations in Ontario and Quebec to the ports of landing in Great Britain, have been from 25 to 30 per cent of their value at the point of shipment. The great obstacle which has hindered us from getting the best class of customers, and the high prices paid by them in Great Britain, is not distance, but deterioration in quality during transit. Deterioration of quality is not a necessary factor in distance or in length of time. It has been with us, and this is why we have been hindered from getting relatively high prices, and the best class of buyers from being our regular customers.

QUALITIES IN BUTTER.

Let me next mention what are the essential qualities in butter which people are willing to pay a high price for. It is not correct to say the value of butter depends on the quantity of fat it contains, because you can have butter which is

saleable for three cents which sells for twenty that fixes the value. varieties. So flavor is the butter, when fresh made—not merely equal to while the Danes have because it was fashionable not nearly so good in made. Danish butter that it is just as good as if we can do what they is eaten without spoiling

I need not say anything of all the butters that the British consumers.

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Then Canadian produce

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chases, which hold fifty-

saleable for three cents a pound, and contains just as much fat as another butter which sells for twenty-three cents a pound. It is the sort of thing we call flavor that fixes the value. It is not the nourishing properties; it is the satisfying properties. So flavor is the most important quality of butter. The flavor of Canadian butter, when fresh made, is superior to the flavor of Danish butter when fresh made—not merely equal to it. We have been modest as a people, and have said nothing, while the Danes have been getting the English papers to write up their butter because it was fashionable to do so. We have suffered, also, because the flavor was not nearly so good in our butter when it reached the English market as it was when made. Danish butter gets to the British consumer without any deterioration, so that it is just as good when it arrives in England as it was in the Danish creamery. If we can do what they do—get the butter from the place it is made to the place it is eaten without spoiling in transit—we can out-do them in the price obtained.

I need not say anything of the body of Canadian butter. It stands first in solidity of all the butters that go to the British market. It is too yellow in color to suit the British consumers. They will pay more for a light colored butter. Let us, therefore, make it the least little shade away from being a lardy color.

Then Canadian producers have been putting too much salt in their butter for the people of England, who like a comparatively mild and fresh, that is not salt, butter. Half an ounce of salt to a pound of butter is enough in most cases; and the salt should be of fine grain and pure quality.

Two things are objectionable in dairy salt, one is a coarse, insoluble grain, and the other is a limy substance which has the effect of giving the butter a limy flavor.

I would use the finest Canadian salt. It is quite as good as the best I have seen in most parts of the Empire.

NEED FOR CLEAN NICE PACKAGES.

In some other respects our butter needs improvement. Butter does not taste any nicer for being in a nice package, but the Englishman thinks it will, and he pays for what he thinks, and not for what you or I think. I know a nice school girl about ten years of age. I suppose if she had a tawdry looking dress on, with her face unwashed and her hair all unkempt, she would be just as good a girl as when she steps to my side neatly dressed, with tidy hair and her face aglow with the bloom of restful cleanliness. Still I should not like to have her by me so well in one respect as in the other. So the English shop-keeper, who does not care to have his shop tawdry, and is looking for a high-class of butter, does not like to have his customers see a cheap looking lot of butter about his place. He says, "Oh, that butter in unsightly packages belongs to the low-grade shops," and it has to go for a low-grade price. Let us have clean packages, that look nice. Let us have a package, too, capable of keeping the butter without injury to the quality. The square packages, which hold fifty-six pounds, can be bought for sixteen cents, and can be lined

with paper for not more than one and a half cents a box. The butter in such packages can be packed closely in the refrigerator compartments on the steamships and no space is lost.

THE PRESERVATION OF BUTTER.

That you may follow my argument and see the proof of it as clearly as I am able to put it to you, let me go back for a moment to the process of making the butter. When a buttermaker begins the manufacture of milk into butter he either puts in what he calls a fermentation starter or exposes the milk or cream to the air and lets things fall into it which start fermentation. The atmosphere is filled with all sorts of things that cause fermentation. That is a fermentation starter which changes sweet into sour cream, and by and bye, if left long enough, into decayed cream. Now, when the cream is churned and the butter is taken out of the churn, a small quantity of these minute forms of life are retained in it, and they go on working a change and spoiling the butter. So you have to deal with this fermentation starter. Now, if you have a fermentation stopper, you can hold the butter quite unchanged. Fermentation makes no progress at the freezing point of water, so if you keep the temperature down to 32° you have a fermentation stopper, and the fermentation starter will do no harm. If a pound of nice butter is made in the best way, and kept till it is two days old, allowing the fermentation to go on slowly to ripen the flavor, and it is then put down to a temperature of 32° and kept in a closely sealed package in a dark place, you can keep it for three or six months, and it will not have changed so much in that time as it would in three hours at a temperature of 75° in your pantry. So the difficulty of safe transportation is not great if you stop fermentation. If butter is made in June and kept at 32° in a dark place in a fairly close package, no man can tell in January whether it is three days or six months old by any difference in the flavor. That is what the Australians have been doing, shipping their butter 9000 miles and getting it fresher to the consumer than butter sent thirty miles in a warm car in England.

Now, I come to this as being a thing we ought to do. We ought to make some provision for getting our butter to the English consumer in its best condition. That is the essence of the whole question. If you can do it you can win his preference and his price. One thing more we want to do—we must get it there in our own name, so that people will know whence it comes and ask for it again—so we will work up a permanent trading connection with them.

SAFE CARRIAGE OF BUTTER.

If it be important to get the butter there in the best condition, then, provision must be made for preserving it in that condition before as well as during shipment. What provision exists at most creameries? Well, they have a so-called cold storage room in the creamery. I have never been anywhere in a creamery where the temperature would stand at an average lower than forty degrees, with the single

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exception of the Renfrew creamery. What happens? The butter is put into the store-room or cellars at forty-five degrees, and the creamery man says: "I don't care to sell," and goes on making butter. "I will hold till the whole month's make is ready to sell," and the price is going up; the flavor is also going up (laughter). Being Scotch, the creed of my marketing efforts is to get the most money I can for what I have to sell. That is a different thing from selling every week, or not selling every week and putting the butter where it will spoil in the meantime. I have not said "Sell every week," but "sell when you like, and in the meantime keep the butter where it will not spoil." If a creamery cannot afford to have a cold storage room, where the butter can be kept at a temperature of thirty-two degrees, let it be shipped every week to some place where it can be properly kept, and if it is to be kept for an expected butter market, or for any other reason, let it be held there without deterioration. I do not think it pays a creamery now to have a large building for that purpose, because the proper storage accommodation costs a good deal, and where the creameries cannot chill it themselves and keep it cold, it will pay to ship to some place for that purpose. That requires, as a next step, accommodation on the railways by which the butter can be taken to these central or safe cold storage places every week. Now, last year, in connection with the cold storage system, we arranged for a service on the railways whereby a refrigerator car was run once a week for the carriage of butter. The creameries of Quebec used these cars quite largely, so that the Government guarantee on some of the routes was not called for there at all. But over the Province of Ontario the cars were used very, very little, indeed, and butter was held until the flavor was partly spoiled, while these cars were running empty most of the time. We gave the same chance last year for shipping dairy butter as for creamery butter in this way, and dairy butter did better too where shipments were made up promptly. Let us get this into our heads, that butter begins to change in condition after three days if kept above thirty-two degrees, but if you keep it at that temperature then you can hold it any reasonable length of time. We propose to continue the cold storage service this year, and I hope the creamery men and merchants all over Canada will see that their butter is put in a safe place before it begins to spoil; that will get us a good name instead of a bad one, and we shall find our entrance to the British market easier and more profitable to ourselves.

FLUCTUATIONS OF THE MARKET.

That brings me to another part of my subject. I want to try to make it clear what a market means to the man who has butter to sell. What is a market? It is a place to exchange commodities in. It used to be that a man would exchange furs for blankets and bacon, etc. Nowadays, by the use of the medium which we call money we do not make the exchange of furs for blankets and bacon. The process is different but the end is just the same as before; and so when a man has a tub of butter to exchange for something else, he has to recognise two things: that the

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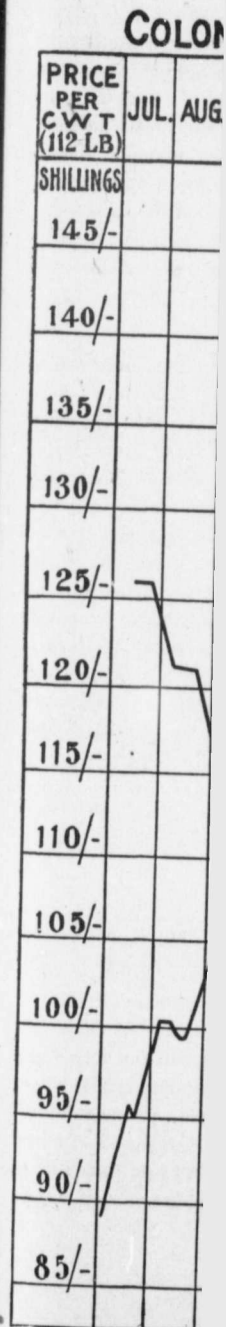
butter has an *intrinsic value* as food that does not change much, and that it has an *exchange or market value* which varies often and greatly. A tub of butter in June has the same intrinsic value as food as a tub made in July, if it is made well. If it is not, it does not gain in value although it "goes on from strength to strength continually." Now, while the intrinsic value of the butter, if preserved, remains the same, the *exchange value* fluctuates all the time. I may get \$10 for a tub to-day for which I might get \$8 or \$12 two months hence, and that is where skilful commercial "gumption" comes in, which we have not got any too much of just yet in this country. I am not taking the record of one year only to support a theory, because the fluctuations last year were almost the same as for the last ten years. I am taking the best butter first. The Normandy butter from France stands away above the Danish butter. We have in Canada the conditions for making butter just like the French butter. Our flavor and body are more like theirs than any I have seen.

I have a chart here* to illustrate the comparative prices obtained in Great Britain for butter in 1894. The upper line represents the prices obtained during the several months of the year for Normandy and Brittany butter from France. The lower line shows the prices obtained for the finest Danish, Swedish and Kiel during the same months in the year.

You will perceive that the price is higher from October to March than from March to October. What this chart illustrates has been repeated annually for the last fifteen years. It is not any mere temporary incident that the price of butter was higher from November to March in 1894-5 than during other months. That is why I have been advocating for the last eight or nine years the need for Canadian creamery men—not to speculate in butter but—to provide cold storage accommodation for the holding of butter made in June, July and August, until at least October or November, in such a way as not to spoil the quality, and then to get it into the market when the prices are best.

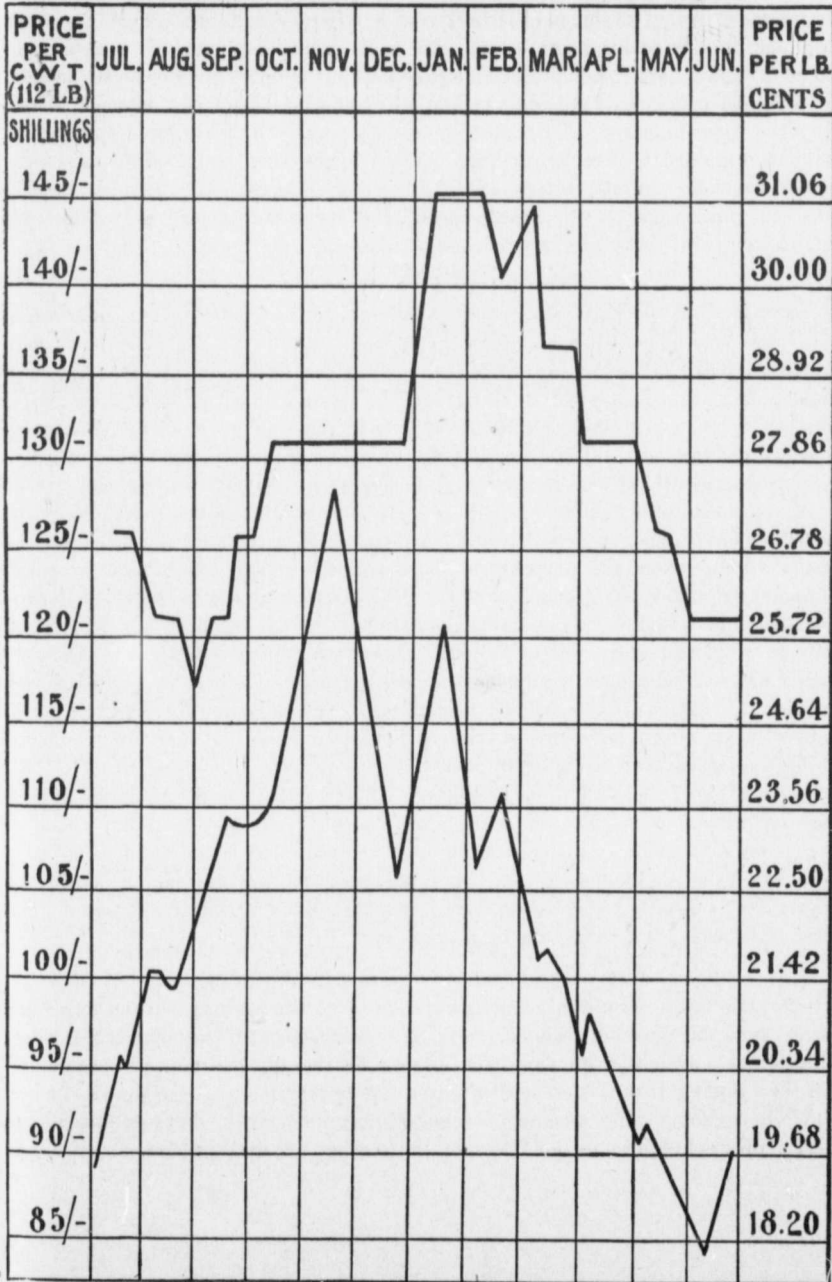
The annual average price of Danish butter f.o.b. at Copenhagen for the last fifteen years is given at 135 shillings per cwt. in 1880, to 93 shillings per cwt. in 1894; or from about 29 cents per lb. in 1880 to 20 cents per lb. in 1894.

*N. B.—See next page.



*NOTE:—The upper line lower line denotes the price

COLONIAL BUTTER SEASON 1894-1895



* NOTE:—The upper line denotes the prices obtained in Great Britain for Normandy and Brittany butter; the lower line denotes the prices for finest Danish, Swedish and Kiel butter during the several months of the year.

Take the price of nine or ten years, and from November to March it is about six cents a pound above the price of the rest of the year. Does that not mean that we ought to try to exchange our butter at a time when it has a high exchange value, or in other words, when it sells at a high price per pound. It is as clear to me as noonday. Why should I exchange something which I have when its value is lowest? Of course I do not want to, and will not when I can help myself. Then, take the Danish butter. There seems to be a uniform fluctuation upwards to October sustained to March, and then the price goes low again. That means we should have our summer butter made in June, July, August and September, kept in safe, cold places, and sent to Britain in October, when the demand is best and the price is comparatively high for that class of butter.

COLD STORAGE ON STEAMSHIPS.

To do that, we need cold storage somewhere accessible to the creameries. There are now three large buildings in Montreal (or will be next summer) where cold storage can be had at any temperature, from twelve degrees upwards, for very reasonable rates. Last year, to encourage the creamery men to store their butter which was to be held, the Government agreed to pay half the charges. That may be continued this year. Then there have been cold storage services on the railways and steamships, which will be very much improved. Last year we had cold storage on the steamships, which kept the butter after it was taken on board. We used insulated compartments, and they did very well. It was like a log-house in the woods, which served the purpose capitally until the people were ready for something larger and better; and if a settler had built a mansion in the woods, in the first place, he would not have stayed long in it. So we began in a simple, inexpensive way, and there was no failure. But now the time has come when we should put refrigerating compartments on the steamers. On one line of steamships, at least, it is expected there will be cold storage accommodation for the carrying of dressed meats, cheese and fruits at suitable temperatures, so that they may be landed in the English markets without any injury.

One thing more needs to be considered. When arrived at the other side in first-class condition, our butter needs to be made known in its new condition under its own name. Somehow, Canadian butter has received a bad name, and it is not easy to recover from the incubus of that. It is needed to call the attention of the British people next summer to the fact that we are giving them butter of a different character from what went from Canada in the past.

BONA FIDE SPECULATION IS A GOOD FACTOR.

A little talk is sometimes indulged in, by those who perhaps do not follow the bearings of this question in its entirety, to the effect that if any man holds butter which he has bought from June till October, he thereby becomes a "speculator," and by throwing that epithet at him they suppose they have altogether discomfited him. I am not an apologist for speculators, but a man who buys on speculation merely proves his faith in the future of the market for his purchase. So if a man

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buys butter for his own good money in June and holds it till October, he has faith in the market, and is a good factor and not a bad factor in the market. Take our cheese trade; the factories are only making on the average five and a half months in the year. If the Canadian buyers sent it all over in five and a half months it would be cheaper there; in fact, it might be unsaleable. Legitimate and *bonâ fide* speculation is a good factor in commercial life, and when I meet a farmer who has the notion that a speculator has always an injurious influence on his business, I differ from him. I favor new methods of trying to help the farmers to get our products to the market in the best way, and I would brush aside every middleman who stood between to hinder the producer from getting his rightful share of what the consumer paid. (Applause.) But if you have no middleman between, you cannot get the other two together. The buyer who helps in the transaction is entitled to get his share. In that sense let us get our butter to the British market through the regular commercial agencies, trying to get it over in a safe, unspoiled condition, giving an equal chance to the merchants who use their courage, skill and capital, and to the manufacturers to increase their profits. (Applause.)

CHILLING VERSUS FREEZING BUTTER.

Everybody says if you freeze beef, as soon as it thaws it spoils. When you freeze beef, the cells, which contain protoplasm, are burst, and when it is thawed the juice runs out and it spoils. If butter be kept so cold that the brine in it becomes frozen, the butter will be opened by the expansion of the brine, and thus the air will be admitted; but in order to bring that about the brine must be frozen. Unless the brine is frozen the butter is chilled only and not frozen. The chilling does not open up the grain to let the air in, and consequently it is no more liable to spoil afterwards than if it had not been chilled.

SUGGESTIONS FOR IMPROVING THE EGG TRADE.

In case I might not come to it again, let me make a remark here in regard to the item of eggs. Canadian eggs in Great Britain do not stand very well yet, as compared with the eggs from France or the eggs even from Australia and from some of those other countries close by. The greatest drawback to the success of our egg trade has been, I think, that the egg merchants, as far as I can find out by inquiry, collect eggs perhaps once a week or twice a week from all customers and from all sorts of places. The egg-waggons bring in some eggs fresh from the nests, some from the farmers' houses and some from shops, where they have lain in the sunlight of a window for ten days or more. Complaints in England are, that taking 120 eggs, 100 are fresh and 20 are stale—not rotten or decayed, but just stale—and that causes a lower price and less satisfaction for the whole lot. The result is the same as if a shipper of butter were to ship 100 packages of the finest creamery butter, and to put 20 packages of decently good dairy butter in the same style of package, and mix them all through the lot. There is not any butter in the lot that is bad, but the mixing of the 20 packages of irregular, ordinary butter with the finest creamery butter would lower the prices for the whole lot (hear, hear.) It

would be a fair way of encouraging the egg business if our merchants were induced to collect a quantity of eggs direct from the farm-houses twice a week and have them branded as fresh laid. If this were done and the eggs put into cold storage and shipped that way, they would get to Great Britain in as fresh a condition as though they were only four days old. The difficulty has been in preventing the mixing of eggs that are a little stale with the fresh-laid eggs.

I think that the comparatively low prices that Canadian farmers are getting, compared with the prices that are paid for the best class of products in Great Britain itself, are due in a large measure to the inefficiency of the commercial agencies that exist in this country for handling our perishable food products.

At this stage of Prof. Robertson's address, the Honorable Mr. Beaubien announced that he was obliged to leave by the Halifax train and the Chairman called upon him to address the meeting before his departure. (1)

Professor Robertson (continues his address)—I will now tell you what is under contemplation towards giving our dressed meats, beef and mutton trade, a position as good on the British Market as has been won by our cheese.

Since the Honorable Minister of Agriculture expects the people of Quebec to do such great things, then the people of Quebec need to be a very great people, and I think if the people of Quebec are going to be, (as I hope they will be), all that is predicted they are to be, then the other parts in the Dominion will share in the advantages from their progress. The live stock interests of the Province of Quebec and of the Dominion of Canada are inseparably interwoven with all the methods and processes of farming required to maintain the fertility of the soil, to insure rotation of the crops, and to earn profits. If our cattle business fails, our farms grow poorer, our coarse grain and fodder crops become unsaleable. As a safeguard, we must see that the live stock business is put in a position to do the most it can do for us.

Great Britain draws her enormous supplies of cattle and beef mainly from the United States and Canada, as the following table shows:—

VALUE OF BRITISH IMPORTS OF BEEF, 1894.

FROM.	Cattle.	Fresh Beef.	Salted Beef.	Preserved Beef.	Meat Unenumerated.
Canada	\$ 6,552,349	\$	\$ 20,070	\$ 39,503	\$ 3,426
United States	32,914,561	18,134,840	1,619,349	2,088,413	304,157
Australia .....	.....	2,139,099	20,109	996,309	158,513
Other countries	853,638	232,675	8,833	835,772	1,532,761
Total	\$40,320,548	\$20,506,614	\$1,668,361	\$3,959,997	\$1,998,857

(1) Mr. Beaubien's speech, or rather an abstract of his two speeches, one in English the other in French, will be found on p. 228.

NUMBERS

FROM.

Canada
United States
Australia
Other countries
Total

We had a rather should find a difference appear in the Canadian taken from the British our financial year of fresh beef. I think English returns show meats because I do appreciable quantities either live cattle or to come. In proportion been contemplated Canadians could have sends live cattle to instead of one available are going to be em operation. I offer ments of live cattle

There is no risk cattle. One shipment are:—They went charges amounted to fodder and attenda leaving only \$20 a a shipment of sh amounted to \$2.50 came to \$6 per head

NUMBERS AND QUANTITIES OF BRITISH IMPORTS OF BEEF, 1894.

FROM.	Cattle.	Fresh Beef.	Salted Beef.	Preserved Beef.	Meat Unenumerated.
	No.	Cwt.	Cwt.	Cwt.	Cwt.
Canada	82,323	.....	2,729	3,672	671
United States.....	381,932	1,775,538	235,120	205,485	34,315
Australia .....	.....	304,513	3,375	70,602	10,569
Other countries.....	11,185	24,053	1,087	11,067	144,202
Total.....	475,440	2,104,104	242,311	290,826	189,757

We had a rather larger share in 1895 than this table shows. Lest some of you should find a difference when you come to compare this table with the figures that appear in the Canadian Statistical Year Book, I should say that these figures are taken from the British returns, in which the year ends on the 31st December, while our financial year ends on the 30th June. According to the chart, Canada sends no fresh beef. I think there was a very small quantity sent during the year, but the English returns show none. I have nothing to say about the salted and preserved meats because I do not think we shall send salted beef or preserved beef in any appreciable quantity from Canada. We shall have to confine ourselves to sending either live cattle or fresh beef, or in all likelihood a quantity of both for many years to come. In proposing a plan for opening up a trade in dressed beef, nothing has been contemplated that would even hint at injuring the trade in live cattle. But if Canadians could have an alternative outlet for cattle and meats, every man who sends live cattle to England would be rather better off, by having two markets instead of one available. I do not think the shipments of live cattle from Canada are going to be ended at once by any new plan that may be suggested or put in operation. I offer only a few remarks about our possible competitors in the shipments of live cattle.

SHIPMENT OF CATTLE FROM AUSTRALIA.

There is no risk of Australia competing successfully with us in shipping live cattle. One shipment was sent from thence to Great Britain in 1894, and the facts are:—They went by a steamer called the "Southern Cross." The actual freight charges amounted to about \$39 per head. The charges, including freight, insurance, fodder and attendance, amounted to \$68 per head. The cattle were sold for \$88, leaving only \$20 a head for the animals at the port whence they were shipped. In a shipment of sheep from Australia by the same steamer, the freight alone amounted to \$2.50 per head, and the freight with fodder, attendance and insurance came to \$6 per head.

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BRITISH IMPORTS OF SHEEP.

The following table shows the value of sheep and lambs, and the value of Mutton, imported into Great Britain in 1894:—

FROM.	Sheep and Lambs.	Mutton Fresh.	Mutton Preserved.	Preserved Meats, other sorts than Beef or Mutton.
Canada	\$1,149,035	\$	\$ 12,760	\$ 21,511
United States.....	1,678,236	240,335	37,395	1,266,745
Denmark	391,362	.....	.....	.....
Argentine Republic.....	621,945	4,665,426	.....	.....
Australasia .....	.....	13,495,009	887,696	435,950
Other countries.....	76,227	2,726,534	11,957	621,712
Total	\$3,916,805	\$21,127,304	\$949,808	\$2,345,918

The following table shows the number of sheep and lambs and the quantity of their products imported into Great Britain in 1894:—

FROM.	Sheep and Lambs.	Mutton Fresh.	Mutton Preserved.	Other Sorts.
	No.	Cwts.	Cwts.	Cwts.
Canada	135,622	.....	1,258	2,320
United States.....	198,130	23,121	3,626	68,394
Denmark	65,439	.....	.....	.....
Argentine Republic.....	73,446	585,729	.....	.....
Australasia .....	.....	1,439,502	106,619	43,965
Other countries.....	11,952	246,714	1,425	35,703
Total	484,597	2,295,066	112,928	150,382

Looking at the imports of Great Britain we find that of the sheep and lambs, Canada, in 1894, sent 135,622 head. The number was greatly increased during the past year with the result that there has arisen an agitation against the trade, and it is complained that Canadian sheep suffer from scab. If our sheep and lambs could be sent into Great Britain in the dressed meat form, I think it would be much better. It would cost less for carriage, and yield better returns at the port of ship-

ment. To that chart the English consumer

Until recently, I state. It is held that With the arrangements see no reason why Canada take a place very near and I do not see why

The following table shows the value of sheep and lambs, and the value of Mutton, imported into Great Britain in 1894:—

FROM.
Canada
United States.....
Denmark
Holland.....
Sweden.....
Other countries.....
Total.....

The imports of sheep and lambs, and the quantity of their products imported into Great Britain in 1894:—

FROM.
Canada
United States.....
Denmark
Holland.....
Sweden.....
Other countries.....
Total

ment. To that chart I may add one remark, that the home supply of all meats that the English consumers buy is the main source of supply.

Until recently, New Zealand mutton has gone to England mainly in the frozen state. It is held that by freezing it, injury is caused to the texture or flavor. With the arrangements which we propose to make for cold storage compartments I see no reason why Canadian mutton should not be sent into the English markets and take a place very near the Scotch mutton. We have done so already with cheese and I do not see why we should not do it with mutton.

SWINE PRODUCTS.

The following table shows the value of the quantities imported into Great Britain in 1894:—

FROM.	Pork, Fresh.	Pork, Salted.	Bacon.	Hams.
Canada .....	.....	\$ 49,898	\$ 2,557,205	\$ 619,312
United States.....	\$ 44,676	1,152,806	24,737,028	12,805,525
Denmark	24,713	391,265	10,656,005	27,438
Holland.....	1,540,173	9,432	307,574	.....
Sweden.....	.....	9,485	965,011	.....
Other countries.....	514,962	20,153	118,761	37,288
Total.....	\$2,124,524	\$1,633,039	\$39,341,584	\$13,489,563

The imports of swine products are enormous and are continually increasing. The following table shows the quantities imported in 1894:—

FROM.	Pork Fresh.	Pork Salted.	Bacon.	Hams.
	Cwts.	Cwts.	Cwts.	Cwts.
Canada .....	.....	7,702	254,443	50,576
United States.....	4,339	150,186	2,561,203	1,075,270
Denmark	2,015	61,360	766,828	1,785
Holland.....	133,526	1,935	23,666	.....
Sweden.....	.....	1,791	72,541	.....
Other countries.....	40,503	2,045	10,923	2,153
Total	180,383	225,019	3,689,604	1,129,784

Canada sends no fresh pork, a little salted pork, and a considerable quantity of bacon and hams. I should like to say, in connection with this chart, that last September, the pork packers in Wiltshire, where there are the great packing houses for England, were paying $9\frac{1}{2}$ cents per lb., live weight, for swine weighing from 150 to 160 lbs. I know that it is not fair to pick out the high prices, for a high class article with a very limited trade, and try to apply them to the products of the country generally, but it seems to me there is room for opening a fairly large trade by sending fresh pork to the United Kingdom, either to be sold as fresh pork or to be cured over there.

PLAN PROPOSED FOR OPENING UP A TRADE IN DRESSED MEATS
WITH GREAT BRITAIN.

To give stability to the profits of the farm, and thus to insure prosperity to the whole country, it is necessary that all perishable food products from Canadian farms should secure as good a place, relatively, in the British markets as has been won by Canadian cheese and creamery butter. Judicious and energetic action by the Government can accomplish as much for beef, mutton, pork, poultry, and other food products, as has been done for cheese and butter. It is most urgent and desirable that something should be done, particularly for beef, mutton, lamb and poultry.

FALLING OFF IN NUMBERS OF CATTLE EXPORTED FROM ONTARIO AND QUEBEC.

There has been a decided falling off in the numbers of cattle exported from Ontario and Quebec since 1890. The following table shows the numbers shipped from Canada to Great Britain.

	Cattle.	Sheep.
1890.....	122,182.....	43,780
1891.....	118,947.....	32,157
1892.....	98,755.....	15,932
1893*.....	80,899.....	1,780
1894.....	82,217.....	121,304
1895.....	96,546.....	255,508

* For ten months only.

The figures from 1890 to 1894, inclusive, are for the years ending 30th June, and the figures for 1895 are taken from those published in the *Montreal Gazette*, compiled from the returns of the weekly shipments during the period of navigation. Of the 95,564 cattle shipped in 1895 it is reported that over 40,000 came from Manitoba and the North-west Territories.

ADVANTAGES OF GOVERNMENT MANAGEMENT TO START THE BUSINESS.

Much benefit would result to those engaged in the cattle trade and to the agricultural interests generally by the opening up of a business by which cattle would be slaughtered in Canada, and dressed beef sent direct to the consuming purchasers

in Great Britain. The way which no private business is open to Canadian farmers, and the obstacles to its success, are a sum of money, it is

That this business is evident from the packers and shippers. The Government of the United Kingdom, is secure. The pre-reputation of the cheese and butter, hostility from the involving loss.

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Formerly, when they could be grown on farms for a few weeks in quality. The prices to be obtained are now wanting.

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in Great Britain. There are many transportation and commercial difficulties in the way which no private individual or joint stock company can successfully overcome. The business is one which is urgently and essentially important to the welfare of Canadian farmers, and because the Government can remove or overcome the obstacles to its successful establishment without the expenditure of a large, if of any, sum of money, it seems fitting and proper that the Government should take it up.

That this business cannot be inaugurated from Canada by private enterprise is evident from the tremendous disabilities from which the great United States packers and shippers, backed by millions of dollars, have not been able to escape. The Government control of this business would win for it a status and a name in the United Kingdom, which no private individual or joint stock company could ever secure. The prestige of powerful Government administration, joined to the reputation of the Government, in having successfully assisted in putting Canadian cheese and butter on the British markets in the best way, would vanquish active hostility from the retail butchers in Great Britain without any commercial struggle involving loss.

The Government would be in a position to select the pick of the cattle at Montreal, and would thus prevent any sentiment from being foisted upon the consumers in Great Britain that might lead them to regard the dressed meat trade from Canada as a "Cheap John" affair for the disposal only of beef from inferior cattle which were not fat enough to be shipped alive.

CATTLE JADED AND BEEF INJURED.

When Canadian cattle are shipped alive by railway and afterwards by steamship they arrive in Great Britain in a jaded condition. They look their worst, and are about at their worst for killing for beef. Both of these conditions enable the British cattle buyers to beat down the prices. The beef from Canadian cattle, when shipped and handled in that way, does not reach the consumers in such a condition as to secure the reputation for good quality which it would obtain if the consumers were able to purchase the beef at its best from such cattle as are fed in Canada.

NOW, NO ALTERNATIVE MARKET IN GREAT BRITAIN.

Formerly, when Canadian cattle could be sent to the interior of Great Britain they could be grazed and fed on grass or succulent fodders on English and Scotch farms for a few weeks. They gained tremendously in weight, and recovered quickly in quality. That alternative outlet for Canadian cattle caused relatively higher prices to be obtained, and also gave a steadiness to the price and demand which is now wanting.

Canadian shippers with their cattle at the port where they have been landed, in the United Kingdom, have no alternative but to sell at once, or within two weeks, at whatever price they can get. If they hold over for even a fortnight the cost of

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feeding demands a large outlay; and the arrival of fresh shipments by the next steamers gives the buyers an additional argument which they use most effectively in further depressing the market and lowering the prices.

DIRECT TRADE CONNECTION PREVENTED.

As a matter of fact, a considerable quantity of the beef from Canadian fed cattle does not reach the British consumers under the name of Canadian beef. Misrepresentations which go on in that practice, work directly and continuously to the injury of the Canadian farmers, and prevent Canadians from establishing that trade connection between the consumers and the producers of Canadian goods under their own name, which alone can insure a satisfactory continuity of the demand.

PROFITS OF MIDDLEMEN TOO LARGE.

The buyers of cattle at the landing ports, and the retail butchers in Great Britain, get more than their proper share of the ultimate price which is paid by the consumers for the beef from Canadian cattle. The enormous profits which they exact, and which mainly come out of the pockets of the Canadian farmers, are little short of extortions.

DANGER FROM RESTRICTIONS.

With the restrictions on the importation of live cattle imposed by the Imperial Government, such a condition of affairs might readily be brought about as would cause irretrievable disaster to the live stock interests of Canada. An alternative means of reaching the consumers with Canadian beef is the only means whereby a safe and elastic outlet can be provided for the increasingly larger numbers of cattle which are being reared and fattened in Canada.

SMALL SIZED CATTLE.

At the present time there is no opening for the exportation of small sized cattle such as are most commonly grown and fattened in the Province of Quebec.

NO COLD STORAGE SERVICE UNTIL 1895.

Dressed beef has not been shipped from Canada hitherto because cold storage service, in warehouses in Montreal and on board ocean steamers, was not provided of an adequate sort for any of our perishable food products until it was taken up by the Government last year. A greater measure of success than has attended the cold storage service for the putting of Canadian creamery butter on the British markets can attend the shipments of dressed meats and other perishable food products to Great Britain.

OBJECTIONS OF SENTIMENT PREVENTED BY GOVERNMENT ACTION.

The question of sentiment on the part of the British consumers is a powerful and far reaching factor in determining the way they buy and the prices they pay

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for the articles of food which they consume. The name "frozen beef," and the stories set going about the abominations of slaughter houses, etc., are powerful to keep the best class of customers from buying, or from letting it be known that they do buy, anything but the "best English" and "best Scotch" beef.

If beef as good and as cheap as the best English and best Scotch could be obtained from shops or dépôts in the United Kingdom, under the name of "Canadian," and under the supervision of the Canadian Government for one year, as an object lesson, the best class of buyers and consumers in each of the large cities where these depots were placed would be attracted to give preference to the Canadian article. The beef could be sold at prices much lower than the current prices for the best quality of English and Scotch beef, and an ever growing demand would be created at such prices as would leave it possible for Canadian farmers to obtain relatively higher prices than they have been getting during the past few years.

MEATS CHILLED ONLY ARRIVE IN PRIME CONDITION.

The prime object should be to put Canadian beef and other meats within the reach of the British consumers in their best condition under their own name, and in such a way as to induce the best class of purchasers to be our permanent customers. In shipments of beef and other meats from Canada, it is necessary that they should be chilled only. The distance and time required for shipment are not more than sufficient to permit the beef and other meats to be properly cured, when they would reach the stores or retail dépôts in the United Kingdom. The meats should be designated "Canadian Beef," "Canadian Mutton," "Canadian Lamb," "Canadian Poultry," etc. When the quality and reputation of Canadian meats under their own name are recognized and established, Canadian shippers could continue in competition with the producers and sellers of meats from all other countries upon an equal footing, and with a fair chance of securing the best customers, particularly if they could offer better value in better meats at even the same price per pound.

RECOMMENDS PURCHASE OF 500 CATTLE PER WEEK.

To permit this to be done, and as an object lesson to the producers and shippers of animals and meats from Canada, I have the honour to recommend that provision be made for the purchase of about 500 head of cattle per week, at the port of Montreal, during the shipping season, and that dressed beef from such cattle be sent as "Canadian Beef" to the United Kingdom, and distributed through retail dépôts in Bristol, Birmingham, Glasgow, Liverpool, London, Manchester and other cities, in such a way as to secure a recognition of its good qualities.

PREPARATION OF BEEF AT MONTREAL.

Arrangements can be made for the slaughter of cattle at abattoirs in Montreal. The beef should be covered by distinctively Canadian wrappers of attractive appearance. It should be chilled in cold storage chambers. It should be carried in cold

storage compartments, on board the ocean steamers. It should be taken into cold storage chambers at the port of landing, and from thence distributed to and through the retail dépôts in the cities mentioned.

AGREEMENTS WITH MERCHANTS.

The distribution, through the retail shops or dépôts in cities of the United Kingdom, could probably be effected best by making agreements with dealers of good standing, of sufficient means and business ability, to supply them with a certain quantity of beef per week. This would avoid the need of engaging a large number of men as salaried officials.

RETAIL PRICES FIXED.

The prices at which the different cuts of beef should be sold to the consumers should be fixed by the Commissioner designated to take charge of the work, on behalf of the Canadian Government. These should be advertised widely and effectively in the several cities, as well as on bulletin boards in the shops.

PRICES TO THE DEALERS DETERMINED BY RETAIL PRICES.

The beef should be supplied to the dealers in the several cities, with whom agreements were made, at such a price per pound for the whole carcase as would be agreed upon from time to time. That price would be based upon and varied according as the rates were varied at which the dealers were authorized to sell the different cuts of beef.

The profits of these dealers would arise from the margin between the amounts realized from the retail sales, at the prices which they were authorized and which they agreed to charge for the different cuts, and the amount which they paid for the beef taken by them from the Government weekly.

PAYMENTS BY DEALERS.

The dealers in the several cities, with whom agreements were made, should be required to pay for the beef weekly, and their payments might take the form of checks or deposits to the credit of the Receiver-General.

NO DEFINITE NUMBER NEED BE PURCHASED.

It should not be made compulsory on the Commissioner in charge to purchase 500, or any other number of cattle, every week. The number to be purchased and killed should be left to be regulated from time to time by the activity of the demand and the success of the distribution through the retail dépôts in Great Britain.

MAXIMUM OF ESTIMATED NET COST TO GOVERNMENT.

The actual net cost to the Government for the management of the whole business would depend upon the prices which may prevail in Canada for cattle during the season of 1896. If prices in Canada be relatively low, compared with former years

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(which would be most unfortunate), the whole business could probably be managed without any cost, loss or charge to the Government, and show a profit; but in case the prices of Canadian cattle in Canada should be relatively higher in 1896 than in former years (which would be a good thing for the country), a sum up to \$30,000 might be required to meet the expenses which are inseparable from the inauguration of the business at the abattoirs, on board the steamships, at the central dépôt at the port of landing, and at the retail dépôts or shops for the distribution of beef and other meats in the United Kingdom.

ONE YEAR ONLY REQUIRED.

The business need not be managed by the Government for longer than one year, after which it would be doubtless carried on by private enterprise.

APPOINTMENT OF INSPECTORS OF MEATS.

The beef shipped under the Government control in 1896 should be inspected and graded. The dealers in the several cities who traffic in beef, would become familiar with the quality and names of the different grades, if more than one grade should be established. After the first year, the Government might appoint "Inspectors of meats for export" at abattoirs at Montreal, Quebec, Toronto, Winnipeg, Calgary and any other place where the business required it. The dealers in the several cities of the United Kingdom would then be in a position to purchase by cable or otherwise a given number of carcasses of beef, whose quality would be certified by the official inspectors of the Government. This plan would avoid the need for sending the beef or meats forward on consignment and would open up a good demand on a safe basis, from the time when the Government gave up the charge of making the shipments.

OTHER PERISHABLE FOOD PRODUCTS.

A beginning could be made in a trade for the shipment of "Chilled Canadian mutton," "Chilled Canadian lamb," "Chilled Canadian poultry," fresh-laid eggs and fruits, through the same agencies.

From the trade in dressed meats would grow up in Canada associated industries, such as the rendering of tallow, the tanning of hides, the making of glue and others.

COLD STORAGE REQUIRED FOR CHEESE, OBTAINED WITH LITTLE EXPENSE IN CONNECTION WITH STORAGE FOR MEATS.

The cheese trade of Canada has reached proportions as large as seem safe, excepting for the natural growth, which may keep pace with the annual growth of demand from increase of consumers. During the months of July, August and September, a large quantity of cheese shipped from Canada does not arrive at the ports of Great Britain in the best condition, owing to the fact that it has been overheated in the railway cars, or on board the steamships. There is an urgent need

for cold storage on board the steamships, for the protection of our cheese trade. It now meets much keener competition in the British markets than it did a few years ago, and to hold our own, advantage must be taken of every economical agency for the preservation of the good quality of the product during transportation. Cold storage for cheese could be provided on board the steamships with hardly any expense to the Government, in conjunction with the cold storage accommodation for the carriage of dressed meats.

EXTENSION OF BUTTER AND BEEF GO WELL TOGETHER.

The making of butter in creameries during the winter can be increased very greatly, and the feeding of cattle and swine for beef and pork uses, can be joined to winter dairying with very great benefit to the farmers. An extension of these two branches of agriculture would go well together.

EXPORT DEMAND FOR THE WHOLE YEAR.

After the close of navigation at the port of Montreal, the exports of cattle from Canada each year have practically ceased. That has resulted in a great lowering of the prices of fat cattle until the opening of navigation in the spring of the following year. A good export demand for Canadian dressed beef might be maintained during the whole year after a trade is once opened up.

BENEFIT TO THE MARITIME PROVINCES.

In former years, the want of an export outlet for cattle and beef has led to the shipment of surplus beef from the western provinces to the maritime provinces. That has prevented the farmers in those localities from selling their fattened cattle to advantage. A steady and profitable demand, such as would be created by the inauguration of a dressed beef trade from Canada, would take all surplus fattened cattle in the western provinces and Quebec for the United Kingdom, and leave the markets of the maritime provinces comparatively bare and available to the farmers who live near them.

PLAN PROPOSED TO PROVIDE LASTING ADVANTAGES.

The object of this proposal for managing the retail part is to avoid a very serious objection, and to achieve a business arrangement which would be permanent in its benefits. It would be almost impossible to administer a Government business in Great Britain, if the men who managed the retail shops were on salaries, and collected the money and paid it into the credit of the Government. That would be open to very grave abuses, and would be almost impossible to manage well. I would not recommend the Government to put a finger into a pie like that. But if dealers, with whom agreements are made, take the meat wholesale and collect the money for it, there would be no risk of loss, of pilfering, or of mismanagement. Each dealer would pay for the meat week by week, and if the bills were not paid

weekly, he would make it safe. This. If the Government out of the business touch and connection a foundation uponwards. These men of good government, after to grade the beef at his own charge or any number might be. I Government in now buy cheese two objects.

The plan is arrangements with name, in dépôts for the Government agencies in Great knowledge of the Canada afterward for the Government the abattoirs in Canada. That will enable recognized standards. That will stop the which at present part of the Canada be administered purchased by the at the Colonial and butter there. Dominion Government part of the business farmers had acquired themselves. Similar in India to establishance to the prospect chased the small

weekly, he would not get any more meat. This would simplify the system, and make it safe. The other object to be gained, and the more important one, would be this. If the Government engaged men on salaries, when the Government dropped out of the business the business would drop to pieces, so far as getting into direct touch and connection with the consumers was concerned. We should not have laid a foundation upon which a superstructure of permanent trading could be built afterwards. These dealer-salesmen, with whom agreements are to be made, should be men of good repute, ability and means, who know their business. The Government, after the first year, would have to employ an inspector only in Montreal to grade the beef, so that any shipper could have his cattle slaughtered in Montreal at his own charges, under Government inspection. He could then offer to sell 100 or any number of carcasses on that inspection, grade No. 1, 2, or 3, as the quality might be. I anticipate that those dealers, who had begun to sell on behalf of the Government in England, would go on buying beef direct from Canada, as others now buy cheese and butter. That is how the proposal, I think, would achieve these two objects.

The plan is to be submitted to Parliament. If it is accepted and acted upon, arrangements will be made for the sale of Canadian chilled meats, under their own name, in dépôts in many of the large cities in Great Britain. The plan will provide for the Government opening up the business for one year only, and the commercial agencies in Great Britain will be so chosen and managed that men of capital and knowledge of the business there will continue the trade in dressed meats from Canada afterwards on their own account. After the first year it will be necessary for the Government to appoint inspectors of meats, in order that the meats at any of the abattoirs in Canada for export may be graded according to the standards established during the current year under the arrangements made by the Government. That will enable the buyers in Great Britain to purchase Canadian meats of certain recognized standards of quality, as they now purchase Canadian cheese and butter. That will stop the undesirable practice of consigning our perishable food products, which at present is the case with cattle and sheep. While this is a new act on the part of the Canadian Government, the manner according to which the business will be administered is not new in Governmental affairs. In 1886 cheese and butter were purchased by the Government of the Province of Ontario and sold in small packages at the Colonial and Indian Exhibition to advertise the excellence of Canadian cheese and butter there. Work of a somewhat similar kind has been undertaken by the Dominion Government in establishing dairy stations and managing the financial part of the business for the farmers until the channels were opened up and the farmers had acquired sufficient knowledge to carry on the business successfully themselves. Similar work was done by the Imperial Government of Great Britain in India to establish and develop the tea trade there, which is now of great importance to the prosperity of the empire. In that case the Imperial Government purchased the small farms, procured the plants, hired the men who grew the tea, and

marketed the same, until they had demonstrated the feasibility and profitableness of that branch of culture. With the opening up of a trade in dressed meats, such as beef, mutton, pork and poultry, something could be done in the way of improving the marketing facilities for collecting and marketing Canadian eggs and fruits. Doubtless, with this major industry would grow up such minor and associated industries as the rendering of tallow, the tanning of hides, and the making of glue and fertilizers. These seem to be the means and ways whereby and wherein at the present time it is most desirable that the Government should lend its powerful assistance for the development of the resources of the Province of Quebec in dairying. Other provinces would reap an equal share of benefit from such action.

This is a scheme that will help the people in this Province to realize more out of their natural resources. It will help this Province in a particular way; and by furnishing a market for the products of Quebec it will help all the other provinces. The others will not be helped at your expense, nor you at theirs; but your good example will incite them to emulate you. Glory in each other's prosperity. Go on, and say: "We are glad we are doing well; we are still more glad we are a part of a country that is also doing well—doing even better in some parts and in some respects than we ourselves have, as yet, succeeded in doing." Thus, we shall make our land worthy of ourselves, and ourselves worthy of its bountiful resources.

ADDRESS OF A. A. AYER, ESQ.

Mr. Chairman and Gentlemen,—If I can get you down, from the high position to which you have been raised while listening to the eloquent Prof. Robertson, to plain, common standing ground, I will try to say a few words upon the subject allotted to me in your programme.

PRICE AND QUANTITY.

It seems to me that we are living in an age when everything points to SIZE and VALUE. The lover of nature looks to immense mountains or glories in little flowers. The women, they say, are fond of elephants and diamonds. And the man who goes to the county show, looks for the biggest animal, or the finest quarter pound of butter. So it strikes me that the leading idea of this Convention is quantity and price, or size and value. If, after all the good advice you have received, you do not know how to get quantity, it will be in vain for me to try to inform you. I wonder if it ever occurred to you how much TIME is spent in running about getting a PRICE for goods. How are we to insure SUCCESS in getting great quantities and a good price? I don't know of any royal road to SUCCESS; I have never heard of any. The only road leading that way is called "common sense" and "hard work." Most people think they have sense, and a good many think they do a little hard work.

How shall we proceed to apply this work so as to get a reasonable amount of success out of it? Some say agricultural pursuits don't pay, and the best thing for young men to do is to go to the cities and engage in business. I suppose you

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know and you ought to teach your sons, that 99 per cent. of the men engaged in business fail. About one in a thousand succeeds in gold mining, and one in a hundred, succeeds in business. Farming is certainly more successful than any other business. The Hon. Mr. Beaubien has referred to the English proverb of "Let well alone." I believe there is a French saying or proverb of "Laissez faire." These two short words explain many things, and translated into English might read, "let it take care of itself," "let it go itself," meaning, I take it, "don't put too much trouble into it." There are lots of people who are doing that; there are lots of business men, 95 per cent. out of the 100 that fail, who "Laissent faire." The business takes care of itself and does not take care of them. There are farmers, and I regret it, who let the calves go, and let the pigs go, and let the sows take care of themselves, and the milk take care of itself; and, of course, it does not take very good care of itself.

I wonder, by the way, now that there is snow on the ground,—I wonder how many farmers had their sleighs all ready? I wonder how many farmers have their wood ready cut in the bush; how many have their waggons all repaired and in first class order; how many have their tools and implements painted up and put in a dry place for next spring, or are you waiting ("Laissez faire") until the time comes to use them before repairing them?

There is another proverb, perhaps some "Laissez faire" farmer originated it: "You can think of but one thing at a time." Is that true? I suppose you can't think of two things in the one-thousandth part of a second; but you can think of two things in one second, and you can think of many things in ten seconds. You send your girls and boys to school, and they learn reading, spelling, arithmetic, grammar, geography, and writing, and they study all in one day. These are practical lessons for the business of life, that is, they are learning to do more than one thing at a time. The farmer that cannot think of cows, and calves, pigs and horses, tools, and every detail, at one time, cannot carry on his farm successfully. If I did not know every lot of butter, or if my partner did not know every lot of cheese; if we did not examine it and find out to which customer each lot of goods was suited, or what market it could best be sent to, we simply could not do our trade with any profit.

I understand some people fancy it would be a great blessing if these miserable butter and cheese merchants were swept out of existence. They could go over to England with their products themselves. Why not try it? Other farmers have tried it and failed, perhaps you could do better. How would you proceed? You would send a man over to sell the goods, and would you know where to place them? Do you know where to send your representative? Shall you send him to London, or to Southampton or Plymouth, or to Bristol or Cardiff; to Liverpool or Birmingham; to Hull, Dundee or Edinburgh or Glasgow? Could one man do the work of hundreds of men? Each place wants its own class of goods. He must know where to place the soft cheese, where to place the firm cheese, where

to place the colored cheese, where to place the little and where to place the large cheese, and where to send this flavor and that flavor. Do you feel so sure that you know all about it? Have you spent all your life at it? Do you think it is possible that there is a man with such an extensive experience that he could see to all these things and place every cheese just where it ought to go? I have spent 30 years at it, and I don't know how to do it perfectly myself, and if any one here thinks he can do it, he should try it.

No, No, Gentlemen, regular steady hard work for years is the only royal road to success whether on the farm or in the city. Give me the man with enthusiasm for his work. The enthusiastic farmer, one who can think of more than one thing at a time, he is the man who can make a success at farming. You can make a success of farming and of any other business if you attend to it, but not if you "Laissez faire."

Why do I make these statements? Because you have been listening to many theories. I want to set you thinking so you will put these ideas into practice. Did you ever see a boy who was fond of work? You don't expect a boy to like work, but if a man lives till he is 50 and does not like to work, something is wrong either with the man himself or with his father before him.

I saw in a paper the other day that the farmers out West had joined the 8 hour movement. They thought eight hours was long enough during harvesting, that is, eight hours before dinner and eight hours after dinner. Now Gentlemen, I don't know of a business that does not require at special times eight hours before dinner and eight hours after, and sometimes more than that. I have worked sixteen hours a day many times, and I believe that I have averaged as many hours a day as any farmer. Do you think that the Minister of Agriculture, who spoke so enthusiastically to-night, could make such a success as he has made of his department, if he had not put in a great many hours of hard work every day.

Having said this much about work and application, I should like to speak briefly about refrigerators. You have heard about them and seen them, and you know there are some good ones and a good many poor ones. There are ice houses in which the wood is damp and the floor dirty, not fit to be called ice houses at all, and from the time that the butter goes in until it comes out, it is growing worse every day. I don't know of anything that gives more bad flavors than a damp, mouldy ice house. Instead of the temperature being below thirty-two, I have seen them at fifty or sixty. This is not as good as an old fashioned cellar. Either freeze your butter or don't make any pretences.

In regard to tubs, I have been advocating a 70 lb. Canadian tub for exporting. I am not wedded to opinions I expressed ten years ago, nor to those I expressed one year ago. The present call is for the 56 lb. square box.

I simply advise the Creameries, that may be procuring tubs for next year, to wait until there are more developments, say, for the next month or two. Apparently, boxes are to be the packages.

Whatever kind for the English market wet to avoid mould

You know what much of this was done in favor of this to the June and July from the country,

Local trade in quantity of early

The question year's statistics show week, averaging, so was a stock of some at a very low price 7,500 too few, I had more than it was.

local consumption 5,000 tubs more or tubs required for least \$50,000. It is an important item or suppose.

I should like some mention made for each farmer to what it costs to do farmers average save time of one man for the whole work in factories will average economy? I consider the farm worth more I estimate that each day, or 1 cent per for 15 cents, there

An incalculable large factories, better than small ones, are worth more. A small well; the English

Another point

Whatever kind of packages you use, parchment lining is absolutely necessary for the English market, and do not neglect to steam the tub, and put the lining on wet to avoid mould.

You know what success attended the exporting of Butter this year, and how much of this was due to the bonus offered by the Government of this Province. I am in favor of this bonus, and I hope, this year, it will take the form of being applied to the June and July Butter alone, as if the make of these two months are exported from the country, the balance of the season can take care of itself.

Local trade in Montreal at present is healthy, because we have not a large quantity of early Butter on hand as compared with a year ago.

The question is often asked, how much butter does Canada consume? Last year's statistics shows that the City of Montreal alone consumed 3,000 packages per week, averaging, say, 50 lbs. each. On the first May last year it was found that there was a stock of some 5,000 packages too much; the result was that butter was selling at a very low price. If instead of having 5,000 packages too many, we had had say 7,500 too few, I have no doubt that butter would have been worth 5 cents per lb. more than it was. It is difficult to say whether we have too much butter for our local consumption in Canada to-day or not, but I will venture to predict that if 5,000 tubs more could be shipped out of the country, the balance, or, say, 50,000 tubs required for the City of Montreal alone, would be increased in value by at least \$50,000. I have only instanced Montreal, but you will see by this what an important item our home consumption is. I think it larger than some people suppose.

I should like to digress and speak on one or two other points. There has been some mention made of the carting of milk. As a rule, it is the practice in this Province for each farmer to draw his own milk to the factory. Have you ever calculated what it costs to draw milk? If on five miles of road there are 12 farmers, and these farmers average say 20 cows each, under the present system you are consuming the time of one man for at least 24 hours to draw this milk, whereas, one man could do the whole work in less than six hours. Am I astray when I estimate that cheese factories will average an expenditure of 150 hours per day in drawing milk? Is this economy? I consider it is a gross waste of labor; there ought to be some work on the farm worth more than can be realised by such waste of time in drawing milk. I estimate that each farmer could have his milk drawn at a cost of say 15 cents a day, or 1 cent per cow per day. If any farmer is willing to do the work himself for 15 cents, there must be something wrong with the farmer.

An incalculable injury is being done to the trade by small factories. I advocate large factories, because they can afford to pay a maker well, and do the work better than small ones, and because it is economy to the farmer, and because one cheeses are worth more. A small factory makes a few inferior cheeses which do not turn out well; the English become disgusted and the country suffers.

Another point, do not make hay cheese. You only sell a few thousand boxes,

while you only run down the market upon yourselves;—it is far better to turn the milk into butter. In these days, every five or ten cheese factories should have a creamery convenient for this purpose. Competition is keen,—butter and cheese are coming from the ends of the earth, therefore you must not crowd the market with cheese at the wrong season.

There is room for improvement in this Province in the appearance of the cheese. Many of the factories have old fashioned hoops that ought to be thrown away; new, tall hoops, $14\frac{1}{2}$ inches in diameter, are needful to produce cheese with handsome edges and of the right style.

In cheese as in butter I expect that there will be less variation in prices in the future than in the past, and that owing to the change in the science of manufacture, as well as to the incoming of refrigerators for the keeping of both butter and cheese, the September product will not bring very much more money than that made in June. I do not see any way for the farmer to make money out of butter and cheese in the present day except to keep better cows, to feed them better, to produce more milk, to make more cheese, and to keep on travelling by that only royal road to success called "Common Sense" and "Hard Work."

ADDRESS OF PROF. SHUTT.

Mr. Chairman and Gentlemen,—My colleague, the Dominion Commissioner, has referred to man at times as a very voracious animal, but there are exceptions and you have in me a living example of a very merciful one. I am not going to address you at great length. I think you have been here long enough this evening, and consequently acting on the suggestion of your Chairman, I shall not begin the address allotted to me by your Secretary. I may be permitted, however, while on my feet, for a few moments to say, as a member of the staff of the Experimental Farm, that I am very glad to avail myself of the opportunity of meeting those that are co-workers with us in agriculture. It is not always possible for us to attend meetings, but whenever it is, I take very much pleasure in speaking with and meeting with those who are working towards the same end, although probably on somewhat different roads. We have the same object in view: the greater success of agriculture. Looking back, for the past seven or eight years of my work under the Government auspices, I may say that I feel that I cannot point to any work which the Government is doing of greater importance, or of greater value to agriculture generally, than the dissemination of knowledge by means of your associations and by your conventions. I think it is good for all of us to be here, to do as we are doing to-day; good for us and good for you. It gives us the opportunity of learning the needs of the country, and it gives you an opportunity of getting information, the results of experiments upon our Experimental Farms.

I can confirm that which has been said with regard to the resources of this Province, and I am going to speak to-morrow about how you can protect

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some of these resources, and more especially the resource of fertility in your soil. I may say now, from what I can see and learn, and I do not say it in a flattering way, nor to win your appreciation, that I believe you have in the Eastern Townships, and in many other parts of Quebec, conditions specially favorable to the successful conducting and carrying out of dairying. We know that it requires favorable soil and climate to carry on financially successful farming, and you must have them here. Here, you have an abundance of the purest water, here, you have cool nights in the summer season, here, you can grow luxuriant crops of fodder.

A careful observer will note that certain parts of the Dominion are particularly suitable for special work: thus, we have fruit-growing districts, grain-growing districts, and districts specially suitable for dairying. Here, as I have said, you have feed, conditions of soil and climate suited specially to this work of dairying. Here you are not liable to seasons of extreme cold, heat or drought. You can raise succulent fodder at a very reasonable cost. What we want to-day, perhaps more than anything else, is knowledge, and we have come to give you information and words of advice that you can make use of in dairying. We want to know more about our work. It is well recognised now in every business that only those can succeed who have, as it were, apprenticed themselves and have spent several years of hard labor, labor of brain and muscle to acquire efficiency in their business. If we can read the signs of the times, we shall see that agriculture as a Science is progressing everywhere; we are following in the footsteps of those in the older countries when we acquire definite information and when we apply better methods in our work. The would-be successful farmer no longer turns up his nose at scientific knowledge such as chemistry and botany furnishes. We realise, I say, that there is something to learn in these sciences that we can apply to our work and obtain a profit from every day. I trust to have an opportunity of further speaking to you on this subject; the hour is now too late to trespass at any greater length upon your kindness and attention.

SESSION OF THURSDAY, DECEMBER 5TH, A.M.

MR. WM. RHAVEN:—I wish to submit to the Professors who are present, a question on the subject of water. M. Taché, in his report, gave one opinion, about sulphurous and gassy waters, with which M. Bourbeau did not agree. In butter-making the water for washing must be perfectly pure. Some waters are assimilable, others are not. Distilled water is indubitably assimilable; rain water, the water of rivers and lakes are those best suited to the purposes of the dairy, especially for washing the butter; but stagnant water, well water and that from springs, are all unsuitable for that purpose. There are also sulphurous and gaseous waters, generally derived from springs.

Cows, too, must have clean water to drink, about which, she, if she gets the chance, is mighty particular. Then, when on pasture, a cow will prefer drinking

from a pool to drinking from a brook, and the pond water must be pure or else the cow would not select it; but it is quite certain that pond water after stagnating some time and becoming full of microbes, becomes corrupted and turns pure again, and perfectly assimilable. A cow never drinks from a stream, unless she is positively obliged to do so *faute de mieux*.

The non-assimilable waters are calcareous water, fresh from the spring. Salt water, lime water, are mineral waters; sulphurous or gaseous waters may be used if it is wanted to dilute the milk (*mouiller le lait*) or for the production of milk; but it is best to stick to the assimilable waters. If non-assimilable water be added to the milk, your eyes will show you at once that there is water in the milk. I think it would be as well to have the opinion of the Professors as to the employment of the different kinds of water in butter-making.

PROF. SHUTT:—With regard to the question of water, I might say at the outset, that the water as it falls from the clouds is the purest water found in nature, provided it has been collected in clean vessels and where the atmosphere is free from smoke or other contaminating matter, as in the country. Absolutely pure water is unknown in nature. Rain water falling in the country, is practically pure. Such water falling on the ground would at first be pure, containing no contamination, but allowing it lie stagnant in an open place, as in a pond, exposed to the weather and inflow of drainage would not in my opinion tend to improve it. If this water were in such a place that it could receive the drainage of the fields, of the mixen of the stables, it would be contaminated. Anything coming into the water of a foreign character would tend to deteriorate or impair the quality of the water. I confess I have not heard of assimilable and non-assimilable waters, as spoken of by Mr. Rhaven, nor do I think it all possible to detect their presence when added to milk. Water may be pure or contaminated with polluting matter, but in neither cases should it be used to add to milk.

That does not touch the question of the purification that takes place when water percolates through the earth. The earth has a great purifying power in that way. But water running in a trough on the surface of the soil is subject rather to pollution than to purification.

MR. BARNARD:—The question put by Mr. Rhaven refers to the water that accumulates in the fields and pastures. The difficulty would be that it was a surface water which had gone over the fields and had been more or less contaminated, and afterwards is kept three or four weeks until the next rain comes, so long as the hole in the ground can be large enough to keep up the supply from rain to rain. During this length of time the water receives contamination, and can this contamination be worked out by fermentation? I understand this explanation and the water being pure to agree perfectly. Both say it was perfectly pure after it came from above. But, after coming from the field and draining into the hole, it has been more or less damaged and the fermentation ensues on account of the heat in the summer, and the insects working into it, and the animals with their feet getting

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into the hole contaminate the water. The question is if after certain time there is a cessation of this trouble and the water becomes good again.

J. DE L. TACHE:—Referring to my previous remarks concerning the water requisite for dairy purposes, I would rectify one thing which might mislead and may give a meaning which my words did not intend to convey.

I said yesterday that some authorities in treating of the matter say that all water which contains a lot of oxygen in solution is dangerous for washing butter. And if there can be any comparison between well water and spring water the preference should be given to well water, having less oxygen and the spring water more. That is a spring in the open air. But if spring water is taken from the spring and taken to the factory in a pipe, I suppose it would not contain much oxygen. My authority for stating this is one of the best modern authorities, Oosta Grotenfeldt, in his course on dairying. Grotenfeldt is one of the most practical and scientific men who has ever handled the subject. He says:—"Duclos has shown by numerous experiments that the butter must be protected from the influence of the air (oxygen) and light. Precautions in this direction should, he says, be taken even in the churn, *i.e.*—by washing the butter with water poor in oxygen. Well water or spring water should be used for washing and not lake or rain water." Duclos considers that the latter is injurious both on account of the large contents of oxygen as well as the probable presence of numerous micro-organisms.

That is about oxygen. And there is another question, and that agrees perfectly with what Professor Shutt says: that the earth has a purifying effect which makes the water from the deepest well more fit for use. This fact is corroborated by the observations of both inspectors, who have mentioned that deep water is free from contamination, even when derived from water received from polluted places. Then, the water ought to come from a deep well; the deeper the well the better the water, so far as being contaminated with germs is concerned.

PROF. SHUTT:—Another word on this matter. I like to hear this matter discussed, because it has long been one of great interest to me. I think that Mr. Taché is quite right in what he says about the action of oxygen on butter, but I would further state that a far greater danger lies in the use of water polluted with organic filth and containing hosts of those micro-organisms, known as bacteria. I know something of the quality of water used on our farms and dairies, and I cannot, as a rule, speak in high terms of it. The question we have to discuss in this connection is the pollution due to drainage matter from the barn yards or the fields, pollution that is preventable. We have to see that the water is free from organic matter of animal origin. By all means should your water be always free from organic drainage, because that water has in it a great deal to feed the germs that cause fermentation and create bad flavors in milk, butter and cheese. Many diseases also are caused by these microscopic plants, microbes or bacteria, and these disease germs have their development in such water containing the excrementitious matter of animals. I would therefore impress on you the necessity of having your water supply at sufficient

distance from any possible contamination of that character. I don't wish to recommend the method of keeping the water in open places in the fields. You are opening the way to contamination by so doing. In the majority of instances it would be well to have a deep spring. You will then have your water cold, and further, it will be pure if it is situated at a sufficient distance from the barn yards or other places where it can be contaminated.

M. TACHE:—I referred to the making of fine butter. I said that precautions should be taken to prevent the entrance of the germs into the factory. I mentioned that drainage should be provided against, and that there should be precautions against all chances of contamination.

PROF. ROBERTSON:—I may add one word. In the preservation of butter it is not enough to keep it cold. Light and air have some action upon both the color and the flavour. The oxygen in the water would tend to make butter more yellow and of a little higher flavour. This action of oxygen cannot be escaped in the working of the butter on the table afterwards. If the butter be worked an hour longer than usual, thereby assuming a higher flavour, it will not keep so long. It is clear that it is not enough to keep butter cool; it must be kept in a dark place and where the air does not touch it. That is the value of keeping it covered with butter paper.

M. AUGÉ:—I have a couple of questions to ask. You know there is a good deal of opposition in some places (I suppose it must be through ignorance) to the paying of milk by the Babcock test. In one case one man's milk was found to be richer by that test in June and July than it was in October, and I would ask the gentlemen who have studied it to explain if this can occur without the milk being tampered with? Now, some farmers in the locality had the idea he had tampered with his milk. His milk from the same cows was richer by the Babcock test in June and July than in October, and, naturally, you know the fall milk is always the richer. That is one question and the other is this: what would be the effect of a man, living at a distance, that should take his night's milk, not stir it in the morning, but take off the cream, and then from the residue of the milk take some milk away; a certain quantity for his young pigs and calves; and replace it with water, then take the next morning's milk and mix it altogether; what effect would it have for the patrons, would he himself gain? If he did, then the patrons would lose. Could that be detected by the Babcock test?

PROF. SHUTT:—Mr. Chairman, I intended to say something on the Babcock test in the address I was asked to deliver by the Secretary on the chemistry of milk and its products, and I don't know whether I should wade right into it now, or lead up to it. I had not anything specially prepared in form, but I intended to take up the constituents of milk, and take up the Babcock test. I have a chart here which will illustrate my remarks on that point; I will invite discussion as I proceed. I should like to leave it just for the present in that way.

MR. BARNARD:—Before the matter is disposed of I should like to hear Prof. Robertson's opinion on this matter. I hear that one of our general inspectors has

met with the same or perhaps Prof. Robert

M. ELIE BOURBEAU Augé mentioned. In at 5:40 and in October of the season. Of course I also noticed in several times, seemed 5:40 was only a single

PROF. ROBERTSON from time to time un a cow's milk to vary same feed. We have certain about a standard and food condition usual. The better feed made less difference in the summer milk and little in October, so the percentage of fat for a week, the quantity of the other solids in the butter-fat test cent. on Tuesday after skimming his milk.

of impeaching an honest milk, takes no cream and puts water in its is all there, but the removed by this displacement water in its place as test alone would not it. It is well therefore by men who desire to am sure that every man say the same thing.

I had occasion several I had reasonable evidence out of those 700, who I never saw a man with buildings, his farm, or

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met with the same difficulty. He might explain under what circumstances, and perhaps Prof. Robertson would take up the whole subject at once.

M. ELIE BOURBEAU:—In my own factory I noticed the same thing that Mr. Augé mentioned. In June I tried the milk of a certain patron and his milk stood at 5·40 and in October his milk stood at 4·80. I thought it was due to the dryness of the season. Of course that was not the average, but it happened in one case. And I also noticed in my own factory this year that the milk, in tests repeated several times, seemed richer in June and July than in October. This comparison of 5·40 was only a single test.

PROF. ROBERTSON:—The proportion of fat in a cow's milk varies a great deal from time to time under apparently the same conditions. I have found butter fat in a cow's milk to vary as much as $1\frac{1}{2}$ per cent. in two days, in the same stable, on the same feed. We have a record of about 20,000 tests in two years, and I am not so certain about a standard of butter fat in milk as before I made those tests. The climatic and food conditions this year made a better quality of milk in June and July than usual. The better feeding of cows, maintaining the flow of milk towards the fall, made less difference in the percentage of fat than existed in former years between the summer milk and fall milk. Cows used to give very much milk in July and very little in October, so the proportion of fat was greater in the fall of the year. While the percentage of fat in milk varies a great deal, taking the average of milk of a cow for a week, the quantity of fat seems to bear a fairly constant ratio to the quantity of the other solids in the milk. I take it that in the paying of the patrons according to the butter-fat test it is not fair to presume that he, who sends milk at 4·50 per cent. on Tuesday and who sends it at 4 per cent. on Friday, reaches this result by skimming his milk. If you came to that conclusion hastily you would run the risk of impeaching an honest man for dishonesty in his business. If a man takes a can of milk, takes no cream off (as mentioned by Mr. Augé), but takes skimmed milk (1) away and puts water in its place, that is dishonestly adulterating his milk. The butter-fat is all there, but the other constituents that usually go with the butter-fat have been removed by this dishonesty. So it is as dishonest to remove skim milk and put water in its place as to remove cream and put nothing in its place. The Babcock test alone would not show that, but Babcock tester and lactometer together will show it. It is well therefore to use the lactometer as a protection against being imposed on by men who desire to get something for nothing, which, on the whole, never pays. I am sure that every man acquainted with the business and who manages factories will say the same thing. I managed factories myself and we had seven hundred patrons; I had occasion several times to believe that some patrons tampered with their milk. I had reasonable evidence; I had complete proof in some cases. I never knew a man out of those 700, who, acting dishonestly, succeeded long in making a good living. I never saw a man who tampered with his milk have any measure of success. His buildings, his farm, do not look successful. He is not a good farmer; and the Lord

(1) This seems to mean: "takes milk from under the risen cream." A. K. J. F.

Almighty cannot in his wisdom give such a man the reverse of what he deserves. Honesty is the best policy for a man's pocket as well as for his conscience. And the factories who would make this risk disappear should make the test by both the Babcock and the Lactometer, and greatly assist in improving the quality of the milk.

I may say this, that the quality of milk fluctuates, very much; but if a man does not tamper with it, the fat is a fair measure of its value. If he does adulterate it, with the Babcock tester and the Lactometer you can discover the dishonesty, and make him smart for it.

MR. PATTON:—Some have made the application of the test only once a fortnight or even once a month. Would that be a fair method of testing as regards patrons when the richness is liable to change $1\frac{1}{2}$ per cent. in two days? Would it be fair to patrons to pay them upon this test made only once in a fortnight?

PROF. ROBERTSON:—I have known of such a wide variation occurring, perhaps only two or three times in the 20,000 tests. A composite test, once a fortnight, does not only comprise a sample of milk taken once a fortnight, but of the milk received every morning for a fortnight. In that way you may get an average of the milk for the fortnight. That is a safe method. Our cheese and butter makers who have been hostile in the past will unite, I believe, in adopting the composite test. What is to be feared is neglect, carelessness, inaccuracy and want of skill of the butter and cheese makers. The composite test is a good one when carefully made. It needs accuracy of handling: that is why we have taken pains to teach it at the St. Hyacinthe Dairy School and to emphasise these things, lest by carelessness the makers should spoil the application of a good thing.

M. J. DE L. TACHE:—Mr. Wherry yesterday alluded to the difference of opinion which existed between yourself and Prof. Dean on the question of paying for milk by the Babcock test. Would you kindly give the gist of the discussion on that proposition?

PROF. ROBERTSON:—The gist of the discussion is just this.

MR. WHERRY:—The question was as to the difference of opinion between the Professors Dean and Van Slyke.

PROF. ROBERTSON:—In Prof. Dean's absence, I would rather not use his name except to stand for the maintenance of a principle. Professor Dean and I are good friends. He was one of my pupils when I was Professor at Guelph. He came to Guelph and passed all examinations very successfully. As a rule he showed himself to be a bright, diligent student. He took honors, and applied himself steadily after I left for Ottawa. Mr. Dean spent some time with Prof. Van Slyke in New-York, and, after his return, became my successor at Guelph, so you have an account of the relationship between ourselves personally.

The chief difficulty we had among our farmers was that we were paying for milk by weight instead of paying according to quality. Weight and quality will give you the value,—not weight alone; but weight and quality, will give you the value. We have to weigh the milk still, but we weigh it and modify that test by the quality, and so

get the true value. Prof. Van Slyke in obtainable from a quantity of fat contained was carried on for it. The quantity agree with the quantity of cured cheese for quantity of fat is in form quantity of cheese shift the valuation. Dean, and others because they say, in cheese without regard by the quantity with the quantity or weight of cheese made. Our experimental work the 100 lbs. of difference.

If you take the then, the butter-fat measure for the quantity to shift the basis of quality, and weight.

MR. PATTON:—then? If they pay patrons don't receive

PROF. ROBERTSON

MR. PATTON:—

the paper of which you that the only true an experience in the U vinced that the only for that purpose to the cheesemakers any mixed community, in hands under the Babcock

PROF. ROBERTSON: recognise the quality according to the quality factory, and A's milk: get any more value than

get the true value. A certain quantity of milk will make a certain quantity of cheese. Prof. Van Slyke in his work comes to about this conclusion, that the quantity of cheese obtainable from a given quantity of milk is almost always in exact proportion to the quantity of fat contained in it. My work, not so exact as Prof. Van Slyke's (which was carried on for two years in a laboratory), — does not quite agree with it. The quantity of cheese obtainable from different milks in our work did not quite agree with the quantity of fat; the richer the milk in fat the smaller the quantity of cured cheese from every pound of fat. Therefore, Prof. Dean says, that the quantity of fat is no fair measure of the value of milk, because you don't get a uniform quantity of cheese from the same quantity of fat. The first difficulty was to shift the valuation of milk from the weight of it to the quality of it. And now Prof. Dean, and others who are standing by him, don't seem to agree with that effort, because they say, in substance:—"This method values the milk by the quantity of cheese without regard to the quality. You are no more justified in valuing cheese by the quantity without regard to the quality, than you are of valuing milk by the quantity or weight without regard to quality. You have to consider the quality of cheese made. There were about three hundred cheeses made, three years ago, in our experimental work. We found a difference in quality as well as in quantity by the 100 lbs. of different milks....."

If you take the quantity of cheese by the quality of cheese from different milks, then, the butter-fat is a fair basis for valuing milk for making cheese. It is not a measure for the quantity of cheese, but for the value of the cheese. We have merely to shift the basis of valuation to its true place, which is weight of milk modified by quality, and weight of cheese product modified by quality.

MR. PATTON:—If the buyer does not recognise this difference of value, what then? If they pay the same price regardless of this increase value, is it fair if the patrons don't receive anything for their pains?

PROF. ROBERTSON:—That is an existing injustice.

MR. PATTON:—Until this is rectified, is it fair to test butter-fat by it alone? Now, the paper of which you have been so long the editor, I understand, says it is convinced that the only true and just test must be made at the cowhouse; and that after a long experience in the United States, testing by the Babcock test, the writer was convinced that the only way a fair test could be made was by having a man appointed for that purpose to make tests, for the reason that it was impossible to find among the cheesemakers anyone capable of making a correct test. Do you think, then, in a mixed community, in small factories, it would be safe to risk our interests in such hands under the Babcock test?

PROF. ROBERTSON:—The question first put refers to a buyer who refuses to recognise the quality of the cheese. Should the patrons in that case be paid according to the quality of milk they furnish? If A and B send milk to a factory, and A's milk is better in quality, is richer in butter-fat than B's, should "A" get any more value than B per 100 lbs. of milk? In any case the milk from A, being

richer, helps to make the grade of cheese richer than it would otherwise be. The plan the buyers go on is never to bid up the price of poor cheese. It is always to bid down the finest cheese to the price they can buy common cheese at. That is their business and I don't blame them for it. It is not a bad thing for us to recognise this, while we are discussing a good many things about making butter and cheese and paying for milk according to quality, we ought—with due deference to the business capacity of these buyers—we ought to discuss from our standpoint whether we could not find better methods of selling our cheese, because, as I said last night, I do not hesitate to say that the buyers have been getting excellent value for the time, money and ability they have spent in the buying and distributing of our products. For instance, there is too large a margin between the price of cheese at the factories here and the retail selling price in England of the very finest of our cheese. We should have some means of reducing this difference and of diverting some of this money from the dealers—mainly the British ones—to the patrons.....

Then the buyers will pay up for the quality, and the patron and manufacturers share in it. Our ideal should be to give everybody full value for what he sends. The business should pay to the manufacturer and buyer a reasonable sum for services rendered. A man says, "The markets are 9 cents, that is the average" (I am not saying it is higher or lower now). If that is the average, I say that lots of cheese are worth 9½ cents, while some may be dear at 8 or 8½ cents. I should go right into that question with the salesmen, not to cut the buyers out, but to give them a chance of making more money by fair discrimination in favour of quality in buying.

MR. PATTON :—Well, then, there is an injustice, and we should try to remove that injustice and try to teach the makers how to use the Babcock test.

PROF. ROBERTSON :—Now, with regard to the matter of not getting capable persons to make the tests. A scientific test cannot perhaps be made at the factories; but our cheese makers in Canada are being very thoroughly helped to manage all parts of the business well, because they get more help than any butter and cheese makers in the world. They have more outside help and more outside authorities they can rely upon for information. Our butter and cheese makers are competent to make good, thorough, practical tests of milk; there are men enough that are competent. So the factories themselves are to blame if they employ a man who is incompetent. It is almost as essential a part of fitness and management as keeping the floors clean. I think our makers can test to give rough, honest, business justice, without too much crudity.

If I want to find out something from Prof. Shutt's Department as to the comparative value of things, he will give me back a record: he will give me back differences in weight down to the ten thousandth part of the gramme. When I want to do the commercial work, which is more in my sphere, I don't seek the difference down to the tenth part of a gramme, but I come down to a mere practical test. I think the same might be applied to the testing of milk, and that the maker is able to make a fair business test to do justice between man and man.

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MR. PATTON :—In view of the fact that patrons watch carefully the flow of milk and the amount they carry to the factory, is it not a dangerous course to base the payment for that milk upon any machine that is left entirely to the hands of the makers? Is it not giving them an opportunity for fraud if they are dishonest? Does it not give them an opportunity in making those tests (as far as I know, I don't know whether it is true or not) to show favoritism. In the case of a man, for instance, who says, when not satisfied with the test, "I am going to send it here another week, and in the meantime, if this continues, I will see where I can get the best test, and we will settle up." A man did do that to my knowledge. Does not that place in the hands of a dishonest man a lever to commit fraud, instead of being a method of detecting fraud? Does it not place in the hands of a maker a machine that will enable him, without any wrong on the part of the patron, to practise favoritism?

PROF. ROBERTSON :—It puts him in possession of an opportunity to do his patron a wrong if he wants to, but not without some means on the part of the patron of preventing it. When out West, I looked into the mining development of the country. Now, in large mines the owners of the ore send the ore to the smelting works, and the smelter employed a chemist to assay it. The quantity of gold and silver he gets is very small in proportion to the quantity of ore, and he is paid according to the report of assayers by the certificates which he furnishes. Now, if the smelter employs a dishonest chemist, he will give certificates grading the ore lower than it is, and if he can get the man who sells the ore to accept a certificate without a check, he may buy it from the miner for one half of what it is worth. But the miner might have an independent assayer, and he can tell whether his test agrees with that shown in his certificates, and he may say, "I will not sell any more until I get fairer tests." Now, a Babcock machine, to test enough samples for the purpose of checking, could be bought for \$12. A schoolmaster in any parish or township, or some other person, could get a machine, and could by going to the dairy school two days, learn how to use it. Let one or several companies employ him as an independent milk tester, so that any farmer could avail himself of the test for 25 cents. If a patron doubts whether his milk is properly tested, let him take samples of his milk, which he knows, for the tester's opinion. You could not perhaps upon that take an action in law, but you put yourself in a strong position by confronting a suspected cheesemaker with this fair test. Then, he will know that he cannot deceive, and the manufacturer would be careful lest he should make a mistake. That would be a wholesome practice. That would be better than having a Government official. It is better not to have too many officials; they are difficult to manage. You had better try this in a few places, and then, afterwards, you might apply it on a larger scale.

MR. WHERRY :—I might repeat the remark I made the other day, which was this: that in some cases, and I think it was brought up, the inspectors go round testing the milk for the purpose of having it paid for by the Babcock test. Well, I look at the matter in this way: Ontario milk is not so rich as Quebec milk, and still they were

getting more for their cheese, although Quebec milk was the richer. And we should have to spend our time as inspectors, all our time, in going round and doing nothing but testing the milk with a view to the dividends. I remarked that we should lessen our usefulness for something more important, such as looking after the quality of the milk, in regard to flavor and cleanliness, and instructing the makers in the principles of making. That was one of the points, and there being a dispute about the paying for the milk by the Babcock between some of our men, I did not like to say it was right before it was a settled thing, and that is what I want to know. What was the use of so much discussion about the butter fat in milk when it was not sold by the butter fat value, but under the trier of the buyer. And those were the points I wanted to get at clearly. If they are correct, I want to be in a position to answer patrons and cheese-makers when they ask questions as to their correctness. I have been a little puzzled what to do, sometimes.

PROF. ROBERTSON:—I don't think it is any part of the inspector's duty to take up much of his time in testing the quality of the milk at the factory as to its percentage of fat. If the milk is tested, as it should be, by the composite test, the only man to test it reliably is the man taking daily samples to make his composite samples. You divide his responsibility. So I think the matter of testing should lie entirely in the hands of the maker at the factory. Now, the inspectors are trying to carry on their work of trying to improve the quality of the milk and of the cheese, and looking after those things specially.

In regard to the buyers' valuation, let me emphasise what I want to make clear. You must not run away with the notion that, because the buyers have a way of valuing things according to their own judgment, the cheese buyers here are infallible in their conclusions. Apart from that, I want to make this clear; it is a serious matter that, while the quantity of fat in milk is a means of measuring its value for cheese making, it is not the only means. Any man can take rich milk and make poor cheese, and the really good cheesemaker can take poor milk and make good cheese. But, if the men be equally competent in both cases, they will make better cheese out of milk rich in fat than out of poor milk. Let me say, with all kindness of judgment, that the lower price the salesmen of the province of Quebec get for their cheese than the Ontario salesmen is, not because the rich milk could not and should not be made into finer cheese, but because your cheese makers don't yet know how to do it.

MR. PATTON:—That is the point: they don't know how to do it.

PROF. ROBERTSON:—I will go back five or six years; then, the cheese in the Province of Quebec was sold for a cent a pound less than Ontario cheese; and at that time the Quebec milk was quite as much richer than Ontario milk as it is richer than the Ontario milk to-day. You are creeping up close in price. The people of Ontario have said that I was flattering the Quebec people, because I said the people of this Province could and would soon make finer cheese than they. If you keep on improving the quality, your cheese will fetch better prices.

Let me say that factories, so that all give you cheese made have been doing that had the same we districts, and they little things better

I believe you highest value for it there is something gaining in skill even School and the it quietly. Give full full value for your

MR. HODGE:— would refer to. us first class cheese appearance was c as any cheese con very suddenly quit to the maker, stating had a peculiar flavor came to Montreal cheese: he thought cheese, and this m I felt sorry for him "No", he could no give you any reason near his place, and man to bear who h as I had done before on the low lying la not a chemist, and that there was a tr little distance off, o the fence and the c this water with the c came down there ar I said: "How low water is low on the us running water." called his boys toge

Let me say this one thing more on that point. Systematic supervision of the factories, so that all the makers turn out cheese of uniformly fine appearance, will give your cheese more value. In some of the official work of our Department we have been doing that, in new sections where the people had no experience. Thus we had the same weight of cheese per box from every factory from entirely new districts, and they took the top prices of the very best cheese. It is getting these little things better done that will improve the prices.

I believe you have the best quality of milk, and I believe you will have the highest value for it; but don't stop before you get there. You can get there, and there is something wrong in yourselves, if you do not get there. Your men are gaining in skill every year and will get better every year. The St. Hyacinthe School and the inspectors are aiding you, and you are getting there slowly and quietly. Give full value to your cheese maker, and insist on the cheese buyer giving full value for your cheese.

MR. HODGE:—With regard to the matter of good cheese, there is one question I would refer to. Some time ago we received from a factory, that used to send us first class cheese, a lot of cheese. When the cheese came to the store, as far as appearance was concerned, it was as bright and as handsome and as well made as any cheese coming from any part of Ontario. But last year we discovered very suddenly quite a change in the flavor of the cheese. When it came in, I wrote to the maker, stating that I was sorry to find that his cheese was off in flavor and had a peculiar flavor that I could not describe, and I asked him to explain it. He came to Montreal at once and saw the cheese. He said he didn't bore any of the cheese: he thought everything was right as it had been before. We looked at the cheese, and this man stood upon the floor of my warehouse with tears in his eyes. I felt sorry for him, and I asked him if he could give a reason for it; and he said "No", he could not give any reason. He said: "I don't know the reason; I can't give you any reason." But, a week afterwards, I was driving through the country near his place, and I will see him, thought I. I thought it was a heavy affliction for a man to bear who had a family on his shoulders. I was driving through the district as I had done before, but I noticed while driving past the factory, along the river bank on the low lying land of blue clay, something that attracted my attention. Now, I am not a chemist, and have never been through college, but only at the plough. I noticed that there was a tremendous amount of water running through the blue clay; and a little distance off, on rising land, I saw cattle grazing, and there was an opening in the fence and the cattle came from this high land down to the low land and tramped this water with their feet and dropped their excrements round the edge of it. The cattle came down there and drank... I went to the factory and called the proprietor by name. I said: "How long have your cattle been drinking down here?" He replied: "The water is low on the upper land, and the cows have done nicely since the river gives us running water." I said: "There is the trouble with your stinking cheese." He called his boys together and explained this to them. I told them to take the cattle

away from this pest hole and water their cattle in some other way, and they did so, and the man has never had a bad cheese since.

I might cite another case. Some of us, as buyers, sometimes come across cheese with rust-spots on it. I have spoken to several about it; I asked everybody under the sun what it was that caused it. Some put it down to vegetable matter and some to another cause. The factory I refer to shipped to us this season, and has been doing so for several years. And, last year, we discovered this one trouble, of rust-spots, and wrote about it. It was, on one occasion, so bad we could not accept the cheese, and we wanted to find some one knowing more about it than we did ourselves... X... came to Montreal and saw the cheese. He had not observed these rust-spots in the factory. He had run across one here and there, but had not discovered the rust-spots as he discovered them in Montreal. Unknown to any one we tried to get at the trouble. When X... came to Montreal, two weeks ago, he said he had gone to the factory, and traced the water from the river where the animals were using it, up to its fountain head. And he told me that, down where the water ran into the river, he discovered on each side of the creek, or rivulet, a trace of rust and followed it up to where there were pools, and in the bottom of the pools there was rust, clean up to the end of the supply, and from the top to the bottom there were little pools where the water was stagnant, and in the bottom there were scales of red rust, which shows that there was something in the water that affected the cheese and its flavour.

ABSTRACT OF THE SPEECHES OF THE HON. LS. BEAUBIEN, (1)

Commissioner of Agriculture and Colonisation.

MR. PRESIDENT AND GENTLEMEN,

I am always very happy of an opportunity of attending your annual meetings. I feel I am at the centre of a grand movement, in the midst of men who are assembled to work for the welfare of the province.

In the position I have the honour to occupy, I take pleasure in acknowledging that it is by having put into execution a good many of your suggestions that we have succeeded in arriving at the satisfactory results we find everywhere. You are the devoted van of the army; watching over the common cause for the avoiding of shocks you trace out the most suitable road, the road that leads to success. It is in the van that are placed the best soldiers. It is your part, you the advisers of the nation when dairying, our leading industry, is concerned, to make the necessary investigations, to search out the deep secrets of the manufacture, the most recent improvements; and you have at these meetings an opportunity of conferring on the people the liberal gift of the result of your labours, and of thereby creating for yourselves a title to the gratitude and the respect of all.

(1) We give here an abstract of the two speeches, in French and English, delivered by the Hon. Louis Beaubien.

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Every thing that is said here is gathered up with care, to be subsequently spread abroad throughout the country, either in your annual report, or through the Journals of Agriculture.

The first progressive step to be taken this year is the export of fresh butter to Europe. I am happy to say that I have succeeded in my support of your views, and that a premium of a cent a pound is to be granted for a still greater quantity of butter to those creameries that shall, every week, or at least every fortnight, export an invoice of butter as provided by the regulations.

Before arriving at this result, we have had to contend with many difficulties, with much opposition on the part of several, nay, even on the part of some of your fellow-dairymen. Sad to say, some men are so determined to adhere to the old system, they have so deep a horror of all improvements, especially if they necessitate some sacrifice, that there is no moving them.

But without losing heart, I opined that it is always the operations most arduous in their inception, that lead to the grandest results. For it is not without trouble that we have spread, throughout the province, the five hundred Farmer's Clubs, by means of which so rapid and so tangible a transformation has been worked in our agriculture. People were afraid of them; they fancied they were siege guns to batter down and crush the already existing agricultural associations. But we persevered, and now we have our reward. So will it be with our new enterprise of exporting butter. When the success that I confidently anticipate for it arrives, there will be nothing but praises poured out over it.

This idea of imitating the Australians, in offering a premium on export butter, was laid before me by your association, and I compliment you on it. It is thus you should always be studying how to avail yourselves of the plans of others, and trying at home those things that succeed abroad. In these days of universal activity, he who does not advance retrogrades, so rapid is the pace of the rest. Look at Australia! Twice as far is she than we from the markets of Europe, and yet she sells her butter at a higher price at Liverpool than we can! Why should this be, do you ask? I answer, because that country is not satisfied with only doing the best she can with her splendid farms and glorious pastures; but she has, in addition, studied the market, prepared it, taken hold of it. After having granted a premium four times as great as the premium we are about to give, Australian butter was largely advertised, offered pressingly over the whole of England, so that it arrived clad, so to speak, with a special official character. And you may be sure that, after their inspection of it before leaving the country, the government that granted the premium was certain of its quality. And the goods, though they came from a warm, antipodean country, from the fact that all these precautions were taken, all these attentions given, were received with satisfaction and sold rapidly.

To reach such a result, the Australian government grudged no expense; but if the premium was large, a great trade was established.

In attempting thus to open new markets for your dairy-goods, you are indeed,

Gentlemen, playing your proper parts. You are the guides, the scouts ; in your rear, the country will march onwards to victory.

In these novel experiments, the Dominion government is assisting us materially. If we produce an article, it will take upon itself to keep it safe until it is sold to the consumer. Refrigerators are established : in the sea-ports ; on the steamers ; and in the towns where our products have necessarily to wait for some time.

The refrigerators will be greatly improved this year, both at sea and on land.

Private trade has been aroused by this experiment. Companies for the construction of cold-storages are being formed at Quebec and Montreal. No need to fear any longer the damage done by exposure to the air, especially in wet weather. The goods will always be kept in a proper temperature.

Let me impress upon you that, while aiming at the preservation of our butter, we have at the same time put in motion an entirely new and important trade : the preservation in cold-storages of a great proportion of our agricultural products.

No longer shall we be compelled to dispose of these goods at the very moment when they are likely to be injured by the heat, or when the market is dull. No, we can wait without much loss, until the time for a favourable sale shall arrive.

In the fall, or at any time we prefer, the refrigerator will be ready to receive, besides our butter and cheese, our fruit, vegetables, pork, beef, our quarters of mutton. All these, brought to the proper degree of temperature, will be preserved in perfect order, and be always ready for exportation.

Before long, thanks to these refrigerators, we shall no longer export our bullocks alive, to be slaughtered as soon as they arrive on the other side.

We shall retain for our own use the refuse of the slaughter-house, by which the English now profit ; this will be handed over to the manure factories, while the meat, properly packed, will be sent over the ocean in much greater quantities, and at lower prices.

Abattoirs will rise up as numerous and at the same time as the refrigerators. Professor Robertson will tell you presently what the Dominion government is about to do to assist this new enterprise. If you will allow me to commit a trifling indiscretion ; he being about to address you in English ; I will tell you, in your own language, something about their intentions at Ottawa. It is intended to slaughter weekly, at Montreal, a fair number of beasts, to prepare the meat properly, cover it with a linen cloth, consign it to the refrigerator, where it will be subjected to the proper temperature ; I do not say " frozen," here, and for this reason, that the Professor himself will explain all this to you.

Packed in the refrigerators on the transatlantic boats, this meat on its arrival will be sent off to special depots, whose proprietors will be bound to sell no other than Canada beef. And a good thing, too, for nowadays, good Canada beef is sold as English or Scotch Beef, and the inferior beef from English, Scotch, or other farms, is sold as Canada beef.

The beef sent over by Mr. Robertson will be kept and sold separately by him or

his people, and as about ; the goods

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his people, and as it will be obviously selected with care, it will be sure to be talked about; the goods will soon get a good reputation.

This, then, is what the establishment of refrigerators and the extension of the Professor's projects will do for us. There may be some risk to run, advertisements, etc., to make, but there is also a great trade to promote, and to arrive at that end, the safest and surest road is being taken. You saw how our experiment of last summer succeeded, how our first exportation of butter began to make us known on the English market; it will be the same next year; both Canada beef and Canada butter will soon enjoy a good character there.

Our butter will increase in value from all this work. Thenceforward, many of the cheeseries will be converted into creameries, and the number of the former being diminished, involving a less production of cheese, we shall be in less danger of seeing the English market over-crowded with our exports. Cheese, too, will rise in price; and, thus, by helping the export trade in butter, we have also come to the succour of the cheese-makers.

Up to the present time, we thought it right to promote the erection of new cheeseries, and following in the path traced out by others, we fancied we were assisting our farmers in general. But it did not take us long to see that we were travelling along the wrong road; and that all the pains we had been taking to encourage the manufacture should, if the trade was to be promoted, be devoted to discovering new markets, and to the export trade.

There is no use asking for more grants in favour of cheeseries. We can only aid the dairy trade by promoting exportation.

We shall, perhaps, be told: "But, see how low the price of butter and cheese is; and yet you keep on urging us to follow dairying. All the eggs must not be put into one basket. Why do you not pay more attention to the other products of the farm?"

To this I reply that, in the midst of all of our difficulties, it is still butter and cheese that return the greatest amount of clear profit to the farmer. Admitting that they have formerly fetched better prices, even now, at the low rates to which they have fallen, what products of your farm could you have done better, or even as well, with? With roots, or with grain? Why, these things have to be given away. With breeding horses or bullocks? Certainly not. No; dairying is still the best chance we have, even at the present low prices. Mr. Ayer was quite right the other day when he said to me: "Whatever happens, you must not stop the flow of milk." In sober earnest, the whole of our agricultural interest should be carried on with a view to the production of milk. Nowadays, we have nothing else before us that is worth anything. The products of our great North-West have completely crowded-out our own products.

With plenty of milk, we have, in addition to butter and cheese, the business of careful breeding, by which our herds may be regenerated and improved, as well as the making, not of pork, but of bacon. Ah! how right Mr. Ayer was: Keep the milk flowing.

For these purposes, you need pastures and green-fodder crops. Could I address the whole province, all our farmers in a body, I would say: "For the present at least, cease to call yourself farmers, and become graziers; if you do so, I can guarantee you success. When your cattle are well treated, well fed, your debts, if you have any, will soon be liquidated; the sun of prosperity will shed its beneficent rays over your path.

PASTURE.

Is there any part of your farms so ill used, so left to itself, as the pasture? It is that portion that, with the least labour, will pay you best. But attend to it, nurse it well, sow it with a variety of the seeds best suited to it. Remember, you who only sow timothy and red-clover, that the latter cannot stand being gnawed at constantly, and only lasts, in full bearing, at most two years; but remember, also, that white-clover, on the contrary, is essentially a pasture plant, a true perennial. Take care of your pastures; harrow them, roll them, manure them, spread over them superphosphate, lime, plaster, ashes. Break about, once a month at least, all the droppings of the stock. If any grass-patches have run up uneaten, mow them at least twice during the summer; the grass will come again, more succulent than before mowing, and the whole level pasture will be at the service of the stock.

GREEN-FODDER CROPS.

To fill up the gaps of the pasture, to help in the winter, you positively must have green-fodder crops. Every farm should have a field of them, large in proportion to the number of the herd. Manure and plough in the fall; cross-plough or grub in the spring; sow good seed, and keep the horse-hoe going all the summer. Plaster, too, and you will see the effect of that dressing.

The moment the pasture begins to fail, up with the scythe and start in with the cart; give your cattle at pasture all they can eat. When cattle at grass are well fed, not only they, but the land too profits. Moreover, your herd, having all it requires during the summer, will go into winter quarters in good order. Your green-fodder field should be extensive enough to furnish all the necessary provision for winter, and the silo is the proper receptacle for it. Or it may be put into shocks, or into the barn, in alternate layers with hay or straw.

Thus you will have milk both in winter and summer, and the cows you intend to keep no longer as milkers, will soon be fit for the butcher.

The system is simple enough, and every one knows all about it; unfortunately, but few, very few, carry it out in practice, though, if they did, it would lead them straight, rapidly to prosperity, while imposing upon them less of manual labour but greater exercise of the reflective faculties, and of the intellectual powers.

BACON.

The Messrs. Loring, of Montreal, keep on telling us that they cannot get what they want in this province; they have to go to Ontario for it. People here persist

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in making great fat hogs, whose meat is only fit for the pickling-tub, and fetches the lowest price. It would not be more difficult to breed and push forward, up to eight months old, young pigs of the Yorkshire or the Tamworth breed, and, provided you agreed with a few of your neighbours to send a car load at a time, you can dispose of them profitably on the market that is open to you.

Your green-fodder will also enable you to make butter in winter, if you arrange matters so that some of your cows at least, if not all of them, as it should be by rights, shall calve in the fall. This winter-butter will never hang on hand. In February, the Ste-Faye creamery was selling its butter at Quebec for 27 cents a pound! More of you ought to go in for such a chance.

You remember the experience of the two Brothers Houle, of Nicolet, of which I have already told you. Their small herd, when used for summer-butter, used to bring them in \$250.00 a year; but, with the same number of cows, winter-butter returns them \$500.00 a year, besides saving the carriage of the milk 8 or 9 miles!

The manure of your cows well fed in winter will be richer, in addition to the welcome sound of the money received for the winter butter. No dairy, no crops!

Our last butter exported to England in a fresh state, as you now know, gave us every satisfaction, and earned a good name, too, for itself.

The first shipment did not reach its destination, the vessel having been wrecked; still, it was all sold, and fetched as much as the rest.

So encouraged were we by this experiment, that the administration will greatly increase the sum devoted to this object.

CARE OF MILK.

I do not want to keep you too long, so I pass rapidly from one subject to another.

Every year, I make a practice of travelling through the province a good deal, either on colonisation business, or to visit the Farmers' Clubs. I always visit the factories I find on my road, as part of my duty. Many a time have I heard the maker complaining of the state of the milk delivered at the factory: not aerated; full of animal odour; filth left at the bottom of the cans, etc., etc. In spite of which the poor maker is expected to turn out an article of the best class! The farmer, who does not take proper care of his milk, not only injures himself, but his neighbours as well. What is the good of the latter being tidy in the management of their milk, if the other patrons are the reverse. I hope, therefore, that you will give strict orders to all the inspectors of cheeseries and creameries to attend to this matter.

TOO MANY FACTORIES; THE GOOD-ROADS ASSOCIATION

We have often tried to find out how to put a stop to one great evil from which dairying suffers: too many factories.

A really good cheese can be more easily, more cheaply made in a large factory than in a small one. I need not insist upon this statement. As soon as the factory is well fitted up, all the utensils and implements must be employed as persistently

as possible, for to let them stand idle is to submit voluntarily to a loss of money; now, in a small factory, they have to stand idle of necessity: for want of milk to work.

These small factories have sprung up because every one wanted to have one at his own door, not reflecting that by taking his milk a little further, he would be sure of a larger yield from it, the large factories being assuredly better managed than the small ones. There has been a ruinous competition going on. In some parishes, there are from 9 to 12 creameries and cheeseries! It is as absurd as it is regrettable. In Ontario the tendency is just the other way; there, the smaller factories have been run together into large, central ones.

Every good maker says the same thing: if they had more milk, they could make better goods.

The good advice we give reacts very slowly. Still, we must continue to give it. The due respect to individual liberty makes any interference difficult, even if it is made with a view to benefit a man. If people will persist in throwing away their money, what can we do? They are at liberty to ruin themselves, if they choose. When I am asked to apply a remedy, all I can answer is that I have none, the administration can hardly intervene. But, you may be sure that when I have discovered a remedy for such an evil, I shall not delay its application.

But, for yourselves, you can contribute greatly to the cure of this evil by hastening to join the Good Roads Association.

Let there be everywhere, throughout the country, good macadamised roads, especially the principal ones leading to the creameries and cheeseries; then the farmer will not grudge prolonging his route if he finds at its end that he has reached a large and flourishing factory.

In many parts of Denmark, every farmer has to prepare in winter his share of broken stone; the municipal authorities then come and round off the road-bed, build the bridges, make the ditches, and lay the stones. Why should not we do likewise, at least for the milk routes?

Let those interested in some one factory agree together. I will do all I can to aid them. Government can get two or three road machines, and put them, in turn, at the service of associations such as the one you have just got up, or of municipalities that want them. A good road is a necessary appendage to a good factory. Good roads will cause a diminution of the ruinous competition that exists between factories, and those remaining, receiving a larger supply of milk, will have less difficulty in turning out a good article.

I, therefore, am heartily in favour of the formation of such an association as yours; I wish it every possible success, and I hope it will soon have imitators all over the province.

Good roads; there is one of the means of curing the evil you all complain of, the too great number of factories. If you can find other remedies, wise and practical, you may feel sure of finding in me all the support you can expect. I know well how great the evil is, how much injury it inflicts on our greatest agricultural industry.

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I leave you now, gentlemen, to resume my duties at Quebec. A good share of my budget is devoted to you. We are working together for the benefit of the one and only thing that, at present, is prosperous in our agriculture. Whether prices rise or fall, let us persevere! Our cheese and butter must for some years be our principal products. Whatever happens, "Do not stop the flow of milk," as Mr. Ayer says.

May I be allowed, Mr. President, to propose that thanks be voted to the members of the clergy, who are present here to-day in great numbers, thus following in steps of our bishops, whom we have seen presiding over our agricultural comitia. Our clergy, we are consoled to say, are doing their best to incite the sons of the farmers to adopt an agricultural life, the only life that will never be overcrowded, the sole life that will always feed its children. Can we say the same of the rest?

Missioners and agricultural lecturers are now about to tell you what I myself announce to you with great pleasure: our agricultural schools, improved in every possible way, are ready to receive our lads as pupils. You must see by the proceedings at your meetings, by the improvements therein laid before you, how necessary instruction in agriculture is to-day, how necessary it is that the head should work as well as the arm.

In our schools, the lads will find intelligent practice united to sound theory. Let them respond to our appeal, and you and they will see the happy results that will follow the prosecution of earnest study.

MR. FOSTER:—Prof. Shutt will now address you on the chemistry of milk and its products. This afternoon we shall continue the questions of the manufacture of our cheese and payment by the Babcock test if desired, and treat more especially of the marketing of dairy products.

THE CHEMISTRY OF MILK AND ITS PRODUCTS—ADDRESS OF PROF. SHUTT.

Mr. Chairman and Gentlemen:

The subject that has been assigned to me is the chemistry of milk and its products. At the outset, I have to say a word or two about the meaning of the title which I have here to illustrate my remarks. I think we shall get a clearer understanding if you will allow me to substitute the word "composition" for the word "chemistry." Chemistry is that special branch of study which takes up the composition of matter, all matter, whether solid, fluid, or gaseous; and it further considers the laws and conditions which govern the transformation of these different kinds of matter.

You know that the whole universe is made up of certain fundamental matters which we call elements, and these substances as they are found in nature are either simple in their character (being composed of only one element), or they are found in combination, the resulting compound existing according to certain laws and made up of two or three or more of these elements. It is the business of the chemist to ascertain the nature and composition of all things, and, further, to study the laws which

we are only following in the wake of those agriculturists in Europe who for the past quarter of a century have realised and recognised the value of scientific work as applied to practice. We are only following in the steps of those who have seen the benefit of it, who have put into practice what they have learnt and have obtained excellent results. This education is not only a means of interesting our minds, but a matter which has returned to our pockets over and above that which we should have expected. So, I am urging the desirability and the absolute necessity of making a study of this subject, from an economical point of view more than from a scientific standpoint. Further, the study of chemistry as applied to the matters dealt with in this dairying business, enables us to take advantage of the publications, the bulletins, and the reports of our experimental stations, and much of the literature which appears nowadays in the Canadian press.

PERCENTAGE COMPOSITION OF DAIRY PRODUCTS.

Constituent.	Milk.	Cheese.	Whey.	Butter.	Buttermilk.	Skim milk.
Water.....	87.5	30.0	93.1	15.0	90.4	90.3
Albuminoids..	3.2	28.0	.9	.5	3.2	3.6
Fat.....	3.9	34.5	.4	82.4	.2	.2
Milk-sugar....	4.8	2.0	5.0	.....	5.5	5.1
Ash.....	.7	.7 *	.6	* .1	.8	.8

Now, to begin my subject. We have to consider, in connection with milk and its products, five constituents, water, fat, milk sugar, casein or curd, ash, most of which or all of which, you are more or less familiar with. I take, first of all, water.

We have already said something about water, but its importance merits further discussion. Water, is the universal vehicle in the plant, the animal, and in the soil, for the distribution and transmission of matter in solution. All substances, in some degree, are soluble in water, and it is by water that the food constituents in solution are carried through the plants in the channels which are intended for that purpose. The same is true for animals, food being carried to different parts of the body, by means of the blood. The digested matter is carried to the spot where it is needed for the nutrition of the plant and the animal. No growth in either could take place, save for this function of matter. Plants take certain food elements from the soil and others from the atmosphere. They cannot absorb matter, and convert it into their tissues without that matter or food being first dissolved. Sugar and salt are excellent examples of soluble substances; granite and ores will serve to illustrate insoluble articles. Then, plant food to be available in the soil must be soluble in water. The essential and most important function of soil-water is, therefore, that it dissolves the nitrogenous food and mineral matter in the soil which are necessary

* The differences that occur in the case of cheese and butter, between the total amounts of the constituents and 100, correspond to the percentage of common salt added in the process of manufacture.

for the plants sustenance and development. It is the same thing in animal economy as in plant economy. Animals must have water to perform the functions of digestion and assimilation. Food is valuable for the functions it has to perform in the animal, according to (1) its composition and (2) its digestibility. The constituents may be there, but unless they are digestible they are of no value to the animal. For a like reason, insoluble matters in the soil are of no use to plants. Water in a food—a succulent food for instance—is a great factor in the digestibility of that food. The principal uses of food in the animal system are to supply heat and build up the frame of the animal. Starch and sugar and oil by their combustion in the body develop heat and the power for work, the albuminoids furnish flesh and milk and wool and repair the waste of the tissues that is continually going on. So, the water supply is an important factor in connection with the digestion of food, for, as I have said, the value of food does not depend only on the constituents it contains, but also upon its relative digestibility. The purity of the well water upon the farm is a matter of vital importance, not only as we said yesterday as regards the health of animals, but also in determining the quality of the dairy products. We have examined during the past eight years many examples of water for farmers, and now we find the Ontario Creameries' Association has realised that the matter is one of such vast importance to the dairying industry that they wish me to undertake on a much larger scale than before the examination of samples of water collected throughout the Province of Ontario. They are fully convinced that the quality of the water has a great effect on the quality and wholesomeness of the dairy products of the country and the thriftiness of the cow, and, consequently, they think it well to have some data on this matter, so that concerted action may be taken with regard to water supplies and farm homesteads, in cheese factories and in creameries. In this connection I might say that already the Vice-President of The Creameries' Association has sent me, at his own expense, many samples of water from the wells of those who are supplying milk in the neighbourhood of Hamilton. I think that it is of equal importance with the testing of milk and examination of factories that our water supplies should be examined by experts. I hope the Government will see some way to taking action towards preventing farmers and dairymen, who have wells situate in barnyards and other dangerous places, from sending their milk to cheese factories. Men who send bad and tainted milk to the factory do an injustice to their neighbours who supply pure and wholesome milk. Much sickness in farmers' families and stock is caused by drinking contaminated water. During the past year, I have analysed nearly one hundred samples of water at Ottawa and it is a significant fact that only a very small percentage of them were fit to drink. This then indicates the characters of the waters on your farms. These examples were not from one province only. This sad state of affairs I fear is wide spread.

J. C. DRAPER:—I should like to ask Prof. Shutt one question: What difference does it make with regard to the depth of a spring; does it make any difference whether it is deep or shallow, if it comes up boiling and bubbling, cool out of the ground or rock?

PROF. SHUTT:—water should be, be conditions of the environment of the water. With most deceptive. It quite clear and color filth. So it is not all are that it is a good described.

MR. DRAPER:—comes through lead the water?

PROF. SHUTT:—present in water, is carbonic acid, and that and after that there character of the water be no injurious effect

Now, we find that 87½ lbs. of water in a milks fluctuate in temperature. We have, however, watering. There is and the specific gravity erated or not.

Now, as to the night: the albuminoids most important of albuminoids containing nitrogen. Nitrogen in the atmosphere. The oxygen: four parts of oxygen exists in the air is a some of the qualities in many other combinations in the white of egg, in of nitrogen is intimately that there is an absolute tenance of plant and or combination — as possible for animals be supplied to their albuminoids then a

PROF. SHUTT:—As a rule, the deeper the source of the spring the purer the water should be, because water is purified in percolating through the soil. The conditions of the environment of a well, however, have a marked effect upon the quality of the water. With regard to the appearance of water: the appearance may be most deceptive. It seldom gives a correct idea as to quality. I have seen samples, quite clear and colorless, but on analysis shown to be reeking with organic refuse and filth. So it is not always the case that colorless water is pure, but the probabilities are that it is a good supply when it bubbles up in the way that Mr. Draper has described.

MR. DRAPER:—Is it injurious to drink it, or use it for dairy purposes, when it comes through lead pipes, a distance of about four rods? That is, does the lead affect the water?

PROF. SHUTT:—That would depend on the character of the water. Lead, when present in water, is certainly poisonous, but most waters contain a good deal of carbonic acid, and that in time forms a white incrustation on the inside of the pipes, and after that there is no further effect on the lead pipes. Without knowing the character of the water in question, I should say that in all probability there would be no injurious effect from the use of the water.

Now, we find that milk—normal milk, as it comes from the cow—contains about $87\frac{1}{2}$ lbs. of water in a 100 lbs. We will make the statement at the outset that genuine milks fluctuate in their various constituents. It is not a fluid of constant composition. We have, however, means, chemical and otherwise, whereby we can detect watering. There is the Babcock test—the determination of the total solids in milk and the specific gravity—all of which assist in ascertaining whether a milk is adulterated or not.

Now, as to the next constituent, one which you have heard something of last night: the albuminoids. You will remember that the albuminoids are amongst the most important of all food constituents, and that they are characterised by containing nitrogen. Nitrogen is the name of an element which exist in a gaseous state in the atmosphere. The atmosphere which we breathe is made up of nitrogen and oxygen: four parts of nitrogen and one of oxygen, roughly speaking. Nitrogen as it exists in the air is a colorless gas; further, it is tasteless and invisible. These are some of the qualities of nitrogen as found in the atmosphere. It also occurs in nature in many other combinations. We find nitrogen in combination with various elements as in the white of egg, in the lean of muscle, in the gluten of wheat etc., etc. The chemistry of nitrogen is intimately interwoven in this whole chemistry of agriculture. We find that there is an absolute necessity for nitrogen in some form or another for the maintenance of plant and animal life. Without nitrogen — and nitrogen in the right form or combination — animal and vegetable life cannot thrive and develop. It is not possible for animals to assimilate into their tissues the nitrogen of the air — it must be supplied to them as albuminoids — a form first prepared by the plants. The albuminoids then are characterised by the presence of this constituent, nitrogen.

When you hear of that word : "albuminoid," you will remember that it refers to organic matter made by the life functions of plants, or by the life functions of animals. Whence the name albuminoid? The white of an egg is known as albumin; and the white of an egg stands as a type of the albuminoids, for, in composition, it is similar to the curd of milk, the gluten of wheat, which we have been calling albuminoids. As albumen is a type of this class of bodies, all the bodies containing nitrogen in this same proportion are called "albuminoids".

Another illustration. You have meat, the lean portion which is formed in the animal by a conversion of the food he feeds upon; to this is likewise given the name albuminoids. The animal does not make it, it transforms it from its food: it is given to the animal in the vegetable matter, and then the functions of the animal transforms it into the muscles, or into the albuminoids of the milk.

The curd or casein represents the albuminoids of the milk. That is the principal part which is separated in making cheese. You understand that, in this act, you are separating the nitrogenous portion, principally, though at the same time the butter-fat becomes incorporated with the curd.

I should like you to go one step further into this question: The albuminoids in milk are not of simple composition: they are probably very complex. At any rate, we can separate them into two classes of bodies: a class which is separated by means of rennet, and which is known as curd or casein and a certain small part which is left in solution and which, in cheese making, goes into the whey. So you will observe that not all the nitrogen is taken out in making cheese: a certain amount is left in solution in the whey. Let us then separate the albuminoids of milk into two classes, that which is coagulated by the rennet, and that portion which remains in solution in the whey and which is called albumen. We say that the average percentage of total albuminoids in milk is about 3.5, or three and a half pounds in one hundred pounds of milk. Of this, about two pounds and a half represent the curd, or casein, or the part which may be coagulated by rennet, and the balance is the albumen which remains in solution in the whey.

BUTTER-FAT.

The next constituent of milk that we must consider is the butter-fat. Butter-fat also, like albumen, is not a simple substance; it is composed of several substances combined. It is what the chemist call a salt, using the term in its technical and not its popular sense. Butter is very closely related to glycerine: it is in fact a combination of certain organic acids with glycerine.

I might say, in passing, that the chemist, knowing the composition of butter-fat, is able to detect the presence of oleomargarine. If it was not for chemistry you might have oleomargarine palmed off on the markets for butter. When I was in Chicago, in 1893, there was in use a great deal of oleomargarine. I asked some of the experts about it, they said it was utterly impossible to detect by mere inspection the difference between well made oleomargarine and pure butter. But the chem-

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ist has but little trouble in detecting it; for the reason that, although oleomargarine is similar in appearance, its chemical properties are different to those of pure butter. We have in this an illustration of how chemistry protects the dairy man.

The following table will prove that my assertion that the butter fat is a true measure of the value of the milk for cheese making purposes, is correct. A careful study of its data shows that the curd increases with the fat in milk and that the amount of cheese from rich milk is greater than that made from poor milk.

RELATION OF BUTTER-FAT TO CASEIN AND YIELD OF CHEESE.

Per cent. of fat in milk.	Average per cent. of fat.	Average per cent. of casein.	Lb. of case in per lb. of fat.	Fat lost from 100 lb. milk.	Per cent. of fat in milk lost in the whey.	Lb. of cheese from 100 lbs of milk.	Green cheese for lb. of fat in milk.
From 3.0 to 3.5.....	3.35	2.20	.66	.32	9.55	9.14	2.73
3.5 to 4.0.....	3.72	2.46	.66	.33	8.33	10.04	2.70
4.0 to 4.5.....	4.15	2.70	.65	.32	7.70	11.34	2.73
4.5 to 5.0.....	4.74	3.05	.64	.28	5.00	12.85	2.71
5.0 to 5.25.....	5.13	3.12	.61	.31	6.00	13.62	2.66

Sufficient perhaps has now been said about the properties of butter fat. However, it has been urged in some quarters that the butter fat is not the true measure of the value of milk when the latter is used for cheese making. If we are using milk for butter making, the butter fat is directly an absolute measure of the milk for that purpose, and I believe the same to be true for cheese. The table that I now present to you shows that the percentage of the curd increases with the butter fat in the milk. The estimation of butter fat is therefore a very important matter both in the creamery and cheese factory. We have established the reliability and accuracy of the Babcock test for this purpose. At first, it was necessary to test each patron's milk every day, but by the use of a small amount of potassium bichromate we can make a composite test, once a fortnight. Such results are all that could be wished for in point of accuracy. By such means the cost of testing milk has been very much lessened and a great saving of time effected. Great care is necessary that the samples should not be allowed to curdle, I have kept composite samples, for six or eight weeks, and at the end of that time they have shown the same amount of butter fat by the Babcock test as they contained at the beginning of the test. We may vary, within certain limits, the proportion of the bichromate without introducing any error. But one important point in the keeping of the samples is this. Every time a new sample is taken, the bottle should be inverted several times slowly and carefully, not shaken violently so as to churn it (for the fat then goes into globules and the remaining milk will be poor), but so as to thoroughly incorporate the risen cream. So we

have to guard against churning the milk by shaking it violently. If the cream sticks to the side of the bottle, put the bottle in warm water and shake again slowly the sample taken from the bottle will then be representative of the milk in the bottle. Thus you will have reliable results upon which to base your dividends to your patrons.

(Prof. Shutt here explained the figures on the table.)

We notice an average percentage of 3.8 of butter fat in milk. Milk will vary much in different breeds, and even to some extent from day to day in the same individuals. We have found milk containing as low as 2 per cent of butter fat, and I have analysed some which has given 7 or 8 per cent in our laboratories, but both of these are exceptional case. But as an average, for Canadian milk, we may take 3.8 per cent of butter fat.

MILK SUGAR.

The sugar present in milk is known as milk sugar. It does not exist in the milk like the butter fat does, in minute globules which float all through the mass of the milk; but like the albuminoids it is in solution.¹ Milk sugar is not as sweet as ordinary cane sugar; but chemically it is closely allied to cane sugar. When we use milk as food, the principal function of the milk sugar within the system is to produce heat. It passes easily into the blood, because it is in a soluble condition, and through the oxygen of the air in our lungs is burnt, and the heat which is necessary for the maintenance of life is developed. It is just as necessary to have material to keep up the animal heat, as it is to have food to build up bones and flesh. The amount of milk sugar is 4.8 per cent in a hundred. We may think then of milk sugar as being one of the constituents which adds very largely to the food value of milk. It does not at present enter into consideration in either of our commercial methods of treating milk; but in connection with the feeding of whey and skim milk it is a very important factor.

ASH OR MINERAL MATTER.

Now, for the mineral constituents, or ash. The ash in milk is not subject to much fluctuation. As a rule we find between .7 and .8 lbs. in a hundred pounds of milk. What is this mineral matter? Whence does it come? It is chiefly phosphate of lime, a material which enters into the composition of all animals' bones. This phosphate of lime, contained in the mineral matter of milk, is not created by the cow, but is produced from the food we give her. And whence did the crops take it? From the soil. So that the origin of the phosphate of lime in milk is the soil. It is always well to trace things back to their beginnings; it will help very much towards a rational method of proceeding with our work. When we understand that we are taking so much phosphate of lime from the land by means of our crops, we know that it is absolutely necessary to put back that phosphate of lime to maintain the productiveness of our soil. Unless we think of this, we lose sight of the origin of things, and then, of course, we cannot conduct our business either systematically or

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economically. It is necessary for the farmer to know whence things come and whither they go. And it is the lack of this knowledge that explains why we have so much exhausted land here; for I have noticed some on my way hither. The fields are level, well cleared, and the soil evidently at first well adapted to farming and dairying, but, as you know, in many cases the yields are not great.

I was speaking to a gentleman, who lived for many years in the Townships. He said that the trouble is that much of the land here has been exhausted by the growth of hay year after year, and the people have not realised that they have taken the material out of the soil, sold it away, and never replaced it. We have, therefore, in learning the beginning of things, gone a good way towards remedying the evils of a bad system of farming.

Let us trace where all these constituents go to in the products of milk. First of all, in cheese.

CHEESE.

(The Professor again referred to the table, see p. 241).

When rennet is added to milk, the curd is separated from it, and in the coagulation the butter-fat is also brought down. Cheese therefore consists chiefly of the fats and albuminoids of milk. The character of the milk and the mode of manufacture will very much determine the composition of the cheese. I have placed on this chart here what I consider to be the average composition of the cheese which we are exporting; that is to say, cheese containing 28 lbs. of albuminoids and 34 lbs. of fat in a hundred. You heard last night that these albuminoids were the chief constituents of food, those that serve to make the muscles and flesh parts of those who feed on them. So, cheese is a very strong food, even more so than the lean of beef, which contains a much larger quantity of water than cheese contains. It contains the constituents that go to build up the frame. The next constituent depicted on the chart is the butter-fat. In a good sample of cheese the fat is about 35 lbs. in 100.

When the rennet is added to the milk, the curd is precipitated and that brings down with it the globules of fat which are floating all through the milk. The curd was in *solution* and the butter-fat was in *suspension*. The separation by chemical means of the curd entangles with it, as it were, almost all the globules of fat, so that all the butter-fat is practically separated. The result is a mixture of the curd with the butter-fat, which, with a certain quantity of water, and after going through the press and the process of refining, is known as cheese. So, cheese is a product of milk eminently more nutritive than milk itself. The composition includes all the most important constituents of milk; it is a concentrated form, so to speak, of milk. There is about 30 per cent. of water in cheese; I am referring to the quantity we find in cured cheese. The difference between the sum of the casein, fat, and water, and 100, represents, practically, the salt added during the manufacture of the cheese. There is however, a small amount of ash, from the milk made into cheese.

WHEY.

We shall now consider the composition of whey. The cheese and whey together represent the whole of the milk; what is not in the cheese, passes off into the whey.

Did I speak of any milk sugar in the cheese? No. The cheese is made up of three things; albuminoids, fat and water. Consequently, all the other materials, and chiefly the milk-sugar, will be found in the whey.

Now, first of all, as to the albuminoids in the whey. I spoke of a certain portion known as albumen which is not coagulated by the rennet; this is to be found in the whey. Consequently whey has a certain quantity of nitrogenous material which is useful for building up the flesh parts of animals. Of course, the percentage of water in whey is much larger than in milk, because we have taken out the greater part of the solids. We find there is, on an average, 93 or 94 per cent. of water, leaving 6 or 7 per cent. of solids.

The proportion of milk sugar in whey is somewhat higher than in the milk, because very little of the milk sugar remains in the cheese. You recollect what I said at the beginning, that milk sugar furnishes heat in the animal. In whey, we have a food for that purpose, but, if we want to make it a properly balanced food, we must add to it some material rich in nitrogen, something akin in composition to these materials we have taken out of the milk in order to make cheese. We can add them in cheaper forms, and thus make the profit on the cheese. Concentrated food, such as, crushed linseed and cake, will supply the lacking constituents.

BUTTER.

In butter, we have about 83 or 84 per cent. of butter fat, and the rest consists of water, salt, and a small amount of curd. The Government in England allow 20 per cent. of matter other than butter fat; but, when the water and salt and curd present exceed 20 per cent., they condemn the butter as adulterated. Butter may be said to be butter-fat, water, and the salt used in preserving it. The amount of mineral matter, apart from the salt, is only about one tenth of a pound, and the curd certainly not more than a half pound, in a hundred. The object in making fine butter is to keep out, as far as possible, everything except butter fat from the product. In fact, it should be free from curd and everything but butter fat.

BUTTER MILK.

We find in butter-milk the percentage of water is higher than in milk: it contains about 90 per cent. Butter-milk has greater value than whey, for the reason that it contains all the albuminoids. I said that, in making butter, we don't want to remove anything from the milk but butter-fat: everything else is left in the churn. We take out both the butter-fat and the curd in cheese-making. Butter-milk has feeding qualities of some value; because it contains the albuminoids. We find about the same proportion of curd in butter-milk that we find in fresh milk. Generally, there is about

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two-tenths of a pound of fat left in butter-milk. The ash or mineral constituents are in about the same proportion as in milk, about .7.

SKIM MILK

The chief object in butter making is to get as much of the butter fat out of the milk as possible. In skim milk, if the cream has been separated well, we should not find more than .2 per cent of butter fat: all the rest should have gone into the cream. The albuminoids, of course, will be present in somewhat larger proportions than in milk; because 100 lbs of skim milk will represent more than 100 lbs of normal milk. So skim milk, in this matter of nitrogenous material, is more valuable as food than pure milk. It may seem strange to you at first, but reflexion will show this statement to be true. But in its use as a feeding material, we must supplement it with a certain amount of oil or fat, for animals require such in their food. It is necessary, when we use skim milk and whey, to see to it that this fatty material is supplied in some form. There are many ways of doing this, by linseed meal, cornmeal, cotton seed meal, etc. The object is to provide fatty material in the cheapest form that it is possible, and while, at the same time, it is useful to the animal.

SKIM MILK AND WHEY COMPARED.

Now, what is the difference in feeding value between the whey and the skim milk? It is chiefly this (they being fresh in both cases), that the skim milk contains albuminoids. They are valuable and nutritive constituents. Animals must have a sufficient quantity of them in order to do their best. Skim milk is more nutritive than whey therefore, because it contains the curd part of milk. With regard to the other constituents, skim milk and whey are very similar. The whey may contain more fat than the skim milk, but not very much. With regard to the sugar of milk, whey contains about the same amount as skim milk; what we have to remember is, that skim milk is of greater feeding value because it contains these albuminoids.

I would direct your attention for a few moments to the experiments that were mentioned, conducted, for the information of cheese-makers, by Dr. Van Slyke, with regard to butter fat. (Table already inserted, see page 241).

This table represents to you not isolated instances, not samples of milk from fine herds, but averages of large quantities of milk, the experiments extending over several months. It shows you what has been the result of making milks of different qualities into cheese. The accuracy of these figures is vouched for, the experiments have been carried on in the laboratory and the cheese factory simultaneously. We see that milk of the richness of 3.35 per cent of butter fat, contains about 2.20 per cent of casein. That is not synonymous with the term albuminoids. The casein is the part of the albuminoids that goes into the cheese. It does not give the relation of the fat to the whole albuminoids; but the relation of the fat to the part that is coagulated by the rennet. In milk of 3.35 per cent of butter fat we have 2.20 of casein; in other words, this means that there was .66 of a pound of casein per pound fat. And the loss

of fat from 100 lbs of such milk was .32 pounds, and 9.55 per cent of the total fat lost in the whey. But that is not important in connection with the question considered just now. The next column shows that 9.14 lbs of cheese were made from 100 lbs of milk containing 3.35 butter fat. Then the green cheese obtained for every pound of fat in the milk was 2.73. Now let us consider the milk between 3.5 per cent and 4 per cent fat. There is still .66 lbs of casein for every pound of fat. That is, that the casein or curd increases with the fat. As the fat went up, so the casein increased. This is an experiment performed in the laboratory, corroborated by cheese factory reports. We find in this case that 10.04 lbs of cheese was made from 100 lbs of milk—the richer the milk the larger the yield of cheese.

(The Professor made further comparisons on the chart.)

Now, with the richer milk is there any more fat lost in the whey? The numbers shown are practically the same. So there is no more fat lost in the whey from the the richer milk in the whey than from the poorer milk. When you calculate on the percentage of fat, you will find that the percentage of fat lost in the whey is less rather than greater as the milk grows richer. That answers the objection that there is more fat lost with the rich than with the poor milk. The amount of cheese per pound of fat is practically the same for both rich and poor milk. That is a very important matter. It will not be necessary to take you over all the details of this chart, a study of it will show you that the percentage of fat is a true measure of the cheese producing value of milk, and therefore, that the milk in cheese factories should be paid for by the Babcock test.

We have thus answered the objections to the Babcock test, and further shown that a good butter cow is a good cheese cow. There does not appear to be any cow which, because she gives a milk rich in butter fat, gives a small amount of curd. As butter fat increases in the milk, so do the curd constituents increase.

Thursday afternoon, December the 5th, 1895.

MR. WHERRY read his lecture, as follows:

Mr. Chairman, Ladies and Gentlemen,

The necessary appliances for the production of fine cheese are good water, a first-class building site and factory, first-class equipments and furnishings, a first-class maker, and first-class milk.

The most important points in the manufacture of fine cheese are: bringing milk to the right state of fermentation for setting, or adding the rennet; cutting, stirring and cooking to leave just the right amount of moisture in the cheese; giving the right amount of acid at the time of removing the whey; the right amount of hand stirring after the whey is removed, and grinding the curd at the right time. These are the first principles of fine cheese making, connected by so many details that I can only afford to touch on a few of the most important. Of these five points, the giving of the milk the right fermentation is the most important of all, and it can only be

successfully done by the cheese that fine experts; it also plays our finest cheese.

The most correct is what we term a thirty pounds of the from the atmosphere pure, sour ferment producing this ferment the bad odors that that gives it a beauty of manufacturing, a through mistaken id

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successfully done by the most skilled makers. It has the most to do with giving the cheese that fine aroma, odor, or flavor, that is so much admired by our cheese experts; it also plays the most important part in the smooth, silky texture found in our finest cheese.

The most correct way of bringing about a true state of bacteria fermentation is what we term a ferment starter, which we manufacture as follows: save over thirty pounds of the purest milk you have, aerate it well to take in the ferment from the atmosphere and keep it at a temperature that will produce the first pure, sour ferment flavor or acidity when ready for use in the morning. By introducing this ferment starter into your vat of milk you overcome or destroy many of the bad odors that may be in it, and start the growth of the right ferment bacteria that gives it a beautiful flavor which you can smell all day long through the process of manufacturing, a flavor peculiarly pleasing to the human stomach, that has often, through mistaken ideas, been attributed to water, grass and other causes.

The preparation and rise of this ferment starter can be trusted only in the hands of experience and skill. If your milk is well advanced when it comes in, do not put the ferment in until just before setting your vat, if your milk is very sweet on coming in, put it in when the first cans come, and heat it up to 90°.

By using judgment in its use, you will never be troubled with the curd standing too long in the whey, and will get through with your work about the same time every day let the weather be warm or cold. If the weather is warm use small quantities, if cold use large quantities.

The cheese that I have made on the quick ferment principle have been pronounced the finest by all experts who have judged them.

Milk is the production of climatic and physical circumstances and requires treatment according to its own peculiar nature and locality. This difference of treatment consists in ripening the milk more or less, in using more or less rennet, in cutting the curd finer or coarser, in stirring so as to expel more or less moisture, in giving more or less acid at the time of the removal of the whey, in hand stirring more or less afterwards, leaving it a longer or shorter time in pack, and using more or less salt.

By skilful application of the means now in use and the varying of the above treatment, we can arrive at reasonably uniform results in all localities.

For illustration:—If the milk of a section produces by ordinary process a cheese too hard, dry and corky, ripen the milk more, cut coarser, stir less in the whey, heat to a lower temperature, give less hand stirring after the removal of the whey, grind earlier, and use less salt.

On the other hand, if by the ordinary process the cheese is soft, rich, pasty and clung, set the milk sweeter, cut the curd softer and finer, stir so as to expel more moisture while in whey, heat to a higher temperature, give more acid, hand stir dryer, let down a little more when in pack, and use more salt.

These rules should also be applied so as to produce uniform quality in the same

section different years and at different seasons of the year, thus enabling us to produce uniform cheese throughout Canada.

MR. PLAMONDON:—I should like to know why so much butter-fat is lost in the press in the July season?

MR. WHERRY:—It has always varied in my case in different seasons, and it is a sure case of loss of butter-fat when it is let down too far when in pack. I tried that to my satisfaction; I even kept it once, in the fall of the year, all night, and it was astonishing the amount of butter that ran out the next day in pressing. In the section that I have charge of, we have to stir our curd very dry, from the fact that there is a great deal of butter-fat in it. We have to stir it very dry, and whenever that is the case, that you have to hold it a longer time in the pack, we are liable to get almost too much butter. I have had more trouble in providing against that in the district of Bedford, that I ever had in Western or Eastern Ontario.

MR. PLAMONDON:—What is the cause of a floating curd?

MR. WHERRY:—Stinking milk; nothing else. It is rotten milk—I had a case where a man took home a load of bran and mixed that with a large quantity of whey and fed his cows with it. The curd came to the top the next morning.

MR. DOONAN:—Do you not think that this is the question to be answered? If the curd was stirred more in the whey, (and if it is firm enough in the whey it does not require so much stirring after the whey is drawn), you would have less loss in the butter-fat, would you not?

MR. WHERRY:—You will have loss by using it too roughly: there is danger of loss on an average.

MR. DOONAN:—I don't mean to stir roughly, but after you got it in a certain condition, then stir so as to get the moisture out of it.

MR. WHERRY:—I don't believe in stirring too much in the whey, or yet stirring it too little. There is a reasonable line to draw in both cases. But we have had more trouble with butter-fat in these counties in the past season than any time in six years that I have been there.

MR. HARVEY:—Do you not think that cooking too high would have a tendency to ripen the butter-fat in the cheese?

MR. WHERRY:—I should not like to raise the temperature. We did cooking as high as 102 or 103. I should not like to go beyond that; because I did it once, and I thought it was injurious to the flavor: that is, high cooking. I have heard of some makers last year cooking as high as 108, 109 and 110. I have tried it, and I think it changes the flavor of your cheese.

MR. HODGE.

MANUFACTURE OF AND TRADE IN OUR CANADIAN CHEESE.

Mr. Chairman and Gentlemen,

While fully realising my inability to appear before you as a speaker, or to do full justice to the subject before us, I thank you for inviting me to be present, and for

placing my name a convention. I can of service to some a good thing for th

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We often meet poor milk, because milk; but better loe a good man to lose

placing my name among the list of those who take part in the proceedings of this convention. I can only hope that what I may have to say in this paper may be of service to some one, and should such be the case, I shall feel that it has been a good thing for that one that I was invited to address you this evening.

We have all a place to fill in this life, and anything that is worth doing is worth doing well. I intend to be very plain and practical in my remarks, and shall deal with the subject before us only on those points with which I am most conversant.

In order for a mechanic to produce a good article, it is necessary that he should have the proper appliances with which to do his work; but unless this same mechanic uses his heart and brains while at work upon the article in course of construction, it is more than probable that many flaws will be discovered when the article is finished and placed on view for inspection.

As regard the manufacture of cheese, we will first look at the cheese-maker as a mechanic. He is the one that manufactures the article, and it is absolutely necessary that he should first see that the appliances necessary are in order; by which we mean, that he should see that his factory is so constructed as to prove a guarantee on all points of cleanliness. It has been said "cleanliness" is next to "godliness," and surely a cheese factory should be as clean as the kitchen and surroundings of a good, conscientious cook, who is anxious to put before those for whom she is cooking food that has been prepared with all due regard to cleanliness; and while we said above that the cheese-maker is a mechanic, we also say he is a cook, a mechanical cook, if you like; he prepares food that you and I, as well as hundreds and thousands of our fellow-beings across the sea, have to eat.

Every cheese maker knows (or should know) just what tools he requires to do his work well with, hence we will say no more on this point.

In regard to the article from which the cheese is to be made, let me say: no baker can make a good loaf of bread out of sour or tainted flour, neither can a cheese-maker make a good cheese out of sour or tainted milk, and he certainly cannot make cheese at all out of water, though, unfortunately, some patrons of cheese factories seem to think that their cheese-maker can use sour milk, or tainted milk, to perfection, and some even go so far as to imagine (they don't think to imagine) that their cheese maker is such a wonderful man that he can make cheese out of water, hence now and then we hear of a man that has added a little of this liquid to his milk, such men should be punished and punished severely. I cannot speak too strongly here, I am not sure what the *law* is on this point, but I think it would come under the act of adulteration of food, and if so, there is a punishment for such an offence.

We often meet cheese makers who, through fear of losing a patron, will accept poor milk, because he is afraid of hurting the feelings of the patron bringing such milk; but better lose a patron, even if it be the *largest patron* of the factory, than for a good man to lose his own reputation as a cheese maker as well as spoil the milk of

honest and conscientious patrons, and bring discredit upon the name of the factory he represents.

It perhaps would not be out of place here to say that when a patron leaves one factory and wishes to deliver his milk to another, he should give a reason for changing to the cheese maker of the factory he wishes to deliver his milk to; and if the cause for changing be because fault has been found with his milk it would be advisable for the cheese maker to be on his guard and watch him closely by testing his milk often.

Let me say a word about frozen milk. A few days ago I met a man who, for years, has been a first class cheese maker, and has made for one factory for a long time without having fault found with his cheese; this fall his patrons were anxious to make cheese as long as possible, and they continued to bring their milk to be made into cheese. One morning, when the milk was brought to the factory, the maker found it was frozen and very properly refused to receive it; the patrons were angry and called upon the directors, who made up their mind that the maker was their servant, and such being the case he must do just what they wished and informed the maker that he must make cheese out of this frozen milk or give up his position. He calmly informed them that he would not attempt to make cheese out of frozen milk, and that as far as giving up his position as maker in that factory was concerned he wished them to understand that he would not make for them again under any circumstances. He did right. The probabilities are that the people most sorry will be the patrons, as a good maker, like the one referred to, never need go begging for a place: a man such as the one referred to is always wanted.

I want to say something now upon some of the things to be avoided by cheese makers. 1st, *filling cheese*. Some cheese makers seem to think that if they have a few pounds of curd left over from one day to another that all they have to do is to put it in the centre of a cheese the next day, the maker fully expecting that the buyer will not discover one or more cheese in a lot so filled. The maker may be right, the buyer *may not* detect the trick, but depend upon it somebody will; if not on this side of the water, it will be found out on the other side, and it may happen that the person cutting the cheese will be the first one to discover it, and *when* it is detected it does not take long to find out who is the guilty party. A cheese maker guilty of such an action is injuring himself, his factory, and his patrons, and is bringing Canadian Cheese into disrepute in that little Isle across the sea, the only place where his goods can find a market. Don't spoil good curd by mixing old curd with it, better throw it away altogether, if you have any curd left over, now and then; use it up by making an odd small cheese for which you can find a ready market among your patrons or store keepers in the locality: I would suggest a hoop of Stilton shape for this purpose.

Twin cheese.—Shippers of Canadian cheese and receivers of the same in Britain do not want twin cheese, neither do they want flat cheese, in short a cheese averaging 70 to 75 lbs. is the cheese that suits the trade best, but when a shipper finds a

box containing twin what they can get. cases where some v pass as one cheese. bandage put over ti was detected by ch on top and the o sides, and another factory in order th

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I therefore w by every inspecto ing how many ch every cheese so e an easy matter to

box containing twin cheese they have to keep them out of the lot, and sell them for what they can get. Some cheese makers seem to be aware of all this, and I know of cases where some very clever work has been done in order to have all these twins pass as one cheese. I have known of two small cheeses being put together and a second bandage put over them; and I saw a box sometime ago containing two cheeses that was detected by chance, one cheese had been hollowed out and the other made rounded on top and the one neatly fitted into the other, both cheeses greased round the sides, and another bandage put on. This cheese was returned to the salesman of the factory in order that he may know that the man who did this work was a genius.

Sell twin cheeses at home if you have any or if you ship them put a mark on them and be prepared to take whatever a buyer can pay you for them.

Make your cheese uniform in size, no dealer will accept a lot of cheese as finest where the weights run from 30, 40 or 50 up to 70 or 75 lbs. The greatest care should be exercised in seeing that the cheeses do not rise above the boxes: this means damaged cheese in very many cases. It is no uncommon thing to see cheese, so boxed, with broken edges, and of course where this happens a claim for discount will be made, which means unpleasantness on both sides.

Inspectors.—I am of the opinion that some plan should be adopted whereby competent inspectors may be protected, and those who are not competent may be weeded out. Cheese buyers often hear the remark, "The inspector was at my factory and pronounced my cheese 'finest,'" One maker we know of this season who said, "Mr. —, the inspector, was at my factory, and gave me a certificate saying that my cheeses were not only 'finest,' but 'extra finest,'" while, without doubt, I considered them one of the poorest lots shipped to my firm this year. We declined to accept the cheese at all before we were put in possession of the said certificate, marked "extra finest," which, needless to say, we never got, for the reason that no such certificate had ever been given.

Another case, of which the highest authority on cheese in the Province of Quebec is aware (I mean Mr. McFarlane, he stands something over six feet); a certain party, known to some here, sold his cheese to a local buyer not 100 miles from this spot; the seller informed the buyer that Mr. McFarlane had passed them as finest, and the local buyer shipped them to Montreal and paid for them. The cheese arrived and were found defective in many points, being open, off in flavor, over kept, soft and pasty, some actually stinking. Mr. McFarlane was communicated with and asked for his report, which when given agreed exactly with that given above, and yet this salesman said, without a blush, that Mr. McFarlane had passed them as finest.

I therefore would suggest that something be done, and some plan adopted, whereby every inspector when examining cheese in a factory shall give a certificate stating how many cheeses he had examined, ranging from date to date as seen, and that every cheese so examined be plainly stamped; then, should trouble arise, it would be an easy matter to get at the bottom of it.

Of course it must be fully understood that when an inspector examined a lot of cheese and pronounced them "finest," that no factoryman would be justified in holding his cheese in the factory until they had become strong, over-ripe, and otherwise defective, simply because an inspector had given a certificate stating that the cheese were "finest" at the time of inspection. No man can serve two masters; and in my opinion, a cheese inspector has all he can do to attend to his business as inspector, and that he has no right to act as cheese buyer for any house. I know of one case this season where an inspector, representing a certain section or county, spent nearly a week in Montreal, attending to the sale and inspection of a lot of cheese made in several factories that he had bought for a certain house, when he should have been at his post, helping makers to produce a class of cheese of such a quality that would not require anyone to go to Montreal about, as far as quality was concerned. Of course, it is not out of place for a representative of one or more factories to go in with the cheese, but I maintain this duty should be left with some one specially appointed as is done in very many cases, but not with an inspector. I may say that I am sure that there is not a house in Montreal that has a feeling against the inspector personally, when he acts in the capacity of buyer or salesman, but there is so much that a good instructor can do in the county or district he represents, that he can find enough to do to keep him fully occupied among his factories from the day his factories commence operations in the spring until the day the doors of the factories are closed in the fall.

You are all aware how much has been said regarding French cheese. Some people in Britain have gone so far as to say that they do not want French cheese at all; why I cannot tell. There are others who say nothing about French cheese, they ask for *finest cheese* and expect to get *finest cheese*, and they care not whether they are made by an Englishman, an Irishman, a Scotchman, or a Frenchman, in fact, if a Celestial from China made the cheese and it were of the finest quality, there would be no questions asked as to which country the man that made the cheese represented.

I may say that I know of some factories in the very heart of the Province of Quebec where scarcely a word but French is spoken, where cheese is made and shipped to Britain, that sells alongside of, and give as good satisfaction as cheese made in any part of Ontario. In proof of this, I may say, that for some years we have had standing orders for some of this cheese from some of our best and most fastidious customers.

I must say, however, that in some of our so-called French sections, there are too many small factories, and I claim that this is one reason why there is a great deal of poor cheese made in these sections. I know (and many of you know), of sections where there are three, four or five factories huddled together, and that if all the patrons were to deliver their milk to one place, it would only mean one fair-sized factory. I hope the day is not far distant when we shall see a number of these small factories wiped out of existence, as where this sort of thing exists, it only means a lot of trouble to makers, buyers and all concerned.

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PROF. SHUT constituents of fo mented by mate various kinds, a means the const will not do this; seed meal is food albumiuoids, and Corn meal is ric clover: clover is hay, weight for w quantity these all

With your permission, I want to make another reference, *en passant*, to cheese-makers. There was a time when a buyer on going into a factory was met by a man as cheese-maker. Where are we to-day? In a great many of our factories in this province a lad goes into a factory as assistant or helper, he has been there one season, and during the winter following the season he has worked as an assistant, he is looking for a position as cheese-maker to take full charge of a factory. This is a mistake. I maintain that a man is not capable of taking charge of a factory until he has put in at least three or five years as assistant or apprentice, and I hope such will be made compulsory. It is necessary in all branches of business, where good workmanship is required, and why should it not be necessary in cheese-making?

Have boxes to fit your cheese that are made of the best material, and that are well made and that have proper fitting covers, a great many boxes arrive in Montreal badly smashed owing to badly fitting covers.

Don't fail to use scaleboards on top and bottom; merely having cap cloths on the cheese is not sufficient, though, in my opinion, cap cloths, such as you can buy now to fit your cheese, are a good thing.

See that the cheese when weighed are not weighed too close; they lose weight quickly; and see that the weights are put on the box plainly and in the right place.

If you have a day's make of poor cheese, (if you have, you know it), mark them with an X below the weight, where it is sure to be seen, as every receiver takes the the weights of your cheese before shipping them.

In conclusion, Mr. Hodge made some remarks on the classification of cheese by the buyers, and on its sale in England. He spoke strongly against the making of "hay cheese."

The acting president, Mr. Foster, requested Prof. Shutt to answer any questions in reference to his lecture or the charts that were shown on.

MR. MACFARLANE:—What is the best thing to feed with whey to pigs and calves? Because most of the people make cheese in the summer time, and it is important to know the best thing to feed with that whey.

PROF. SHUTT:—Whey, as noticed this morning, is poor in albuminoids (organic constituents of food, rich in nitrogen and in fat). You have to see that is supplemented by materials that contain fat and albuminoids. I would suggest grains of various kinds, and specially linseed cake and corn meal. Seek to supply by such means the constituents necessary to make a balanced ration. The coarse fodders will not do this; it must be a concentrated feed of the kind I have mentioned. Linseed meal is food of a highly concentrated character; it contains a large quantity of albuminoids, and consequently would supply the elements that whey is lacking in. Corn meal is rich in fat and will supply the lack of whey in it. With regard to clover: clover is a fodder which is also particularly rich in albuminoids. Clover hay, weight for weight, is more valuable than timothy, because it supplies in large quantity these albuminoids that I have spoken of.

MR. BARNARD :—While Prof. Shutt speaks on this matter, I should like to ask some explanations upon the advisability of using straw in connection with ensilage and the very best of clover and other rich food. Straw is poor food taken alone; but sometimes with rich food it is useful. I should like to have the professor's opinion as to whether he would recommend straw with rations of silage with pease or clover fodder containing a very high proportion of nitrogen?

PROF. SHUTT :—I presume you refer to cattle?

MR. BARNARD :—Yes.

PROF. SHUTT :—We have to recognise this fact as to foods: they are not all of the same value. We have to understand the digestive capacity of the animal we are feeding; because the digestion of food depends on the character of the animal consuming it. For instance, ruminants, sheep and cows, can extract from straw what pigs are not able to get. Different animals require different kinds of foods because their digestive organs and digestive fluids are different. Speaking of straw with regard to cattle: there is straw and straw. We have experimented cutting hay at different periods of growth, and we find it increases in value up to a certain point and afterwards begins to deteriorate, and the longer the hay is left after it is in that condition, the poorer it becomes; not only less digestible but poorer in the more valuable constituents of food. The same may be said of straw. At first, in the early stages of growth, it contains a considerable quantity of albuminoids, but after it dries and becomes hard, it loses its good qualities in some degree. As the grain becomes fully ripe the straw becomes poorer as food. The straw is harvested when the grain is mature. We grow it for the grain and only secondarily for the value there may be in the straw. Straw, cut before the grain is fully ripe, has more food value than that cut later. The straw of oats is of more value than wheat straw. I consider that a certain amount of good straw should form a part of every ration. It is possible that when given with more nutritious foods a greater return is obtained than when given alone.

Cows can extract considerable nutriment from straw. Further than this, cattle require bulky food by virtue of the conformation and size of their digestive organs. There must be a sufficiency in the stomach of the cow in order that she may properly digest it; in order that the function of digestion may proceed regularly. It would not be possible to keep cows economically and in good health, by giving them nothing but concentrated food. The digestion would be deranged. We must have something to fill them up, so to speak. Hay, straw, silage, and all coarse forage crops, are suitable for that purpose. We must see that while we have the right proportion of albuminoids and fatty matter, this concentrated food must be mixed with bulky fodder, which, in itself, may not give much nourishment, but allows the gastric juices to work to advantage. The mechanical condition of food has much to do with its digestibility—and for that reason chaffed food is advised. Thoroughly mix the grain with the chaffed coarse fodder. Thus, we know that oats are above all as concentrated food for horses. That has been looked into again and again. The

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albuminoids are not there in a larger proportion than in wheat. Their value for horses seems rather to lie in the fact that ground oats do not make a sticky paste in the stomach of the horse, like ground wheat would do. Thus there is a greater opportunity for the digestive fluids to act. It becomes more intimately and finely mixed with the saliva in the horse's mouth.

With regard to the question of Mr. Barnard: cattle can extract a large amount of nutriment from straw; and at the same time the straw will do much in bringing about that proper condition of the food by which the digestive fluids can act upon it in the best manner.

JOSEPH WARD:—To go back to the Babcock test: twice on the chart, Professor, in the last column but one, that the milk lowest in fat gives 9.14 of cheese, and milk highest in fat gives 13.32, which is nearly one half more. I understand that these tests were taken in New York; if they had been taken in this country, the present method would be more defective because there must be only a fraction of difference here. The question is, what is the average test of our milk here in Lower Canada?

PROF. SHUTT:—I have not any data with reference to the matter with me. The data on this chart were taken at New-York, but they represent what I believe to be the quality, taken on the whole, of our milk. In certain sections where the product is well looked after, the quality is higher; but I think that 3.50 of butter fat will represent the average of our milk.

MR. PATTON:—In Chateaugay 4.05 would be the average of our cows, just now.

M. CHAPAIS:—I saw in the reports of the Ontario Dairy Association, that for ten years the amount of milk necessary to make a pound of cheese was 10.44. Our Dairy Association in this Province, by taking an average through the syndicates, shows that of our milk it requires only 9.55 to make a pound of cheese. I think these the only data we have to this date about the richness of milk for Ontario and Quebec. In the French region below Quebec, we have had for five years $10\frac{1}{2}$ pounds of cheese per 100 lbs. of milk, *i.e.*, 9.19 lbs. of milk to the pound of cheese.

M. TACHE:—For three years, in Beauce county, three factories joined together gave an average, during three years, from 3,000 tests, of 4.10, giving between 4.50 and 4.60 of finished butter. This is for all the space of time, calculated in the average tests between the fifteenth of May until the 10th of November of each year.

MR. WHERRY:—The average tests that I have made in Brome county this year are 4.10. That was out of milk just as it came in.

Respecting the representations of Mr. Wilkins and Mr. Woodward in reference to the report of the Secretary upon the award of certain prizes at the Montreal Exhibition, Mr. Barnard answered that the matter of the report in question had been left to a special committee, that was studying the subject and was not ready to give their report to-day. The Directors of the Society are entitled to say whether they have to make a report or not.

Mr. Woodward's representations were especially in regard to Stanstead County, which he claims had secured the highest point in a certain competition, and yet had received no prize at all.

Mr. Foster represented that the matter had been placed in the hands of a committee to report; the details would be gone into and satisfactory explanations given and published, and the interested parties were free to attend upon the committee and give any explanations they wished.

M. TACHE:—Will Professor Robertson furnish us with the result of some experiments carried on at the experimental farm establishing a comparison between salted and unsalted butter, of which I saw two or three samples in a box at the time of my visit there?

PROF. ROBERTSON:—The tests were being made as to the preservation of butter and are not finished. The butter is still being held and is to be examined once more. So far, the tests show that the butter could be kept very well without much salt, if kept in the proper way.

I have a question which has been sent up as to frozen corn for silage: whether frozen corn in a field loses much of its substance before being put into the silo. The freezing in the field stops the growth and the crop gains nothing more. If it is frozen after it has attained its growth, it loses nothing when it is put into the silo: it is as nourishing as if it was taken at the end of its growth.

MR. FOSTER:—I have also a question to submit. I notice in the papers that there is a great deal of agitation in Parliament about dairying, and with regard to the lactation period of our cows. I think this is important and that there should be an expression of the convention upon that subject. M. Bernatchez called attention to the fact that the cow needs rest.

PROF. ROBERTSON:—Being asked to say something about the milking period of cows, I will repeat what I have advocated, what I have taken from observation and experience. The cow is not kept for ornamental uses. She is kept for working purposes. The average cow in the province of Quebec should work for ten months in the year, and she should have two months in which to finish growing her calf. The flavor of the milk is not very nice within two months of the period of calving. The cow needs no rest beyond that. If she can be milked eleven months from the time of taking a rest, none the worse; but the milk is not nice to be used for human food or for butter, so I should not like to advise having the milking period longer than ten months. You will find it will pay you to have all your cows calve at not the same season. If you desire calves in September, make some of them calve then. In the ordinary course, they will calve in the spring with regularity. They will calve at any season you please. It will pay, and you will make more butter and cheese, and that of a better quality by having some cows come in at all seasons. Make cheese five months, or five months and a half, and butter the rest of the year. Then, cows will earn enough for you. A cow is not worn out by working hard. The cow that

spends all the winter winter, keeps well; but "tailed up" in the expense.

I should like to see been discussed quite ment was in session. month in which the did not a good thing to do and others who were the summer time. If the prices had gone Legislature did. It h Minister of Agricultu cheese this year. It

With regard to don't see any advanta I prefer putting a figu so that nobody would in the manner alluded quite willing always best value from the n and "July," and there is a prejudice much this year as enough to use that a The buyers are argui buyers also might be you and them. The November delivery." outside; he wants to "June" and "July" to have "June" and prejudice. So, while mark or figure for people. Then, the c

We have manag "Canadian"; that advantage. I think cheese going to Eng

spends all the winter in resting does not win any honors. The cow that milks all winter, keeps well; but those that have been resting are the ones needing to be "tailed up" in the spring. So it does not pay to let them rest too long at your expense.

THE BRANDING OF CHEESE.

I should like to say a few words about the branding of cheese. The matter has been discussed quite fully, and with a good deal of feeling, at Ottawa, while Parliament was in session. A Bill was brought requiring the branding of the name of the month in which the cheese was made on the cheese. I don't favor that, because it is not a good thing to do a good thing at a wrong time. Last March and April, myself and others who were watching the trade, thought there would be very low prices in the summer time. If the Bill had passed compelling the branding of the cheese, and the prices had gone down, as they did, people would have said: "Look what the Legislature did. It has put the price of cheese right down." So I reported to the Minister of Agriculture: "I don't favor the putting of the name of the month on cheese this year. It may do harm, and should be left alone for a year."

With regard to putting the month when the cheese was made on the cheese, I don't see any advantage in it, except as a record. But for the transaction of business, I prefer putting a figure to designate the date rather than the name of the month, so that nobody would be in a position to beat down the prices on account of prejudice, in the manner alluded to by Mr. Hodge in his admirable address. Cheese buyers are quite willing always to use their efforts, and all the arguments they can, to get the best value from the man that sells to them. Now, if you have cheese marked "June" and "July," and the cheese buyer contends this is good cheese, but, in England, there is a prejudice against June and July made cheese, and I can't give you as much this year as though they were not branded. The cheese buyers are subtle enough to use that argument, if "June" and "July" are branded on the cheese. The buyers are arguing down, and you salesmen are arguing up. The Canadian buyers also might be at the mercy of the English buyers: they are standing between you and them. The English buyer says: "I want 5,000 boxes of finest cheese for November delivery." And the Englishman does not care what mark there is on the outside; he wants to sell the cheese on its merits, and he does not like to have "June" and "July" on his cheese. It is questionable whether it would be an advantage to have "June" and "July" branded on your cheese. But a figure does not excite prejudice. So, while I would recommend the manufacturers to use a distinguishing mark or figure for recording purposes, I would not stir up the prejudices of the people. Then, the consumers would have no handle to use against us.

We have managed to get a good trade for cheese in England under the name of "Canadian"; that is the only name quoted on the markets of England to our advantage. I think that we ought to have this word "Canadian" branded on all our cheese going to England or elsewhere, and I also favor the using of a registered

factory number on every cheese. We should in that way have something more than competition going on between Canada and the States, between Canada and Australia and other countries, we should have very wholesome rivalry amongst ourselves in England. I should like to see friendly rivalry between Brockville and St. Hyacinthe, Perth and Cowansville, Belleville and London, Listowel and Ingersoll, so that the manufacturers in each would strive to have cheese the best of all the Canadian cheese.

Now it has been mentioned that there has been cheese made in this Province which, when sold in England, sold as high as the very best English, or the best from Ontario and other parts of Canada; and this almost exclusively from French districts. That may be; but let me ask this, do the factories where these cheese are made, that sell up to the best Listowels in England, do they get Listowel prices for the cheese from the French speaking districts?

UNKNOWN:—They get Brockville prices.

PROF. ROBERTSON:—It would not be a bad thing for shippers of cheese, and it would be a good thing for the factories, if extra good quality was recognised as such, and paid for as such, no matter where found. So I have favored giving each factory a chance to register its own brand and number, so that no other factory shall be allowed to use that brand or number. For instance; if the factory's brand is 1005 no other factory in the Dominion could use that number. In the annual report of the Commissioner, a number would be assigned to each. The customer in England might, know in that way his favorite cheese bearing the number 1005, and this would secure for that manufacture an excellent reputation on demand. Every factory would have its own number, and it should be made illegal for any other to use the brand except the one registered in its own name. We ought to have the word "Canadian" denoting the general standard of quality, and then we ought to make it possible for localities or Provinces to register another part of the brand. First, there would be "Canadian," then on the lower part there would be the name of the Province, and in the centre the registered number, 1005 or whatever it might be. For instance, all the numbers up to 2000 might be for Ontario, and from that to 4000 for Quebec; making each section into blocks of numbers, leaving room between them for new factories. So an English buyer would be able to tell where the cheese was made. That would give a chance to every manufacturer to have his cheese known by the customers under his own number, thus exciting the keenest competition for the make of the best factories.

I desire to say further to you, that we have in the city of Montreal an official inspector of cheese. He has been there all the summer and has not been very often employed as yet, but will, possibly, be more frequently employed hereafter. I want to advertise some of his functions or uses. I think his presence and work there are essential in the interest of the producers and the buyers of cheese. It has been said two or three times in this convention that cheese may have certain faults. I have never seen a wholly faultless cheese, and I don't expect I ever shall. There must be some faults somewhere; it may be a little too dry, or a little too soft, to please somebody. You will remember Mr. Ayer's speech, wherein, which discussing the value of

the cheese buyer to market to send firm sent in to the ware firm cheese, this wi his business to know or not.

Another point anything at a full p both satisfy him, h him he takes it only although the cheese to see that the che cheese has a cracke it is inferior in all n has distinctive fault take delivery of their sufficient authority; ing to the Canadian whether it is peculi making a buyer buy and thus preventing must protect ourselv Montreal is there to fairer basis, and mak

I should like it k ensure that the treas our department has d any of the parties co makers or buyers, on whole business. The will help the cheese n wages because his che certain flavor, or of patrons in that way v wealth in the country inspector's work will more prosperous.

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PROF. ROBERTSON line during the next s

the cheese buyer to the cheese trade, he said this:—"How will you find out to what market to send firm cheese, and where to send soft cheese, etc." After the cheese is sent in to the warehouse, if you have firm cheese, the buyer may say:—"This is firm cheese, this will not satisfy my customer: he wants soft cheese." But it was his business to know before buying your cheese whether it would satisfy his customer or not.

Another point is this; when a buyer, doing a great service to you, has bought anything at a full price, he takes it to Montreal, where, if the cheese and the market both satisfy him, he receives it without a murmur, but if either does not please him he takes it only at a lower price. That manufacturer may suffer "the cut" although the cheese was all right for another market. So it is the buyer's business to see that the cheese is the style he wants, before or when he buys it. If the cheese has a cracked surface, it is inferior cheese in all markets; if it has open holes, it is inferior in all markets; if it not well shaped, it is inferior in all markets; if it has distinctive faults, they are distinctive faults in all markets. The buyers can take delivery of them or not. We want the inspector in Montreal clothed with such sufficient authority; then, if he finds the cheese complained of is good cheese, according to the Canadian brand of cheese, the buyer must take it at the price agreed on, whether it is peculiarly suited to his customers or not. There is no possibility of making a buyer buy if he does not want to buy, but if he wants to shirk his bargain and thus preventing others from buying, he is bound to fulfil his agreement. We must protect ourselves against getting less than we should get. This inspector at Montreal is there to act fairly by all parties. His work should put the trade on a fairer basis, and make the buyers more careful.

I should like it known that, next year, the inspector will be to the front, in order to ensure that the treasurer shall get the price that the salesman sold it for. Anything our department has done, or intends to do, has nothing in it to injure the interests of any of the parties concerned, to the detriment of our cheese business. Patrons, makers or buyers, one can't do injury to either of the three without hurting the whole business. The inspector must do his work; it will not injure the buyer and it will help the cheese maker. When he makes a fine cheese he will not lose part of his wages because his cheese happens to be a little too firm or a little too soft, or of a certain flavor, or of a certain texture unsuitable to a particular customer. The patrons in that way will be encouraged. These men will do their best to create wealth in the country where the laws are just and fair and well administered. The inspector's work will be fair for all three classes and will make this dairy industry more prosperous.

MR. FOSTER:—Don't you think Professor that this matter of recording the different factories is a most important one? Do you not think that it is highly desirable to secure legislation in the different Provinces?

PROF. ROBERTSON:—My impression is that legislation will be passed along that line during the next session of Parliament; so that every manufacturer shall have

the right to register a number at head-quarters at Ottawa, be authorised to use it, and everybody else be forbidden to use it. Every one would have their own goods under their own brand.

A good thing, as far as you can do it, would be to establish Boards of Trade, and sell your goods at them. If you organise good Boards of Trade and sell goods at specified prices, you will have the best factories recognised, other factories will copy their methods, and the whole thing will be put on a safe basis.

ADDRESS OF MR. W. A. GRANT.

Mr. Chairman and Gentlemen,

The foundation and success of the dairy industry, like every other successful business, depends upon the honesty and the ability with which it is conducted. We cannot make men honest by act of Parliament; we also know that everybody is selfish to a greater or less extent, and always will be, and this industry is progressing like every other by the survival of the fittest. When the lion and the lamb lie down together, the lamb will be inside the lion.

Mr. Grant took exception to Professor Robertson's statement concerning Mr. Hodge's address, to his attitude towards cheese buyers, and to some of his methods upon which the trade should be conducted, as they were calculated to disturb the confidence now existing between the cheese shippers and the factorymen, and continued as follows:

What is to be desired more than anything else is confidence; it is the lack of confidence and not the lack of money that brings about commercial crises and panics, and I, for one, will never try to stir up any feeling whence there may arise any lack of confidence between the buyer and the seller. I have not heard of even one lawsuit between any shipper and factoryman in the eight years that I have been in Montreal.

With regard to the Government inspector at Montreal, though I do not wish to refer to myself, yet, in justice to the position which I occupy, I may say that I have bought over 200,000 boxes of cheese this season, besides 4,000 or 5,000 packages of butter, and but one man asked me to have his cheese inspected by the Government inspector; that is, I think, a fair proof that the men dealing with me were satisfied with my judgment, and I can say for one, and I say it proudly, that I have been in business for fifteen years shipping cheese and butter, both from New York and Montreal, and have never been sued by any factoryman or any person in the business, and neither have I sued anybody else. Perhaps, many times, I have been in the wrong, but the men dealing with me were lenient to me as I have been to them. We do not want to destroy the confidence that exists between the buyer and the seller by any mere talk, and when we consider that from twelve to fourteen million dollars worth of butter and cheese is annually sold in Canada, it is really remarkable that such a vast amount of money should be dealt in with, practically, no friction.

Now, my idea reg that every cheese and ination and be certifi the power of returning patron contributing to cows drink, and he hin samples every month to had the power of refus not take it to the next t the patrons and the fa dirty milk cans? Th twenty or thirty cows bad milk," and the pa the best you can with falls upon the maker, either bad cheese or first-class article, with frequently the loser o cut in price, has work I may say, is wholly v should refuse to receiv known to be so, his given time. I quite a according to quality.

Here, Mr. Grant was paid for two year for at one price. M quality had varied ful continuing, said that to quality, because th best factories might *vice versa*, it would cr best one could under body, we should pleas buy 20 factories, the fraction more, and so quite satisfied with th all is known at the er sold for the highest p best factories would t poorest factory migh please all, I should p again.

Now, my idea regarding the way a part of this business should be managed is that every cheese and butter-maker throughout the Dominion should pass an examination and be certificated before making either article. The maker should have the power of returning any bad milk; he should also have authority to compel every patron contributing to the factory to send him a sample of the water from which the cows drink, and he himself should be compelled, by act of Parliament, to send such samples every month to the Government chemist for analysis. Now, if the cheese-maker had the power of refusing milk that he thought was not fit for use, the patron could not take it to the next factory, and this would stop a lot of antagonistic feeling between the patrons and the factory. What is done about delivering milk to the factory in dirty milk cans? The patron says: "There is your milk, take it," that man has twenty or thirty cows probably. The factoryman or the maker says: "You have bad milk," and the patron invariably replies, "Well, you will have to take it and do the best you can with it; if not, I shall go to the other factory." Then, the burden falls upon the maker, and he does the best he can with it, and the consequence is either bad cheese or bad butter, and as the maker generally guarantees to make a first-class article, without any stipulation as to the quality of the milk, the maker is frequently the loser on this account, and, at the end of the season, on account of the cut in price, has worked part of the year for nothing, or even at a loss. My sympathy, I may say, is wholly with the makers. If a maker, through spite or any ill-feeling, should refuse to receive good milk from any patrons at the factory, and the same is known to be so, his certificate should be cancelled or should be suspended for a given time. I quite agree with Professor Robertson that cheese should be paid for according to quality.

Here, Mr. Grant asked Mr. Robertson how the Prince Edward's Island cheese was paid for two years previously, and Prof. Robertson replied that it was all paid for at one price. Mr. Grant replied that he had seen the cheese, and that the quality had varied fully as much as $\frac{1}{2}$ c. per lb. in several of the lots, and Mr. Grant continuing, said that it was an extremely difficult matter to pay always according to quality, because there were times when for some reason or another, one of the best factories might go wrong, and if this factory got less than its neighbour and *vice versa*, it would create discord and bad feeling; consequently, one had to do the best one could under the circumstances. In this regard, in trying to please everybody, we should please nobody. Now, for example, if I were to go into a section to buy 20 factories, the first factory accepts, say, 9c., the second demands and I give a fraction more, and so on until every factory is bought. At the time, everybody is quite satisfied with the knowledge that he has beaten the last factory sold, but when all is known at the end, the only man who is perfectly satisfied is the man who has sold for the highest price of the whole twenty, and the chances are that some of the best factories would be sold from $\frac{1}{2}$ c. to $\frac{1}{2}$ c. a lb. less, and it is quite possible that the poorest factory might even receive the highest price; consequently, in trying to please all, I should please only one, and I should find it difficult to buy its cheese again.

PROF. ROBERTSON:—There are three points in Mr. Grant's address I want to correct. In the first place there has been a very great deal of confidence on the part of the sellers towards and in the receivers of cheese in Montreal. I don't wish in any way to destroy any of that confidence; but the experience of some of these men caused them to have less confidence, and they wanted an inspector appointed. The presence of an inspector is the very thing that will inspire confidence. His presence will ensure fair play, and the feeling of confidence will be increased.

Then, I have been reminded that I am all for the producers because there are more of them. I have said, and I repeat it, that I am for fair play, and as far as I know the producer is the only one that has suffered until now. Then, it has been said that I recommended the sale of cheese once a month, and that I did not sell cheese that I controlled once a month. You heard me telling about the selling of butter in the same spirit as about the selling of cheese, because my judgment in these matters rarely varies. Yesterday, I said: "Put butter in a safe place as soon as it is made; don't hold it in a cellar to spoil and sell it in that state." I have told the Brockville people, and everyone else, that I held Prince Edward's Island cheese because I believed in cheese this year. I said so in August, and I say so now again. I then helped to keep the market up. I want to put this trade on a safer basis for regular profit, and to establish better business methods all through.

I am glad to see that confidence can be maintained, and the inspector can help to maintain it. As I said in Montreal, he will be there for the purpose of seeing fair play between all those concerned in the business.

MR. FOSTER proposed a motion, on the lines of that proposed in French yesterday, expressing satisfaction at the action of the Provincial and Federal Governments in providing cold storage on steamers, etc. The motion was seconded by M. Taché.

ANNUAL MEETING OF THE DAIRYMEN'S ASSOCIATION OF THE PROVINCE OF QUEBEC,
HELD AT WATERLOO, QUE., 3, 4 AND 5 DECEMBER, 1896.

Moved by H. S. Foster, Esq., seconded by M. J. de L. Taché, and resolved that,

Whereas the Dairy Association of the Province of Quebec, in annual convention assembled, knowing of the great losses which have been caused, and the serious hindrances to the progress and prosperity of the farmers of the Province of Quebec, which have existed from the want of proper cold storage conveniences and agencies for the transportation and distribution of perishable food products under their own name of "Canadian" in their best condition as to uninjured quality when they reached the consumers of them in Great Britain;

This Association hereby expresses its satisfaction with the action of the Federal and Provincial Governments in providing cold storage service for butter on railways and on steamships, and in promoting the exportation of creamery butter in a fresh-made condition;

This Association further begs to urge upon the attention of the Federal Government the desirability of giving such continued assistance as will further improve

the cold storage service, having learned the plan for the opening consideration of the record its conviction putting Canadian butter on British markets in order to obtain the able benefits on the needed outlet for the farmers and highly

Further, this Association respectfully and earnestly requests that the Government which is urgently needed

Further resolved that the Honourable the Minister

MR. FOSTER:—I have always been very anxious to do more than any other

MR. PARMELEE:—I gave a speech, when you were together too kind in your dairying I have done for this district, and I do

At the outset, although I am shut out, I wish to be given regarding the test, and 20 factories to its richness, as we confirm our judgment

But, this, gentlemen, speak more particularly between the buyers as he can, and the secret for the factory men are removed from the market. The butter of cheese becomes a the very best of interest deluded, and sometimes perhaps, be helped: feature of it: there is

the cold storage service on steamships for dairy products, and further this Association, having learned from the address of the Dominion Dairy Commissioner that a plan for the opening up of a trade in dressed meats with Great Britain is under the consideration of the Honourable the Minister of Agriculture desires to place on record its conviction that any action by the Government, which shall result in putting Canadian beef, mutton, poultry, and other perishable food products on the British markets in their best condition, under their own name, will confer inestimable benefits on the farmers of the Province of Quebec, and will give a much needed outlet for the products of live stock at prices which will be profitable to the farmers and highly advantageous to the whole of the agricultural interests; and

Further, this Association desires to convey to the Federal Government its most respectful and earnest petition that such action be taken as shall give the relief which is urgently needed by the farmers in this matter;

Further resolved that a copy of the foregoing resolution be forwarded to the Honourable the Minister of Agriculture of the Dominion.

MR. FOSTER:—I have much pleasure in calling upon Mr. Parmelee, who has always been very anxious to promote the dairy interests in this district and has assisted more than any other man in developing them.

MR. PARMELEE:—Mr. Chairman and Gentlemen,—It is rather late now to make a speech, when you are all exhausted from a long afternoon session. You are altogether too kind in your reference to me, Mr. President. Whatever I have done for dairying I have done with a sense that I had a common interest with the people in this district, and I don't feel that I deserve any special thanks.

At the outset, although I have not the honor of an acquaintance with Professor Shutt, I wish to be permitted to thank him for the excellent explanations he has given regarding the Babcock test. For three years, we have been using the Babcock test, and 20 factories in the Shefford Syndicate have been paying for milk according to its richness, as ascertained by the Babcock. So, I was glad to hear Professor Shutt confirm our judgment, and show us that our practice was right.

But, this, Gentlemen, is not what I came here especially to speak of; I am here to speak more particularly of the selling of cheese. There is perhaps no particular quarrel between the buyers and sellers; but the buyer has an interest in buying as cheaply as he can, and the seller in getting as much as he can for his money. It is difficult for the factory men to sell cheese under certain circumstances, especially when they are removed from large centres and not in a position to get the best information about the market. The buyers are apt to tell them cock-and-bull stories, and the selling of cheese becomes a difficult matter; and dealing very often with salesmen having the very best of intentions, the best men in their respective factories are possibly deluded, and sometimes make bad sales through no fault of their own. That cannot, perhaps, be helped; that is something we have to put up with. But there is another feature of it: there is another way the sellers can improve their position. The fac-

tory men have no quarrel with the buyers, but they do want fair play. I do not mean to accuse the buyers of bad faith, but for the last two or three years the general practice throughout the Province has been to sell subject to Montreal inspection. Buyers come along, and say to factory men: "We will give you so much for your cheese." The sellers accept, and the cheese is shipped, the sellers acting in perfect good faith. Afterwards, the buyers assert that the cheese is defective in quality, and they lower the price to the extent of a quarter of a cent, of three-eighths, and sometimes a half, and even five-eighths of a cent. Now, that practice is bad in itself. Possibly, the cheese was not always up to a quality equal to the price at which it was sold; but the proper place to establish the quality of the cheese is at the factory, when the buyer and seller are together: when they have come to an agreement, that agreement should be carried out. Otherwise, there is no bargain, but trickery and misunderstanding. The interests of buyers and sellers ought to be common to a great extent. The exporters of cheese to the old country should be fairly remunerated, but no more. If you could eliminate from the cheese business the speculative element, it would be a great boon, I believe. The buyers had a pretty lean year in 1894. The fact is, the English market was glutted; in 1895, cheese was a drug in the market, and we lost more money in 1895 than we gained by good prices in 1894. Therefore, if we could get cheese on a steady basis, so that it could reach the English market regularly, without the help of the speculators, giving the buyer a fair profit for his share in the business, the trade would be on a better basis than it is to-day.

But to return to the practice of selling cheese *subject to inspection at Montreal*: I think it is particularly unjust to the makers. The makers enter into a contract to produce a good quality of cheese, and, while they do not all come up to the very highest standard, they make the cheese and sell it, and the buyer knowing that under Montreal inspection he can, if he wishes, recover himself by "cutting," in case he has paid too much, promises to pay a little more than the cheese is actually worth. The cheese goes to Montreal, and though it may be good, the cheese maker afterwards learns to his surprise that it has been "cut." Under this system it not infrequently happens that good makers lose all their hard earnings, and their reputation as cheese makers is spoiled besides.

I know the system of selling at the factory would do away with all this bother; then, the seller would pay what he promised; and the buyer would deliver the goods that he promised; thus conducted, the whole cheese business would rest on a better foundation. This past season, there have been terrible "cuts" all over the Province of Quebec, except in some localities where they have adopted a different system. I think it is possible to adopt generally the system we have here; that is, the system of delivery at the factory. In our syndicate, three years ago, the members entered into an agreement by which they were not to sell until the cheese had been inspected at the factory, and the quality established; and, for the three successive seasons that we have sold in that way, we have found the buyers as anxious as ever to get our cheese at

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MR. BARNARD
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M. CHAPAIS:—
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top prices. They sent men competent to judge the cheese at the factories, instead of having to make "cuts" at Montreal, and thus arouse hard feelings on the part of the sellers towards the buyers of Montreal houses. Our business has gone on as smoothly as possible, and we have secured as good prices as other localities, without suffering the annoyance and loss occasioned by the practice of "cutting." Now, it seems to me that this is the best plan. It is to the interest of buyers, as well as of sellers, to conduct their trading on good business principles, but it is not a good business principle to promise a certain price and then pay a lower price. Under that system, the unscrupulous buyer does much harm. The unfortunate makers are crushed between the Montreal houses and their contract with their patrons. Now, I say, that, in the whole Province of Quebec, it would be possible to adopt the practice I propound. There is another feature; if that system were generally adopted, there would be employment for those who have learned their business and know what good cheese is, and having tried that system, as we have done in our district, I am sure you would not return to the old way of sending your cheese to Montreal and submitting to "cuts," as has been done during the past year.

MR. FOSTER:—I wish to say a few words on the organisation of boards of trade for the sale of dairy products. We have had an opportunity of testing that system in Bedford, and I feel it is a matter that ought to occupy the attention of the Province of Quebec generally, because, really, the only true way of bringing our goods before the public, and getting them recognised on the market, is to sell them by auction through a Board of Trade. I certainly believe it to be to the interests of every district that a Board of Trade should be organised and its cheese disposed of by that board. There may be objections to that system, but the principal local men, and the Montreal men, are well disposed towards it, provided the board be conducted on business principles. But see that you organise so as to dispose of your goods and advertise them to the public. One district will know what the other does, and will know why they cannot get the same prices. That is the main object we have to contend for to-day. We have to improve our quality, and there is no way so well calculated to do that efficiently as this one I propose. To those who have cheese to sell I would say, they ought to get more uniformity of make throughout. Being advertised and sold by a Board of Trade, is more likely to give it prominence and attract the attention of the consumer, which is one of the most important things we can aim at. I am anxious to have the question of organising Boards of Trade discussed.

MR. BARNARD:—I should like to hear M. Chapais, on this point. He represents a district a great distance off, fully 130 miles below Quebec, where factories have been established for many years and where, before adopting this system, there had been some difficulty in getting the real value for their cheese.

M. CHAPAIS:—In the district in question there is a large factory, and we thought we could sell better in this way. We advertise our cheese, and the buyer comes to the factory and tests the cheese, weighs it there, accepts it there, and

pays for it before delivery at the station. Since 1886, we have always sold that way, and we have not been "cut" in our sales since that time.

M. DALLAIRE:—They are doing the same thing in Chicoutimi, I think.

M. TACHE:—On account of the immense detriment that has been caused to cheese, through the bad quality of the milk delivered, farmers are advised to deliver it in perfect order to the factories. But it seems, from the usual practice, that the greatest amount of detriment caused to milk has been by the infection of the vessels that hold the milk. It seems that wooden whey vats are used in cheese factories all over the province, and they are a great cause of infection. They stand from the spring until the fall without being cleaned out the whole season. How, then, can we recommend farmers to be neat and clean about their milk and take every precaution in the delivery of their milk, if it is afterwards turned into foul wooden-vats, and if this meeting does not protest against the use of wooden whey-vats? What would you think if we were to tolerate farmers milking their cows into wooden pails and keeping their milk in wooden vessels? The use of them is totally prohibited at the farm-house, why not also at the factory?

I beg, then, to put this resolution before the meeting:

Proposed by M. Taché, seconded by M. Chapais, and carried unanimously,

"That, considering the immense damage done to the quality of the cheese by the use of wooden whey-vats:

"The Dairyman's Association earnestly advises the proprietors of cheeseries in this province, to replace their wooden whey-vats by tin ones."

MR. JOSEPH WARD:—There are two associations interested in this business, there is the Cheese and Butter Association in Montreal that buys, and the Dairy Association that attends to the manufacture of butter and cheese. There should be some understanding between the two; and the Montreal concern should have something to say with respect to the inspectors of the factories. The inspectors teach men to make cheese for the Montreal buyers. There is a great deal of training required to judge cheese; and it was shown here by Professor Robertson and Mr. Ayer, that there is firm cheese which will suit some customers, and soft cheese which will suit others. It is important that the salesmen should keep the inspectors well informed with regard to these matters, and this would of course require some mode of communication between the two. This would, I think, work good results later on.

MR. BARNARD:—We are willing to meet the Montreal chamber as often as its members desire.

MR. J. WARD:—I believe the inspectors should go for information to Montreal; the buyer should know his customers, and the inspector, too, should know them. I think the inspectors ought to be glad to get a certain amount of useful information from the Montreal men; for, we are competing with other countries, and instead of fighting between ourselves, we should be united.

MR. BARNARD would be ruinous son here as our gue from him we got th

At the late ext chamber, at which might have given offer, made through tors, the servants o not seem desirous c sociation. We sho trade, and it was f pretend to know e enter into relation through the Assoc ture, be a better ur

MR. FOSTER, A son and Shutt, to a who have taken p ered by them, and Waterloo. The m concurred in by all

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M. TACHE, or follows: We have of receipts and exp

REPORT

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Mr. Guay's sai nation.

MR. BARNARD :—We have no ill feeling against the purchasers of our goods. It would be ruinous to contend with our customers. But we have Professor Robertson here as our guest; we have invited him to come and give us information, and from him we got the best information possible.

At the late exhibition in Montreal, this Association proposed a meeting, to the chamber, at which the buyers, on the occasion of the butter and cheese competition, might have given the Inspectors of Syndicates all the information required. This offer, made through M. Vaillancourt, was declined. Mr. Ward wishes that the inspectors, the servants of the Association, should go and see the dealers, but the dealers do not seem desirous of meeting them. The inspectors are under the control of the Association. We should be happy to gather every kind of information regarding the trade, and it was for that purpose that the dairy-school was established. We do not pretend to know everything; we are ready to allow our officers and inspectors to enter into relations with the Montreal dealers, but this must be brought about through the Association's permission. I make this statement that there may, in future, be a better understanding between the chamber and the Association.

MR. FOSTER, Acting President, proposed votes of thanks to Professors Robertson and Shutt, to all persons who have spoken at the Convention, and to all those who have taken part in it. Also to the people of Waterloo, for the reception tendered by them, and generally for the treatment that the Association has received at Waterloo. The motion was seconded by M. Castel, the Secretary, and unanimously concurred in by all present.

A similar vote of thanks was tendered to the Acting President for his able and impartial services as such.

M. TACHE, on behalf of the Committee on the audit of accounts, reported as follows: We have found all the entries and the vouchers correct. (See the statement of receipts and expenditure, p. 269.)

REPORT OF THE COMMITTEE ON SAMPLES OF SILAGE.

M. D. B. Bourbeau presented the report of the examining committee of silage. Only two samples were examined, one from Mr. David Inglis, West Bolton; the other from M. L. Tassé, St. Athanase.

Mr. Inglis' sample of maize, was well-kept and was placed first. M. Tassé's was of maize, horse-beans, and sunflower-heads: Mr. Robertson's mixture, in fact. There were but few beans, the blossoms having been destroyed by insects. Not fermented enough for "sweet silage"; rather acid.

Mr. Guay's samples of maize, from Chicoutimi, did not arrive in time for examination.

RECEIPTS AND

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RECEIPTS AND EXPENDITURE OF THE ASSOCIATION 1895.

RECEIPTS	APPLICABLE TO THE YEAR	
	1894	1895
ASSOCIATION—Subscriptions received.....		\$1,323.00
Sale of reports and books.....		223 35
Divers.....		73.67
Government Grant.....		2,000.00
		\$3,620.02
SYNDICATES—Supplementary Grant, 1894.....	\$1,235.31	
“ “ “ \$ 600.00 }		\$3,350.00
“ 1895..... 2,750.00 }		
SCHOOL—Supplementary Grant, 1894.....	764.69	
“ 1895.....		2,000.00
	\$2000.00	\$8970.00

EXPENSES

ASSOCIATION—Printing.....	\$166.50	\$920.82
Paper and Divers.....	13.85	637.51
Directors' Travelling Expenses.....	42.90	336.17
Expenses of the Convention.....		276.62
Secretary-Treasurer.....	9.00	705.00
“ (Assistant).....		195.00
Purchases of books and Subscriptions.....	506.35	314.58
Extraordinary Expenditure.....	50.00	240.70
	\$788.60	\$3,626.40
SYNDICATES—Pay for Year 1894.....	\$284.84	
For Year 1895, Salaries..... 1,200.51 }		\$2,850.73
Travelling Expenses for Year 1895..... 1,650.12 }		
SCHOOL—Pay for Year 1894.....	\$789.17	
Repairs and Improvements..... \$ 318.72 }		\$1,998.06
Annual Expenses..... 1,679.34 }		
	\$1862.61	\$8475.19

RECAPITULATION

	ASSOCIATION	SYNDICATES	SCHOOLS
Receipts.....	\$3,120.02	\$4,585.31	\$2,764.70
Repayments by the Syndicates to the Association for advances.....	950.47	950.47 ⁽¹⁾	
TOTAL.....	\$4,570.49	\$3,634.84	\$2,764.70
Expenses.....	4,415.00	3,135.57	2,787.23
Balance—Surplus.....	155.49	499.27	Deficit 22.53
		155.49	
Total Surplus.....		654.76	
Deficit.....		22.53	
In hand... ..		632.23	

⁽¹⁾ See 13th Report of the Association (note p.)

SYNOPTIC T

The members page, the table in summarise the wo syndicate.

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Once more, t earnestly request Syndicates, which

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SYNOPTIC TABLE OF THE REPORTS OF THE INSPECTORS OF SYNDICATES.

SCHOOLS
\$2,764.70

(¹)
\$2,764.70
2,787.23

Deficit 22.53

The members of the Dairymen's Association will find on the other side of this page, the table in which the Inspector-General of Syndicates strives, every year, to summarise the work of each of the local inspectors and the results obtained in each syndicate.

The task of the Inspector-General has been rendered difficult by the establishment of many new syndicates; in others, as well as in some of the older ones, the reports of the inspectors, and of the factories, have either not been sent in, or sent in so incomplete a form that they cannot be used in the construction of the table.

Once more, the inspectors of syndicates and the secretaries of factories are earnestly requested to bear in mind Article 12, III., of the regulations of the Syndicates, which is as follows:—

“III., Art. 12.—The proprietors of every factory, or their representatives, shall pay a subscription to the Dairymen's Association, or to the dairy association of the district in which the syndicate is formed, in order that the members may be kept well informed about the work of the Association. Moreover, they shall forward to the Association a complete and certified report of the operations of their factories,” in accordance with the official form adopted by the Association, which report shall only be published with the consent of those concerned.”

Here, it is evident, is an obligation incumbent upon the representatives of the syndicated factories to fulfil. The Dairymen's Association warns them, once for all, that the grant of \$250.00, given by the Government to the syndicates, is only payable on presentation of a certificate from the Association, showing that the syndicate has discharged all its obligations; and the Association trusts that this warning will bear fruit in the future.

Milk has been paid for according to its richness, as shown by the Babcock test, in: (1) 6 factories; (2) 1 factory; (3) 9 factories; (4) 2 factories; (5) 5 factories; (6) 1 factory; (7) 10 factories; (8) 11 factories; (9) 10 factories; (10) 2 factories; (11) 2 factories; (12) 20 factories; (13) 9 factories; (14) 3 factories; (15) 3 factories; (16) 1 factory; (17) 1 factory; (18) 1 factory; (19) 1 factory. Total, 99 factories.

The charge for making has varied in the factories of this syndicate:

* From 1 to $1\frac{1}{2}$ cent the pound of cheese.

** From 1 to $1\frac{3}{8}$ “ “ “

SYNOPTIC TABLE OF THE

REPORTS C

NOS.		NAMES OF THE INSPECTORS. CHEESERIES.	NUMBER OF								Numbers in Order.	
Of the Syndicate.	Of the Division.		Factories.	Days of Inspection.	Short Visits.	TESTS OF MILK.		Letters Written.	Fines Inflicted.	PATRONS.		Cows.
						Lactodensi- meter.	Babcock					
1	1	Dancosse, Geo. (1)	24	86	27	1892	581	16	.....	231	.....	1
1	2	Roy, Chas. P. (2)	17	.....	.....	.....	.....	.....	.....	.....	.....	2
1	3	Aillard, J. N.	22	130	.....	2989	776	20	3	815	.....	3
2	3	Wilkinson, W. T.	22	107	42	2602	941	7	5	750	4802	4
1	4	St. Pierre, Germain... (5)	23	94	37	1771	2219	3	2	655	3866	5
2	4	Wilkins, Chas. (6)	16	134	103	1670	920	9	1	422	3026	6
1	5	Pothier, B. A.	24	.....	.....	.....	.....	.....	.....	.....	.....	7
2	5	Parent, Wm.	20	81	191	2311	720	13	1	831	5368	8
3	5	Proulx, Théod.	18	132	85	2921	427	26	1	595	.....	9
4	5	Désautels, A. E.	17	.....	.....	.....	.....	.....	.....	.....	.....	10
1	6	Parent, J. E. (7)	23	133	83	2725	1472	8	3	651	4163	11
2	6	Palmer, W. H. (8)	23	148	90	1333	3157	6	1	591	4425	12
1	7	Woodward, A. W. (9)	22	153	86	1859	2005	26	.....	625	4805	13
2	7	Gerin, Aug.	15	113	59	.....	.....	8	2	378	2290	14
1	8	Plamondon, J. A. (10)	26	130	117	4812	2400	21	.....	1285	6528	15
1	9	Standish, Ch. E.	21	120	93	4276	1679	79	3	447	2300	16
1	10	Marsan, Arth. (11)	22	.....	.....	.....	.....	.....	.....	.....	.....	17
2	10	Ferguson, Geo. W. (12)	23	156	146	394	7606	4	.....	.....	.....	18
3	10	Wherry, Rob.	25	.....	.....	.....	.....	.....	.....	.....	.....	19
4	10	Macfarlane, Arth. (13)	25	160	127	1706	2944	30	.....	895	7895	20
1	11 & 12	Lacoste, D.	22	126	197	5789	2010	10	11	1042	5975	21
1	12	Lloyd, A. S. (14)	20	140	75	3915	3651	41	10	798	6783	22
1	13	Ferguson, A. M. (15)	15	155	150	1154	513	16	2	.....	.....	23
2	13	Bennet, Chas. S. (16)	15	154	133	1364	1877	11	1	432	3793	24
1	41	Paradis, Firmin. (17)	16	62	54	1188	416	24	.....	345	2118	25
2	41	Tremblay, Pierre.	21	.....	.....	.....	.....	.....	.....	.....	.....	26
3	41	Hudon, J. E.	24	.....	.....	.....	.....	.....	.....	.....	.....	27
4	41	Gagnon, Alf.	21	112	70	1949	581	7	.....	553	2743	28
1	15	Trudel, F. X. O.	28	.....	.....	.....	.....	.....	.....	.....	.....	29
2	15	Aubin, Sam.	24	109	80	2821	1173	13	5	677	4209	30
1	16	Lacourcière, L. P. (18)	26	.....	.....	.....	.....	.....	.....	.....	.....	31
2	16	Lacerte, Pierre.	24	117	31	3297	931	21	.....	755	2716	32
3	16	Parent, D. J.	23	106	136	3184	953	10	9	796	5024	33
1	17	Parent, A. H.	18	.....	.....	.....	.....	.....	.....	.....	.....	34
1	18	Gareau, J. E. D.	20	130	35	3476	628	29	2	664	3883	35
1	19	Ross, Jos. (19)	20	130	500	1257	1002	26	.....	480	4756	36
CREAMERIES.												
3	3	Henry, Gab. (3)	15	31	9	422	9758	3	2	845	3661	37
1	20	Desrochers, Gab. (4)	22	.....	.....	.....	.....	.....	.....	668	3175	38

Numbers in Order.	Number of Factories having sent in Reports.	Milk Received.	T
1	1	3,020,466	B
2	.....	.....	.....
3	.....	.....	.....
4	.....	.....	.....
5	3	1,488,113	.....
6	5	1,989,010	.....
7	.....	.....	.....
8	20	12,600,083	.....
9	2	1,310,886	.....
10	.....	.....	.....
11	.....	.....	.....
12	23	9,389,858	.....
13	.....	.....	.....
14	8	3,337,148	.....
15	14	8,960,939	B F
16	8	6,062,550	.....
17	.....	.....	.....
18	.....	14,643,706	B F
19	.....	.....	.....
20	24	15,940,190	.....
21	10	1,220,337	B F
22	14	4,507,456	B F
23	15	5,378,907	B F
24	15	7,155,739	B F
25	15	10,725,432	.....
26	.....	.....	.....
27	.....	.....	.....
28	.....	.....	.....
29	.....	.....	.....
30	.....	.....	.....
31	.....	.....	.....
32	13	4,303,021	.....
33	17	.....	.....
34	.....	.....	.....
35	20	B1,216,404	.....
36	20	F5,515,144	.....
37	12	7,477,246	.....
38	11	7,965,857	.....

REPORTS OF THE INSPECTORS.

TOTAL OF		AVERAGES.													
Numbers in Order.	Number of Factories having sent in Reports.	Milk Received.	Cheeseries and Creameries.	Money Rec	Charge for Making.	Milk per Cow.	Cheese or Butter per 100 lbs. of Milk.	Lbs. of Milk per lb. of Cheese or Butter.	Lactodensimeter.	Babcock.	Patron.	Cows.	100 lbs. of Milk.	Cheese.	Butter.
291	1	lbs. 3,020,466	lbs. 130,664	\$ c. 24,488.87	cls. 3.5	4.6221.5			p. c.	\$ c. 106.00	\$ c. 65.3	\$ c. 17.5			
815	2	750													
750	3	4892													
655	4	2886													
452	5	3026													
831	6	5398													
501	7	4183													
625	8	4425													
1285	9	6528													
447	10	2200													
18	11	17													
102	12	5075													
788	13	6783													
432	14	3703													
345	15	2118													
533	16	2743													
677	17	4209													
755	18	5024													
796	19	5024													
604	20	3883													
480	21	4756													
845	22	3061													
008	23	3175													
291	24	15,910,190													
815	25	1,220,337													
750	26	55,404													
655	27	427,930													
452	28	5,378,907													
831	29	7,155,732													
501	30	10,725,432													
625	31	11,457,305													
1285	32	5,749,637													
447	33														
18	34														
102	35	14,613,706													
788	36														
432	37														
345	38														
533	39														
677	40														
755	41														
796	42														
604	43														
480	44														
845	45														
008	46														

LIST OF THE CREAMERIES AND CHEESERIES OF THE PROVINCE OF QUEBEC.

ARGENTEUIL.		Cheeseries. Creameries.
MUNICIPALITIES.	PROPRIETORS.	
Arundel	E. J. Graham	1
"	Wm. McNish	2
"	Rev. P. A. Bouchet	1
Chatham	Thos. Ross & Son	6
"	W. J. Morrow	1
"	Amedée Lercux	2
"	H. Pilon	1
"	Janvier St. Onge	1
Gore	Joseph Cyr	1
Grenville and Augmentation	Thos. Ross & Son	1
"	J. Arnold	1
"	Isaie Legris	1
Harrington	Thos. Ross & Son	2
Mille Isles	Thos. Ross & Son	2
Morin	Albert Kempton	1
St. André	W. J. Morrow	2
"	Thos. Ross & Son	1
St. Jerusalem	Thos. Ross & Son	4
"	W. J. Morrow	1
"	Syndicate of Farmers	1
Total		31 3

ARTHABASKA.

Chénier	Zéphrin Genest	1
"	Philius Laroche	1
"	Xavier Moreau	1
"	Anselme Caron	1

Chénier	Onésiphore Lemay	1
Chester (East)	Léon Camiré	1
"	F. X. Moraux	1
"	Ferdinand Fortier	1
"	Napoléon Alain	1
"	Pierre Dumas	1
Chester (West)	Louis Boulanger	1
"	Napoléon Fouquette	1
"	Alfred	1

ARTHABASKA.—Continued.		Cheeseries. Creameries.
MUNICIPALITIES.	PROPRIETORS.	
Stanford	H. Provencher	1
"	Calixte Dionne	1
"	Georges Blanchet	1
"	La Cie. de Beurre de Stanford	1
Tingwick	Farmers Association	1
Victoriaville	D. O. Bourbeau	1
Warwick	David Guillemette	1
"	Onésime Lupien	1
"	Nazaire Vidal	1
"	Dominique Babineau	1
Warwick (village)	Abdon Méthot	1
Total		51 2

BAGOT.

St. André d'Acton	Milton McDonald, M.P.P.	1
"	Société d'Actionnaires	1
St. Dominique	Norbert Frédette	1
"	Lambert Sarrasin	1
"	Harris Brabant	1
"	Emile Chagnon	1
"	Fernand Lapalme	1
St. Ephrem d'Upton	Delphis Chicoine	1
"	Louis Côté	1
Ste. Hélène	Antoine Sicard	2
"	Eusèbe Dufault	1
"	Trefflé Lemoine	1
St. Hugues	L. T. Brodeur	1

St. Hugues	Cavignac Co.	1
"	D. Lanoie	1
"	A. Lanoie	1
"	H. St. Martin	1
St. Liboire	Joseph Lemonde	1
"	Lajoie & Sons	1
"	Simon Touchette	1
St. Pie	T. B.	1

Chénier	Zéphrin Genest.....	1
"	Philias Laroche.....	1
"	Xavier Moreau.....	1
"	Anselme Caron.....	1

"	Louis Côté	1
Ste. Hélène.....	Antoine Sicard	2 1
"	Eusèbe Dufault.....	1 1
"	Trefflé Lemoine	1
St. Hugues.....	L. T. Brodeur.....	1

Chénier	Onésiphore Lemay.....	1
Chester (East).....	Léon Camiré	1
"	F. X. Moraux	1
"	Ferdinand Fortier	1
"	Napoléon Alain.....	1
"	Pierre Dumas	1
Chester (West).....	Louis Boulanger.....	1
"	Napoléon Fouquette.....	1
"	Alfred Roux.....	1
"	Xavier Moreau	2
"	Irenée Bergeron.....	1
"	Joseph Leclerc	1
"	Placide Lehouiller	1
"	Napoléon Brunet.....	1
Ste. Anne du Sault.....	Adolphe Daveluy.....	1
St. Albert de Warwick.....	Taché & Lefebvre.....	1
St. Christophe.....	Albert Houle.....	1
"	Joseph Michel.....	1
"	Eugène Pellerin.....	1
"	Réal Lavigne.....	1
"	Antonio Houle.....	1
Ste. Clotilde de Horton.....	Georges Benoit	1
Ste. Elizabeth de Warwick.....	Ed. Desfossés.....	1
St. Louis de Blandford	St. Laurent & Co.....	1
St. Norbert.....	Alfred Onellet	1
"	David Dumont.....	1
St. Rémi de Tingwick	Honorius Grenier.....	1
"	Jos. Adélard Proulx.....	1
"	Edmond Levasseur	1
St. Valère de Bulstrode.....	Blanchette & St. Laurent... 1	
"	Eusèbe Lupien.....	1
"	Adolphe St. Laurent	1
"	Pierre Leduc.....	1
Ste. Victorie.....	Gaudet & Nault.....	1
Stanfold	Brisset & Beaudet	1
"	D. Simoneau	1

St. Hugues.....	Cavignac Co.....	1
"	D. Lanoie.....	1
"	A. Lanoie.....	1
"	H. St. Martin.....	1
St. Liboire.....	Joseph Lemonde.....	1 1
"	Lajoie & Sons.....	1
"	Simon Touchette.....	1
St. Pie	J. B. Racine.....	1
"	Hector Lapalme.....	1
"	Cléophas Vadnais.....	1
"	Alphonse Morin.....	1
Ste. Rosalie.....	Jos. B. Grenier.....	1
"	Frs. Lemond.....	1 1
St. Simon.....	Azarie Deslauriers.....	1
"	Paul L'Heureux.....	1
"	Joseph Lemonde.....	1
St. Théodore.....	Isidore Jodoin.....	1
"	Joseph Bousquet.....	1
"	Joseph Beauregard.....	1 1
"	J. H. Houle.....	1
"	Hilaire Roi.....	1
Upton.....	Jean Maurice.....	1 1
"	Solas Lapalme.....	1 1
Total.....		36 9

BEAUCE.

Adstock North.....	P. Raucourt & Co.....	1
"	Vital Nadeau & Co.....	1
Anbert Gallion.....	Joseph Thibodeau.....	1
"	John Goslin.....	1
"	Philémon Poulin.....	1
"	Joseph Veilleux.....	1
"	Joseph Maheux.....	1
"	Joseph Paquet.....	1
"	Benoni Poulin.....	1

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

BEAUCE.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Adstock (North).....	Pierre Morin	1
"	Joseph Boldue.....	1
"	P. G. Gonthier.....	1
Aylmer.....	Nap. Beaudoin	1
"	M. Masse	1
Broughton	Vital Champagne.....	1
"	Thomas Roy.....	1
"	Etienne Grégoire	2
"	Champagne Grégoire	1
"	Filion.....	1
Gayhurst	R. Dallaire	1
"	Gilbert Dallaire	1
Lambton	C. B. Lavigne	1
"	St. Hilaire & Bro (8th range)	1
"	St. Hilaire & Bro. (Price).....	1
"	J. E. Roberge.....	1
Metgermette (North).....	Société d'Actionnaires	1
Saints Anges.....	Plante & Giguère	1
"	Turmel & Co.....	1
St. Côte de Kennebec.....	Irénée Belanger	1
"	Pierre Roberge	1
St. Elzéar	Apollinaire Drouin.....	1
"	Philéas Gagnon	2
"	Marcelin Grégoire.....	1
St. Ephrem de Tring	Octave Roy	1
"	Olivier Poulin	1
"	Bisson & Co.....	1
"	Marcoux & Co.....	1
"	N. Pomerleau & Co.....	1

BEAUCE.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Ste. Marie.....	Avard & Grégoire.....	1
"	Marcoux Jolicœur	2
"	Marcoux & Co.....	1
"	Jean Faucher.....	1
"	Vital Cliche.....	1
"	Cie. de Matériel de Laiterie.....	2
St. Pierre de Broughton.....	Alfred Gagné.....	2
St. Samuel.....	Gilbert Dallaire.....	1
"	Romain Dallaire.....	1
St. Séverin.....	Germain Plante.....	1
"	Nazaire Drouin.....	1
"	Samuel Laliberte.....	1
St. Victor de Tring	A. Boucher & Co.....	1
"	Cie. de Matériel de Laiterie.....	1
"	N. Mercier.....	1
"	F. X. Plante & Co.....	2
"	N. Beaudoin & Co.....	1
"	N. Croteau & Co.....	1
"	M. Brodrique & Co.....	1
Shenley.....	B. Tanguay & Co.....	1
"	Louis Fortier.....	1
"	L. O. Lavigne.....	1
"	Jos. O. Nadeau & Co.....	1
"	Nap. Beaudoin.....	1
Shenley Dorset.....	Société Bernard, Poulin & al.	1
"	J. E. Pelletier.....	1
Total		99 9

"	Cie de Matériel de Laiterie.....	2
"	Pagé, Lacombe & Co.....	1
St. Evariste de Forsyth	Joseph Lachance	1
"	Aimé Lachance	1
"	Joseph Labenté et al.....	1
"	Theodore Lahay.....	1
"	Cyrille Bourque.....	1
"	Cyrille Francoeur.....	1

BEAUHARNOIS.

Salaberry de Valleyfield.....	Joseph H. Roy	1
Ste. Cécile	Joseph Poirier.....	1
"	J. A. Clement.....	1
St. Clément.....	Jos. Roy.....	1
"	Jérémie Gendron & Co.....	1
"	Jos. Crevier.....	1
St. Etienne.....	Lahaye & Sarré.....	1

St. Epiem de Ring	..... Octave Roy	1
"	..... Olivier Poulin	1
"	..... Bisson & Co.	1
"	..... Marcoux & Co.	1
"	..... N. Pomerleau & Co.	1

Shenley Dorset	..... Société Bernard, Poulin & al.	1
"	..... J. E. Pelletier	1

Total 99 9

"	..... Cie de Matériel de Laiteri.	2
"	..... Pagé, Lacombe & Co.	1
St. Evariste de Forsyth	..... Joseph Lachance	1
"	..... Aimé Lachance	1
"	..... Joseph Labenté et al.	1
"	..... Théodore Lahay	1
"	..... Cyrille Bourque	1
"	..... Cyrille Francœur	1
St. François	..... Philiat Veilleux	1
"	..... Alphonse Doyon	1
"	..... Auguste Jolicœur	1
"	..... Jean Doyon	1
"	..... M. Gendron	1
"	..... Chs. Busque	1
"	..... Jean Denis	1
"	..... H. Tétro	1
"	..... Charles Denis	1
"	..... Joseph Bureau	1
"	..... Chs. Poulin	1
"	..... Gédéon Doyon	1
St. Frédéric	..... F. X. Plante	2
"	..... Hilaire Gilbert	1
"	..... Joseph Vachon	1
"	..... G. Lagueux	1
"	..... Magloire Gravel	1
"	..... Joseph Jacques	1
"	..... Norbert Plante	1
"	..... Pierre Gagnon	1
St. Joseph	..... Noël Roy	1
"	..... Vital Roy	1
"	..... Augustin Jacques	1
"	..... Séraphin Roy	1
"	..... Thomas Doyon	1
"	..... Omer Giguère	1
"	..... Evariste Poulin	1
St. Joseph (village)	..... Jos. Morin & Co.	1

BEAUHARNOIS.

Salaberry de Valleyfield	..... Joseph H. Roy	1
Ste. Cécile	..... Joseph Poirier	1
"	..... J. A. Clement	1
St. Clément	..... Jos. Roy	1
"	..... Jérémie Gendron & Co.	1
"	..... Jos. Crevier	1
St. Etienne	..... Laberge & Sauvé	1
"	..... Jérémie Brosseau	1
St. Louis de Gonzague	..... Chas. Tait	1
"	..... John Thompson	1
"	..... George Gardner	1
"	..... James Lyman	1
"	..... Alexis Lemieux	1
"	..... Victor Pilon	1
"	..... Hormidas Lepage	1
St. Timothée	..... J. A. Clément	2 1
"	..... Auguste Crevier	1
"	..... Joseph Ringuet	1
Total		18 2

BELLECHASSE.

Beaumont	..... Napoléon Beaudoin	1
N. D. Auxiliatrice de Buck	..... Pitre Fertier & Co.	1
Roux Daaquam	..... Compagnie de Cultivateurs	1
St. Cajetan d'Armagh	..... S. B. Dionne & Co.	1
"	..... Lapierre & Co.	1
"	..... Chrys. Roy & Co.	1
St. Charles	..... Onésime Mercier	1
St. Damien de Buckland	..... M. Lessard	1
St. Gervais et St. Protas	..... Philibert Tanguay	1
"	..... Pierre Fortin	1
St. Nérée	..... Philibert Langlois	1
"	..... François Breton	1

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

BELLECHASSE.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Philémon.....	Nap. Delagrave.....	1	
".....	Frs. Larochelle & Co. . . .	1	
St. Michel.....	Arsène Roy.....	1	
".....	H. A. Furoy.....	1	
St. Lazare.....	Guillaume Chabot.....	1	
".....	Fred Laflamme.....	1	
St. Raphaël.....	Georges Roy.....	1	
".....	H. Langlois & Co.....	2	
".....	Philius Gonthier.....	1	
St. Vallier.....	Horrace Corriveau.....	1	
Total.....		12	11

BERTHIER.

Berthier.....	Hormidas Brunet.....	1	1
".....	Octavien Tellier.....	1	
".....	Joseph Frenet & Co.....	1	
La Visitation, Ile Dupas.....	Alfred Plante.....	1	
".....	Thomas Sylvestre.....	1	
St. Antoine de Lavaltrie.....	Joseph Chenevert.....	1	1
".....	Ed. Mousseau & Sons.....	1	
".....	Jos. Robitaille.....	1	
St. Barthélemy.....	Rouleau, Comtois & Co.....	1	1
".....	Edouard Trudel.....	1	1
".....	Urgèie Lécuyer.....	1	1
".....	F. X. Mayer.....	1	
".....	Olivier Brunette.....	1	
St. Cuthbert.....	Joachim Grégoire.....	1	
".....	Dame Antoine Robert.....	1	

".....	Isaïe Fournier.....	1	
".....	Jcs. Fournier.....	1	
".....	Jos. Lacourse.....	1	
".....	Louis Marchand.....	1	
".....	Ulric Courchéne.....	1	1
St. Damien.....	Réné Charbonneau.....	1	

BROME.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Bolton (East).....	George Salls.....	1	
".....	Morah Scott.....	1	
".....	Joseph Labelle.....	1	
".....	Wilfrid A. Randall.....	1	
".....	Ludger Bachand.....	1	
Brome.....	R. J. Ladd.....	1	
".....	G. A. Miller.....	1	
".....	Jesse Benham.....	1	
".....	Fred. Young.....	1	
".....	Hiram Woodard.....	1	
".....	Arthur Crittenden.....	1	
".....	Elmore Grimes.....	1	
".....	W. Sheldon.....	1	
".....	M. Boyer.....	1	
".....	G. A. Robb.....	1	1
".....	M. E. Roy.....	1	
".....	Jos. Duquette.....	1	
".....	Ephraim Lapierre.....	1	
".....	West Brome Creamery.....	1	
Eastman.....	A. J. Whitehead.....	1	
Farnham (East).....	Alphonse Boright.....	1	
".....	Thomas Burnet.....	1	
".....	F. Alex. Hawk.....	1	
".....	John Enright.....	1	
".....	C. Jewell.....	1	
".....	Philéas Domingue.....	1	
".....	J. & F. Daniel.....	1	
Knowlton.....	George Gingras.....	1	
Potton.....	Samuel S. Elkins.....	1	
".....	Alden Bailey.....	1	

".....	Jos. Labelle.....	1	
".....	Siméon Sargeant.....	1	
".....	Orm. W. Bailey.....	1	
Sutton.....	W. McFarlane.....	1	
".....	W. A. Wells.....	1	
".....	Eab. Charbonneau.....	1	

"	Edouard Trudel	1	1
"	Urgèie Lécuyer	1	1
"	F. X. Mayer	1	
"	Olivier Brunette	1	
St. Cuthbert	Joachim Grégoire	1	
"	Dame Antoine Robert	1	

"	C. Jewell	1	
"	Philéas Domingue	1	
"	J. & F. Daniel	1	
Knowlton	George Gingras	1	
Potton	Samuel S. Elkins	1	
"	Alden Bailey	1	

"	Isaïe Fournier	1	
"	Jcs. Fournier	1	
"	Jos. Lacourse	1	
"	Louis Marchand	1	
"	Ulric Courchéne	1	1
St. Damien	Réné Charbonneau	1	
"	Joseph Beaudoin	1	
St. Gabriel de Brandon (pa- roisse)	George Dubeau	1	
St. Gabriel de Brandon (pa- roisse)	Edwin Remington	1	
St. Gabriel de Brandon (pa- roisse)	Joseph Beaudoin	1	
St. Gabriel de Brandon (pa- roisse)	Honoré Dauphinais	1	
St. Gabriel de Brandon (vil- lage)	Louis Jacques	1	
St. Joseph de Lanoraie	Arthur Ferland	1	
"	Docité Bonin	1	
St. Michel des Saints	Alexandre Menard	1	
St. Norbert	Sévérin Denis	1	
"	Areliste Dutrou	1	1
"	Joseph Ayot	1	
"	David Fréchette	1	
Total		33	7

BONAVENTURE.

Maria	Rvd. Jacob Gagné	1	
New Richmond	Compagnie de Cultivateurs	1	
Port Daniel Ouest	Société de Patrons, Rvd. Aug. Gagnon, manager	1	
Shoolbred	Ernest Allard	1	
Total		4	

"	Jos. Labelle	1	
"	Siméon Sargeant	1	
"	Orm. W. Bailey	1	
Sutton	W. McFarlane	1	
"	W. A. Wells	1	
"	Eph. Charbonneau	1	
"	N. Newton	1	
"	Casper Willey	1	
"	A. Esty	1	
"	Leonard	1	
"	H. O. Wales	1	
"	Cheese & Butter Sutton Ass.	1	1
Total		36	7

CHAMBLY.

St. Bazile le Grand	Laporte Norbert	1	
St. Bruno	J. O. Champeau	1	
Ste. Famille de Boucherville	Avila Trudeau	1	
St. Hubert	A. Trudeau	1	
"	A. Champeau	1	
"	M. Brosseau	1	
"	M. Trudeau	1	
"	Cie. de Beurrerie de St. Hubert	1	
St. Joseph de Chambly	M. Monat	1	
Total		8	1

CHAMPLAIN.

M. D. du Mont Carmel	Luc Ducharme	1	
"	Philippe Rhéault	1	
"	Jos. Cossette & Lord	1	
La Visitation de Champlain	Joseph Félix	1	
"	Zephirin Doutigny	1	

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

CHAMPLAIN.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
St. Adelphe.....	A. Lambert.....	1
".....	P. N. Chailly.....	1
Ste. Anne de la Pérade.....	N. E. Clément.....	1
".....	Gilbert Latour.....	1
".....	Michel Loranger.....	1
".....	Honoré Gendron.....	1
".....	Joseph Godin.....	1
".....	Donald Foley.....	1
".....	Edouard Danville.....	1
".....	Déodon Lanouette.....	1
Ste. Flore.....	Benjamin Lavergne.....	1
".....	Uldéric Leblanc.....	1
".....	Hilaire Lupien.....	1
".....	Narcisse Beaulieu.....	1
St. F. X. de Batiscan.....	Ovide Lacourcière.....	1
".....	Ludger Duval.....	1
".....	Charles Gouin.....	1
".....	Réné Lapointe.....	1
St. Jacques des Piles.....	Joseph Donat.....	1
St. Luc.....	Anselme Beaudoin.....	1
".....	J. Olivier Beaudoin.....	1
".....	J. Jacques Beaudoin.....	1
".....	Hubert Nobert.....	1
".....	Georges Goyette.....	1
".....	Pierre Marchand.....	1
St. Marie du Cap de la Madeleine.....	H. Vaillancourt.....	1
St. Maurice.....	F. X. Blondin.....	1
".....	Théophile Decoteau.....	1
".....	Irénée Racine.....	1

".....	Antoine Laprise.....	1
".....	Maxime Cossette.....	1
".....	Oscar Norbert.....	1
St. Narcisse.....	Trefflé Trudel.....	1
".....	Isidore Derouin.....	1
".....	Dosithé Cossette.....	1
".....	Benjamin Bélanger.....	2
".....	François Cossette.....	1

CHARLEVOIX.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Ste. Agnès de Murray Bay.....	Trefflé Bergeron.....	1
".....	Thomas Bouchard.....	1
".....	Joseph Bergeron.....	1
".....	Boniface Desgagné.....	1
St. Etienne de la Malbaie.....	Jules Bradet.....	1
".....	Odilon Pilot.....	1
St. Fidèle Mount Murray.....	Antoine Perron.....	1
St. Irénée.....	Ferdinand Gauthier.....	1
".....	Denis Boucher.....	1
St. Ls. de l'Île aux Coudres.....	Georges Tremblay.....	1
".....	Louis Perron.....	1
Baie St. Paul.....	Napoléon Potvin.....	1
".....	Joseph Simard.....	1
".....	Benjamin Fortin.....	1
".....	Charles Martel.....	1
".....	Wilfrid Simard.....	1
".....	Henri Côté.....	1
".....	Gédéon Perron.....	1
St. Siméon.....	Société de fabrication de fromage.....	1
St. Urbain.....	Charles Fortin.....	1
Settrington (St. Hilarion).....	Evariste Demeules.....	1
Total.....		24 1

CHATEAUGUAY.

Ormstown Village.....	Macpherson & Ferguson.....	1
Très St. Sacrement.....	John McGregor.....	1
".....	Robert Anderson.....	1
".....	Macpherson & Ferguson.....	1

".....	John Thompson.....	1
".....	Allan's Corners Co.....	1
St. Antoine Abbé.....	James McGill.....	1
Ste. Clotilde.....	Edward McGowan.....	1
St. Jean Chrysostome.....	Macpherson & Ferguson.....	2
".....	John Boyd.....	1
".....	Maxime Huberdeau.....	1
St. Joachim de Châteauguay.....	N. D. J. J.....	1

St. Marie du Cap de la Madeleine	H. Vaillancourt.....	1
St. Maurice	F. X. Blondin	1
"	Théophile Decoteau.....	1
"	Irénée Racine.....	1

"	Antoine Laprise.....	1
"	Maxime Cossette	1
"	Oscar Norbert	1
St. Narcisse	Trefflé Trudel	1
"	Isidore Derouin	1
"	Dosithé Cossette.....	1
"	Benjamin Bélanger.....	2
"	François Cossette.....	1
St. Prosper	Alfred Trudel	1
"	Cloutier & Lacoursière	1
"	William Lacoursière.....	1
St. Sévérin de Proulxville.....	Narcisse Bordeleau	1
"	Marjorique Bordeleau	1
"	Eli Mongrain	1
"	Trefflé Veillet	1
St. Thècle	Alfred Trudel	1
"	Charles Audy	1
St. Tite	J. Aristide Lambert.....	1
"	Paquin & Jacob	1
"	François Marchand.....	1
"	Martial Massicotte.....	1
"	Jacob Lacoursière.....	2
"	Théodore Maureault	1
"	Zotique Allaire.....	1
St. Stanislas.....	Alfred Trudel	1
"	Ovide M. Trudel	1
"	Joseph Jacob.....	1
"	Jean Jacob	1
Total		63 1

CHARLEVOIX.

Les Eboulements	Médéric Bouchard.....	1
"	Alexis Tremblay.....	1
"	Charles Tremblay.....	1

CHATEAUGUAY.

Ormstown Village.....	Macpherson & Ferguson....	1
Très St. Sacrement.....	John McGregor.....	1
"	Robert Anderson.....	1
"	Macpherson & Ferguson....	1

"	John Thompson.....	1
"	Allan's Corners Co.....	1
St. Antoine Abbé.....	James McGill.....	1
Ste. Clotilde.....	Edward McGowan.....	1
St. Jean Chrysostome.....	Macpherson & Ferguson....	2
"	John Boyd.....	1
"	Maxime Huberdeau.....	1
St. Joachim de Chateauguay.....	N. R. Laberge.....	1
St. Malachie d'Ormstown.....	Wm. Graham.....	1
"	Wm. Collum.....	1
"	Edwin Hecoker.....	1
"	James Sangster.....	1
"	Co. of farmers.....	1
Ste. Martine	Ed. McGowan.....	2
"	Etienne Marleau.....	2
Ste. Philomène.....	Ed. McGowan.....	1
"	Jean-B. Damour.....	1
St. Urbain Premier.....	Jos. A. Defayette.....	1
"	Ed. McGowan.....	1
Total.....		22 4

CHICOUTIMI.

Bagotville.....	Elie Tremblay.....	1
"	Firmin Paradis.....	1 1
"	Didyme Pouchard.....	1
"	Wilfrid Côté.....	1
Bourget.....	Alex. Larouche.....	1
"	Louis Gaudin.....	1
Chicoutimi Canton.....	Algérie Maltais.....	1
"	David Maltais.....	1
"	Elie Fortin.....	1
"	Edmond Tremblay.....	1
"	Frs. Brassard.....	1
"	Louis Guay.....	1

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

CHICOUTIMI—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Chicoutimi Canton.....	Jean Girard.....	1
".....	Richard Gagnon.....	1
".....	Eugène Guay.....	1
".....	Jean Perron.....	1 1
".....	Frs. Maltais.....	1 1
Chicoutimi Ville.....	L. E. Guay.....	1
Grande Baie.....	Société de Fabrication de Beurre et de Fromage....	1 1
".....	Jules Gauthier.....	1 1
N. D. de Laterrière.....	Thomas Tremblay.....	1
".....	Alfred Tremblay.....	1
".....	J. A. Gaudreault.....	1
St. Cyriac.....	Suzanne Vaillancourt.....	1
St. Dominique de Jonq.....	Michel Bergeron.....	1
".....	Néré Bergeron.....	1
".....	Xavier Gagnon.....	1
".....	Charles Fortin.....	1
".....	Donat Brassard.....	1 1
St. Fulgence.....	Joseph Harvey.....	1
St. Jean.....	Zéph. Desgagnés and others.	1
Tremblay.....	Louis Bouchard.....	1
".....	Xavier Savard.....	1
".....	Eugène Guay.....	1
".....	Honoré Côté.....	1
".....	Joseph Bouchard.....	1
".....	Ernest Gravel.....	1
".....	Ovide Villeneuve.....	1
Total.....		38 6

DORCHESTER—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Ste. Claire.....	Clotaire Lessard.....	1
".....	Daigle.....	1
St. Edouard de Frasnpton.....	J. B. Blais.....	1
".....	Joseph Lacasse.....	1
".....	Nap. Dion.....	1
".....	Roy & Dubuc.....	1
".....	James Ghinsella.....	1
".....	Thomas Audet.....	1
St. Germain, Lake Etchemin.....	Société de Fabrication de Fromage.....	1
".....	Michel Larochelle.....	1
St. Hénédine.....	Octave Martineau.....	1
".....	Joseph Cloutier.....	1
".....	Gabriel Dumont.....	1
St. Isidore.....	George Carrier.....	1
".....	Joseph Leblanc.....	1
".....	Cie. de Matériel de Laiterie.	2
St. Justine.....	Syndicat No.1(F. Fortier,scy)	1
".....	Philéas Tanguay.....	1
St. Léon de Standon.....	Pierre Chouinard.....	1
St. Marguerite.....	N. Beaudoin.....	1
".....	David Cloutier.....	1
".....	Victorien Trachy.....	1
".....	Joseph Maure.....	1
St. Odilon de Cranbourne.....	Veilleux & Co.....	1
".....	Jean Faucher.....	1
Watford (West).....	David Grenier.....	1
Total.....		31 4

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COMPTON.

Auckland.....	Joseph Roy and others.....	3
Bury.....	N. St. François.....	1
Cookshire.....	R. H. Pope, M. P.....	1
Ditton & Clinton.....	Joseph Brillon.....	1
Eaton.....	John McKie.....	1
".....	Harlow.....	1

DRUMMOND.

Durham.....	Jos. A. Dunkerly.....	1
".....	M. Duguay.....	1
Durham (South).....	Albert Hyde.....	1
".....	Ulféry Mongeau.....	1
".....	J. B. J. Lafontaine.....	1

"	Honoré Côté	1
"	Joseph Bouchard	1
"	Ernest Gravel	1
"	Ovide Villeneuve	1
Total		38 6

"	Joseph Maure	1
St. Odilon de Cranbourne	Veilleux & Co.	1
"	Jean Faucher	1
Watford (West)	David Grenier	1
Total		31 4

COMPTON.

Auckland	Joseph Roy and others	3
Bury	N. St. François	1
Cookshire	R. H. Pope, M. P.	1
Ditton & Clinton	Joseph Brillon	1
Eaton	John McKie	1
"	Hanley	1
"	Lafontaine	1
Emberton	Rvd. A. Tremblay	1
Hereford	Cie de Paquetteville	1
"	Chouinard & Bissonnette	1
"	Mm. Melrose	1
"	A. Gérin	1
"	Philippe Dupuis	1
"	Frontier Manufacturing Co.	1
Lingwick	J. Fontaine	1
"	J. L. Pinchaud	1
Marston South	Napoléon Lemieux	1
Sawyerville	Sawyerville Creamery	1
Scotstown	James Coleman & al.	1
Waterville	Association of Patrons	1
Westbury	Jos. Fontaine	1
Winslow North	Cyrille Bourque	1
Winslow South	Peter Matheson	1
Total		21 4

DORCHESTER.

St. Anselme	L. N. Beaudoin	1
"	Amédée Grégoire	1
"	Jos. Baillargeon	1
St. Bernard	Charles Beliveau	2
"	Cie. de Matériel de Laiterie.	1
Ste. Claire	Georges Richard	1
"	Alphonse Bernier	1

DRUMMOND.

Durham	Jos. A. Dunkerly	1
"	M. Duguay	1
Durham (South)	Albert Hyde	1
"	Ulféry Mongeau	1
"	J. B. J. Lafontaine	1
Grantham	Jos. Jones	1
"	Zotique Lafond	1
"	Adélaré Lavoix	1
Kingsey	Joseph Lefebvre	1
"	Lefebvre & Painchaud	1
"	Lefebvre & Co.	1
"	Georges Benoit	1
"	Société de Patrons	1
Kingsey Falls	Rvd. G. E. Caron	1
"	McCallum Co.	1
L'Avenir	Hylas Duguay	1
"	Duguay & Co.	1
"	N. Martel	1
"	Alex. Charpentier	1
"	Ephrem Charpentier	1
"	Joseph Dionne	1
St. Eugène de Grantham	Chas. Cyr and others	1
St. Germain de Grantham	Olivier Lemaire	1
"	Olivier Rageotte	1
"	Joseph Moreau	1
"	Adelard Lavoie	1
"	Michel Gauthier	1
Wendower et Simpson	Chas. Cyr	2
"	Napoléon Raymond	1
"	Edmond Dauplaise	1
"	Paul Valois	1
"	Théophile Caron	1
Wickham (East)	A. Provancher	1
"	Leon Ball	1
Wickham (West)	Jos. Lafrance	1
Total		34 4

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

GASPÉ.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Ste. Anne des Monts	Frs. Lepage	1
St. Norbert du Cap Chat.....	Gustave Roy	1
"	George Roy	1
Total.....		3

HOCHELAGA.

Rivière des Prairies	Alfred Vézina	1
St. Leonard de Port Maurice.....	John McIntosh	1
Total.....		2

HUNTINGDON.

Dundee	Macpherson & Ferguson....	1
"	D. M. Macpherson.....	2
Elgin.....	Macpherson & Ferguson....	2
"	Macpherson	1
"	James Irwin & Co	1
"	Small Bros.....	1
Godmanchester	Macpherson & Ferguson....	5
"	W. H. Walker	1
"	Syndicate of Farmers	1
Havelock.....	Maxime Patenaud.....	1
"	N. Beaudin	1
"	G. Gemble	1
Hemmingford	Thomas Boyd	2
Hinchinbroke	Farquhar & Oliver.....	1
"	George Loomis	3
"	Martin Connell	1

"	J. D. McDonald.....	1
"	Macpherson & Co.....	3
"	Miller & Boyd.....	1
Huntingdon	Comb. Butter and Cheese Factory	1 1
St. Anicet	Masson & Cassa	1
"	D. M. Macpherson.....	4

JACQUES-CARTIER—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
St. Geneviève	Ambroise Pilon.....	1
St. Geneviève (Village).....	J. B. Meloche	1
St. Joachim de la Pte. Claire	Daniel Legault	1 1
St. Laurent	Pierre Meloche	1
St. Raphaël de l'Île Bizard.....	Napoléon Boivin	1
Total.....		2 8

JOLIETTE.

St. Alphonse Rodriguez... ..	G. E. Trudeau.....	1
"	R. Gervais	1
Joliette	La Fromagerie de Joliette..	1
St. Ambroise de Kildare.....	Sinai Comtois and others... 1	1
"	Anatole Archambault.....	1
"	Marcel Ethier	1
St. Béatrice.....	Onésime Boucher.....	1
"	Joseph Laurent.....	1
"	Alfred Laporte	1
"	Théodore Beaudry.....	1
St. Charles Borromée.....	U. B. Desrochers	1
"	Jos. Arnault	1
St. Côme.....	Lacasse & Labine.....	1
"	O. Gauthier.....	1
St. Elizabeth.....	Alexandre H. Beaulieu....	1
"	Hormisdas Dudemaine....	1
"	Wilfrid Gingras	1
"	Noé Roy	1
"	Trudel & Gingras.....	1
St. Felix de Valois	J. L. Coutu	1
"	L. Boucher	1

"	Geo. Asselin.....	1
"	Eugène Boucher.....	1
"	J. Gravelle	1
St. Mélanie	Joseph Clément.....	1
"	Désiré Nadeau.....	1
"	Zacharie Lepage	1
St. Paul de Lavaltrie	Adolphe Gingras	1

Havelock.....	Maxime Patenaud.....	1
".....	N. Beaudin.....	1
".....	G. Gembie.....	1
Hemmingford.....	Thomas Boyd.....	2
Hinchinbroke.....	Farquhar & Oliver.....	1
".....	George Loomis.....	3
".....	Martin Connell.....	1

".....	J. D. McDonald.....	1
".....	Macpherson & Co.....	3
".....	Miller & Boyd.....	1
Huntingdon.....	Comb. Butter and Cheese Factory ..	1 1
St. Anicet.....	Masson & Cassa.....	1
".....	D. M. Macpherson.....	4
".....	Club of Farmers.....	1
".....	James Irwine.....	1
St. Barbe.....	Elie Filiatrault and others..	1

Total..... 32 8

IBERVILLE.

St. Alexandre.....	Ambroise Labrecque, jr....	1
St. Anne de Sabrevois.....	S. J. Roy.....	1
St. Athanase.....	Ambroise Poirier.....	1
".....	Donat Boucher.....	1
St. Brigide.....	Godefroy Tessier.....	1
".....	Osias Archambault.....	1
St. Georges de Henryville....	Gompagnie de Cultivateurs..	1
".....	Léon Bénard & Co.....	2
St. Grégoire.....	Michel Monat.....	1
".....	Thomas Barrière.....	1
".....	Napoléon Pratte.....	1
".....	Narcisse Larivière.....	1
St. Sébastien.....	Pierre Brault, jr.....	1 1
".....	Elie Dagesse.....	1

Total..... 14 2

JACQUES-CARTIER.

St. Anne du Bout de l'Isle...	Télesphore Madore.....	1
St. Geneviève...	Urgel Lauzon.....	1 1
".....	J. Bte. Malche.....	1

Ste. Elizabeth.....	Alexandre H. Beaulieu.....	1
".....	Hormisdas Dudemaine.....	1
".....	Wilfrid Gingras.....	1
".....	Noé Roy.....	1
".....	Trudel & Gingras.....	1
St. Felix de Valois.....	J. L. Coutu.....	1
".....	L. Boucher.....	1

".....	Geo. Asselin.....	1
".....	Eugène Boucher.....	1
".....	J. Gravelle.....	1
Ste. Mélanie.....	Joseph Clément.....	1
".....	Désiré Nadeau.....	1
".....	Zacharie Lepage.....	1
St. Paul de Lavaltrie.....	Adolphe Gingras.....	2
".....	Joseph Marsan.....	1
".....	Joseph Ratelle.....	1
St. Thomas de Jersey Nord ..	Masse & Desrochers.....	1
".....	Frédéric Goyette.....	1
".....	Maxime Coutu.....	1
Ste. Emélie de l'Energie.....	Charles Blaise.....	1
".....	Joseph Coutu.....	1
".....	Onésime Beaudry.....	1
".....	Moise Beaulieu.....	1
".....	Joseph Desrochers.....	1

Total..... 37 2

KAMOURASKA.

N. D. de la Rivière Ouelle....	J. A. Pelletier.....	1
N. D. du Mont Carmel.....	Charles Roy & al.....	1
Kamouraska Village.....	W. LeBel.....	1
St. Alexandre.....	J. S. Dugal.....	2
".....	Alexis Bélanger.....	1
St. André.....	Desjardins & Marquis.....	1
".....	Carrier & Michaud.....	1
St. Anne de Lapocatière....	Francois Gendron.....	1
".....	Joseph Boucher.....	1
St. Denis.....	Augustin Dionne.....	1
St. Onésime d'Irworth.....	E. Levesque.....	1
St. Germain.....	Etienne Caron.....	2
".....	Louis Levesque.....	1
St. Pacôme.....	Pierre Levesque.....	1
".....	Thomas Levesque & al.....	1 1

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

KAMOURASKA.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
St. Paschal.....	Compagnie d'Actionnaires..	1
St. Philippe de Néri.....	Louis Anctil & al.....	1
Total.....		19 1

LAKE ST. JOHN.

Delisle	François Gagné.....	1
Hébertville Parish.....	Philippe Hudon.....	1
"	Servulle Tremblay.....	1
"	Robert Lemay.....	1 1
"	Yves Tremblay.....	1
Hébertville Village.....	Philippe E. Hudon.....	1 1
Normandin.....	Alfred Trudelle.....	1
Roberval Village.....	Luc Lizotte.....	1
St. Bruno.....	J. E. Desbiens	1
St. Félicien.....	Alber Nault.....	1
"	Adélaré Perron.....	1
St. Gédéon.....	Jos. Girard, M.P.P.....	1
"	André Bouchard.....	1
St. Jérôme du L. St. J.....	George Perron.....	2
St. Jérôme du L. St. J.....	Octave Hudon.....	1
"	Charles Simard.....	1
"	Eli Gagné.....	1
"	Joseph Gagnon.....	1
St. Louis de Metabetchouan..	Octave François	1
Ste. Methode.....	Patrice Levesque	1
St. Prime.....	Adélaré Perron.....	1
"	Frs. Côté and others.....	1
Total.....		23 2

LAPRAIRIE.

Laprairie de la Madeleine....	Eusèbe Martel.....	1
St. Constant	Joseph Fyfe.....	1
St. Isidore.....	Ed. McGowan.....	1
St. Isidore.....	J. L. R. Pagé.....	1
St. Jacques le Mineur.....	Philiat Demers and others..	1
St. Ph.....	.....	1

LAVAL.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Ste. Dorothee.....	Ph. D. Laurin.....	1
St. François de Salles.....	Onésime Veillel.....	1
"	Delvica Adam.....	1
St. Martin.....	Allard & Côté.....	2
Ste. Rose de Lima.....	Aristice Cloutier.....	1
"	Gilbert Couvrette.....	1
"	Cossette & Archambault....	1
Ste. Rose Village.....	Archambault & Cossette....	1
Total.....		7 2

LEVIS.

Ste. Etienne de Lauzon.....	Victor Plante.....	1
St. Henri de Lauzon.....	Adolphe Fortier.....	2
"	L. N. Beaudoin.....	1
"	André Beaudoin.....	1
St. Jean Chrysostome.....	Jos. Morreau.....	1
St. Lambert.....	Jos. Paquet.....	1
"	Cie. de Matériel de Laiterie..	1
St. Nicholas.....	Alphonse Bergeron.....	1
"	J. L. Lambert.....	1
"	François Fouquet.....	1
"	Charles Filteau.....	1
Total.....		10 2

L'ISLET.

L'Islet.....	L. A. Boucher.....	1
"	Onésiphore Charbonneau....	1

"	Eustache Ménard.....	1
"	Cyrias Houle.....	1
St. Aubert.....	Syndicate de Cultivateurs..	1
St. Cyrille de Lessard.....	Désiré Mercier.....	1
St. Jean Port Joli.....	Edouard Vaillancourt.....	1
St. Jean Port Joli.....	Jean Baptiste St. Pierre....	1
Ste. Louise des Aulnaies.....	Nazaire Caron.....	1

"	Joseph Gagnon.....	1
St. Louis de Metabetchouan..	Octave François	1
St. Methode.....	Patrice Levesque	1
St. Prime.....	Adélaré Perron.....	1
"	Frs. Côté and others.....	1
Total.....		23 2

Total..... 10 2

L'ISLET.

L'Islet.....	L. A. Boucher.....	1
"	Onésiphore Charbonneau..	1

LAPRAIRIE.

Laprairie de la Madeleine....	Eusèbe Martel.....	1
St. Constant	Joseph Fyfe.....	1
St. Isidore.....	Ed. McGowan.....	1
St. Isidore.....	J. L. R. Pagé	1
St. Jacques le Mineur.....	Philiat Demers and others..	1
St. Philippe.....	Léandre Gobeil.....	1
Total.....		4 2

L'ASSOMPTION.

L'Assomption (town)	Georges Dubeau.....	1
"	A. Chevalier.....	1
"	Forest & Longpré.....	1
"	Felix Suzor.....	1
L'Assomption	Collège de l'Assomption....	1
Laurentides	Ed. Desmarais	1
L'Epiphanie	Jos. Moran.....	1
"	A. Lord.....	1
Repentigny	Jos. N. Thouin	1
St. Charles de Lachenaie....	François Allard.....	1
St. Henri de Mascouche.....	Samuel Chagnon.....	1
"	Victor Lalumière.....	1
"	Alph. Soucisse.....	1
"	Louis Lamoureux.....	1
"	Louis Morin.....	1
St. J'in.....	Théodnie Corbeille.....	1
St. Paul l'Ermite.....	Philiat Leveillé.....	1
"	Samuel Chagnon	1
St. Roch de l'Achigan.....	Jos. Delongchamps.....	1
"	Médéric St. André.....	1
St. Sulpice.....	Arthur Chicoine.....	1
Total.....		6 15

"	Eustache Ménard.....	1
"	Cyrias Houle.....	1
St. Aubert.....	Syndicate de Cultivateurs..	1
St. Cyrille de Lessard.....	Désiré Mercier.....	1
St. Jean Port Joli.....	Edouard Vaillancourt.....	1
St. Jean Port Joli.....	Jean Baptiste St. Pierre....	1
St. Louise des Aulnaies.....	Nazaire Caron.....	1
"	J. Théberge.....	1
St. Pamphile.....	Syndicate de St. Pamphile..	1
St. Roch des Aulnaies.....	Auguste Pelletier.....	1 1
"	Dolard Gendron.....	1
Total.....		7 7

LOTBINIERE.

Deschaillons.....	Joseph Dubuc.....	1
"	Arthur Paris.....	1
"	Victor Chandonnet.....	1
"	Edouard Barabé.....	1
St. Agapit.....	Alphonse Desrochers.....	1
"	Arthur Tremblay.....	1
St. Agathe	Octave Boulanger.....	1
St. Antoine de Tilly.....	Félix Lambert.....	2
"	Alphonse Bergeron.....	1
"	Guillaume Laroche.....	2
"	Alphée Aubin.....	2
St. Apollinaire.....	Ferdinand Fortier	1
"	Alphée Aubin.....	1
St. Croix.....	Edouard Cayer & Laliberté.	1
"	Aimé Paré	1
"	Joseph Croteau.....	1
"	Rinfret & Co.....	2
St. Flouard.....	Ferdinand Coulombe.....	1
"	Théophile Daigle	1
"	Edmond Daigle.....	1

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

LOTBINIERE.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
"	Edouard Coulombe	1	
Ste. Emélie	Damase Beudet	1	
"	Adjutor Doré	1	
St. Flavien	Lazare Bédard	1	
"	L. O. Pratte	1	
"	Alex. Daigle	1	
St. Giles de Beauvillage	Nazaire Demers	1	
St. Louis de Lotbinière	Adelard Plaisance	1	
"	Laurent Hamel	1	
"	Société de Fabrication de St. Louis	1	1
"	Wilfrid Vézina	1	1
St. Narcisse de Beauvillage	Didace Kirouac	1	
"	Joseph Lefebvre	1	
St. Patrice de Beauvillage	Joseph Olivier	1	
"	Olivier Fecteau	1	
"	Morin & Croteau	1	
St. Sylvestre de Beauvillage	Joseph Grégoire	3	
"	W. M. H. King	1	
"	Samuel Neil	1	
"	M. Morin	1	
"	Payeur et Bisson	1	1
Total		41	6

MASKINONGE.

Hunterston	Henri Bergeron	1	
Louiseville	Adrien Milot	1	
St. Alexis	Joseph Allard	1	
"	Henri Bergeron	1	

MEGANTIC.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Halifax (North)	Johny Grégoire	1	
"	Champagne Leclerc	1	
"	V. C. Pélerin	1	
"	Joseph Boucher	1	
Halifax (South)	Oscar Gilbert	1	
"	Thibault & Boucher	1	
"	Beaudoin & Provencher	1	
"	Léopold Sévigny	1	
"	Nollet & Marion	1	
"	B. Pelletier	1	
"	Gilbert & Gilbert	2	
"	Bergeron & Massé	1	
"	Wilfrid Gilbert & Massé	1	
Inverness	John L. Cox	3	
"	Thos. Davidson and others	1	
"	Aversus Beland	1	
Ireland	Gilbert & Massé	1	
"	Jos. O. Roy	1	
"	Basile Tanguay	1	
"	L. A. Klein	1	1
Ireland (North)	Louis Gilbert	1	
"	Mercier & Co.	1	
"	J. B. Beaudoin	1	
Leeds	J. A. McCallum	3	
"	Rober. Anderson	1	
Leeds (East)	Alfred Gagné	2	
Plessisville	Cie. de fromage et de beurre	1	1
Ste. Anastasie de Nelson	Delphis St. Laurent	1	
"	Thos. Baril	1	
"	Ed. Roger	1	

St. Antoine de la R. du Loup	Hector Caron	1	
"	Vve. Edouard Paquin	1	
"	Adrien Milot	1	1
St. Didace	Alfred Morin	1	
"	Henry Bergeron	1	
"	Denis Barette	1	

St. Pierre Baptiste	David Simoneau	1	
"	Louis Thibault	2	
Somerset (North)	Drouin, Jutras and others	3	
"	Napoléon Bourassa	1	
"	Gatien Roy	1	
Somerset (South)	A. Morin	1	

MASKINONGE.

Hunterston	Henri Bergeron.....	1
Louiseville	Adrien Milot.....	1
St. Alexis	Joseph Allard.....	1
"	Henri Bergeron.....	1

St. Antoine de la R. du Loup.....	Hector Caron.....	1
"	Vve. Edouard Paquin.....	1
"	Adrien Milot.....	1
St. Didace	Alfred Morin.....	1
"	Henry Bergeron.....	1
"	Denis Barette.....	1
"	Thos. Rivard.....	2
"	Jos. Jollette.....	1
St. Joseph de Maskinongé.....	Clément Dauplaise.....	1
"	Victor Sicard.....	1
"	Antoine Saucier.....	1
St. Justin.....	Pierre Brail.....	1
"	Adolphe Ladouceur.....	1
"	Jos. Bussière.....	1
St. Léon le Grand.....	F. X. Dionne.....	1
"	Samuel Lefrançois.....	1
"	A. Lessard.....	1
"	L. Milot.....	1
"	W. Ferron.....	1
"	Rey. Caron & Co.....	1
"	Paul Boisvert.....	1
St. Paulin.....	Henri Bergeron.....	2
St. Ursule.....	Lessard & Bastien.....	1
"	Samuel Boucher.....	1
"	Henri Lessard.....	1
"	Norbert Fleury.....	1
"	Henri & F. Grenier.....	1
"	Adolphe Lessard.....	1
"	Isaac Fournier.....	1
Total.....		32 8

MEGANTIC.

Halifax (North).....	W. C. Beliveau.....	1
"	F. Naudeau.....	1
"	Joseph Gaudrault.....	1

Leeds	J. A. McCallum.....	3
"	Robert Anderson.....	1
Leeds (East).....	Alfred Gagné.....	2
Plessisville	Cie. de fromage et de beurre.....	1
Ste. Anastasie de Nelson.....	Delphis St. Laurent.....	1
"	Thos. Baril.....	1
"	Ed. Roger.....	1

St. Pierre Baptiste.....	David Simoneau.....	1
"	Louis Thibault.....	2
Somerset (North).....	Drouin, Jutras and others ..	3
"	Napoléon Bourassa.....	1
"	Gatien Roy.....	1
Somerset (South).....	A. Morin.....	1
"	E. Simoneau.....	1
"	Ans. Carrier.....	1
Thetford (North).....	Georges Filien.....	1
"	J. O. Hebert.....	1
"	Raymond Beaudoin.....	1
"	Louis Chateaufneuf.....	1
"	Leopold Sévigny.....	1
Total.....		53 3

MISSISQUOI.

Bedford	Andrew Wilson.....	1
"	Lalime Larocque.....	2
Cowansville	George Hulburd.....	1
Dunham	J. G. Wales.....	1
"	W. Perkins.....	1
"	E. O. Hutchins.....	1
"	S. J. Ingalls.....	1
"	E. A. Russels.....	1
"	Nap. Girard.....	1
"	A. C. Carter.....	1
"	J. Labombarde.....	1
Dunham (Village).....	Jos. L. Gilbert.....	1
Farnham	Guy Kennedy.....	1
Farnham (West).....	William Tison.....	1
"	Sidney Kempt.....	1
"	Edwin Welch.....	1
"	Ed. Arpin.....	1
"	Amédée Ferland.....	1

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

MISSISQUOI.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Frelighsburg.....	Thos. Morrison.....	1	1
N. D. des A. de Stanbridge.....	A. Marois.....	1	
“	A. Courtemanch.....	1	
N. D. de Stanbridge.....	Aug. Morin & Sons.....	1	
St. Armand East.....	Thos. Morrison.....	1	1
“	Enoch H. Spoor.....	1	
St. Armand West.....	James Rosenberger.....	1	
“	Sam. Hamel.....	1	
“	Wilson & McQuinn.....	1	
St. Georges de Clarenceville.....	Henry O'Clair.....	1	
“	C. M. Harvey.....	1	
St. Ignac de Stanbridge.....	Robert McKie.....	1	
“	Jered Hawk.....	1	
“	Ernest Russel.....	1	
St. Thomas de Foucault.....	Henry O'Clair.....	1	
Stanbridge.....	Jered Hawk.....	1	
Stanbridge Station.....	Julien Campbell.....	1	
“	Joseph Campbell.....	1	
Total.....		36	5

MONTCALM.

Chertsey.....	Alexandre Rivet.....	1
“	Octave Sylvestre & al.....	1
Kilkenney.....	Xavier Sauroll.....	1
Rawdon.....	John Lane.....	1
“	Sinaï Bordeleau.....	1
“	Magloire Barette.....	1
“	Camille Beauséjour.....	1

St. Alexis.....	Octave Magnan, M.P.P.....	1
“	Ernest Laird.....	1
St. Esprit.....	Raymond Lesage.....	1
St. Jacques.....	Jos. Landry.....	1
“	Frédéric Goyette.....	1
“	Jos. Nap. Marion.....	1

MONTMORENCY.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Brigitte de Laval.....	Brisset & Drolet.....	1	
Ste. Famille.....	Syndicate de Beurrerie.....	1	
St. Féréol.....	Syndicate de St. Féréol.....	1	
St. François.....	Narcisse Roberge.....	1	
St. Joachim.....	Séminaire de Quebec.....	1	
St. Pierre.....	Lortie & Lachance.....	1	
St. Tite des Caps.....	Philéas Leblond.....	1	
Total.....		5	6

NAPIERVILLE.

Napierville.....	Théophile Fortin.....	1	
St. Cyprien.....	Fromagerie de Douglasbay.....	1	
St. Edouard.....	Sévère Bessette.....	1	
St. Michel Archange.....	Joseph Vanchestein.....	1	
“	A. C. Bourdeau.....	1	
St. Patric de Sherrington.....	James Irwine.....	1	
“	Soc. du Cultiv., Horm. Bé- chard, gér.....	1	
S. Rémi de la Salle.....	Edward McGowan.....	1	
“	Chs. Latour & Sons.....	1	
Total.....		6	3

NICOLET.

La Nativité de Bécancourt.....	Philémon Brassard.....	1	
“	Achille Carignan.....	1	
“	Gaspard Côté.....	1	
Larochelle.....	Luc Forest.....	1	1

Nicolet.....	Rvd. M. G. Proulx.....	1	1
Ste. Angèle de Laval.....	Joseph Hébert.....	1	
St. Brigitte des Saulls.....	Joseph Lemire.....	1	
“	Omer Parent.....	1	
St. Célestien.....	Cyrille Fournier.....	1	
“	Grégoire Hébert.....	1	

.....	.....	1
Kilkenney	Xavier Sauroil	1
Rawdon	John Lane	1
"	Sinaï Bordeleau	1
"	Magloire Barette	1
"	Camille Beauséjour	1

NICOLET.

La Nativité de Bécancourt	Philémon Brassard	1
"	Achille Carignan	1
"	Gaspard Côté	1
Larochelle	Luc Forest	1 1

St. Alexis	Octave Magnan, M.P.P.	1
"	Ernest Laird	1
St. Esprit	Raymond Lesage	1
St. Jacques	Jos. Landry	1
"	Frédéric Goyette	1
"	Jos. Nap. Marion	1
Ste. Julienne de Rawdon	Jean Bte. Payan	1
St. Liguori	G. Brault	1
"	Joseph Gaudette	1
Ste. Marie Salomé	Ernest Gaudette	1
Total		11 6

MONTMAGNY.

Berthier	Numa Bernatchez	1
Cap St. Ignace	Ed. Pelletier	1
"	J. E. Jalbert	1
"	Zeph. Guimont	1
Montmagny	Syndicat No. 1	1
"	Syndicat No. 2	1
Montminy	Théoph. Nicole & Co.	1
"	Désiré Delagrave & Co.	1
St. André de l'Île aux Grues	Georges Roy	2
St. Pierre, Rivière du Sud	Jacques Collin	1
"	Ed. Boissonneau	1
"	Zéphirin Cloutier	1
St. François, Rivière du Sud	Joseph Blais	1
"	Frs. X. Dagneau	1
Total		6 9

MONTMORENCY.

Château Richer	Télesphore Rhéaume	1
L'Ange-Gardien	Syndicat de Cultivateurs	1
"	Elzéar Huot	1
Ste. Anne de Beaupré	Elzéar Fortier	1

Nicolet	Rvd. M. G. Proulx	1 1
Ste. Angèle de Laval	Joseph Hébert	1
St. Brigitte des Sauls	Joseph Lemire	1
"	Omer Parent	1
St. Célestin	Cyrille Fournier	1
"	Grégoire Hébert	1
"	Philémon Duguay	1 1
"	Ludger Piché	1
"	George Ellison & al.	1
St. Edouard de Gentilly	Hould & Fournier	3
"	H. E. Lafontaine	1
Ste. Eulalie	Luc Thibodeau	1
"	Joseph Trudel	1
"	M. St. Pierre	1
St. Gertrude	F. Ouellette	1
"	Noé Morissette	2
"	Eusèbe Hould	1
"	Narcisse Dorion	1
"	Joseph Piché	1
St. Grégoire le Grand	Cyrille Vigneau	1
"	Gédéon Houle	1
"	Luc Thibodeau	2
"	Hubert Dufresne	1
"	Napoléon Ricard	1
"	Luc Héon	1
"	Olivier Hébert	1
St. Jean Bte. de Nicolet	Nap. Desfossés	1
"	Baulac & Rosseau	1
"	Joseph Descoteaux	1
St. Léonard	Joseph Hébert	1
"	J. E. Doucet	1
"	Adolphe St. Laurent	1
"	Edmond Thibodeau	1
St. Marie de Blandford	Damase Dubuc	1
Ste. Monique	Charles Milot	5
"	Syndicate de fromagerie	1

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

NICOLET—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Ste. Monique.....	Thomas Lafond.....	1
".....	Cyrille Vigneau.....	1
Ste. Perpétue.....	Luc Girard.....	1
".....	J. B. Beauchemin.....	1
".....	Syndicate de Ste. Perpétue..	1
St. Pierre les Becquets.....	Paul Spénard.....	1
".....	Noé Mercure.....	1
".....	Ferdinand Cinq-Mars.....	1
".....	Arthur Tousignant.....	1
St. Samuel.....	Trudel & Bergeron.....	1
St. Silvere.....	Henri Mailhot.....	1
".....	Nestor Parent.....	1
St. Sophie de Lévrard.....	Ambroise Tousignant.....	1
".....	Paul Barabé.....	1
".....	Damase Dubuc.....	1
".....	Nazaire Trottier.....	1
St. Venceslas.....	Albert Thibodeau.....	2
Total.....		66 3

OTTAWA.

Amherst.....	Robert Racicot.....	1
Ayrwin.....	Gordon & Reid.....	1
Buckingham.....	J. Henwood.....	2
".....	T. Bonhomme.....	1
".....	J. Ross.....	1
".....	M. Duval.....	1
Hartwell.....	N. Leblanc.....	1
Hincks.....	Jos. Lasalle.....	1
Hull South.....	R. & W. Conroy.....	1

L'Ange Gardien.....	Damase Meilleur.....	5
L'Annonciation de March.....	H. Chartier.....	1
Lochaber.....	Rvd. J. Chatelain.....	1
".....	W. C. Edwards.....	1
Lochaber North.....	P. Lacasse.....	1
Lochaber West.....	McLachlan & Bros.....	1

PONTIAC.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Bristol.....	A. W. McKenzie.....	1
Champeau.....	W. H. Clarke.....	1
Clarendon.....	E. T. Hodgins.....	1
".....	James Armstrong.....	1
".....	Thompson Bros.....	1
Ile du Calumet.....	A. G. Clarke.....	1
Lichtfield.....	(Impossible avoir le nom)..	1
Onslow South.....	A. W. McKechnie.....	1
Thorn.....	John Hodgins.....	1
Total.....		9

FORTNEUF.

N. D. des Anges.....	J. P. Moreau.....	1
N. D. de Portneuf.....	Joseph Ford, jur.....	1
".....	M. S. Delisle.....	1
".....	D. Papillon.....	1
".....	Frs. Marcotte.....	1
".....	Gédeon Hamelin.....	1
".....	Narcisse Piche.....	1
Pointe aux Trembles.....	Ant. Larue & Co.....	1
".....	Philias Hardy.....	1
".....	Siméon Gingras.....	1
".....	L. P. Bernard and others...	1
St. Alban, Alton.....	Octave Naud.....	2
".....	Hubert Perron.....	1
".....	Jean Savard.....	1
St. Augustin.....	East & Co.....	1
".....	Wilfrid Vézina.....	1

St. Bazile.....	Derome, Frenette and others	1 2
".....	Bishop, Pepin and others...	1
St. Charles des Grondines.....	Louis Archambault.....	2
St. Casimir.....	Roch Massicotte.....	2
".....	J. E. Rivard.....	1
".....	Amédée Tessier.....	1

Buckingham	J. Henwood	2
"	T. Bonhomme	1
"	J. Ross	1
"	M. Duval	1
Hartwell	N. Leblanc	1
Hincks	Jos. Lasalle	1
Hull South	R. & W. Conroy	1

"	Siméon Gingras	1
St. Alban, Alton	L. P. Bernard and others	1
"	Octave Naud	2
"	Hubert Perron	1
"	Jean Savard	1
St. Augustin	East & Co	1
"	Wilfrid Vézina	1

L'Ange Gardien	Damase Meilleur	5
L'Annonciation de March	H. Chartier	1
Lochaber	Rvd. J. Chatelain	1
"	W. C. Edwards	1
Lochaber North	P. Lacasse	1
Lochaber West	McLachlan & Bros	1
Lochaber West	Jas. Burton	1
Masham	Aug. Trudel	1
"	William D. Gibson	1
Montebello Paroisse	Ferdinand Huneau	1
Montebello Village	Ferdinand Huneau	1
N. D. de Bonsecours	Ferdinand Huneau	1
Ponsonby	Charles Libercent	1
Portland	Poltimore Cheese Co	1
"	Thos. Ross	1
"	N. D. de la Salette	1
Ripon	Docteur Aubry	1
"	Louis Montpellier	1
"	Louis Quesnel	1
"	Alfred Prevost	1
St. André Avelin	Vjctor Lalonde	1
"	J. B. Masson	1
"	Emile Bellisle	1
"	Hilaire Gareau	1
Ste. Angélique	T. Bonhomme	2
"	Paul M. Charbonneau	1
"	W. E. Robinson	1
"	H. Pilon	1
"	W. C. Edwards & Co	1
Suffolk and Addington	R. M. Archambault & Co	1
East Templeton	Damase Meilleur	2
Thurso	Louis Sauvé	1
Wakefield	Wakefield Cheese Co	1
"	William Farrell	1
Wright	Charles Tremblay	1
Total		49 3

St. Bazile	Derome, Frenette and others	1 2
"	Bishop, Pepin and others	1
St. Charles des Grondines	Louis Archambault	2
St. Casimir	Roch Massicotte	2
"	J. E. Rivard	1
"	Amédée Tessier	1
"	Jos. Perron	1
"	Alf. Foley	1
St. Catherine de Fossam-		
bault	Alf. Vézina	1
St. Famille du Cap Santé	Gabriel Hamel	2
"	Cie. de Beurrerie, N. Bernard gérant	1
"	W. Vézina	1
St. Gilbert	W. Vézina	1
St. Jeanne de Neuville	Ambroise Bussiére	1
"	Cie. Beurrière du Cap Santé	1
St. J. B. des Ecureuils	Hubert Angers	1
St. Joseph de Deschambault	Gédéon Laganière	2
"	Aubert Bédard	2
"	Francois Pasquin	1
St. Raymond	Louis Lesage	1
"	Perron	3
"	Cie de matériel de laiterie	1
St. Ubalde	A. Trudelle & Bro	3
Total		42 9

QUEBEC.

Beauport	James Greggie	1
L'Ancienne Lorette	Syndicat	1
Ste. Foye	Syndicat	1
St. Gabriel de Valcartier	M. M. Rompré	1
Stoneham et Tewkesbury	Alexandre McKie	1
Total		1 4

List of the Creameries and Cheeseries of the Province of Quebec—*Continued.*

RICHELIEU.

MUNICIPALITIES.	PROPRIETORS.	C. C.
St. Aimé.....	Louis Lalancette.....	1
".....	Esdras St. Germain.....	2 1
".....	Société par actions.....	1
Ste. Anne.....	L. Laitaverse and others... 1	
St. Joseph.....	Alexis Gauthier.....	1
St. Louis.....	Antoine St. Martin.....	1
".....	Odilon Vadeboncoeur.....	1
".....	Louis Guilbault.....	1
St. Marcel.....	Albert Courchesne.....	1 1
St. Ours.....	Pierre St. Germain.....	1
".....	Edouard Durocher.....	1
".....	Eusébe St. Germain.....	1
".....	Soc. de fabrication de from- age.....	1
St. Ours (Town).....	Ambr. Larivière and others. 1	
St. Pierre de Sorel.....	Pierre St. Germain.....	1
".....	Philippe Duhamel.....	1
St. Robert.....	Jcs. P. Paquin.....	1
".....	Esdras St. Germain.....	3
St. Roch.....	Alexis Collette.....	1
Sorel.....	C. J. C. Wurtele.....	1
".....	Philippe Duhamel.....	1
Total.....		25 2

RICHMOND.

Brompton.....	J. L. Cayouette.....	1 1
".....	Arthur Martel.....	1
".....	Joseph Pellerin.....	1

Danville.....	G. C. Stockwell.....	1
Melbourne et Brompton Gore.....	Herbert Armstrong.....	1
".....	John A. McLeod.....	1
".....	Herbert S. Burt.....	1
".....	Gilbert Stalker.....	1
".....	James Dunbar.....	1

RIMOUSKI—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C. C.
Ste. Angèle de Merici.....	Jos. Ross.....	1
".....	Victor Thibault.....	1
St. Benoit Joseph Labre.....	Elie Beaupré.....	1
Ste. Cécile du Bic.....	Auber Voyer and others... 1	
".....	Mathias Morin.....	1
St. Damase.....	Joseph Lamare and others.. 1	
St. Fabien.....	Société de cultivateurs.....	1 1
".....	Alfred Belzil & Co.....	1
Ste. Félicité.....	Hermd. Gagnon.....	1
Ste. Flavie de Lapage.....	Cie de beurrerie.....	1
St. Gabriel.....	Etienne Levesque and others 1	
St. Germain, Rimouskiville..	Société de fabrication de beurre.....	1
St. Joseph de Lepage.....	David Rioux and others.... 1	
St. Luce de Lessard.....	Célestin Bélanger.....	1
St. Moise.....	Rvd. E. P. Chouinard.....	1
St. Octave de Métis.....	Ernest Desroziers.....	1
".....	L. M. Langlois.....	1
".....	Ph. Mercier.....	1
St. Pierre du Lac.....	Rdv. P. Brillant and others. 1	
St. Simon.....	A. A. Nicole.....	1
St. Valérien.....	Rvd. J. Amiot.....	1
St. Ulric de Matans.....	Stanislas Thibault.....	1
Total.....		18 11

ROUVILLE.

Marieville.....	Joseph Archambault.....	1
N. D. de Bonsecours.....	Alfred Larivière.....	1
".....	Cie par actions.....	1

".....	Joseph Ostigny.....	1
L'Ange-Gardien.....	Elie Bourbeau.....	1 1
".....	Jos. Lacoste.....	1
".....	Evariste Pinsonneau.....	1
St. Angèle de Monnoir.....	Jos. Beauregard.....	1
St. Césaire.....	Isidore St. Pierre.....	1

RICHMOND.

Brompton	J. L. Cayouette.....	1	1
"	Arthur Martel	1	
"	Joseph Pellerin.....	1	

Danville	G. C. Stockwell.....	1	
Melbourne et Brompton Gore.....	Herbert Armstrong.....	1	
"	John A. McLeod.....	1	
"	Herbert S. Burt.....	1	
"	Gilbert Stalker.....	1	
"	James Dunbar.....	1	
"	James McNaughton.....	1	
"	W. D. Stalker.....	1	
Richmond	W. Houle.....	1	
St. Frs. X. de Brompton.....	Bédard, Lamontagne and others	1	
"	Arnold Lindsay.....	1	
St. Georges de Windsor.....	Joseph Lepine.....	1	
"	Adéard Marcotte.....	1	
"	Pierre Kirouac.....	1	
"	Louis Lapointe.....	1	
Shipton	Jos. Lafrance.....	2	
"	Alfred Paré.....	1	
"	J. de L. Taché.....	1	
"	Adolphe Parenteau.....	1	
"	A. McCullum.....	1	1
Stoke	Nap. Lemire.....	1	
"	Frs. Dubreuil.....	1	
Windsor	Begin, Arpin and others..	1	
"	Gregoire, Loitre & Co.....	1	
Total.....		27	1

RIMOUSKI.

MacNider	John Carroll.....	1	
Matane Paroisse.....	Stanislas Thibault.....	1	
"	Harrison & Truchon.....	1	
Mont Joli.....	Joseph Ross.....	1	
N. D. du Sacré-Coeur.....	Emile Bélanger.....	1	
St. Anaclet.....	Arthur Marmen.....	1	

ROUVILLE.

Marieville	Joseph Archambault.....	1	
N. D. de Bonsecours.....	Alfred Larivière.....	1	
"	Cie par actions.....	1	

"	Joseph Ostigny.....	1	
L'Ange-Gardien.....	Elie Bourbeau.....	1	1
"	Jos. Lacoste.....	1	
"	Evariste Pinsonneau.....	1	
St. Angèle de Monnoir.....	Jos. Beauregard.....	1	
St. Césaire.....	Isidore St. Pierre.....	1	
"	Hosmidas Langevin.....	1	
"	Frédéric Meuard.....	1	
"	Henri Normandin.....	1	
St. Hilaire.....	Benoit Damien fils.....	2	
St. Jean Bte. de Rouville.....	Nérée Bordua.....	1	
"	Joseph Lambert.....	1	
"	Pierre Lambert.....	1	
"	L. Remy.....	1	
"	J. B. Hébert.....	1	
Ste. Marie de Monnoir.....	Hubert Gingras.....	1	
"	Paul Gemme.....	1	
"	Ernest Rainville.....	1	
"	Frs. X. Marcoux.....	1	
St. Mathias.....	William Johnson.....	1	
"	Ephrem Cardinal.....	1	
"	A. Trudeau.....	1	
St. Michel de Rougemont.....	A Roy.....	1	
St. Paul d'Abbotsford.....	Nap. Legros.....	1	1
"	Jos. P. Rocheleau.....	1	1
"	Thomas Carignan.....	1	
"	Antoine Ménard.....	1	
Total.....		30	4

SAGUENAY.

Escoumins	Rvd. O. Lavoie, ptre.....	1	
"	Rvd. Arthur Guay, ptre.....	1	
Tadoussac.....	Charles Lapointe.....	1	
Total.....		3	

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

SHEFFORD.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Ely North.....	Anthime Brazeau.....	1
".....	J. B. Derome and others....	1
".....	Nap. Salois.....	1
".....	A. Lawrence.....	1
Ely South.....	Aug. Pelletier.....	1
".....	Modeste Choinière.....	1
".....	Laurent Racicot.....	1
".....	Hypolite Bombardier.....	1 1
".....	Joseph Veroneau.....	1
".....	A. L. Darby.....	1
Granby.....	H. Beauregard.....	1
".....	J. S. Irwin.....	1
".....	J. H. Rocheleau.....	1
".....	Jos. Duncan.....	1
".....	E. Salois.....	1
".....	C. E. Booth.....	1
Roxton Falls.....	Louis Brazeau.....	1
".....	Edéas Larocque.....	1
St. Alphonse.....	Agricultural Society.....	2
St. Anne Stukely.....	Joseph Morin.....	1
".....	E. L. Standish.....	1
St. Cécile de Milton.....	Maxime Robert.....	1
".....	Azire Coté.....	1
".....	F. H. Rocheleau.....	1
St. Prudentienne.....	Denis Casaubon.....	1
St. Valérien de Milton.....	Revd. E. P. Coté.....	1 1
".....	Désiré Chaput.....	1
".....	J. B. Dépot.....	1
".....	Dufresne, Boutellier & others	1
".....	Hormidas Paquette.....	1

SOULANGES—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
St. Polycarpe Village.....	F. X. Plante.....	1
".....	J. A. Miron.....	1
St. Téléphore.....	M. McGregor.....	1
".....	J. L. Chenier.....	1
".....	L. Charlebois.....	1
St. Zotique.....	Frs. Méthot.....	1 1
".....	D. M. Macpherson.....	1
St. Ignace du Coteau de Lac.....	Jos. Bourbonnais.....	1
".....	Trefflé Doyon.....	1 1
Station du Coteau.....	L. A. Sauvé.....	1
Total.....		8 12

STANSTEAD.

Barford.....	James Mullins.....	1
".....	Philippe Dupuis.....	1
".....	M. Vincent.....	1
".....	A. Gérin.....	1
Barnston.....	G. B. Hall.....	1
".....	H. E. Corliss.....	1
".....	W. K. Baldwin.....	1
".....	N. W. Heath.....	1
".....	George E. Searles.....	1
".....	Fred L. Brown.....	1
".....	W. J. Niblock.....	1
".....	A. W. Martin.....	1
".....	E. F. Remick.....	1
Coaticook.....	A. Gerin.....	2
Dixville.....	Moses Turgos.....	1

Shefford West.....	Z. Lawrence.....	1
Stukely North.....	Fromagerie Notre Dame.....	1
".....	Fromagerie St. Antoine.....	1
".....	J. P. Lefebvre & Co.....	2
".....	Paul Massé.....	1
".....	Herménégilde Ballard.....	1

Hatley.....	Luke S. Colt.....	1
".....	Jos. Morrison.....	1 1
".....	Nelson Hish.....	1
".....	Jos. & A. Mackay.....	1
".....	Pierre Ménard.....	1
Stanstead.....	John Taylor.....	1

St. Prudentienne.....	Denis Casaubon	1
St. Valérien de Milton.....	Revd. E. P. Coté.....	1 1
"	Désiré Chaput.....	1
"	J. B. Dépot.....	1
"	Dufresne, Boutellier & others	1
"	Hormidas Paquette.....	1

"	Fred L. Brown.....	1
"	W. J. Niblock.....	1
"	A. W. Martin.....	1
"	E. F. Remick.....	1
Coaticook	A. Gerin	2
Dixville	Moses Turgos.....	1

Shefford West.....	Z. Lawrence.....	1
Stukely North	Fromagerie Notre Dame.....	1
"	Fromagerie St. Antoine.....	1
"	J. P. Lefebvre & Co	2
"	Paul Massé.....	1
"	Herménégilde Ballard.....	1
Stukely South	Stanley Purdy.....	1
"	D. Phaneuf.....	1
"	David Daigneau.....	1
"	Magloire Fleurant.....	1
Total		40 4

Hatley	Luke S. Colt	1
"	Jos. Morrison	1 1
"	Nelson Hish.....	1
"	Jos. & A. Mackay.....	1
"	Pierre Ménard	1
Stanstead	John Taylor	1
"	Alex. Thompson.....	1
"	R. E. Scott.....	1
"	E. C. Baldwin.....	1
"	W. S. A. Buck.....	1
Total		20 1

SHERBROOKE.

Ascot	J. R. Sorel	1
Compton (village)*.....	Compton Model Farm.....	1
Compton*	H. W. Donek.....	1
" *	A Gérin.....	5
Lennoxville	Lennoxville Creamery Co..	1
Orford.....	Jean Plante	2
"	Hormidas Laplante.....	1
Sherbrooke	J. A. Camirand	1
Total		10 3

*Compton has been, by error, transferred into the County of Sherbrooke.

SOULANGES.

Cèdres	Emery L'Ecuyer.....	1
St. Clet.....	J. Bt. Marleau.....	1 1
St. Joseph de Soulanges.....	Godefroy Constant.....	1
St. Jos de Soulanges Village..	Olivier Charlebois	1
" .....	..Dramond Pilon.....	1
" .....	..Samuel Leroux.....	1
St. Polycarpe	J. H. Leclair.....	1

ST. HYACINTHE.

La Présentation.....	M. A. Piché	3
"	Ludger St. Pierre	1
Notre Dame de St. Hyacinthe.Soc. de fab. du Grand Rang.	J. M. Archambault	1 1
St. Barnabé.....	Société du village	1
"	Société de la paroisse.....	1
"	Société de la Basse double ..	1
St. Charles	Clodomir Millette.....	1
St. Dumase.....	Fromagerie de Corbin.....	1
"	Fromagerie du Pont	1
"	Jacques Jodoin.....	1
St. Denis	J. Bte. Phaneuf	1
"	Alphonse Goulet	1
"	Pierre Angers	1
"	Frs. Allard.....	1
St. Jude	Société de Beurrerie	1
St. Marie Madeleine.....	Napoléon Chabot	1
"	J. R. Lofèche	1
St. Thomas d'Aquin.....	Fromagerie de.....	1
Total		20 2

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

ST. JEAN.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Bernard de Lacolle	J. Bte. Béard fils	1	
"	Thos. Boyce	1	
"	Joint Stock Co.	2	
St. Blaise	Syndicat de fromagerie	1	
"	Delphis Brossard	1	
St. Jean Ville	Guertin & Langelier	1	
St. Marguerite de Blairfindie	Gonzage Couturier	1	
St. Valentine	Soc. de fabrication de Stottville	1	
Total		7	2

ST. MAURICE.

La Visitation, Pte. du Lac	Jos. Ant. Garceau	1	
"	Télesphore Frechette	1	
"	Olivier Duplessis	1	1
St. Anne d'Yamachiche	Thomas Meunier	1	
"	L. E. Lajoie & Co	1	
"	Thomas Roy	1	
"	Hercule Bourassa	1	
St. Barnabé de Gatineau	Arthur Milot	1	1
"	Pierre Corriveau	1	
"	Thomas Lacerte	1	
"	Wilfrid Eliotte	1	
"	Edouard Paquin	1	
"	Honoré Lamotte	1	
"	Alphonse Grenier	1	
"	Ph. Gelinas	1	1
St. Boniface de Shawenegan	Nap. St. Louis	1	

TEMISCOUATA.—Continued.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Epiphane	Auguste Breton & al.	1	
St. Louis du Ha! Ha!	Drouin & Carrier	1	
St. Paul de la Croix	Thomas Beaulien	1	
Trois-Pistoles	E. F. Hebert	1	
"	L. D. Francoeur	1	
"	Alphonse Nicole	1	
Whitworth (Ste. Modeste)	Godbout & Co.	1	
Total		4	13

TERREBONNE.

Doncaster	Israel Thouin	1	
New Glasgow	Louis Brault	1	
St. Agathe	Octave Auclair	1	
"	M. Coté	1	
"	M. F. Pilon	1	
"	A. E. Garth	1	
"	Alex. Miller	1	1
St. Anne des Plaines	Siméon Giguère	1	
St. Janvier	N. E. Clément	1	
St. Jérôme	Allard & Co	1	
"	J. Racine	1	
"	J. Cyr	1	
"	Israel Dion	1	
St. Marguerite du L.	Masson Legault & Daniel	1	
St. Sauveur	Gégoire Bélanger	1	
"	John Kempton	1	
"	Albert Kempton	1	
"	E. Brosseau	2	
St. Sophie de Lacorne	Albert Gaudet	1	

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"	Thelesphore Pellerin	1	
"	Zacharie Lamy	1	
"	M. Corriveau	1	
"	Célestin Bellemare	1	
St. Elie	Ludger Rivard	1	
"	Isaïe Dechaine	1	

"	M. Charbonneau	1	
"	Louis Brault	1	
St. Thérèse de Blainv. Village Seminaire		1	
"	Joseph Gratton	1	
Total		11	13

	..... Wilfrid Eliotte	1
"	..... Edouard Paquin	1
"	..... Honoré Lamotte	1
"	..... Alphonse Grenier	1
"	..... Ph. Gelinás	1
St. Boniface de Shawenegan..	Nap. St. Louis	1

St. Marguerite du L. Masson	Legault & Daniel	1
St. Sauveur	Gégoire Bélanger	1
"	John Kempton	1
"	Albert Kempton	1
"	E. Brosseau	2
St. Sophie de Lacorne	Albert Gaudet	1

"	Thesephore Pellerin	1
"	Zacharie Lamy	1
"	M. Corriveau	1
"	Célestin Bellemare	1
St. Elie	Ludger Rivard	1
"	Isaie Dechaine	1
St. Etienne des Grés	Majorique Milette	1
"	Nap. Ringuette	1
St. Mathieu	Raphael & Théophile De- chaine	2
St. Sevére	Euchariste Lamy	1
"	Alfred Ferron	1
"	Toussaint & Grenier	1
"	Paul Pelletier	1
Three Rivers	Jules Milot	1
"	Hormidas Duva	1
Yamachiche	Hercule Bourrassa	1
"	Thomas Mennier	1
"	Gélinas & Lajoie	1
"	Thomas Roy	1
"	Adrien Milot	1
Total		33 7

TEMISCOUATA.

Begon	Joseph Massé	1
Fraserville	Adjutor Picard	1
Ile Verte	Préfontaine Bros	1
Kakouna	Préfontaine Bros	1
Madawaska (N. D. du Lac)	Louis Gagnon	1
Rivière du Loup	William Fraser	1
St. Antonin	Florentin Soucy	1
St. Arsène	April & Co.	1
St. Clément	Pierre April & others	1
St. Eloi	Théophile April & others ..	1

"	..... M. Charbonneau	1
"	..... Louis Brault	1
St. Thérèse de Blainv. Village	Seminaire	1
" .....	..Joseph Gratton	1
Total		11 13

TWO MOUNTAINS.

L'Annonciation d'Oka	RR. PP. Trappistes	1
"	William Lalonde	1
"	Raphaël Charest	1
St. Augustin	J. H. Charbonneau	1
"	Osias Duquette	1
St. Benoit	Anthime Pilon	1
"	Elysee Cyr	1
St. Benoit	Samuel Fauteux	1
St. Canut	Jos. Cyr	2
"	Fred. Rochon	1
"	Israël Dion	1
St. Eustache, Parish	Oscar Paquette	1
St. Eustache (Village)	Evangéliste Binette	1
" (Parish)	F. X. Laurin	1
St. Hermas	Benj. Beauchamp, M.P.P. ..	1
"	Honoré Pagé	1
"	Robert Roy	1
St. Joseph du Lac	McCail & Ladouceur	1
"	J. B. Damour	1
Ste. Monique	A. Gaude'	1
"	Joseph Cyr	1
St. Placide	Alph. Dubreuil	1
Ste. Scholastique (Parish)	Augustin Blouin	1
" .....	..... Société de Patrons	4
" .....	..... Cie. de Beurrerie	1
" (Village)	J. N. Dumoulin	1
Total		19 12

List of the Creameries and Cheeseries of the Province of Quebec—Continued.

VAUDREUIL.

MUNICIPALITIES.	PROPRIETORS.	C. C.
Newton	Donald S. Morrisson	1
"	Fred. Besner	1
Pointe Fortune	Thos. Ross & Son	1
"	Eugène Seguin	1
Rigaud Village	J. Bte. Besner	1
St. Jeanne de l'Île Perrot	Société par actions	1
"	Azilda Daoust	1
St. Lazare	Oscar Denis	1
St. Madeleine de Rigaud	Trefflé Pilon	1
Ste. Larthe	Peter Monaghan	1
"	Rosario Seguin	1
"	Société coopérative	1
"	Alfred Rangér	1
"	Henry Hodson	1
St. Michel de Vaudreuil Par	Paul Denis	1
"	Bazile Charlebois	1
"	Osius Brasseur	1
St. Michel de Vaudreuil Vil.	Amédée Castongnay	1
Très Saint Redempteur	Napoléon Quesnel	1
"	George Vnlois	1
Total		10 10

VERCHERES.

Ste. Anne de Varennes	Félix Provost	1
"	Octave Allard	1
St. Antoine	Cartier & Archambault	1
"	Elie Gaudette	1
"	Fontaine & Desmarteau	1
St. Frs. Xavier de Verchères	Jérémie Handfield	1

"	Jos. Dansereau	1
Ste. Julie	Louis Blain	1
St. Marc de Cournoyer	Gaspard Leroux	1
"	Alexis Chicoine	1
St. Mathieu de Belœil	Cie de fromageric	1
"	Félix Blain	1

WOLFE—Continued.

MUNICIPALITIES.	PROPRIETORS.	C. C.
St. Fortunat de Wolfstown	Girard Bros.	1
"	Joseph Pelletier	1
"	Lazare Massé	1
"	Norbert Laventure	1
Stratford	Gédéon Héon	1
"	Walter Hébert	1
"	Jérémie Fiset	1
"	Magloire Demers	1
Weedon Centre	Frs. Ouellet	1
"	Vve. Siméon Fontaine	1
Wolfestown	Louis Gilbert	5
"	Gilbert & Morin	1
Wotton	Lefebvre & Co.	4
"	Cie de Matériel de Laiterie ..	1
Total		39 1

YAMASKA.

Pierreville Village	Armand Ally	1
St. Antoine, Baie du Febvre	J. N. Duguay	1
St. Antoine, Baie du Febv.	Calixte Allard & al.	2
"	Zéphirin Duguay	1
"	Elie Proulx	1 1
"	J. L. Lemire & Co.	2 1
"	C. B. Jutras	1
"	Moïse Lemire & al.	1
"	Chas. Drouin	1
St. Bonaventure d'Upton	Eusébe Proulx & Co.	1
"	Adélaré Lanoie	1

St. David de Deguire	Joseph Paré & al.	1 1
"	V. Beaulac & al.	1
"	H. Lebrun & al.	1
"	Chs. Cyr.	2
St. Elphège	Wm. Parent	1
"	Siméon Paquette	1

Ste. Anne de Varennes.....	Félix Provost.....	1
".....	Octave Allard.....	1
St. Antoine.....	Cartier & Archambault.....	1
".....	Elie Gaudette.....	1
".....	Fontaine & Desmarteau.....	1
St. Frs. Xavier de Verchères.....	Jérémie Handfield.....	1

".....	J. L. Lemire & Co.....	2	1
".....	C. B. Jutras.....	1	
".....	Moïse Lemire & al.....	1	
".....	Chas. Drouin.....	1	
St. Bonaventure d'Upton.....	Eusébe Proulx & Co.....	1	
".....	Adélarde Lanoie.....	1	

".....	Jos. Dansereau.....	1	
Ste. Julie.....	Louis Blain.....	1	
St. Marc de Cournoyer.....	Gaspard Leroux.....	1	
".....	Alexis Chicoine.....	1	
St. Mathieu de Belœil.....	Cie de fromageric.....	1	
".....	Félix Blain.....	1	
Ste. Théodosie.....	Bruno Larose.....	1	
Ste. Trinité de Contrecoeur.....	L. E. Charron.....	1	
".....	Louis Fontaine & al.....	1	
Total.....		12	3

WOLFE.

D'Israël.....	L. E. Adam.....	1
Dudswell.....	Willen.....	1
".....	Coopérative.....	1
".....	J. W. Andrew.....	1
".....	Jos. Fontaine.....	1
Garthby.....	Achilles Jacques.....	1
Ham North.....	Jos. Cloutier.....	1
".....	Chas. Lavigne.....	1
".....	Herg. Guertin.....	1
".....	Jos. Picard.....	1
".....	Achille Richer.....	1
".....	Jos. Lehouiller.....	1
".....	Chs. Patry.....	1
".....	Jos. Lavertu.....	1
".....	Albert Lavigne.....	1
Ham South-West.....	J. H. Brochu.....	1
Lake Weedon.....	J. Després.....	1
St. Joseph de Ham Sud.....	Jos. Bergeron.....	1

St. David de Deguire.....	Joseph Paré & al.....	1	1
".....	V. Beaulac & al.....	1	
".....	H. Lebrun & al.....	1	
".....	Chs. Cyr.....	2	
St. Elphège.....	Wm. Parent.....	1	
".....	Siméon Paquette.....	1	
St. Frs. du Lac St. Pierre.....	Chs. Cyr.....	1	
".....	J. O. Duhaime.....	1	
".....	J. N. Duguay.....	2	1
St. Guillaume d'Upton.....	J. B. Vigneau.....	1	1
".....	Adélarde Lanoie.....	1	1
".....	Syndicat.....	1	
St. Michel Yamaska Village.....	Roch Parenteau.....	1	
St. Michel d'Yamaska.....	Narcisse Thérour.....	1	
".....	Louis Parenteau.....	1	
".....	Narcisse Parenteau.....	1	
".....	Thomas Delaney.....	1	
St. Pie de Deguire.....	Charles Cyr.....	1	1
".....	Edmond Dauplaise.....	1	
St. Thomas de Pierreville.....	William Parent.....	1	1
".....	J. Omer Desbiens.....	1	
".....	L. Desfosses.....	1	
St. Zéphirin de Courval.....	Herman Lefebvre.....	1	1
".....	J. N. Duguay.....	2	
".....	Société par actions.....	2	
".....	Alex. Simoneau.....	1	
".....	G. P. Rousseau.....	1	
".....	H. Parent.....	1	
".....	Cyprien Jutras.....	1	
Total.....		46	9

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List of the Creameries and Cheeseries of the Province of Quebec — *Continued.*

RECAPITULATION.

COUNTIES.	C.	C.	COUNTIES.	C.	C.
Argenteuil	31	3	Maskinongé	32	8
Arthabaska	51	2	Megantic	53	3
Bagot	36	9	Missisquoi	36	5
Beauce	99	9	Montcalm	11	6
Beauharnois	18	2	Mon'tmagny	6	9
Bellechasse	12	11	Montmorency	5	6
Berthier	33	7	Napierville	6	3
Bonaventure	4		Nicolet	66	3
Brome	36	7	Ottawa	49	3
Chambly	8	1	Pontiac	9	
Champlain	63	1	Portneuf	42	9
Charlevoix	24	1	Québec	1	4
Chateauguay	22	4	Richelieu	25	2
Chicoutimi	38	6	Richmond	27	2
Compton	21	4	Rimouski	18	11
Dorchester	31	4	Rouville	30	4
Drummond	34	4	Saguenay	3	
Gaspé	3		Shefford	40	4
Hochelaga	2		Sherbrooke	10	3
Huntingdon	32	2	Soulanges	8	12
Iberville	14	2	Stanstead	26	1

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Jacques Cartier	2	8	St. Hyacinthe	20	2
Joliette	37	2	St. Jean	7	2
Kamouraska	19	1	St. Maurice	33	7
Lac St. Jean	23	2	Témiscouata	4	13
L'Assomption	4	2			

Drummond	34	4	Saguenay	3	1
Gaspé.....		3	Shefford.....	40	4
Hochelaga.....		2	Sherbrooke	10	3
Huntingdon	32	2	Soulanges	8	12
Iberville	14	2	Stanstead.....	26	1

Jacques Cartier	2	8	St. Hyacinthe.....	20	2
Joliette	37	2	St. Jean.....	7	2
Kamouraska	19	1	St. Maurice.....	33	7
Lac St. Jean	23	2	Témiscouata	4	13
Laprairie	4	2	Terrebonne	11	13
L'Assomption.....	6	15	Two Mountains.....	19	12
Laval	7	2	Vaudreuil	10	10
Lévis	10	2	Verchères	12	3
L'Islet	7	7	Wolfe.....	39	1
Lotbinière	41	6	Yamaska	46	9

Total number of Creameries..... 807
 Total number of Cheeseries 1467

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