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## **Nineteenth annual report of the Wisconsin Dairymen's Association : held at Berlin, Wis., February 11, 12, and 13, 1891. Report of the proceedings, annual address of the president, and interesting essa...**

Wisconsin Dairymen's Association

Madison, Wisconsin: Democrat Printing Company, State Printers, 1891

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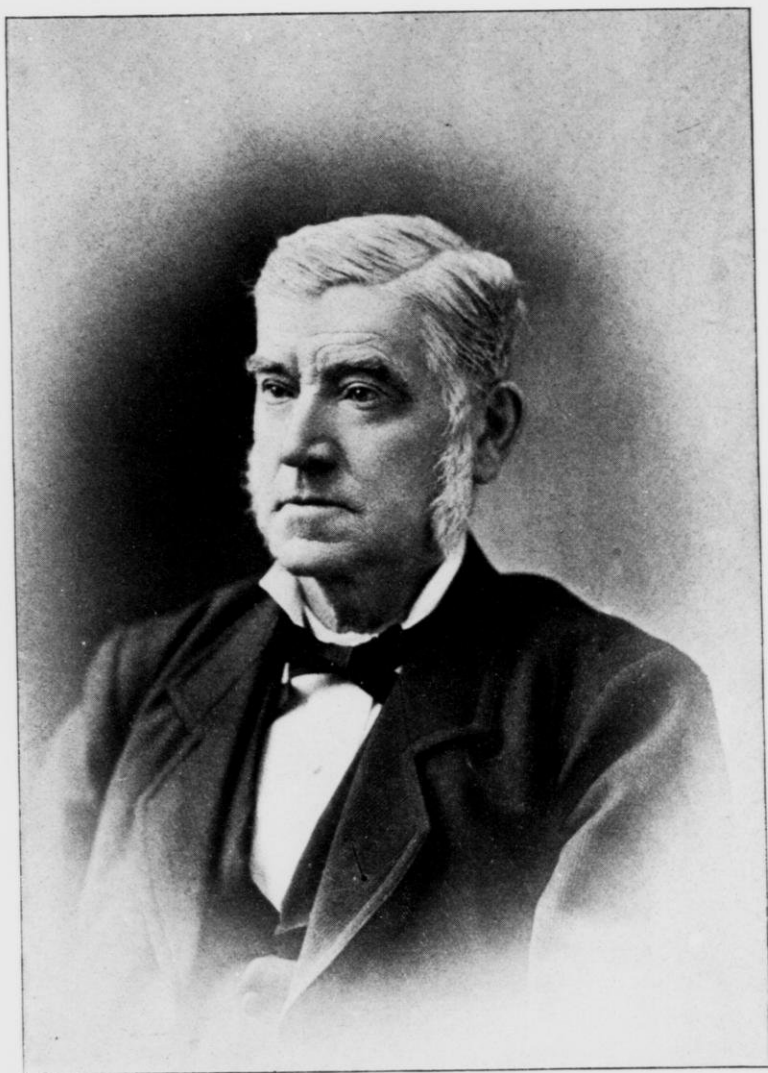
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Dr. J. C. Smith



HON. HIRAM SMITH

## In Memoriam.

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HIRAM SMITH died at his home in Sheboygan Falls, May 15, 1890, at the age of seventy-three.

For eighteen years the executive board of the Wisconsin State Dairymen's Association stood unbroken by death. It was perhaps fitting that Hiram Smith should be the first to go. He had nursed the organization in its childhood, educated it in its youth, stood by it in its maturity, and could feel as few men can feel that a life-work had been done and well done. But a great gap has been made in the Dairymen's Association — a vacancy which only Hiram Smith could fill. The ranks may be closed up in part, but one sturdy form will always be missed. The entire state has suffered a loss. Hiram Smith loved all men and respected every legitimate interest. He was more than a farmer, simply; he was a broad-minded student of state and national affairs. He honored his calling, but was never buried under its details. His citizenship was worth something to him and he made it worth something to the commonwealth in which he lived. His life was typically American, beginning with little and working his way with hand and brain to competency and fame. He knew what poverty meant, and when he found the way out to independence and comfort he became a teacher, leading other men from darkness to light. He was active in the Dairymen's Association, because he saw in it an agency to reach the farmers and make them better dairymen and better business men. As much or more than any one man he gave to it that practical and progressive character which has given it first place in associations of its kind in the United States. He was a sledge hammer in debate and fairly delighted in shattering the idols of sham and of thoughtlessness. His mind went unerringly to the pith of a question and conviction followed his words, because he was a true orator using plain words to state honest opinions. There are thousands of farmers who bless him for his teachings, who are happier and wiser and richer because he lived.

When Hiram Smith came from Pennsylvania to Wisconsin with his family in 1847, and settled in Sheboygan county, he brought with him as his principal capital, strong hands, good sense, ambition, and a wife who was worthy of him. He found this state almost a wilderness, a sparse population, no railways, a crude agriculture, a territorial government. As time passed and the territory became a state, and a flood of immigration poured over its boundaries, occupying its prairies and its forests, changing into grain-fields its unbroken areas, he became aroused to the dangers of

continuous cropping of the soil with grain and the need of diversified farm industries. He saw his own farm and those of his neighbors robbed of their fertility by repeated wheat crops. He looked for a remedy and found it in dairying. He increased his revenues, restored his soil, and became a student of the dairy business. When it was not popular to do so and Wisconsin farmers thought they had an inexhaustible soil, he denounced continuous grain raising as absolutely senseless and ruinous in its effects. He compelled attention and thought, and in this one particular was a powerful agent in bringing about the revolution which has made this a stock growing state. He easily became the leading dairyman of the state. He made mistakes, but he never lacked the courage to correct them when shown that he was wrong. His business was always an open book to his fellow farmers. He saved up no gold mine of knowledge for himself alone, but scattered the richness of his wisdom with an open hand, every new idea in dairying from whatever source received from him a hospitable greeting and was incorporated in his practice, if good and if not, rejected with no pride of opinion. Fancy farming had no place with him. Net returns from his business was the object of his thought and labor. More than any other ten men in the state he turned the attention of farmers to the advantages of winter dairying. He was one of the first to understand the place and the peculiar advantages of the silo in dairy economy. Upon these subjects and kindred dairy topics he became an authority not only in Wisconsin but throughout the United States. Upon a hundred platforms and through the agricultural press, he taught the gospel of common sense in dairying until his name became a household word in the home of every intelligent dairyman. He loved and respected his business, and to the last deemed farming a worthy occupation for the best and most cultivated talents. While he was intensely loyal to the interests of the class to which he belonged he deprecated all unreasonable class prejudice and feeling. He was the most severe critic the farmers of Wisconsin ever had, and their best friend. He was the enemy of thriftlessness and the friend of thought, the enemy of blind class conceit and the warm friend of intelligent self-respect. For the farmer who charged his poverty to the oppressions of other classes and talked politics when he should have been hoeing corn, he had little regard. He taught boldly and effectively the doctrine that the financial, social and political salvation of the farmers lay in their own hands, that no class or custom or law or system of laws in the United States would keep any farmer from success who had a mind capable of understanding this idea with singular power upon the agricultural thought of this state, and because of this in part Wisconsin farmers have paid little heed to the doleful wails of agricultural demagogues. He dignified his calling and made it attractive to young men of brains and culture, and stirred the mind of many an old farmer with new faith in himself and new love for his business.

As a regent of the state university for many years, Hiram Smith rendered the state a most important service in a most modest manner. No warmer friend of higher education ever occupied a position upon that board. This is true not only in regard to the agricultural department, but to every department. An education obtained in the field, from fireside reading and contact with men, had not lessened his respect for the systematic training of the schools. He was a persistent friend of that policy which would give the state university all that it needs in administration and state aid to place it upon a level with the best colleges in the land. As chairman of the farm committee, having in charge the experiment station and the farmers' institutes, he exhibited a strength of judgment a fertility of resources and a constant and industrious loyalty to the interests in his care, which made him almost invaluable backing to the splendid work of Prof. Henry and Mr. Morrison. When farmers all over the state were sneering at the work of the station, declaring it to be costly and useless, Prof. Henry found his readiest and ablest defender against all the charges of ignorance and malice in Hiram Smith.

To-day there is rising on university hill on one of the most beautiful spots, in the most beautiful city in the west, a costly building, artistic in its form, most useful in its purpose. It is being built in the interests of an industry which in Wisconsin employs \$125,000,000 of capital, and tens of thousands of people. It will be a dairy school building for young men of this and other states. Hundreds and perhaps thousands will cross its threshold to learn some of the most practical lessons of life. They can study nothing with more profit in Hiram Smith Hall, than the life of the man who made it possible, and for whom it is most appropriately named and whose monument it is.

"Uncle Hiram" always kept the mental freshness of his youth. He was a boy always in feeling, in his interest in things, in his quick sympathies, in his readiness to learn. He was as free from malice as the sunlight from gloom. It was good to know him. The "old boys" of the Dairymen's Association, of Wisconsin, will love him to the end.

H. C. ADAMS.



## LETTER OF TRANSMITTAL.

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OFFICE OF THE SECRETARY,  
*Wisconsin Dairymen's Association,*  
FORT ATKINSON, April 15, 1891.

*To His Excellency, GEO. W. PECK,*  
*Governor of the State of Wisconsin:*

I have the honor to submit the nineteenth Annual Report of the Wisconsin Dairymen's Association, showing the receipts and disbursements the past year, also papers relating to the dairy interests, read at the Annual Convention held at Berlin, Green Lake county.

Respectfully submitted,

D. W. CURTIS,  
*Secretary.*

NINETEENTH ANNUAL REPORT  
OF THE  
WISCONSIN  
DAIRYMEN'S ASSOCIATION,

HELD AT  
Berlin, Wis., February 11, 12 and 13, 1891.

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REPORT OF THE PROCEEDINGS, ANNUAL ADDRESS OF THE  
PRESIDENT, AND INTERESTING ESSAYS AND DISCUSSIONS  
RELATING TO THE DAIRY INTERESTS.

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COMPILED BY  
D. W. CURTIS, Secretary.



MADISON, WISCONSIN:  
DEMOCRAT PRINTING COMPANY, STATE PRINTERS,  
1891.



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## OFFICERS, 1891.

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PRESIDENT.

EX-GOV. W. D. HOARD,  
FORT ATKINSON, JEFFERSON COUNTY.

VICE-PRESIDENTS.

- HON. CHESTER HAZEN, LADOGA, FOND DU LAC COUNTY.  
President Wisconsin Dairyman's Association from 1872-4.
- HON. HIRAM SMITH, SHEBOYGAN FALLS, SHEBOYGAN COUNTY.  
President Wisconsin Dairyman's Association from 1875-6.
- HON. A. DELAND, SHEBOYGAN FALLS, SHEBOYGAN COUNTY.  
President Wisconsin Dairymen's Association, 1877.
- HON. H. F. DOUSMAN, WATERTVILLE, WAUKESHA COUNTY.  
President Wisconsin Dairymen's Association, 1878.
- HON. Z. G. SIMMONS, KENOSHA, KENOSHA COUNTY.  
President Wisconsin Dairymen's Association, 1879.
- HON. STEPHEN FAVILL, DELAVAN, WALWORTH COUNTY.  
President Wisconsin Dairymen's Association, 1880.
- HON. C. R. BEACH, WHITEWATER, WALWORTH COUNTY.  
President Wisconsin Dairymen's Association from 1881-2.
- HON. W. H. MORRISON, MADISON, DANE COUNTY.  
President Wisconsin Dairymen's Association from 1883-6.
- HON. H. C. ADAMS, MADISON, DANE COUNTY.  
President Wisconsin Dairymen's Association from 1887-9.
- PROF. W. A. HENRY, MADISON, DANE COUNTY.  
President Wisconsin Dairymen's Association, 1890.

SECRETARY.

D. W. CURTIS,  
FORT ATKINSON, JEFFERSON COUNTY.

TREASURER.

H. K. LOOMIS.  
SHEBOYGAN FALLS, SHEBOYGAN COUNTY.

## ARTICLES OF ASSOCIATION.

[*Adopted February 15, 1872.*]

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ARTICLE I. The name of the organization shall be the Wisconsin Dairy-men's Association.

ARTICLE II. The officers of this association shall consist of a president, secretary and treasurer.

ARTICLE III. The vice presidents of the association shall consist of all past presidents.

ARTICLE IV. The presidents, vice-presidents, secretary and treasurer shall constitute the executive board of the association.

ARTICLE V. The officers of the association shall be elected at the annual meeting, and shall retain their office until their successors are chosen.

ARTICLE VI. The regular annual meeting of the association shall occur on the second Tuesday of April in each year at such place as the executive board shall designate.

ARTICLE VII. Any person may become a member of this association and be entitled to all its benefits, by the annual payment of one dollar.

ARTICLE VIII. The executive board shall have power to call special meetings whenever and at such places as in their judgment its interests so demand.

ARTICLE IX. The officers of the association shall perform such other duties as usually devolve upon the officers of like associations.

ARTICLE X. The treasurer shall have the custody of all moneys belonging to the association, and authority to pay out the same whenever an order is presented, signed by the president and secretary.

## MEMBERS FOR 1891.

---

Adams, H. C., Madison.  
 Anderson, Albert, Plain.  
 Auroraville Cheese & Butter Co.,  
     Auroraville.  
 Aldrich, Albert, Koro.  
 Angus & Humphrey, Oshkosh.

Beach, C. R., Whitewater.  
 Burchard, G. W., Fort Atkinson.  
 Baldwin, C. P., Weyauwega.  
 Breitruck, C. J., Sagola.  
 Bemar, A., Auroraville.  
 Bender, John, Oconomowoc.  
 Brewer, James H., Berlin.  
 Berlin Creamery Co., Berlin.  
 Boyd, R. M., Racine.  
 Budahn, Herman, Theresa.  
 Brewer, James, Berlin.

Champlin, L. H., Berlin.  
 Cockerill, W. B., Berlin.  
 Clark, J. J., Berlin.  
 Churchyard, Mrs. H., Ripon.  
 Clark, B. F., Eureka.  
 Cate, D. W., Auroraville.  
 Cora, F. M., Milton Junction.  
 Colanch, Brushville.  
 Creamery Package Co., 20 N. Clark  
     St., Chicago, Ill.

Dewey, D. L., Berlin.  
 Dewey, Fred, Poysippi.  
 Darwin, W. V., Durand.  
 Dennison, O. T., Mason City, Iowa.  
 Davenport, B. T., Auroraville.  
 Decker, J. W., Fond du Lac.  
 Decker, A. J., Fond du Lac.  
 Decker, A. F., Stephenville.  
 Davenport, J. B., Auroraville.  
 Dutmar, William, Beaver Dam.  
 Dobbins, P., Auroraville.  
 Dillie, N. E., 2 Sherman St., Chicago.  
 Davis, John M., care St. P. R. R. Co.,  
     Chicago.  
 Dunlap, James, Auroraville.  
 Decker, John W., Madison.

Evans, David, Berlin.  
 Eastman, E. L., Saukville.  
 Eveans, D. W., Berlin.

Fleming, T. J., Watertown.  
 Foster, J. H., Koro.  
 Freeman, J. P., Markesan.  
 Fargo, F. B., Lake Mills.

Gasch, Chas., Stockbridge.

Hoard, Ex-Gov. W. D., Fort Atkin-  
     son.  
 Henry, Prof. W. A., Madison.  
 Harrington, N. W., Auroraville.  
 Hughes, William, Berlin.  
 Hammond, S., Wycena.  
 Ham, W. A., Fox Lake.  
 Howard, Joel, Brushville.  
 Hyatt, A. X., Sheboygan Falls.  
 Horst, J. A., Hayton.  
 Harkness, John, Amherst.  
 Harris, J. B., Antwerp, N. Y.

Kentville, C. E., Auroraville.  
 Kellogg, H. W., Ripon.  
 Kellogg, Geo. O. Muscoda.

Mathews, James, Auroraville.  
 McPherson, James, Fort Atkinson.  
 Mathews, J., Auroraville.  
 Mathews, E. M., Auroraville.  
 McLelland, H., Berlin.  
 Monrad, J. H. Chicago.  
 McKinnon, M., Sheboygan Falls.  
 Miles, G. E., Sextonville.  
 Mitchell, F., Auroraville.  
 Morris, C. S., Berlin.  
 McLelland, William, Berlin.

Noyes, H. J., Richland City.

Phillips, W. H., Waupun.  
 Peterson, O. G., Barre Mills.  
 Powell, J. K., Muscoda.  
 Phillips, W. H. Waupun.  
 Perkins, J. A., 83 Mich. St., Milwan-  
     kee.  
 Peck, C. A., Berlin.  
 Page, Clark, Berlin.  
 Page, A. W., Berlin.

Reneking, F. C., Bungert.  
 Richardson, S. W., Berlin.

Richardson, J. J., Poysippi.  
Roe, D. H., 55 N. Clinton, St., Chi-  
cago.  
Robbins, Hiram, Lomira.

Sackett, Hon. H. S., Berlin.  
Sowls, L. W., Omro.  
Skinner, L. F., Brandon.  
Smith, R. J., Berlin.  
Smith, Eldridge, Rolling Prairie.  
Safford, M., Berlin.  
Steveas, C. H., Jefferson.  
Schoenman, A., Plain.  
Scobie, William, Spring Lake.  
Shoeman, A. Plain.

Thom, H. C., Beloit.  
Thorp, Charles, Berlin.  
Thomas, G. D., Fox Lake.  
Thompson, G. W., Rosendale.  
Thomas, J. H., Eau Claire.  
Tupper, A. C., Osage, Iowa.

Tripp, F. A., Produce Exchange,  
Chicago.  
Thomas, J. M., Dixon.

Weeks, H. S., Oconomowoc.  
Wolcott, B. S., Berlin.  
Wells, W. H., Auroraville.  
Wilcox, J. R., Hamilton.  
Wells, George A., New Richmond.  
Weeks, H. S., Oconomowoc.  
Werner, Herman, Brillian.  
Walter, C. J., Brushville.  
Woodworth, L. G., Randolph.  
Wittlin, B., Stephenville.  
Wittke, Robert, Beaver Dam.  
Western Dairy S. Co., 19 Mich. Ave.,  
Chicago, Ill.  
Walter, S. S., Orihula.  
Woodman, W. W., Auroraville.

Van Kirk, Wellington, Nepeuskin.

# NINETEENTH ANNUAL MEETING

OF THE

## WISCONSIN DAIRYMEN'S ASSOCIATION.

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### PROGRAMME.

FEBRUARY 11, 12, 13, 1891.

**Morning Session, 9 A. M.—(first day.)**

Entry of butter, cheese and articles for exhibition.

**11:30 A. M.—**

Organization of Convention.

Appointment of Committees.

**Afternoon Session, 1:30—**

Address of welcome by HON. H. S. SACKETT.

Response, by G. W. BURCHARD, Fort Atkinson, Wis.

Address by President W. A. HENRY, Madison, Wis.

Theory and Practice in the Dairy. HON. H. C. ADAMS, Madison, Wis.

The Improvement of Dairying in Richland County. A. SHÆMAN, Plain, Wis.

A Visit to the Canadian Cheese Factories. JOHN W. DECKER, Experimental Station, Madison.

Honesty in Dairying. GEO. W. BURCHARD, Fort Atkinson, Wis.

Wisconsin's Dairy Interests at the World's Fair. H. C. THOM, Dairy and Food Commissioner, Madison, Wis.

The True Dairy Interests of Wisconsin. EX GOVERNOR W. D. HOARD, Ft. Atkinson, Wis.

Food Value of Dairy Products. C. R. BEACH, Whitewater, Wis.

The Advantages of Dairying. JOSEPH MATTHEWS, Auroraville, Wis.

The Profitable and Unprofitable Care of Cows. WELLINGTON VAN KIRK, Nepeuskin, Wis.

My Experience with the Creamery. JAMES BREWER, Berlin, Wis.

The Cow. A. X. HYATT, Sheboygan Falls, Wis.

Production of Cream. H. S. WEEKS, Oconomowoc, Wis.

The Production of Milk and its value. PROF. S. M. BABCOCK, Experimental Station, Madison.



Instruction in Cheese Making. W. H. PHILLIPS, Cheese Instructor, Waupun, Wis.

Can Wisconsin Produce Better Cheese. T. J. FLEMING, Cheese Instructor, Watertown, Wis.

Points in Cheese Making, J. B. HARRIS, Antwerp, N. Y.

Banquet Thursday evening. Programme will be arranged and classified at the Convention.

PROF. W. A. HENRY, Madison, Pres.

D. W. CURTIS, Fort Atkinson, Sec.

H. K. LOOMIS, Sheboygan Falls, Treas.

The Association offers the following premiums to be competed for at the annual convention to be held at Berlin:

#### CLASS I.—DAIRY BUTTER.

Dairy butter made only in Green Lake, Winnebago, Waushara and Fond du Lac counties:

First premium.....	\$7 00
Second premium .....	5 00
Third premium .....	3 00

O. A. Peck, Berlin, offers a No. 3 $\frac{1}{2}$  rectangular churn, \$12.50, to the one winning first premium, class 1.

R. T. Reese, Berlin, offers a No. 3 rectangular churn, \$10.00, to the one winning second premium in class 1.

The *Dairymen's Exchange*, Berlin, offers six creamery cans and one year's subscription to the one winning first premium in class 1, also the *Dairymen's Exchange* one year for a second premium in class 1.

#### CLASS II.—CREAMERY BUTTER.

Creamery butter made in Wisconsin:

First premium .....	\$10 00
Second premium .....	7 00
Third premium .....	5 00

Bert Horton, Berlin, will give 50 cents per pound for the 8-pound pail of butter that scores the highest number of points in class 1 or 2.

#### CLASS III.—PRINT BUTTER.

Not less than three pounds made into prints. For counties named above:

First premium.....	\$5 00
Second premium .....	3 00
Third premium .....	1 50

## CLASS IV. — CHEESE.

Cheese, cheddars or flats made in Wisconsin:

First premium.....	\$10 00
Second premium.....	7 00
Third premium .....	5 00

## CLASS V. — SILVER CUP.

For Wisconsin.

Geo. S. Hart & Co., produce commission merchants, 38 Pearl street, New York, offer a prize silver cup valued at \$100 to the manufacturer of the finest quality of full cream cheese; prize to be retained by the winner one year, then to be returned to the association for renewed competition; the maker who is awarded the cup for three successive seasons to retain the same permanently. The prize cup is of sterling silver, satin finish, with gold border and lining. Upon one side of it is engraved the figure of a cow, and upon the reverse side an appropriate inscription.

## BUTTER AND CHEESE EXHIBIT.

## RULES.

1. Every exhibitor *must* be a member of the Association. One dollar secures a membership and the annual report.
  2. Butter made at any time and packed in eight pound pails, or twenty pound tubs, or over, except in Class 3.
  3. Scales of points for judging butter. Flavor 45. Grain 30. Color 15. Salting 10. Total 100.
  4. Scale of points for judging cheese. Flavor 40. Quality 40. Color 10. Salting 10. Total 100.
  5. No package can compete for more than one premium, only as special<sup>s</sup> are awarded.
  6. Butter and cheese may be shipped by express, CHARGES MUST BE PREPAID, WITH NAME AND ADDRESS OF EACH PACKAGE, to H. K. Loomis, Columbus, Wis.
- Manufacturers, dealers and inventors of dairy goods, are invited to make an exhibit. No award or premium will be given.
- Cheese and butter makers wanting situations for next season, should leave their names with the secretary, written on a card with their P. O. address.



# OF THE OFFICE AND DUTIES OF THE FOOD AND DAIRY COMMISSIONER.

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## *Chapter 452, Laws of 1889.*

SECTION 1. The office of Dairy and Food Commissioner for the state of Wisconsin, is hereby created. Such commissioner shall be appointed by the governor, by and with the advice and consent of the senate, and his term of office shall be for two years from the date of his appointment, and until his successor is appointed and qualified; provided, that the term of office of the commissioner first appointed under this act shall expire on the first Monday in February, 1891, and vacancies occurring in the office for any cause shall be filled by appointment for the balance of the unexpired term. The salary of the commissioner shall be twenty-five hundred dollars per annum and his necessary and actual expenses incurred in the discharge of his official duties.

SECTION 2. Such commissioner may with the consent and advice of the governor, appoint two assistants, each of acknowledged standing, ability and integrity, one of whom shall be an expert in the matter of dairy products, and the other of whom shall be a practical analytical chemist. The salaries of such assistants shall not exceed eighteen hundred dollars each per annum and their necessary and actual expenses incurred in the discharge of their official duties.

SECTION 3. It shall be the duty of the commissioner to enforce all laws that now exist, or that may hereafter be enacted in this state, regarding the production, manufacture or sale of dairy products, or the adulteration of any article of food or drink or of any drug; and personally or by his assistants to inspect any article of milk, butter, cheese, lard, syrup, coffee or tea, or other article of food or drink or drug, made or offered for sale within this state which he may suspect or have reason to believe to be impure, unhealthful, adulterated, or counterfeit, and to prosecute, or cause to be prosecuted, any person or persons, firm or firms, corporation or corporations, engaged in the manufacture or sale of any adulterated or counterfeit article or articles of food or drink or drug, contrary to the laws of this state.

SECTION 4. Said commissioner or any assistant shall have power in the performance of his official duties to enter into any creamery, factory, store, salesroom or other place or building where he has reason to believe that any food or drink or drug is made, prepared, sold or offered for sale, and to open any cask, tub, package or receptacle of any kind containing, or

supposed to contain, any such article, and to examine or caused to be examined and analyzed the contents thereof, and the commissioner or any of his assistants may seize or take any article of food or drink or drug for analysis, but if the person from whom such sample is taken shall request him to do so he shall at the same time, and in the presence of the person from whom such property is taken, securely seal up two samples of the article seized or taken, the one of which shall be for examination or analysis under the direction of the commissioner, and the other of which shall be delivered to the person from whom the articles were taken. And any person who shall obstruct the commissioner or any of his assistants by refusing to allow him entrance to any place which he desires to enter in the discharge of his official duty, or who refuses to deliver to him a sample of any article of food or drink or drug made, sold, offered or exposed for sale by such person, when the same is requested and when the value thereof is tendered, shall be deemed guilty of a misdemeanor punishable by a fine of not exceeding twenty-five dollars for the first offense and not exceeding five hundred dollars or less than fifty dollars for each subsequent offense.

SECTION 5. It shall be the duty of the district attorney in any county of the state, when called upon by the commissioner or any of his assistants to render any legal assistance in his power to execute the laws, and to prosecute cases arising under the provisions of this act, and all fines and assessments collected in any prosecution begun or caused to be begun by said commissioner or his assistants shall be paid into the state treasury.

SECTION 6. With the consent of the governor, the state board of health may submit to the commissioner, or to any of his assistants, samples of water or of food or drink or drugs, for examination or analysis, and receive special reports showing the result of such examination or analysis. And the governor may also authorize the commissioner or his assistants when not otherwise employed in the duties of their offices, to render such assistance in the farmers' institutes, dairy and farmers' conventions, and the agricultural department of the university, as shall by the authorities be deemed advisable.

SECTION 7. The salaries of the commissioners and his assistants shall be paid out of the state treasury in the same manner as the salaries of other officers are paid, and their official expenses shall be paid at the end of each calendar month upon bills duly itemized and approved by the governor, and the amount necessary to pay such salaries and expenses is hereby appropriated annually.

SECTION 8. The commissioner may, under the direction of the governor, fit up a laboratory, with sufficient apparatus for making the analysis contemplated in this act, and for such purpose the sum of fifteen hundred dollars, or so much thereof as may be necessary, is hereby appropriated, and for the purpose of providing materials and for other necessary expenses connected with the making of such analyses, there is also hereby appropriated so much as may be necessary, not exceeding six hundred dollars an-

nually. The appropriations provided for in this section shall be drawn from the state treasury upon the certificates of the governor.

SECTION 9. Said commissioner shall be furnished a suitable office in the capitol, at Madison, and shall make an annual report to the governor, which shall contain an itemized account of all expenses incurred and fines collected; with such statistics and other information as he may regard of value, and with the consent of the governor, not exceeding twenty thousand copies thereof, limited to three hundred pages, may be published, annually as other official reports are published, and of which five thousand copies shall be bound in cloth.

SECTION 10. All acts and parts of acts conflicting with this act are hereby repealed.

SECTION 11. This act shall take effect and be in force from and after its passage and publication.

Approved April 16, 1889.

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**Note to section 4, supra.**— If there is contradictory evidence concerning the sufficiency of the seal of a sample, and the credibility of the witnesses for the prosecution is submitted to the jury the defendant is not injured. If there is evidence that a few drops of carbolic acid was added to a sample of milk, and it is submitted to the jury as a question of fact whether this would change the character of the milk, make the analysis impossible or difficult, or in any way injuriously affect the sample for the purpose of analysis, the defendant has no cause of complaint. *Commonwealth v. Spear*, 143 Mass., 172.

It is observed of a similar statute that it is intended to secure a fair examination and analysis, by providing the defendant with the means of making an analysis of a portion of the same specimen which the state has analyzed. If the sample is not saved, or not saved in proper condition, he has no means of showing that his evidence, if any he has as to the quality of the milk, applies to that with reference to which the government witnesses testify. It cannot be said that a portion reserved is sealed, within the meaning of the statute, when wax is merely placed on the top of the cork, and not extended over the mouth of the bottle and thus making it airtight, if it is shown that the character of the milk will be affected by the air. *Commonwealth v. Lockhardt*, 144 Mass., 132.

Where the article analyzed has not been taken under the statute, the competency of evidence is to be determined by the common law, and the testimony of any person who had sufficient skill to analyze it, and who had analyzed some which was proven to have been sold by the defendant, is admissible. *Commonwealth v. Holt*, 146 Mass., 38.

## PURE MILK, STANDARD OF.

*Chapter 425, Laws of 1889.*

SECTION 1. Any person who shall sell or offer for sale or furnish or deliver, or have in his possession, with intent to sell or offer for sale or furnish or deliver to any creamery, cheese factory, corporation, person or persons whatsoever, as pure, wholesome and unskimmed, any unmerchable, adulterated, impure or unwholesome milk, shall upon conviction thereof, be punished by a fine of not less than ten nor more than one hundred dollars for each and every offense.

SECTION 2. In all prosecutions or other proceedings under this or any other law of this state relating to the sale or furnishing of milk, if it shall be proven that the milk sold or offered for sale, or furnished or delivered, or had in possession with intent to sell or offer for sale, or to furnish or deliver as aforesaid, as pure, wholesome or unskimmed, contain less than three per centum of pure butter fat, when subjected to chemical analysis or other satisfactory test, or that it has been diluted or any part of its cream abstracted, or that it or any part of it was drawn from cows known to the person complained of to have been within fifteen days before or four days after parturition, or to have any disease or ulcers or other running sores, then and in either case the said milk shall be held, deemed and adjudged to have been unmerchable and adulterated, impure or unwholesome, as the case may be.

SECTION 3. All acts and parts of acts conflicting with or contrary to the provisions of this act are hereby repealed.

SECTION 4. This act shall take effect and be in force from and after its passage and publication.

Approved April 16, 1889.

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NOTE — *Validity.*— A New York law (chapter 183, of 1885; chapter 262, of 1884), provides that "no person or persons shall sell, supply or bring to be manufactured, to any butter or cheese manufactory, any milk diluted with water, or any unclean, impure, unhealthy, adulterated or unwholesome milk." *Held* a valid exercise of legislative power. *People vs. West* 106 N. Y., 293.

A statute is not invalid because it fixes an arbitrary standard for pure or unadulterated milk, though it is drawn from healthy cows, and is sold in its natural state. *In People vs. Clipperly*, 37 Hun. (N. Y.), 324, it was held otherwise, one judge dissenting.

On appeal this case was reversed, without opinion, on the grounds given in the dissenting opinion: 101 N. Y. 634. The supreme court of New Hampshire say on this question: Practically it makes no difference

whether milk is diluted after it is drawn from the cow, or whether it is made watery by giving her such food as will produce milk of an inferior quality, or whether the dilution, regarded by the legislature as excessive, arises from the nature of a particular animal, or a particular breed of cattle. The sale of such milk to unsuspecting consumers, for a price in excess of its value is a fraud, which the statute was designed to suppress. It is a valid exercise by the legislature of the police power for the prevention of fraud, and protection of the public health, and such as is constitutional. *State vs. Campbell*, 13 Atl. Rep., 585.

**Construction — Indictment.**—The New York law does not make fraudulent intent a necessary ingredient of the offense, and it would not be a reasonable construction of it to apply it to a dairyman who owns and conducts a butter or cheese factory for the manufacture of those articles from milk furnished exclusively by himself, from his own cows. If the defendant is such a person, these facts are matter of defense, and their existence need not be negated on the face of the indictment. *People vs. West*, 106 N. Y., 293.

Under a Massachusetts law imposing a penalty for selling or offering to sell "adulterated milk, or milk to which any foreign substance has been added," it is immaterial whether the substance added is injurious or not. The indictment need not allege the quantity of such substance. *Commonwealth vs. Schaffner*, 16 Northeast. Rep., 280.

Under an act which prohibits the sale of milk which is not of a good, standard quality, the fact that the milk was delivered under a contract to furnish the person who bought it with the milk of one dairy, is not a defense if that furnished was not of such quality. The contract would be held to contemplate milk which should be bought and sold. *Commonwealth vs. Holt*, 14 Northeast. Rep., 930.

Where one is charged with having in his possession, with intent to sell, milk which is not of a good, standard quality, the fact that he was upon a wagon which had his name painted upon it, and that therein were cans of milk, and that a sample was given from one of them to one employed by the milk inspector for analysis, is competent evidence to go to the jury upon the question of his intent. *Commonwealth vs. Rowell*, 15 Northeast. Rep., 154.

**Effect of the act of 1889 upon previous laws.**—It seems reasonably clear that section 1, of chapter 425, laws of 1889, *supra*, supersedes section 1, of chapter 157, laws of 1887, as to the offense of selling diluted, impure and unclean milk. Both the acts referred to cover the provisions of section 4607 Revised Statutes, and hence that section is not in force.



## PROOF OF ADULTERATION, HOW MADE.

*Section 2, of Chapter 157, of the Laws of 1887, as amended by Chapter 344, Laws of 1889.*

SECTION 1. Proof of adulterations and skimming may be made with such standard tests and lactometers as are used to determine the quality of milk, or by chemical analysis.

SECTION 2. This act shall take effect and be in force from and after its passage and publication.

Approved April 10, 1889.

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NOTE.—This act supersedes chapter 361, laws of 1885, so far as the last mentioned act is valid. The act of 1885 prohibited the manufacture out of any oleaginous substances, or any compound of the same, other than that produced from unadulterated milk, or cream of the same, any article designed to take the place of butter or cheese, produced from pure, unadulterated milk, or cream of the same, and the offering of the same for sale or selling it as an article of food, without providing, as does the act of 1889, that the sale or offering for sale such an article must be made as and for butter or cheese, the product of the dairy. See, to the effect that such a clause is unconstitutional, *People vs. Arensberg*, 103 N. Y., 388.

NOTE—Origin.—This section, except as to the penalty, is a copy of a part of section 8, chapter 183, laws of New York, 1885.

Validity.—Section 7, chapter 183, laws of New York, 1885, “prohibits: 1st. The manufacture out of any animal fat, or animal or vegetable oils not produced from unadulterated milk or cream from the same, of any product in imitation or semblance or designed to take the place of natural butter produced from milk, etc. 2d. Mixing, compounding with, or adding to milk, cream or butter, any acids or other deleterious substances, or animal fats, etc., with design or intent to produce any article in imitation or semblance of natural butter. 3d. Selling, or keeping or offering for sale any article manufactured in violation of the provisions of this section.” *Held*, that if butter made from animal fat or oil is as wholesome and nutritious and suitable for food as dairy butter, the producers of butter made from animal fat or oils have no constitutional right to resort to devices for the purpose of making their products resemble in appearance the more expensive article known as dairy butter. It is competent for the legislature to enact laws to prevent the simulated article being put upon the market in such a form and manner as to be calculated to deceive. The statute is intended to reach a designed and purposed imitation of dairy butter in manufacturing the product which is not such butter, and not a resemblance in qualities inherent in the articles and common to both kinds of butter. *People vs. Arensberg*, 105 N. Y., 123.

A state may lawfully prohibit the manufacture out of oleaginous substances, or out of any of its compounds, other than that produced from unadulterated milk or cream from such milk, of an article designed to take the place of butter or cheese produced from unadulterated milk. It may also prohibit the manufacture, or sale, or the offering for sale, of any imitation or adulterated butter or cheese, or the having of it in possession with intent to sell the same as an article of food. *Powell v. Pennsylvania*, 127 U. S., 678.

Though it may be severe to punish those who unintentionally sell the article prohibited, the legislature has power to so provide in order that the much larger number may be protected. *State v. Newton*, 14 Atl. Rep. 604.

The supreme court of New Jersey has held that a statute enacted for a purpose similar to that which caused the passage of this act is not invalid because it prohibits the sale of oleomargarine brought to that state from other states and not intended for further transportation. The act produces only an indirect and incidental effect upon interstate commerce. *State vs. Newton*, 14 Atl. Rep., 604.

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#### ADULTERATED HONEY MUST BE MARKED.

*Part of Chapter 40, Laws of 1881.*

SECTION 2. Every person, company or corporation, who shall sell or offer for sale, honey, or any imitation of honey, which is adulterated with glucose, or any other substance, shall mark the package or parcel with the words "adulterated honey," as required by section 1 of this act.

NOTE.—Section 1, of chapter 40, laws of 1881, related to the manufacture of imitation butter, and provided that each firkin, tub, package or parcel thereof, should be marked on top of same in letters not less than one half inch in length, and breadth in proportion, and in such manner that it may be plainly seen. As applied to butter the said section was repealed by chapter 361, laws of 1885. Section 3, of the act of 1881, related to imitation cheese. It was also repealed by the act of 1885.

SECTION 4. Any person found guilty of any violation of this act, shall, for each offense be punished by imprisonment in the county jail, not less than ten days nor more than six months, or by a fine of not less than ten dollars nor more than one hundred dollars, or both, in the discretion of the court.

SECTION 5. One-half of all the fines imposed by the enforcement of this act shall be paid to the person who informs against and prosecutes such offender to conviction.

SECTION 6. All acts or parts of acts conflicting with the provisions of this act are hereby repealed.

SECTION 7. This act shall take effect and be in force from and after its passage and publication.

Approved March 3, 1881.

## PENALTY FOR THE SALE OF UNWHOLESOME PROVISIONS.

*Section 4599, Revised Statutes.*

SECTION 4599. Any person who shall knowingly sell any kind of diseased, corrupt or unwholesome provisions, whether for meat or drink, without making the same fully known to the buyer, shall be punished by imprisonment in the county jail not more than six months, or by fine not exceeding one hundred dollars.

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## ADULTERATION OF FOOD, LIQUORS AND CANDIES.

*Section 4600, Revised Statutes.*

SECTION 4600. Any person who shall fraudulently adulterate, for the purpose of sale, any substance intended for food, or any wine, spirits, malt liquor, or other spirituous liquors, or any other fluid, intended for drinking or any candy or sweetmeat, with any substance, coloring matter, or anything poisonous, deleterious or injurious to health, or who shall knowingly manufacture, sell, or offer for sale, any such adulterated food, liquor, candy or sweetmeat, shall be punished by imprisonment in the county jail, not more than six months, or by fine not exceeding one hundred dollars, and any article so adulterated shall be forfeited and destroyed.

NOTE.—See chapter 248, law of 1879, *infra*, which appears to supersede this section in part.

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## ADULTERATION OF FOOD AND DRUGS — DECEPTIVE LABELING OF.

*Chapter 248, Laws of 1879.*

SECTION 1. No person shall mix, color, stain, powder, order or permit any other person to mix, color, stain or powder any article of food with any ingredient or material so as to render the article injurious to health, with intent that the same may be sold in that condition. And any person that shall sell any such article so mixed, colored, stained or powdered, shall be subjected to a penalty in each case not exceeding a fine of fifty dollars for the first offense, and for a second offense shall be punished by imprisonment in the state prison for a period not exceeding one year, with hard labor.

SECTION 2. No person shall, except for the purpose of compounding as hereinafter described, mix, color, stain or powder, or permit any other person to mix, color, stain or powder any drug with any ingredient or material so as to effect injuriously the quality or potency of such drug, with intent that the same may be sold in that condition. And any person who shall sell any such drug so mixed, colored, stained or powdered shall be



liable to the same penalty or punishment in each case respectively, as in the preceding section, for a first and subsequent offense; provided, that no person shall be liable to be convicted under the foregoing sections of this act, in respect to the sale of any article of food or of any drug, if he shows to the satisfaction of the justice or court before whom he is charged that he did not know of the article or drug sold by him being so mixed, colored, stained or powdered, as in that section mentioned, and that he could not, with reasonable diligence, have obtained that knowledge; or that such mixing, coloring, staining, or powdering was required for the production, extraction, preparation, preservation, consumption or transportation as an article of commerce in a state fit for carriage; or where the drug or food is supplied in the state required by the specification of the patent in force; or that the food or drug was unavoidably mixed with some extraneous matter in process of collection or preparation.

SECTION 3. Every person who shall compound or put up for sale any food, drug or liquor, in casks, boxes, bottles or packages, with any label, mark or device whatever, so as and with intent to mislead or deceive as to the true name, nature, kind and quality thereof, shall be liable to a penalty of not to exceed five hundred dollars for the first offense, and for every offense after the first offense shall be punished by imprisonment in the state prison for not less than one year nor more than ten years.

SECTION 4. The term "food" as herein used shall include every article used for food or drink by man other than drugs. The term "drug" shall include medicine for internal or external use.

SECTION 5. This act shall take effect and be in force from and after the first day of July, after its passage and publication.

Approved March 5, 1879.

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## ADULTERATION OF DRUGS AND MEDICINES.

### *Section 4601, Revised Statutes.*

SECTION 4601. Any person who shall fraudulently adulterate, for the purpose of sale, any drug or medicine in such a manner as to render the same injurious to health, shall be punished by imprisonment in the county jail, not more than one year, or by fine not exceeding three hundred dollars.

NOTE.—See chapter 248, laws of 1879, *supra*.

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## COLORING GRAIN.

### *Section 4606, Revised Statutes.*

SECTION 4606. Any person who shall fumigate any barley, wheat, or other grain, by the use of sulphur or other substance, or shall in any way, or by the use of any chemical, material or process, affect the color or

healthfulness of such grain, or who shall sell or offer for sale any such grain, knowing that the same has been so fumigated, or the color or healthfulness thereof so affected, shall be punished by imprisonment in the county jail, not more than one month, or by fine not exceeding fifty dollars.

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## OF THE ANALYSIS OF FOOD, DRUGS AND DRINK.

### *Chapter 252, Laws of 1880.*

SECTION 1. The governor of the state shall appoint one of the professors of the state university of sufficient competence, knowledge, skill and experience, as state analyst, whose duty it shall be to analyze all articles of food and drink, and all drugs and liquors manufactured, sold or used within this state, when submitted to him as hereinafter provided. The term of office of such analyst shall be three years from his appointment, unless sooner removed by the appointing power, and his compensation shall not exceed two hundred dollars in addition to his annual salary as professor, and shall be paid by the board of regents of the state university from the university fund.

SECTION 2. The state board of health and vital statistics, medical officers of health, inspectors of weights and measures, boards of supervisors of any town, boards of trustees of any village, aldermen or common council of any city in this state, or a majority of said corporate bodies, may at the cost of their respective corporations, purchase a sample of any food, drugs or liquors offered for sale in any town, village or city in this state, in violation of sections number one, two and four of chapter two hundred and forty-eight of laws of A. D. 1879, or if they have good reasons to suspect the same to have been sold, or put up for sale, contrary to the provisions of said chapter two hundred and forty-eight, may submit the same to the state analyst as hereinafter provided, and the said analyst shall, upon receiving such article duly submitted to him, forthwith analyze the same, and give a certified certificate to such person or officer submitting the same, wherein he shall fully specify the result of the analysis.

SECTION 3. Any person purchasing any article with the intention of submitting it to an analysis, shall, after the purchase shall have been made and completed, forthwith notify the seller or his agent selling the same, of his or their intention to have the same analyzed by the state analyst, and shall offer to accompany the seller or his agent with the article purchased to the town, village or city clerk of the place in which the article was bought, and shall forthwith remove the article purchased to the office of said clerk, and in the presence of the seller or his agent, if present, divide said article in two parts, each to be marked, fastened and sealed up in such a manner as its nature will permit. The said clerk shall forthwith forward one part to the state analyst by mail, express or otherwise, as he

shall elect, and shall retain the other part or package subject to the order of any court in which proceedings shall thereafter be taken. The certificate of the state analyst shall be had in all the courts of this state as prima facie evidence of the properties of the articles analyzed by him.

SECTION 4. If any person applying to purchase any article of food, drug or liquor exposed for sale or on sale by retail on any premises in any town, village or city in this state, and shall tender the price of the quantity which he shall want, for the purpose of analyzing, not being more than shall be reasonably required, and the person exposing the same for sale shall refuse to sell the same, such person so refusing to sell shall be liable to a penalty not exceeding fifty dollars.

SECTION 5. The state analyst shall report to the state board of health and vital statistics the number of all the articles analyzed, and shall specify the results thereof to said board annually, with full statement of all the articles analyzed and by whom submitted.

SECTION 6. The state board of health and vital statistics may submit to the state analyst any samples of food, drugs or drink for analysis as hereinbefore provided.

SECTION 7. This act shall take effect and be in force from and after its passage and publication.

Approved March 15, 1880.

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## THE PREVENTION OF FRAUD IN DAIRY MANUFACTORIES.

### *Section 1494a, Revised Statutes.*

Any butter or cheese manufacturer who shall knowingly use, or allow any of his employes or any other person to use for his or their own individual benefit, any milk or cream from the milk, brought to said butter or cheese manufacturer, without the consent of all the owners thereof, or any butter or cheese manufacturer who shall refuse or neglect to keep, or cause to be kept, a correct account, (open to the inspection of any one furnishing milk to such manufacturer) of the amount of milk daily received, or of the number of pounds of butter, and the number and aggregate weight of cheese made each day, or the number cut or otherwise disposed of, and the weight of each, shall, for each and every offense, forfeit and pay a sum of not less than twenty-five dollars, nor more than one hundred dollars, to be recovered in an action in any court of competent jurisdiction, one-half for the benefit of the person or persons, firm or association, or their assigns, upon whom such fraud or neglect shall be committed, first having made complaint therefor, the remainder to the school fund.

TEXT AND SUGGESTIONS RELATING TO THE LAW PASSED BY  
THE LEGISLATURE OF 1891.

*This act repeals Chap. 240, Laws of 1887, as amended by Chap. 455, Laws of 1889.*

SECTION 1. Chapter 455 of the laws of 1889 is hereby repealed.

SECTION 2. Every person who shall, at any cheese factory in the state, manufacture cheese, shall distinctly and durably stamp upon each and every such cheese, whether cheddar, twin, flat or Young America, or by whatever name or style known, upon the salé thereof, in full faced capital letters, the grade of the same, as, "Wisconsin full cream," "standard," or "skimmed," as hereafter provided for in this act, together with the name of the city, village or town where such factory shall be located.

SECTION 3. Such cheese only as shall have been manufactured from pure and wholesome milk, and from which no portion of the butter fat shall have been removed by skimming or by any other process, and in the manufacture of which neither butter nor any substitute for butter or other animal or vegetable fats or oils have been used, nor any fat which has been extracted from milk in any form and returned for the purpose of filling the cheese, shall be stamped "Wisconsin full cream." All cheese manufactured as above required from pure and wholesome milk, but from which a portion of the fat has been removed, shall if it contain not less than thirty per centum of pure butter fat, be stamped or branded "standard." All cheese containing less than thirty per centum of pure butter fat shall be stamped or branded "skimmed."

SECTION 4. The stamp provided for in this act designating the grade of cheese shall be such as to produce an impression not less than three inches in width and five inches in length, and the words, "Wisconsin full cream," "standard," or "skimmed," together with the name of the city, village or town where the cheese shall have been manufactured, as provided for in the foregoing sections of this act, shall be in full-faced capital letters of as large a size as the space hereby provided for will permit, and the whole to be included within a plain heavy border. Ordinary "stamping ink," either red, green, purple or violet in color, and of such composition as not to be easily removed or wholly obliterated by moisture, shall be used in stamping, as provided for in this act.

SECTION 5. Any manufacturer of cheese who shall sell or dispose of any cheese without being stamped as required by this act, or who shall falsely stamp the same and any dealer or other person who shall remove such stamp from cheese, shall, upon conviction thereof, be fined not less than fifty nor more than one hundred dollars for the first offense, and for each subsequent offense not less than one hundred nor more than two hundred

dollars, or be imprisoned in the county jail not less than thirty nor more than ninety days, or both, in the discretion of the court before whom such conviction may be had. One-half of all fines collected under the provisions of this act shall be paid to the person or persons furnishing the information upon which such conviction is procured.

SECTION 6. Nothing in this act shall be construed to apply to edam, brickstein, pineapple, limburger, Swiss or hand cheese, or other cheese by whatever name or style known not made by the ordinary cheddar process.

SECTION 7. All acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

SECTION 8. This act shall take effect and be in force from and after its passage and publication.

There are three distinctive brands necessary under the law quoted:

No. 1. Full Cream Cheese.

WISCONSIN

FULL CREAM CHEESE

Fond du Lac, Wis.

All cheese made by the cheddar process and made from milk from which no fat has been taken, shall bear brand No. 1.



No. 2, Standard Cheese.

# STANDARD CHEESE

Fond du Lac, Wis.

All cheese made by the cheddar process, and made from milk from which any fat has been taken, but still leaving not less than thirty per cent. of fat in the cheese, shall bear brand No. 2.

No. 3, Skimmed Cheese.

# SKIMMED CHEESE

Fond du Lac, Wis.

All cheese made by the cheddar process, and made from milk from which enough fat has been taken so that the cheese is left with less than thirty per cent. of fat, shall bear brand No. 3.



The law provides that the stamp or brand shall be not less than three by five inches, and inclosed by a plain heavy border. The ink shall be indelible, so that it will not rub off. The brand or stamp is to be placed upon the bandage of the cheese. A rubber stamp costs about the same as a stencil and does much better work.

The name of the manufacturer cannot be placed inside the border. If the maker wishes his name to appear, it can be placed on the cheese anywhere except within the impression.

The law of 1889, which provided for marking the box, is repealed.

Rubber stamp manufacturers are in possession of this law, and you can be provided with stamps by any of them. The firm from which you buy your supplies, can furnish you the necessary stamps.

Filling cheese with foreign fat is prohibited by chapter 424, laws of 1889.

Enriching skim milk with butter is prohibited by chapter 264, laws of 1891, also by chapter 165, laws of 1891.

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#### TO THE WISCONSIN DEALERS AND MANUFACTURERS OF VINEGAR.

*Text and suggestions relating to the law passed by the legislature of 1891.*

SECTION 1. Every person who manufactures for sale, or offers or exposes for sale, as cider vinegar, any vinegar not the legitimate product of pure apple juice, known as apple cider, or vinegar, not made exclusively of said apple cider, or vinegar into which foreign substances, drugs or acids have been introduced, as may appear by proper tests, shall be deemed guilty of a misdemeanor.

SECTION 2. Every person who manufactures for sale, or offers for sale, any vinegar, found, upon proper tests, to contain any preparation of lead, copper, sulphuric acid, or other ingredient injurious to health, shall be deemed guilty of a misdemeanor.

SECTION 3. No person, by himself, his servant or agent, or as the servant or agent of any other person, shall sell, exchange, deliver, or have in his custody or possession, with intent to sell or exchange, or expose or offer for sale, or exchange any adulterated vinegar, nor shall he label, brand or sell as cider vinegar, or as apple vinegar any vinegar not the legitimate product of pure apple juice, or not made exclusively from apple cider.

SECTION 4. All vinegar shall have an acidity equivalent to the presence of not less than four per cent. by weight, of absolute acetic acid, and, in the case of cider vinegar, shall contain in addition not less than two per cent. by weight, of cider vinegar solids upon full evaporation over boiling water at 212°; and if any vinegar contains any artificial coloring matter injurious to health, or less than the above amount of acidity, or in the case of cider vinegar, if it contains less than the above amount of acidity or of

cider vinegar solids, it shall be deemed adulterated within the meaning of this act. All manufacturers of vinegar in the state of Wisconsin, and all persons who reduce or re-barrel vinegar in this state, and all persons who handle vinegar in lots of one barrel or more, are hereby required to stencil or mark in black figures at least one inch in length on the head of each barrel of vinegar bought or sold by them, the standard strength of the vinegar contained in the package or barrel, which shall be denoted by the per centum of acetic acid. And any neglect so to mark or stencil each package or barrel, or any false markings of packages or barrels, shall be deemed a misdemeanor.

SECTION 5. Whoever violates any of the provisions of this act shall be deemed guilty of a misdemeanor and shall be punished by a fine not less than ten nor more than one hundred dollars and costs.

SECTION 6. This act shall take effect and be in force from and after its passage and publication.

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Section 1 provides that any person who makes cider vinegar shall sell it as such.

Section 2 provides that no injurious ingredients shall be used in the manufacture of vinegar.

Section 3 provides that no person or his agent, shall sell adulterated or spirit vinegar as cider vinegar.

Section 4 provides that all vinegar shall test not less than 4 per cent. of acetic acid, and that cider vinegar shall contain not less than two per cent. of solids, and that manufacturers and reducers, and persons who handle vinegar, shall brand upon head of barrel, in letters not less than one inch, the per centum of acetic acid, as follows:

## **ACETIC ACID 4 PER CENTUM.**

Chapter 248, Laws of 1879, provides that no label, mark or device shall be upon any package or cask, which shall mislead or deceive as to the true contents.

The law relating to the branding of casks will be enforced on and after June 1st, 1891.

## THIS ACT REPEALS CHAPTER 185, LAWS OF 1887.

SECTION 1. No person shall sell, exchange, expose or offer for sale or exchange, or ship or consign, or have in his possession with intent to sell, ship or consign any substance purporting, appearing, or represented to be butter or cheese, or having the semblance of either butter or cheese, which substance is not made wholly and directly from pure milk or cream, salt and harmless coloring matter, unless it be done under its true name, and each vessel, package, roll or parcel of such substance has distinctly and durably painted, stamped, stenciled or marked thereon the true name of such substance in ordinary bold-faced capital letters, not less than five line pica in size, or sell or dispose of in any manner to another, any such substance in quantities less than the original package, without delivering with each amount sold or disposed of, a label, on which is plainly and legibly printed in ordinary bold-faced capital letter not less than five line pica in size, the true name of such substance.

SECTION 2. No person or persons shall manufacture out of any oleaginous substance or substances, or any compound of the same other than that produced wholly, directly and at the time of manufacture from unadulterated milk or cream, salt and harmless coloring matter, any article in imitation of or designed to be sold, shipped or consigned as butter or cheese. Nothing in this section shall prevent the use of pure skimmed milk in the manufacture of cheese: but cheese made wholly or in part from skimmed milk should be plainly labeled, "skimmed."

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*(This section repeals chapter 424, laws of 1889.)*

SECTION 3. No person or persons shall manufacture, mix, compound with or add to natural or pure milk, cream, butter or cheese, any animal fats, animal, mineral or vegetable oils, or extraneous butter fat, or oil, nor shall any person or persons manufacture any oleaginous or other substance not produced wholly and at the time from pure milk or cream, salt and harmless coloring matter, or have the same in his possession with intent to offer or expose the same for sale or exchange, or sell, consign, ship, or in any manner dispose of the same as and for butter or cheese, nor shall any substance or compound so made be sold or disposed of to any one as and for butter or cheese.

SECTION 4. No person or persons shall sell, exchange, expose or offer for sale or exchange, dispose of, ship or consign or have in his possession any substance or article made in imitation or resemblance of any dairy product which is falsely branded, stenciled, labeled or marked.

SECTION 5. Every person in this state who shall deal in, keep for sale, expose or offer for sale or exchange, any substance other than butter or cheese, made wholly and directly from pure milk or cream, salt and harmless coloring matter, which appears to be, resembles or is made in imitation of, butter or cheese, shall keep a card, not less in size than ten by fourteen inches, posted in a conspicuous and visible place, where the same may be easily seen and read, in the store room, stand, booth, wagon or place where such substance is so kept or exposed for sale, on which card shall be printed, on a white ground, in bold, black Roman letters, not less in size than twelve line pica, the words, "oleomargarine," "butterine," or "imitation cheese" (as the case may be) "sold here," and said card shall not contain any other words than the ones above prescribed; and no person shall sell any oleomargarine, butterine, imitation cheese, or other imitation dairy product, at retail or in any quantity less than the original package, tub or firkin, unless he shall first inform the purchaser that the substance is not butter or cheese, but an imitation of the same.

SECTION 6. Every proprietor, keeper or manager, or person in charge of any hotel, boarding house, restaurant, eating house, lunch counter, or lunch room, who therein sells, uses or disposes of any substance which appears to be, resembles, or is made in imitation of butter or cheese, under whatsoever name, and which substance is not wholly and directly made from pure milk or cream, salt and harmless coloring matter, shall display and keep a card posted in a conspicuous place, where the same may be easily seen and read, in the dining room, eating room, lunch room, restaurant and place where such substance is sold, used or disposed of, which card shall be white, and in size not less than ten by fourteen inches, upon which shall be printed in plain, black, Roman letters, not less in size than twelve line pica, the words "oleomargarine used here," "butterine used here," or "imitation cheese used here," (as the case may be) and said card shall not contain any other words than the ones above prescribed, and such proprietor, keeper, manager or person in charge shall not sell, furnish or dispose of substance as and for "butter or cheese" made from pure milk or cream, salt and harmless coloring matter, when butter or cheese is asked for.

SECTION 7. No butter or cheese not made wholly and directly from pure milk or cream, salt and harmless coloring matter shall be used in any of the charitable or penal institutions of the state.

SECTION 8. Any person or persons violating any of the provisions or sections of this act, shall, upon conviction thereof, be fined not less than twenty-five nor more than fifty dollars for the first offense, or for each subsequent offense not less than fifty nor more than one hundred dollars, or be imprisoned in the county jail not less than ten nor more than ninety days or both.

SECTION 9. One-half of all the fines collected under the provisions of c-D.

this act shall be paid to the person or persons furnishing information upon which conviction is procured.

SECTION 10. All acts or parts of acts contravening the provisions of this act are hereby repealed.

SECTION 11. This act shall take effect and be in force from and after its passage and publication.



TRANSACTIONS  
WITH  
ACCOMPANYING PAPERS AND DISCUSSIONS  
OF THE  
Wisconsin Dairymen's Association  
AT THEIR  
NINETEENTH ANNUAL CONVENTION,

*Held at Berlin, Green Lake Co., Wisconsin, February 11, 12 and 13. 1891.*

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The nineteenth annual convention of the Wisconsin Dairymen's association was called to order by President Henry at 11:30 A. M. in the Rink hall, at Berlin, Wisconsin, February 11, 1891.

On motion of Mr. Adams the appointment of the following committees was made by the President.

APPOINTMENT OF COMMITTEES.

*On Resolutions—*

W. D. Hoard, Ft. Atkinson,  
H. C. Adams, Madison,  
H. S. Sackett, Berlin.

*On Nominations—*

C. R. Beach, Whitewater,  
Stephen Faville, Delavan,  
G. W. Burchard, Ft. Atkinson.

*On Dairy Utensils—*

Chester Hazen, Brandon,  
A. X. Hyatt, Sheboygan Falls,  
James Mathews, Auroraville.



*On Dairy Exhibits—*

Butter, George A. Wells, New Richmond, Wis.

Cheese, W. C. Dickson, 183, S. Water St. Chicago.

The convention adjourned to meet at 1:30 P. M.

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The convention met pursuant to adjournment at 1:30 P. M., President Henry in the chair.

The Honorable H. S. Sackett, Mayor of the city of Berlin, was introduced to the convention and made the following:

### ADDRESS OF WELCOME.

By HON. H. S. SACKETT, of Berlin, Wis.

*Mr. President and Gentlemen of the Wisconsin Dairy-men's Association:*—In complying with the request of the President of the Business Men's Association of this city—I bid you welcome to it. I feel that a pleasant duty has been imposed upon me and one that any of my fellow citizens would gladly accept.

This is the first time, I believe, that your state body has honored us with its presence. We have been favored with several district meetings, and have derived much good from them. We have a right, therefore, to expect that, from this grand body we shall derive much greater, and judging by the magnificent attendance and the grand material of which it is composed, we will not be disappointed.

The interest you represent, gentlemen, has grown to be one of the leading financial interests of our country—grown so from the fact, that those engaged in it have bent the best energies of their manhood toward its scientific analysis—and from knowledge obtained, of its details, by hard, methodical study, have been able to place it upon that business basis which demands and maintains a place in the commerce of the world. Around this city we have now several creameries, making butter on business principles, and in business ways, and the sale of our cheese

amounts to thousands of dollars per week. The merchant as well as the farmers recognize the value of these enterprises, and aids them both by counsel and money.

It is eminently proper that you should meet here, for many reasons, but more particularly because we are purely an agricultural community. We have a few manufactories, but our main dependence is upon the crop of the farmer—because of that we have an additional welcome for you—anything that will accrue to the benefit of our farmer friends, is of benefit to our city, and when they suffer, we suffer too, this community of interest always has and always will exist between the citizens of Berlin and the neighboring farmer, and that business which has been particularly fostered by your association, has taken a leading position in our mutual welfare. We shall, therefore, listen with respect and interest to your proceedings, and when you come again next year, as we hope you will, you will find that your teachings have been of practical value, and no higher compliment than their following, can be paid them.

We have recently passed through a bitter and hard-fought political campaign, the result of which is viewed by some with pleasure, and by others with disgust—it follows that the former are the “ins,” the latter the “outs,” but I have yet to hear that our bovine friends have given the matter much consideration. The aristocratic “Jersey” has continued to quietly chew her cud, and whether it be the hand of a democrat or republican that pressed the teat, the rich and creamy fluid has been allowed to respond in the ordinary way and without any extraordinary kick. Even the possible letting down of the barriers and a consequent flood of white metal, even to the volume that would ruin her pasture, has had no effect upon her equanimity. When the lordly Hereford told her of it she did not flap an ear; but, she has informed me that there is one condition of affairs she will not submit to—she has said, in the most determined manner, that, should there appear in this state a “Sockless Simpson,” she will shut up shop and go out of business. Let us hope this association, in its own behalf,

and to protect its own interests, will try to avert such a calamity. There has been some discussion among our four-legged friends in regard to a two per cent. bond, on which, they are told, a rich Californian is trying to ride into the White House—they are very much mystified in regard to the matter, and want to know how much he weighs—and, can the thing carry him—but, when I told them that, while riding in his carriage the other day, an ordinary, common, every-day street railway car almost ran clear over him, they laughed, and said, that if an every-day, common thing like that could “knock him out,” he had not the skill to win on his big bluff. I simply mention these things, gentlemen, to call your attention to the item, that, perhaps I am the only one present who has ever had the patience, or taken the time, to learn cow-sense. We have all heard of horse-sense, and I think we are agreed that, in the common acceptance of the term, it is a good thing to have. Cow-sense is not as good, perhaps, but gentlemen, it is not nonsense.

The farmer is the hardest worked man on earth, and the least appreciated, except as a burden bearer, in which respect the appreciation he is held in is altogether too lively. A working day of sixteen hours is no surprise to him, one of eight would allow him to sleep so long in the morning that for the rest of the day his salutation would be “good afternoon.” And his pay for this! Well, he is allowed to pay (and he has to) the four to six per cent. dividends on stock and bonds, issued by railroad directors, at the rate of sixty thousand dollars per mile of their road, when the mile complete would cost to-day, only twenty thousand dollars. He can pay (and he does) for harvesting machinery, a profit to the manufacturer of about seventy-five per cent., this moderation is shown him for the simple reason that it is known by those most interested, that in five or six years from its purchase, it will have been purchased all over again in the shape of repairs, which as is equally well known, can be bought at one place only, and upon which the percentage of profit is simply beyond belief. In the olden times when the farmer had but his sin-

gle crop of grain, it was necessarily ready for market in the fall only, and the speculator aware of this fact, and the other, that it must be sold, for interest and taxes which were then due, jumped upon the market with both feet, as it were, and the producer consequently received the lowest possible price; and now, when, as the result of the intelligence of such associations as yours, the farmer has something to sell every month in the year, the fellow don't have time to take his feet off, and his weight keeps the price down all the time. Is there no better time in store for the farmers? There certainly is, and that soon. No class of this community, as a class, are progressing so fast. The fact that a thorough, finished education is as much to the advantage of a man who proposes to follow agriculture for a livelihood as to the one who proposes to be a banker, a lawyer or any thing else, is now recognized by those most interested. And our high schools and universities throughout the land, bear undisputable testimony to the fact that the future farmer is to be an educated one, and a man who can take care of himself under any and all circumstances.

During this session of your grand body, we shall listen to the reading of papers presented by educated men, men who know what they are talking about, and who make money in their business, men whose whole lives are an illustration of what energy and education, when hand in hand, will accomplish.

It will not be long before the result of this condition of affairs, will be an educated community or farmers, in combination, with their best men in the lead, and the monopolists and railroad companies will be informed by them, in an unmistakable manner; that, while a reasonable profit on their wares will be freely allowed them, the first step further than that will subject them to discipline. Coming from such an alliance the "Pirates" will promptly take notice and govern themselves accordingly.

But, I was asked to welcome you. Well then, in the language of the immortal and lamented Artemus Ward, "Let us return to our subject." Gentlemen, I *do* welcome you. In the name and behalf of all the citizens of Berlin, I wel-

come you. If during your stay there should be any wish of yours unexpressed, then it cannot be gratified—but I am sure, that any you may express will be instantly and gladly attended to. We feel under obligations to you for the honor you have conferred upon us in choosing our beautiful little city for your place of meeting, and if you cannot come again next year, which we should like to have you do, you may rest assured that we shall be delighted to have you visit us again at your earliest possible convenience.

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### RESPONSE TO ADDRESS OF WELCOME.

By G. W. BURCHARD, Ft. Atkinson.

*Mr. President, Mr. Mayor, Ladies and Gentlemen:* For almost a score of years, the Wisconsin Dairymen's Association has been an active factor in Wisconsin affairs, and it has received many and various tokens of commendation and approval from public, as well as from private sources, and yet, strangely, or, naturally enough, perhaps, it is not altogether unlike some other public servants, in that it never seems to be quite satisfied. So long as any opportunity for further advertisement remains, therefore, it is, I suppose, that notwithstanding it accepted the invitation extended to it, by those who assumed to speak in behalf of the people of Berlin, to hold its nineteenth annual convention in your city, and expected to be made welcome as a matter of course, yet its officers and those of its members from other sections of the state who are here present, have listened with very keen attention, and as you have observed, with very evident satisfaction to the words of greeting and hospitality extended by your representative, and making assurance in that behalf so doubly sure. More than these words of his, multiplied evidence of your kindly and fraternal welcome, have met us on every side, in the streets, in the hotels and in this hall, and they all confirm us in the opinion that we are indeed among friends, and that, with your local enthusiasm and your local assistance,



this meeting will compare not unfavorably with any that has preceded it, whether in pleasure or in profit to all who may chance to be in attendance. I think I may say that I use the words "pleasure and profit" to all in attendance very advisedly, for I am not ignorant of the fact, my friends, and I would not have you ignorant of it, that the older and wiser members of this association, like my friend Mr. Beach here, and others, are among the very first to freely admit that there is yet very much for them to learn, and that the annual attendance upon such meetings as this promises to be, has rather sharpened than dulled their desire to know more and more about our universal foster mother, the cow, and how to utilize for profit and for health, the ample blessings which she has in her keeping, for all progressively intelligent dairymen.

Alas, that one benignant face, that one kindly and instructive voice, never heretofore absent from these meetings, will never be seen or heard here again. Wise as a seer, honest as a sage, teachable as a child, the friend and patron of all excellence, Hiram Smith, dead, leaves a permanent vacancy in the Wisconsin Dairymen's association. It is not for me, neither is this the time to pronounce his eulogy, but to me who has been for many years now a close observer of the methods and the proceeding of this association, it has seemed to me that it might be said of him, and of his co-laborers in this work, that like,

"The hand that rounded Peter's dome,  
And groined the aisles of Christian Rome,  
They builded better than they knew."

Consider for a moment, if you will, that during these eighteen or nineteen years of its existence, this association has been characterized by a singular oneness of purpose, and its administration has been characterized also by harmonious unity, and yet, its purpose has had three distinct manifestations, at least, three separate lines of activity.

Looking backwards, we perhaps can see to-day what was not so apparent to them at the time, that these lines of activity have crossed and re-crossed and folded themselves



upon one another very much like the strands of a three-fold cord. Three units in one.

Along one of these lines this association has been in the very best sense a mutual improvement society; its members have come together from time to time to compare notes, to report success, and what is perhaps better, to report failures, omitting nothing that would contribute to each other's prosperity and to the general welfare.

On another line it has been a sort of domestic missionary enterprise, preaching in season and out of season, whenever and wherever opportunity offered, the gospel of material re-generation, and I do not think I would be very far out of the way, if I should add moral regeneration, through dairy farming, and last, but by no means least, it has been an indefatigable herald, blowing its trump far out in society and proclaiming that Wisconsin admitted no superior and very few equals in the matter of dairy products. It has carried on a great many conquests on this line, championed them nobly, and Wisconsin's banner has never been relegated to second place in any procession.

This association came to your city after due consideration of all the inducements which were held out here and elsewhere, thinking that here it might receive for itself and its members great benefit, and that possibly it might be the means of doing some little good in this community. It has learned with great satisfaction that Berlin has become one of the important shipping points for the dairy product in Wisconsin, ranking perhaps not lower than third in the list. It is therefore, eminently fitting and proper that this association should come here to hold one of its annual conventions. It hopes, during the two or three days that it may be here, to add something to its achievements and its good name.

It cordially accepts the hospitable welcome extended to it by your representative in your behalf, and it commissions me to express to you the hope that prosperity and contentment may abide here and hereabouts in fullest measure.

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Mr. Hazen was called to the chair.

## WISCONSIN DAIRYMEN'S ASSOCIATION.

The Chairman — Ladies and gentlemen of the convention: It is with great pleasure that I stand before you this afternoon and compare the position of this association with its first meeting and organization twenty years ago at Watertown. We had seven charter members at that time. It was hard work to get up interest enough to get a score or two present at our meetings. The dairy interest in Wisconsin was then in its infancy, cheese-making by the factory system had just fairly commenced. Butter making by the creamery process was unknown. From that day to this this convention has taken on an increased interest and attendance, and it affords me great pleasure as one of the organizers to stand before you to-day. I was the first president; we had in that little meeting such men as Hiram Smith, Stephen Faville, C. R. Beach, William D. Hoard, and these have been followed by others, H. C. Adams and at the present time, Prof. Henry, of our State University, who represents the spirit of progress in this state, stands before us as our president. I introduce to you Professor Henry, the present president of our Association.

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### ANNUAL ADDRESS OF THE PRESIDENT.

PROF. W. A. HENRY, Madison, Wis.

*Mr. President, Ladies and Gentlemen:* — The spirit of the Wisconsin Dairymen's Association is progress; its watchword is "progress," and the great-hearted men that founded this institution and have worked so faithfully for its beginning and its development, are to-day in their thoughts and in their workings, young men. I say this with a great deal of pride and after much reflection; that I believe no organization exists where the first members of that organization are so young, so enthusiastic, so full of thought, the feeling of experiment and investigation and progress, and while I follow President Hazen as for the time being president of this association, I do it with no feeling that we younger men are superior, but that a light has been passed along

the line to us, up to this time, and if it burns a little brighter, if it throws its beams a little farther, it is because time has added to it.

Today we gather in the nineteenth annual convention of this association. Our society has almost gained its majority, if we measure its existence as we do that of mankind; measured by what it has done, what it is doing, and the plans and work laid out for the future, it is already of age and full of vigor. I need not remind you that today many lines of the livestock industry are in a depressed condition, dairying and sheep husbandry forming the only exceptions. For years we have heard that dairying would soon be overdone, and the prices of butter and cheese fall below that of profitable production. Most fortunately our advance movement in dairying has been one of change to better methods and improvement in the quality of the product rather than in turning out more gross pounds. This movement has been mainly brought about by transferring butter and cheese making from the private dairy to the factory, and the increased gross earnings have been mainly caused by better prices for a better article, and not increased pounds. Almost any business will stand improvement in the quality of the product turned out much longer than mere increase of output regardless of quality. But the purpose of this address is not to express satisfaction, or dwell upon results attained. Never before in the history of this society have so many matters of vital interest pressed themselves upon us for consideration and action as at this time. In Wisconsin's exhibit at the Columbian Exposition no feature should stand out more prominently than the dairy interest. In 1876 this association brought honor and credit to our state at the Centennial exhibit. There for the first time Wisconsin thoroughly broke down the prejudice against her dairy products, and showed the great possibilities of our state in that direction. The opportunity is at hand to take a still higher position, and prove to the world that for brains, energy and push our farmers are without an equal, and that for high class dairy products our state stands without a peer in the Union.

Looking to this end, your officers assisted in the organization of the Columbian Dairy association in Chicago, last fall, and have taken part in the deliberations of that body, the aim of which has been to secure a proper recognition of the dairy interests from the exposition authorities and planning for the exhibit. To assist this Columbian Dairy association which has already held three meetings, general and executive, under advice of members of the executive committee, I authorized our secretary to turn over \$200 to the treasurer of that body to assist in defraying the actual necessary expenses of that organization, no salaries of per diem being allowed. Already the Columbian Dairy association has accomplished much good in bringing the importance of our branch of industry to the attention of those in authority, and I urge upon this society to continue loyal, as through it, we have a means of reaching the head officers of the exposition with the least difficulty and in the most direct manner, receiving due recognition at all times. It further remains for this association to secure from our state, conjointly with other organizations and societies, a fair proportion of what we trust will be a liberal fund for the proper placing of Wisconsin's dairy products at the Columbian exposition for the inspection of the whole world. The Centennial exhibit in Philadelphia in 1876, was worth millions to the dairy interests of Wisconsin; the Columbian exposition in 1893 offers the opportunity to show how much we have advanced in seventeen years.

In passing a law placing oleomargarine under the control of the department of the interior, thereby subjecting it to a license, was the grandest legislative victory ever won by an agricultural people. The enormous power behind imitation butter has not rested for a moment, however, in spite of its first great defeat. The original package decision of the United States supreme court has brought the question again prominently before the people. Following that decision the house of representatives passed a bill giving the different states control of the sale and manufacture of liquor and oleomargarine. As we all know, the word "oleomargarine" was stricken from the bill in the

senate, and fraudulent butter can now be sold in original packages anywhere in any state, despite the wishes of the people, thereby menacing every pound of genuine butter produced. The senate now has on its calendar a bill giving the several states authority to control the manufacture and sale of all compounds in imitation of butter. This association should at once take action upon the matter looking to the sending of blank petitions to all the dairy districts of the state, that they may be signed and forwarded to our representatives in Washington.

For years it was the hope of our association that there might be a dairy commissioner in this state to work for pure dairy goods and to see to it that spurious products be sold for what they were. The legislature of 1889 created the commissionership, and we felt that another forward movement had been taken by Wisconsin. There are those in this state, however, who look upon the matter entirely different, and believe that the expense of the commissionership exceeds the possible good. I am sure that I but voice the sentiment of our entire membership when I say that such a position is shortsighted and unworthy a great agricultural commonwealth like this. It has cost our people a great deal of money, a great deal of time, hard work and close thinking to take an advanced position in dairying. Only a shortsighted, unbusiness-like policy will allow us to lapse into difference as to what becomes of the dairy interests of Wisconsin. While ninety-nine men out of every hundred work for honest goods and a stable reputation, the hundredth man seeks to get ahead by fraud and dishonesty. If the spurious product made by this hundredth man could only go onto the market under its true name we would not care the least, but such is not the case. Every pound of honest goods suffers directly or indirectly because of the deceptive character of the product and the dishonest methods of those who push it.

It is but fair and entirely in keeping with the necessities of modern times that there be a man clothed with the power of the state whose business it is to aid in protecting the public, both manufacturers and consumers. The dairy-



men of Wisconsin have as much right to insist upon having a commissioner who shall work to protect their interests as the city of Milwaukee has a right to its police force. To say that each dairyman should protect himself as best he can against dishonest manufacturers has a parallel in saying that if the people of Milwaukee wish protection against burglars and other law breakers, that each man should take the law in his own hands and protect himself as best he can. Every advance in civilization means more possible danger, more possible loss in a thousand ways to the people, if dangerous characters break over the rights of men. Just so with dairying, the better the product and the larger the volume of it sent out of Wisconsin, the better the opportunity for frauds and humbugs to take advantage of the situation and secure illy gotten gains. Because there was no call for a dairy commissioner in the early meetings of this association is no reason why we do not need one at this time. If the dairymen of Wisconsin take no interest in this matter, I for one shall not blame our law makers at Madison if they wipe from the statute books our protective legislation. Now is the time for the people to make their wants known, and I am sure that those in authority will give heed to what is said.

We not only need the continuance of a dairy commissionership, but more legislation is absolutely essential to further advancement in the cheese industry. In parts of this state skim cheese are made. In neighboring states the butter fat is taken from the milk and cheap grease is substituted. This substance is often placed on the market branded "Wisconsin cheese;" sometimes "Sheboygan county cheese;" again, "Wisconsin full cream cheese." Not satisfied with this, some have gone so far as to fraudulently brand the name of the maker or dealer on the cheese. Unless we can put a stop to this libelling our honest goods, we must suffer not only the direct loss which comes from such nefarious work, but also whatever is left of good name and reputation. Already complaint has come from the produce exchange of Liverpool that Wisconsin is sending spurious dairy goods abroad, and buyers are being



warned to let her product severely alone. Let the food and dairy commissioner be authorized to apply to the general government for a patented trade mark for full cream cheese only. Let him be authorized by law to permit the use of this trade mark by such cheese manufacturers as shall register with him. The commissioner shall furnish to each licensed factory a properly prepared stencil giving the name, address and registered number of the factory, also the words "Wisconsin full cream cheese" followed by the words "licensed by the food and dairy commissioner of Wisconsin." This stencil brand should be placed on the side of each and every cheese made under compliance with the law. For use of this brand each factory should pay a fee of \$5 or \$10 annually, and make an annual report to the commissioner at the close of the season of the business operations of the factory. The revenues derived from this source would doubtless prove sufficient to pay a very considerable portion of the expense of the commissionership, thus relieving the state and bring the expense where it properly belongs.

It will be observed that in this system I propose to only protect full cream cheese, leaving the lower grades to take care of themselves. There would be no temptation when cheese branded in this way reached Chicago, or other distributing points, for the dealer to remove the brand. On the other hand, and this is of the highest importance, makers of skim and filled cheese would be prevented from using this particular brand both in state and out of it. Any infringement would interfere with U. S. trade mark laws, and the user would run a risk of a heavy penalty. My idea is to protect our honestly made cheese by a peculiar brand which points out goods of this kind to the buyer at a glance, leaving all other kinds to take care of themselves. If such a system could be put into effective operation, I believe that the value of our cheese products would be increased at least 10 per cent. When we recollect that the gross sales for this product amount to something like four millions of dollars a year, the importance of this step becomes apparent.

During the past season, our association has had three cheese experts in the field passing from factory to factory giving instruction in advanced methods of cheese making. Until the present year all efforts in this line were without charge to the factory man, but your secretary and president this year acted on the principle that anything that is worth having is worth paying for. It is only fair to this association and the state, which gives us the means for this work, that those who get the immediate benefit should at least assist at least in bearing the expense. We believe that the person receiving the instruction will be a more attentive listener and ready doer if he has paid a part of the cost of the instruction. The instructor will also be stimulated to better work. At first the innovation did not take well in some sections, but by a little perseverance and failing to give attention to those who wished something for nothing, and helping those who were willing to pay, the instructors brought the venture to be a successful issue. The fee asked from each factory was \$3, an insignificant sum. Hereafter I recommend that not less than \$5 be charged for each factory visited. It is but justice to those interested to state that our instructor in Richland county, found a people anxious to learn and willing to pay even more than the fee asked. In nearly every instance \$5 were paid, in some cases \$10, and one co-operative factory voted to this association \$5 a month for the working season of about 8 months. Here is evidence beyond peradventure of the value of the work done by our State Dairymen's Association. Richland county has backed us up nobly in the work and is still pushing ahead. Not content with what has been learned and with the reputation already attained, several of her best cheese makers are in attendance at our dairy school, and are proving themselves faithful pupils.

Close knitted with the work of this association stands that of the Dairy School at the State University. A year ago at the annual meeting of this association, our beloved teacher, Hiram Smith, stood before you and eulogized the Dairy School then but just established. To many of his listeners his statements seemed overdrawn and the picture

too full of color, when he described the good that should some day come from that school, and predicted that to hold a certificate of proficiency from it should be counted an honor. This winter there have been seventy students in attendance, representing nine states of the Union and Canada. It now appears that what was predicted is near to realization.

In the death of Hiram Smith this association has lost its strongest member, and each and all of us a dear kind friend. He was a dairyman first, last and always, and was ever ready and willing to stand in defence of his chosen vocation. The high position held by this association among kindred organizations as well as the advanced position Wisconsin occupied in dairying, is due in no small measure to this man. His whole life was an example of what is possible only on American soil, where a man can start single-handed in life and by genuine merit and personal worth, make himself one of the best known citizens in the land. Thousands have run successful careers in the professions and politics, and not gained a fraction of the fame or done a moiety of the good of this plain, unpretentious man, who gave so many years of his life in pushing forward our agricultural interests.

And now, in closing, allow me to remind you that if we are to hold this association up to the high standard it has attained, and carry forward all the lines of work that have been inaugurated by the pioneers, who established and carried it through its early years until these recent times, we have a great work to do. The motto of our state is "Forward." There are those who would call a halt, or would turn back the hands of progress a score of years. If we are true to the instincts and power inherited from our predecessors in this association, none of these threatening evils will come to pass. "Forward" has been our motto in the past, and "Forward" it shall be in the future.

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On motion of Mr. Thom, the President's address was turned over to a committee on recommendations, with instructions to report to this convention.

The Chairman—The President's remarks in regard to bogus butter and cheese must strike home to every dairyman here. I am reminded by them that our first fight after our organization was to overcome the prejudice which had grown up against Wisconsin cheese. At that time buyers would come up here and buy up the cheese, select the best of it, brand it "New York Factory," while the poorest was branded "Wisconsin cheese." I have seen that done in Milwaukee. I was talking one day with a gentleman who had a large quantity of cheese stored in his place, the first class being put in one pile, and the other in another pile. While I stood there he directed his man to brand the fine cheese "New York Factory," and the other "Wisconsin." I asked him about it, I said "what kind of a way of doing business is this," and he responded that that was the way they got the best prices for it. I said to him, "If ever you get my cheese to brand that way, you will pay all good cheese is worth and more, too." It was such things as that that led to the organization of this dairy association. I now introduce to you the Hon. H. C. Adams, who will address you on the subject of

## THEORY AND PRACTICE IN THE DAIRY.

By HON. H. C. ADAMS, Madison, Wis.

A theory is a cause given for a fact, it may be a speculation about things not known. A theorist is crucified by unbelievers. He plants his feet upon the earth and runs the ladders of his logic to the stars, sometimes. A theorist saw steam lift the cover of skillet. To-day steam does the work of tens of millions of men. As many theories have been born as mosquitoes. They have been the curse and the blessing of mankind. Every human being is a theorist, even to the man who has a theory that he is not a theorist. Sensible men theorize about everything except women. Nothing can be good in theory and bad in practice. When it can be, you can go to Chicago and St. Paul at the same

time and on the same train. A theory is only good when it is true. An English philosopher said that there was no tragedy in nature more terrible than the murder of a beautiful theory by an ugly fact. A theory in business that cannot be practiced is the driftwood of thought floating upon the current of affairs and poking holes in the bottoms of labor crafts. No man is as good or as wise as his theories. We ought to have no grudge against theories on that account.

The dairyman, like everybody else, ought to drive a double team—theory and practice—hitched up together. He will then get along faster and make a better appearance. There are two kinds of men who need mixing—the men who do nothing but concoct theories and the men who are so practical that they don't sleep nights for fear that they will have a dream that they cannot sell to somebody for more than it is worth.

Before a cow was ever milked by the hand of man somebody had a theory that she could be. Theories opened the way to butter and cheese as well as to this continent. There was a theory before a churn, before the analysis of milk, before the use of rennet in cheese making, before the Babcock test, before the organization of this association. The fruits of theory are the golden apples of practice. W. D. Hoard had a theory about the dairy temperament in cows. He was abused without stint as a theorist. So-called practical men said we must know more about this question than Mr. Hoard because we own more cows, what can he know about the cow business when he is running a newspaper. But while these men had been milking Mr. Hoard had been investigating, classifying and theorizing about the animals milked. He looked back of the model cow for the springs of action which were behind her splendid performance. He traced her origin by the laws of selection, environment and heredity. He pictured distinctly before the dairy world a typical dairy cow with a reason pinned by logic to meagre flesh, dishing face, small head, sharp shoulders, strong prominent backbone, flat, sloping ribs, well hung udder, mellow skin and every dis-



tinctive feature of her anatomy. He tied butter and nervous energy together and located them in the cow hewn out by thought. Thousands of dairymen have honored this theory by acceptance in practice and have more money for that reason. Thousands more believe it to be true and do not incorporate it in their business.

Here we come to the model dairyman—the man of good theories and consistent practice. We do not come to him often because he is a rare specimen. He has two ways of getting at the cow question, through his own experience and the thought and experience of other men, and then he does what few of us do—the best he knows how to do. If every dairyman in Wisconsin could be induced by persuasion, his wife, or a thunderbolt, to do that now, there would be cow hides to sell on several thousand farms in this state within twenty-four hours. The greatest obstacle to the advancement of Wisconsin in dairy matters is the popularity of the theory that one cow is about as good as another if as well treated. This is the pet idea of self-styled practical men. Its fruit is the average cow with her annual butter yield of 125 pounds. The owner of this cow would call D. F. Appleton, of Ipswich, Mass., a theorist and a fancy farmer. Mr. Appleton breeding to a purpose obtained the now famous Jersey cow, Eurotisama 29668. The owner calls her a line bred Rioter Alpea. She is a double granddaughter of Eurotas, who has a butter record of 778 pounds in a year, and traces through her sire, Young Pedro, several times to Alpea and Rioter Second. Eurotisama made from April 22, 1889, to April 21, 1890, 945 lbs. and 9 oz. of worked and salted butter. In the eighth week of the test she made 27 lbs. 1½ oz. In the first six months 547 lbs. 9½ oz. of merchantable butter was made from her milk. Each milking during the entire year was weighed. The largest daily yield was 17½ quarts. In the forty-fourth week it fell to 11 quarts. The grain ration at the beginning of the test was 24 lbs. per day of about equal weights of corn meal, oat meal and wheat middlings. The proportion was continued and the amount dropped to 21 pounds after the first four months, until the last month when it was dropped to



19 pounds. She was in calf during the last five months of the test. Her weight was 850 pounds. She was given no medicines or stimulants whatever. Her owner, in a published statement from which these facts are taken, says, "I am particularly proud of having bred both her and her sire, and that I selected her dam and her sire's dam as calves for the blood that was in them, for the avowed purpose of trying to produce just such a cow as she is." Here we have the practical outcome of a theory in breeding—the production of a cow of wonderful digestive energy and butter manufacturing power—a cow which could eat \$116 worth of feed in a year, and produce \$236 worth of butter.

G. W. Farlee, of New Jersey, obtained in one year from Gazelle 3d 751 lbs. 6 oz. of butter and only fed an average daily grain ration of  $10\frac{1}{2}$  lbs. The same breeder brought Sigmaretta 2nd to a butter yield of 680 lbs. on an average grain ration of 8 lbs. per day.

E. T. Gay, manager of Maplewood stock farm, Attica, N. Y., publishes a week's test of the Holstein cow, Parthenia 9597, in June, 1890, during which a total milk product was obtained of 548 lbs. 3 oz., yielding 38 lbs. and  $8\frac{1}{2}$  oz. of butter. She received 27 lbs. of ground feed per day consisting of oats, bran, oil meal and corn, was in a pasture days and stable nights.

W. Gettys, of Athens, Tenn., obtained, in 1890, from a herd of 25 Jersey cows 1,560 lbs. of butter, or an average of 302.4 lbs per cow. The winter grain ration was 12 quarts per day of corn and oats ground together with a little bran and oil meal.

Mrs. Mary E. Criswell, of Davenport, Iowa, has 20 Jersey cows from which she sold last year 6,300 lbs. of butter at 25 cents per pound, a yield per cow of 315 lbs. In our own state, Flack, of Elkhorn, C. P. Goodrich, of Fort Atkinson, Gage, of Whitewater, and many others have reached the splendid average of an annual product of 300 lbs. of butter per cow. These statements are not airy speculation as to what might be done, but a record of things already done. Would it not pay the man with the average cow to be a little more practical and

find out what hollow and butterless theories he has been harboring. Is it theoretical to make money and practical to lose it? In a carefully prepared record of a year's work with a dairy of 27 cows read by Dr. Porter, of Viroqua, at Madison, last week, it was clearly shown that one cow in the lot made more for its owner in clear profit than all of the rest put together.

The most practical consideration in this whole business, after we get beyond the dairyman himself, is the cow. Put the average cow into the best barn that man ever made, give her the best feed that ever grew, make up her product by the best method known, sell it in the best market for the best price, and no dairyman who is truly practical will ever be satisfied with the result. Everybody is after the scrub steer with a club. Popular judgment has risen in wrath against a creature that will eat everything for three years and then sneak off the scales with 1,020 pounds to his credit. The scrub cow is his sister, but he character is not as good as his.

The practical dairyman will do one of two things with this kind of cow—get rid of her or improve the blood with a thoroughbred dairy sire. The first method is the cheapest.

Last July I took samples of milk from fourteen cows in my herd of thoroughbred Jerseys, to Prof. Babcock of the Experiment Station for analysis. The butter fat was extracted by his milk tester. I had some of my theories about the individual merits of my cows turned bottom upwards in just sixty minutes. Most of them, however, were sustained by the test. The weather was hot and the cows upon short pasture. The only grain fed was a single handful of middlings, to attract the cows to the barn. The following is the list of cows by number, the daily yield of milk in pounds, the percentage of butter fat, and the probable weekly yield of butter:

No.	Daily yield milk.	Per cent. fat.	Probable weekly butter yield.
	<i>lbs.</i>		<i>lbs.</i>
1.....	26	4.16	8.96
2.....	24	4.44	8.82
3.....	17	4.87	7.14
4.....	34	5.28	14.94
5.....	22	4.38	8.12
6.....	29	4.57	9.94
7.....	30	4.51	11.34
8.....	20	6.39	10.62
9.....	25	5.04	10.50
10.....	28	3.75	8.75
11.....	36	4.57	13.04
12.....	27	4.10	9.27
13.....	26	4.28	9.41
14.....	28	3.81	8.89
Total yield for one week estimated. ....			139.74

This indicates a weekly yield of very nearly 10 pounds per cow. In making the calculation to obtain probable butter yield I have added to the pure butter fat 20 per cent. of its own weight for the water, salt and other elements which enter into the composition of commercial butter; or, in other words, I have made these elements 16 per cent. of butter as made. This calculation is perhaps defective in assuming that all of the butter fat has been recovered in churning. The test was valuable in showing the variation of a number of cows producing milk under exactly similar conditions. It induced me to change the price list of my stock from what I thought they were worth to what I knew they were worth, upon the basis of individual performance. Out of the thought and experiments of Prof. Babcock, Prof. Short and others, who have spent years studying the cow and her products, bringing the exact knowledge of chemistry and the light of trained judgment to bear upon theory and fact, we are getting more well defined ground to stand on, we are obtaining through their theories a sure test of the correctness of our own.

Even when using all the knowledge brought to light by our experiment stations, by the agricultural press by consultation with men in the same business, the dairy business

is hard enough in its practical details. If there is perpetual motion anywhere on earth it is in a dairy that amounts to something. If the dairyman is poor and cannot afford to hire help he must furnish that motion himself. If he is rich he furnishes it just the same, looking for a man who can do it for him. For twelve years I did a good share of the detail work in my dairy, for about half that period getting up at four o'clock in the morning, summer and winter. Some of my distinguished friends who are in this convention to-day insisted in that delicate way, characteristic of great philosophers, that I was a fit candidate for an asylum not yet established in this state, because I did not hire the work done. It was a case where a mighty poor theory grew on a good soil.

Good men for dairy work in Wisconsin, are scarcer than well cured full cream cheese in the local markets. If anyone goes into the dairy business upon the theory that he can depend on getting good help and plenty of it, he will think that he has landed in a wilderness of woe before he gets through. Men do not like to milk, boys generally dodge it if they can, and women—if a man wants to die on the same platform with a beautiful theory he should ask some American woman to milk. There is only one gentleman in this association that I know of who has met this question, with the diplomacy of a woman and the courage of a lion, and induced his wife to do all of the milking. In this he has manifested the same practical talent that he has shown as our secretary. There was more or less sentiment thrown over cows and clover and milk-maids in the last century but it is rather difficult now to idealize the dairy. In the place of the dairy maid with wide open innocent eyes, round white arms and a clean apron, we have a man whose eyes are seldom wide open, and who says things to the cows that are more practical than poetic. The clover has largely given way to ensilage. The smell of the new mown hay is displaced by the odor of New Orleans molasses that creeps from all the breathing places of the silo. But the cow is just as sentimental as she ever was and has to be milked just the same. She has even more

intelligence than she ever had in the days made golden by distance, and it requires more intelligence to handle her.

The question of help in the dairy is a prime question. Stupidity can be managed in any line of farming except in the dairy. The incessant work required in the case of cows makes the business distasteful to most men. It is idle to attempt to disguise this fact. The result is that the dairyman has his selection of helpers after the ranks of laborers have been culled by every other kind of business. In Canada I found that the large dairymen provided tenant houses on their farms, and that no tenant was taken who did not have at least one woman in his household who could milk ten cows twice each day. We can help this matter of labor some in this state by the building of tenant houses and the employment of men who have families, and are therefore more settled in their habits.

To save time and bring essential points in dairy practice to the attention of the convention the following statements are made:

1. A good cow is one that will produce, when well cared for not less than 250 lb of butter per year.
2. The prime purpose for which all cows should be fed and bred is the production of butter fat.
3. The general purpose cow has not been born.
4. Winter dairying is most profitable.
5. Cows should calve in June and October.
6. Calves should remain with the cows until milk is good, then feed new milk ten days and from that time until nine months old feed sweet skimmed milk and oats or middlings.
7. Calves intended for the dairy should never get fat.
8. A cow need not and should not be milked up to the time of calving.
9. Economize in everything but the purchase of a bull.
10. Give a bull plenty of exercise and little grain.
11. A mature sire is most prepotent.
12. Do not put a fortune into a cow barn.
13. Build a silo large enough to furnish one-half the coarse feed wanted and fill it with B. & W. corn.



14. Do not give a grain ration in the summer if there is plenty of rich pasture grass which is the case about once in a hundred times.

15. Keep cows in the barn in winter constantly, unless they are comfortable outside, and give them warm water with middlings in small quantities stirred in.

16. Raise pumpkins by themselves on the richest land on the farm, with rotted manure in the hills, that should be eight feet apart each way. No food known will make so good a quality of milk.

17. B. & W. corn fodder, well cured in the field and fed uncut, will make more milk than the best clover hay.

18. Middlings are usually the cheapest grain food; corn meal and oats the best.

19. Malt sprouts are rich in protein and should be soaked and mixed with corn meal or shorts.

20. Cows will do just as well whether fed coarse feed twice or six times a day.

21. Cows should be milked by the same milkers at exactly the same time each day.

22. Gentleness in the dairy commands a high premium.

23. Set milk at any temperature above freezing, and do not worry about the latest fad that it must go into water at 45 degrees or good butter cannot be made.

24. Brine salt butter if you want a row with your local customers.

25. The person who can get into butter just the amount of salt that the moisture in the butter will dissolve and not overwork the butter will have little competition in this state or any other.

26. Oats give color to butter; cornmeal, grain and quantity.

27. Any man can make money through the dairy business who will be a persistent student and worker. Its labors are great, but its rewards are surer than any work on the farm. In its constantly changing problems it carries with it a stimulus to intellectual life. It enriches a man's farm and broadens his mind. It carries with it the golden key of success, and the man who will, can learn its secret and



turn it aright, so that there will open to him those comforts and that satisfaction for which he is fighting the battle of life.

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President Henry in the chair.

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DISCUSSION.

Mr. Sawyer — Do you say that corn fodder is better than clover hay?

Mr. Adams — I say that good B. & W. corn, uncut, is better feed for milch cows and will produce more milk and more butter than the best clover hay, under all the circumstances that I have ever run against.

Mr. Sawyer — Do you run against the German food rations any? That is, do you count the digestible elements in ground fodder and clover hay?

Mr. Adams — I have stubbed my toe on those rations several times, and while it may be true that their statement of the nutritive ratio of feed rations is correct in many instances, in practical working in the dairy I find I can get along with a different ratio, and that my cows do very well with a ratio of one-sixth of nitrogen to the carbohydrates. I have been asked why I speak of B. & W. corn particularly, and I will say this, I can raise a larger amount upon an acre of land of food for cows in the shape of B. & W. corn than anything else I ever raised. I think they like it better than any other variety except sweet corn, and I can certainly keep more cows upon an acre of land for six months of the year with that variety than any I have had experience with.

Mr. Favill — Is it because there is so much more, or because it is better?

Mr. Adams — In the main because there is more of it, and because in a hot, dry season, it makes better growth than dent corn, or any other raised about this state.

Mr. Sawyer — The chemical analysis shows one to twelve only.

Mr. Adams — Of course, you have to feed shorts or midlings with it.

The Chairman — If any of the farmers in this vicinity have had experience with B. & W. corn, we would like to know whether they agree with Mr. Adams?

Mr. Hazen — I have had considerable experience with B. & W. corn. My experience is it will grow about fourteen feet high on my land, and four seasons out of five, it will lop so that we must cut it all by hand, and it is hard stuff to handle. I have been using a variety of corn called the Sanford. The stalk will keep green later than any other I ever planted, and it is very sweet. My opinion is there is more nutriment in it than in the B. & W. corn. It will grow from twelve to fifteen tons to the acre and we cut it green with an old-fashioned reaper, go along and cut as fast as the horse can walk, and one man can cut as much in an hour as ten will in any other way, and men are harder to get than land out our way.

Mr. Ford — I have had some experience with B. & W. corn and am a good deal of the opinion of Mr. Hazen. I would compare it with our native varieties about the same as I would bass wood and maple.

Mr. Mathews — I think the difference in locality has a great deal to do with it. I planted it four years and I found it very difficult to get it mature enough to make good fodder. I planted three and one-half feet apart and about six quarts to the acre. I have tried it both in my silo and as dry fodder, and it was pretty good fodder, but I think that the earlier corn is better here. Last year I tried the red corn for ensilage and it cured better and had large ears on.

Mr. Thomas — I live 70 miles north of Mr. Adams and my experience is that it grows so big it don't mature any ears on it.

A Member — We have raised large quantities of B. & W. corn, but we have concluded that — with feed at the present prices — we can't buy enough to feed with the B. & W. on an acre of land to pay for the sweet corn raised on the same amount of ground.

Mr. Thom — I notice that Mr. Adams urges winter dairy-

ing in one formula, and in the preceding one he urges the dropping of calves in June. I can't cipher out how you can run a winter dairy with June calves.

Mr. Adams — Do you go to the public school or private? I made that statement with reference to cows calving in October and June for the reason that, in June the conditions are very favorable to a large production of milk, and it is my experience that, if you can get them well started, you can keep them up in good shape; but if they happen to be fresh in July, or early in September, when the weather is hot and pasture short and flies bother them, they start in short, and it is impossible by any care to bring them up to the standard they might reach by coming in any other time of year. What is true about June is also true of October. I thought that over and decided in my own mind that those were the two best months; but practically, in managing a winter dairy I would have at least two-thirds or three-quarters of the cows calve in October and the balance in June, because we want fresh cows at different seasons of the year.

Mr. Hazen — I can't agree with Mr. Adams. June is the last month I would have any cow have a calf on my farm. It is my experience that cows are very liable to have milk fever coming in fresh in June. If I wanted them for a summer dairy at all, I would have them come in in April.

Mr. Favill — The month of June is all right for heifers with their first calves, but not the fully matured cow.

A member — I would rather cows come in in the latter part of November and first of December. If they come in on grass they have a good flow of milk when they first come in, then when they change from grass to the dry feed they are very apt to shrink in their milk, which does not happen if they come in after grass time.

Mr. Sawyer — I want to touch on this fodder question again. I don't believe a person ever made a mistake by putting in too much clover or by relying upon clover as a feed for milch cows, and you certainly can get along feeding clover at less expense of buying other foods to balance it up than

you can corn fodder. Clover should be a prominent feed in any locality for dairy cows and it does well here.

The Chairman — The point is well taken by Mr. Sawyer. Our farmers should be so far as possible independent of heavy purchases of feed. This association has always urged the purchase of feed, we have been very liberal in all of our statements, but sometimes this thing should take the other turn. Now, clover does furnish what corn fodder or corn silage lacks to a large extent. Clover is very rich in those elements which furnish the cheese part of the milk, and which the cow must have to put into her milk whether you are using her as a cheese or butter cow, and the farmer that has clover to back up his corn fodder is in condition to buy less bran, less shorts, less oil meal than if he relied upon corn stalks alone.

Mr. Adams — I did not mean to intimate that clover was not good feed at all. I just simply said that corn fodder is better food to produce milk in conjunction with the grain ration, and in all my experience of feeding cows, I never have been able to dispense with any considerable portion of the grain ration when feeding clover. I found when I changed from the best fodder to clover hay, my cows would shrink from five to ten per cent. in their milk flow, and when I changed back onto the corn fodder I had a corresponding increase.

Mr. Mathews — I would like to hear from some one who has had experience in feeding buckwheat bran. We have one mill here that is turning out a thousand tons of buckwheat bran a year. We have another mill that is perhaps turning out thirty, or forty or fifty tons. There is a great deal of buckwheat raised in this country. I have fed some and I think some others have fed some.

The Chairman — What is your experience?

Mr. Mathews — You know how it is with the farmer. We don't know much about it, but I can see that it will increase the flow of milk, I think it will give me more milk than any feed that I feed for the amount of money that I pay for it, and I know of no evil results.

A member — I would like to ask Mr. Adams how much corn there was in that fodder that he fed?

Mr. Adams — The whole of the corn was left in.

The Member — No wonder your cows gave milk.

Mr. Adams — That is the reason I believe in it. I have fed buckwheat bran, though I haven't had much experience with it. I have experimented more or less with all the grain foods I could get hold of, and my experience with buckwheat bran has not been very satisfactory. My cows didn't take hold of it, very much, and it seemed to make rather light milk. I think it will do to mix in with corn meal.

The Member — If you fed your cows as much grain in connection with your fodder as you did with your clover, you were giving them three or four quarts of additional grain every day.

Mr. Weeks — I think there is a great deal of difference in buckwheat bran. In my opinion buckwheat shorts are a most excellent food. Different mills have different ways of treating the by-products, but I believe that some kinds of buckwheat, with very little of the outside shell, are most excellent food. I have fed it when I was satisfied it was better than wheat bran, while at other times it was composed largely of this outside shell, and was of very little account.

Mr. Lloyd — When buckwheat bran runs into the bin, the husks fall down on the side, and in drawing from the bran mill you will sometimes get nearly all those husks, and when they are fed largely to cows it scours them; it is too rough a feed for the coatings of the intestines, but where it is taken out right it is good feed. At the Wright mill, here in town, they are burning these husks for fuel; they think that for that purpose they are about equal to the same weight of coal. That takes them all out of the buckwheat, and leaves fine feed. The water mills don't take them out, and when you buy it from those mills you have to take it as it comes, and you are lucky if you can get into the middle of the pile.

The Chairman — This is an important matter to the farm-



ers of this locality, particularly as you have conditions close by for procuring this feed. I am looking up the food question, and am very much interested in these experiences. I would like to know how many of the farmers in this audience are feeding buckwheat bran, and how many think it is good food? Now, how many think it poor food? Let's have a show of hands. Nearly one-half. Now, why? Give the reasons for it.

A Member — It is just the difference in the different mills. There is a mill a short distance from my house that sells buckwheat bran, and another one not much further off that sells what they call buckwheat bran, but it is clear black husks, and no cow will eat it.

Mr. Beach — In some of the mills of Michigan they take off the husks and they go into bran, and the rest of it goes into flour. I think the grain of buckwheat is as good milk producing feed as there is to be fed. We all know the heating properties of buckwheat cakes.

Mr. Bender — I agree that it is good feed and I do not think it has any effect on the quality of the butter.

Mr. Darwin — My business is combined milling and dairying. One year, during the winter, we had a surplus of buckwheat in the mill and oats were cheap while other feed was comparatively high. So we mixed them, ground the buckwheat and the oats together, and it made a very fine article of food for our cows. In the process of flouring buckwheat nearly all of the mills at present are using hullers, reducing the rest to flour and offal. The hulls, of course, have no value for food. They are good fertilizers to mix in the stable.

The Chairman — If buckwheat is a good food, there should not a pound of it leave this community to go to dairymen at a distance. You ought to feed it out yourselves, and not allow others to take it away from you and feed it in competition with you, and then the fertility is kept up upon your soil. Every town as you know, tries to get a saw mill located there because it brings something to the town. Why let these logs float by your town? Why let this buckwheat go away from you while you feed high-priced substitutes?



The German Experiment station has shown that the hulls are worth nothing as food. The millers ought to give you bran and shorts free from the blackened hulls.

Mr. Darwin—We have no trouble in disposing of our buckwheat feed at \$16 and \$18 a ton.

A Member—I made a little experiment one winter. I fed my cow for four weeks buckwheat shorts, then I changed the feed and fed corn meal for about three weeks, and she fell off about two quarts a day during the time I was feeding corn meal and about two pounds of butter a week. Then I changed back on buckwheat shorts and she immediately came back to the original flow of milk. Of course, this was good buckwheat, free from hulls.

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### MY EXPERIENCE WITH A CREAMERY.

JAMES H. BREWER, Berlin.

The subject assigned me for this paper: "My Experience with a Creamery," I think would be a very pleasing one for any of the creamery patrons in my locality to talk upon, although to get them fully interested, one might have to emphasize this little adjective, making it *The Creamery*, which would then be readily recognized by any of our people as "The Koro Creamery."

I have been a patron of this institution since its organization, three years ago, and as this is the only one I have ever had any experience with, will have to confine myself to *it*.

Although it is in a rural district, our people are *not* all rustics, and I believe that upon close investigation of the heads of our average farmers and their cows, you would seldom find anything worse than an occasional hayseed.

In this creamery company we have \$1,490 subscribed and paid, most of which has been used in erecting and furnishing a creamery building, a little of this money still remaining in the treasury. The creamery is conducted strictly on the co-operative plan, the patrons all share and share alike. The business has not been pushed to see how

large an amount of butter could be manufactured, but more attention has been paid to have the quality of what *was* made of the best.

The deep can, submerged system, of setting milk, was adopted at the start, the patrons to do the skimming, a man with team and large cream tank gathering the cream every alternate day. This plan seems to be the most satisfactory to our farmer patrons, as they do not have to leave home in a hurrying time, to deliver their milk at the factory, as with other systems, even the checks for their butter being delivered to them at the end of the month by the cream gatherers. Should there be any dissatisfaction at any time with any of our patrons, or should any of them have the curiosity to know exactly how the business is being conducted, or be fearful they are not getting all that belongs to them, they have only to apply to our secretary, whose books are always open for perusal, that they may satisfy themselves how every dollar is expended. But we have had very little of this kind of work to attend to, although there does seem to exist a general feeling of dissatisfaction among nearly all our patrons, because our creamery was not put in operation ten or fifteen years sooner than it was. And it is surprising our farmers not a little to find how many cows can be kept on their farms, many of them having already doubled their herds and are only lacking barn room that they may double or quadruple them again.

This much in the way our creamery is conducted, and now as a patron my experience is, in the first place it relieves our women folks of a large amount of hard labor, and if any one thinks it is not hard work to churn with an old fashioned dash churn, from an hour and a half to two days to bring butter, if they will visit me I will soak up our old churn and let them experiment with it. Why, I believe that in future generations, a dash churn will be looked upon as a great curiosity, and that they will be sought for as bric-a-brac and when found, gilded and festooned, and placed in parlors or on mantels, as relics of a semi-barbarous race.

Although my wife is three years older than when our creamery started, she is to-day handsomer, and having more time to read, is better informed and — better natured. Experience, why this alone ought to satisfy any married man. But if not we will glance at the financial part. Before the days of our creamery, we kept a limited number of cows, limited because they furnished all the milk my wife could attend to, made our own butter, which was pronounced by competent judges to be good, and would take it to our merchants and barter it off for store pay. The past year our little creamery has distributed among its patrons within a small radius over \$20,000 in cash.

Our creamery checks to patrons, although made out on our Berlin bank, are frequently cashed by private individuals and by Ripon, Oshkosh and Milwaukee banks. Our farmers can use this money to purchase goods with where they choose, or where they can do the best, or if they have more than they wish to take in store pay, can salt the rest down or use it in beautifying their homes and improving their farms.

And this is not all; when any particular feature of husbandry on the farm pays financially, the farmer can and *will* take more pains, interest and pride in working it to a success. Our farms needed fertilizing in some way, and by adopting dairying, we are manufacturing our own fertilizers, and while we are enriching the soil on our farms, we are each year reaping larger crops, consequently can keep more cows and get larger returns from the creamery.

And these returns coming in each month, encourage one in the better care of his cows, namely: better protection from storms and better stables; less ice water and more tank heaters; better feed and more of it, and less persuading of cows with one leg milking stools. A few words of criticism some years ago from a neighbor, saying my cows were looking rather poorly, has been worth a good many dollars to me.

I did not like the criticism at the time as I felt it to be only too true, and I have since found it, without taking into

account the *profits* financially, which by the way is no mean item, that it is far less rasping to the sensibilities to hear one's stock spoken of as looking well, and you are better satisfied in your own mind to know you are dealing honestly by the dumb creatures intrusted to your charge.

Make you business attractive. Keep you stock so your boys will be proud to show it off, and let them know there is money in it, and they will take more interest in studying and looking the matter up. Education will do one no harm on the farm. If you are a good book-keeper, all the better, keep a set of books on the farm, and you will find it a great incentive to plan your work, and industries so as to have the balance at the end of the year show to your credit.

As an educator for the farmer I believe the creamery is unsurpassed. It encourages him to read more, to use more brain work, and with the different methods at hand of testing the value of our cows for the creamery, it gives one a chance to weed out the poor ones, so we may soon have a herd of good paying animals.

And then with the experiments our scientific men are constantly giving us, in regard to different feed rations, what these rations will do, and what they will make when properly administered to the right kind of a cow machine, one can have but a poor excuse, if he does not receive good returns for both feed and labor.

I believe that grain must be very expensive indeed when a good milch cow will not well repay one for good generous rations of ground feed daily, especially if you patronize a good honest creamery.

And still further, "my experience with the creamery" has taught me that there is nothing that will make young pigs grow as this sweet skimmed creamery milk. So the more good cows one keeps, and keeps well, means larger creamery checks at the end of each month, and larger lots of large fat hogs to dispose of occasionally, and a larger balance in his bank account to his credit at the end of each year. And the outlook for the patrons of our creamery now seems to be, through the fertility of their farms, derived from the increased number of cows kept thereon;

that they will raise larger crops so they may keep more cows, to make more butter to buy more land, to keep more cows to make more butter to buy more land. And that it can be a matter of but a little time before each one of our farmers will be able to purchase all the land adjoining them, and thus give them full scope for all their ambitions as dairymen.

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#### DISCUSSION.

A member — How do you divide up in that creamery?

Mr. Brewer — We take the expense of running the institution each month out of what money we receive for butter that month, then the rest is divided up pro rata, according to the quality of their butter. We use the oil test churn, and every patron's cream is tested at every churning, and he receives pay for just the amount of butter he delivers.

Mr. Sawyer — Do most of your patrons put up ice during the winter?

Mr. Brewer — Yes, nearly all of them put up ice.

Mr. Sawyer — Does it make any difference in regard to the quality of cream, whether a man has ice or don't have it, that is, whether the cream has soured a little, got pretty ripe?

Mr. Brewer — We don't take any such cream. If the drivers find any such cream they are instructed to leave it, let them churn it at home. We have a very good butter maker, the same one we have had ever since we started the factory and we leave that matter to his judgment.

Mr. Sawyer — I ask these questions because I find a great many places where the oil test was unsatisfactory, that nine times out of ten, this dissatisfaction comes from the fact of the cream being taken from the patron in a sour condition, in which case it is almost impossible to take a fair sample of the cream. If the cream is perfectly sweet there is no difficulty about that. At a certain creamery that I know of the butter maker won't take any sour cream. It happened to be the leading man who made the first move in sending his cream sour, but his cream was left at home.



I will guarantee that if his cream had been taken when it was a little sour, there would have been much more dissatisfaction than there is to-day, but by establishing a good rule and then sticking to it, the success of such creameries is almost assured.

Mr. Floyd — I would like to ask Mr. Brewer how the tests compare with the churning.

Mr. Brewer — We always intend to have our churning pan out a little better than the test, if anything, and in that way the patrons get all there is in their butter. If we have a surplus over the test at the end of the month, we divide that among the patrons the same as the rest.

Mr. Thomas — I want to ask Mr. Sawyer when they take samples of sour cream do the samples show more butter or less?

Mr. Sawyer — The trouble is that your cream is lumpy. A few of those lumps of solid cream getting into the bottle will show you a larger per cent. of butter fat in your test than you have in the churn. If instead of running into the bottle, the lumps run outside and the thin part into the bottle the churn will show more. A test with sour cream is an unsatisfactory thing, because you don't know what you are depending on, and the trouble comes from the difficulty in getting a fair sample.

Question — Do they get lump cream where they keep the milk submerged?

Mr. Sawyer — If you hold that cream two or three days in water I will guarantee there is some lumpy cream.

Question — Mr. Brewer, what is the cost of gathering and manufacturing?

Mr. Brewer — For the last year it cost us 2.87 cents a pound for manufacturing at home, that includes everything but the shipping.

Question — How far do you gather your cream from?

Mr. Brewer — We have a few patrons probably six miles from the factory, but most of it not so far. We have for gathering a large tank that will hold about 180 gallons, and we do not gather it in a churnable condition. It is gathered cold and too sweet to churn.



A member — Our expenses for the last year of making, selling and everything, were 3.89 cents. We haven't allowed anything for depreciation of the building, but that covers repairs. I speak of the Floral Creamery.

Mr. Van Kirk — Tell us the average price of butter per pound for the whole year, Mr. Brewer?

Mr. Brewer — The average price has been 15.33 cents per pound but we must take into consideration that the bank failed on us here in Berlin, last summer, and we lost considerable in that, and the patrons stuck to us and helped us out on it, so it is not as much as it would have been otherwise.

A Member from "Floral Creamery" — Our net to each patron was 17.6 cents.

The Chairman — I wish to announce that the greatest event that is to happen in this whole part of the state, the greatest event between now and the Columbian Exposition, is something which takes place to-morrow night in the banquet of the Wisconsin Dairymen's Association. The time will come when the greatest honor you can refer to after having said that you were at the Columbian Exposition, is to be able to say that you attended the banquet of the Wisconsin Dairymen's Association, at Berlin.

The convention adjourned to meet at 7 o'clock P. M.

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The convention met according to adjournment, at 7 P. M. President Henry in the chair.

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## WISCONSIN AT THE COLUMBIAN EXPOSITION.

By H. C. THOM, Madison, Wis., Dairy and Food Commissioner.

A wool comber's son married Palestrello's fair daughter for the love he bore her and for the maps and charts she brought him as her wedding dowry, the heritage of her adventurous father. Driven by the duplicity of Portugal's king, to seek bread and water for his motherless boy, at a

Franciscan convent, the world's chief mariner found a friend at last who believed the fairy tale about the western land. We all know the story; how it took seven long years to gather 120 men and equip three small ships, only one of which was decked for the perilous voyage. We can understand the iron nerve of the explorer who quelled mutiny and pushed the little boats, burdened with ignorance and superstition, out into the untracked deep, over the very abysses where waited expectant evil spirits to wreck the frail crafts, with no land in sight. The eye of Columbus swept the western horizon, always confident, with a heart that never faltered in its faith. The bridges of skepticism were burned to the water's edge, and the symbol of hope was lashed to the dipping bow-sprit. Such abiding faith must fashion conditions. Sailing birds and floating flowers betoken the consummation of a life study. The veil is lifted from the ocean and the clouds disappear from before the eyes of man. The cross of Spain is planted in virgin soil, and as Columbus kneels and prays, a new hemisphere is added to the world. The ships were then laden with strange animals, and birds, unknown plants and precious stones, and were exhibited in golden basins, upon the heads of Moorish slaves, to the old world. The wool-comber's son was feted and honored by admiring Europe. His sovereigns fell on their knees and chanted the *Te Deum* in honor of the greatest conquest that God had vouchsafed to man. The envy and ingratitude of his age was aroused and flamed without hindrance until the day of his death. His enemies tarnished his good name and filled the ears of his king and queen against him, and at last he was brought home in chains to the country which he had served immeasurably. By a singular decision of Providence or an ungrateful caprice of man, of all the lands of America which disputed the honor of retaining his ashes, not one bears his name to-day. The envy of his contemporaries vanished at his death and all seemed anxious to make amends to the dead for the persecutions they had inflicted on the living. Even America, after 400 years, is trying to soften the injury she has done his name by erecting a statue

upon the record of history which shall spread his renown over the face of the whole world. The untiring devotion of the human race to the memory of Columbus, the admiration of historians to his mighty name, or the expenditure of millions of money in the building of monuments by grateful nations, are alike powerless to remove the tarnish from the escutcheon of mercenary Spain.

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In 1673 Marquette and Joliet pushed their birch boat through Wisconsin to the broad waters of Mississippi. The death of these noble men locked a secret which they had discovered within the confines of the state, from the knowledge of curious men. When nature learned that her friends had perished, the rivers and streams tried to speak, the lakes lashed their shores in the vain attempt to tell what they knew. The mines rumbled in their depths, and tried to arouse the understanding of man, the red cedar and white pines rustled their leaves every winter because of their wisdom; the earth shot forth wild grass and golden rod, and in many ways tried to discover to the east what was in her heart. The waters flung themselves over rocks and tried to show travelers how useless they were when unconfined. The gray granite steadied the mighty hills lightly and proudly, but spoke not. The red deer, glossy and agile, sprang from its green covert and dashed away with a meaning toss of its graceful head, while the dark plum and juicy grape fell to the ground with a sigh.

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A sturdy band of men and women of the east, listened to the story of the west in the song of a bird. The chant was so beautiful that many faces were turned toward the setting sun. Long days of weary march had no terrors. There was a secret beyond the great lakes which they must know. They must discover it and bring back the news to Spain, with gold and beautiful tokens to make the people understand that the records of Joliet, which met their fate in the raging St. Lawrence, had been discovered and might be read to all who would listen.

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This is of the record: "There will be thirty-five million acres south of Superior, lying between Michigan and the Mississippi, which shall be called Wisconsin. Many rivers and beautiful lakes, well stocked with fish, will be found. The country is a high rolling prairie and sloping woodland. Mighty streams feed the Atlantic ocean and the southern gulf. The winters are bright and crisp, the summers cool and delightful. The water is clear and bright and the congenial climate brings the flush of health to the fading cheek. Traders are seen in the distance guiding their steps toward the Fox river. Miners are searching for ore in the southwest. Lumbermen are urging the drowsy oxen in the north. Farmers are busy turning the green sward upon the prairies. Iron is found upon the northern range. Soil is stripped from the central quarries. Railroads are cementing civilization with iron bands. Heavily laden vessels are ploughing the streams and lakes. Whirling wheels are heard in the mills, and factories spring into the world like magic. Men everywhere, all searching for the secret that went down with Joliet." Will they find it? Two millions answer, "We have found it." The world cries out, "I do not think you speak the truth." The years come and the years go. 1893 is here. Now we will prove to the world that we have discovered Joliet's secret. We will bring many costly trophies to the altar of the king of the world and show them in basins of gold, then you will believe.

The axe is laid to the tree; the pick is swung in the mines; the blast is heard in the quarry; the stone and the lathe hum in the mill; the whirr of the sickle wakes the morning; the lowing cow comes from the field in the evening at the call of her master. The puff of the engine is heard drawing its precious freight to Chicago, where is found the court of the world. Here is piled in splendor the result of labor and of skill. Here is evidence of a conquest greater than that of Columbus. The world passes by in one long procession. Verily, it says the earth could not hold its treasure because these men have found it. Wisconsin is indeed a wonderful country. Can we not live

there too? Ah, yes my friends, we are glad to welcome you. We have plenty and to spare; we have work and resources to busy and sustain more men, women and children than all England. We have brave men and beautiful women who will be kind to you. We have schools to teach your children and churches to guide them to heaven. Do not listen to men with narrow souls. They do not live with us. If they did you would not see all this. Some of our men have listened to evil ones of states which have not so many beautiful trophies as has our Wisconsin.

These evil ones say that the copper, the lead, the iron and the silver, has all been taken from the earth, that the red cedar and the white pine have all been slain; that the soil has yielded up all of its substance; that there are too many mills and factories, that the cities are too many and too large; that the farms are too small and too sterile; that there is no work and no home for the poor. Do not be deceived, dear world, thank God, our men did not listen to the council of the evil ones. In spite of the enemies of Wisconsin and progress, our good men have made it possible for us to show our trophies to you in basins of gold. Many men have labored long and hard to discover the secrets of our Wisconsin. After they were found, these men have tried to let the people of the east know that we have many treasures found nowhere else on earth. But their voices were feeble and did not reach far, and they have waited many weary years to get the judgment of the world in one short day. The prayers of many unselfish men are answered at last. We have spoken the truth about our great Wisconsin. Love's labor shall not be lost. You have seen our golden cheese and yellow butter; you have tasted our milk and honey. You will surely come. The treasures are rich and plenteous.

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No country can ever be blessed by a greater opportunity. Searching humanity has at last found a home. There is surely no land of greater promise. We will accept the invitation of the benefactors of the earth and abide with them forever. The king of the world, called judgment,



sings the Te Deum of thanksgiving and praise and directs his people to fold their tents and prepare for a journey. The boatswain sings out his cheery "heave ho" while the spirit of Hiram Smith hovers over "the men that go down to the sea in ships" and guides the hands of the sailors till the last white sail is set and the log-book reads, ——— Wisconsin.

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The Chairman — It is the great honor to be the chosen representative of more than a million and a half of people. There are other honors though that belong to the man whom I shall introduce next. William D. Hoard, for nineteen years has labored faithfully for the dairy interests of Wisconsin, as a member of the Dairymen's Association. He and one or two others that are with us, were the first to found and start that little society on its road of usefulness, that society which has grown and become so powerful as this organization which is before you and with you to-day, and when I tell you that it is recognized that there is no Dairymen's Association that is the power that this is, you will see what a high honor it is to be able to say that for nineteen years a man has worked faithfully with the society. Gov. Hoard is to-day better known in the United States for what he has done for dairying, than any man that ever lived in the state of Wisconsin is known for his political worth, or what he may have done through the political life. I mention this because I believe that peace hath her victories; that the age is at hand when men who work for peace, for prosperity, shall become more beloved among the people of the land than they who go to war to carry arms and work for destruction. More honored than they who work for renown, thinking that they are the leaders of the people, when they are only in their own minds and to a few of their friends, leaders. Gov. Hoard worked with us as Governor, he is now working as he has always worked with us, for dairying, and I have the pleasure and honor of introducing to you to-night ex-Gov. Hoard, who will address you upon the subject of Wisconsin's interests in dairy matters.



## THE TRUE DAIRY INTEREST OF WISCONSIN.

EX-GOV. W. D. HOARD, Ft. Atkinson, Wis.

It is with considerable difficulty that I appear before you to-night and attempt to discharge my duty. I have been suffering for two weeks with a very severe catarrhal attack, and I feel a good deal like some old back number. I do not remember ever attending a meeting of this association when I did not feel more like a boy full of zeal and enthusiasm than I do to-night, but I do not believe I have got roused up yet. There must be something of the old-time spirit in me if I could only shake it out.

Prof. Henry has spoken to you about this organization. It has a history. In February, nineteen years ago this month, I wrote some letters to half a dozen men in the state asking them about what they thought of organizing a state dairymen's association. Some of them were dubious, others were confident, and so I issued a call and it was published in the Milwaukee papers, asking all who felt an interest in organizing the dairy elements of our state to come together in Watertown, and they came and there were six men, Chester Hazen, Stephen Faville, both of whom are with us to-night, H. R. Dousman, Henry C. Drake, W. S. Green and myself, and those six men organized this association. Behold, how great a fire a little spark kindleth. What we are to-day is by virtue of steadfast, constant work in this line.

I want to pay a tribute for a moment to those men. Hiram Smith came to us the next year; he was unable to be present at the first meeting, but those men, and other men with them, have worked constantly without any jealousy.

My friends, I do not believe there was ever an association like it in the history of Wisconsin, not a single jealousy, not a single inharmonious purpose, each man with his eye upon the object in view; single-eyed and single-hearted, striving to promote the honor and prosperity of Wisconsin in this line.

By and by these men will lay down their bundle and be gathered to their rest; they can go with this feeling of satisfaction, that they have not lived in vain; that over this broad and fertile state for years, will be seen the evidences of their thought and their purpose, and the result of their unselfish labor.

I am to speak to you to-night upon the true dairy interest of Wisconsin. A word or two as to the extent of that interest. Let me speak of its financial value. To-day it stands in point of value, among the first of the material forces of our state. The capital invested by the farmers in dairying in Wisconsin, amounts, as near as can be estimated, to \$125,000,000. When this society was organized nineteen years ago, it did not amount to two million of dollars. All this wonderful increment has grown within a short space of time.

There are over 600,000 cows. Allowing that they earn in a year \$40 in gross—and they ought to earn much more—you have a total of about \$25,000,000 of the annual earning for all the cows in Wisconsin.

How was this interest built up? Mainly through the efforts of this association. What has this association done for you my friends? Let me enumerate some of the things that it has done.

First, it organized the scattered dairy elements of the state. Farmers, as a rule, are the most difficult to organize of any class of men. Each man lives independent upon his farm to a certain extent, and measures the world by what exists within his line of fences; consequently farmers are difficult to organize, no matter how seriously their interests may be attacked or may be benefited. They still seem to have an idea that they can succeed better single-handed than any other way. Not so with the aggregations of capital; not so with the railroad interests; not so with any other interest, moral, social, material or religious. Everywhere throughout the world men come together and touch-elbows down the line in adherence to each other, believing that no man liveth to himself alone.

Second, it proceeded to organize dairy boards of trade.

Among the very first of its efforts was to secure organization of dairymen throughout the state in local boards of trade.

Third. It went to work upon the transportation companies of the country, and induced them to make low rates and give improved refrigerator service. Let me give you a bit of history. In 1874 I asked the association to send me to Chicago, and I offered to pay my own expenses, and I guess I did. I went for the purpose of looking after this question of the transportation of dairy products. It was costing them  $2\frac{1}{2}$  cents a pound to send a pound of cheese from Wisconsin to New York, in common freight cars. It amounted to an embargo; it was impossible to take our cheese in hot weather and send it to New York in this way, and every farmer and every cow and every interest was dammed up against this untoward state of affairs. I went into Chicago; I visited the Blue Line and the Red Line and the various lines — went before them with my story. The total amount of cheese production at that time was about 3,000,000 pounds a year. I said: "Gentlemen, I represent 3,000,000 pounds of cheese, seeking a quick and safe transport to New York. What will you do for us?" They looked at me very coolly and, by their actions at least, intimated that they did not think that I represented any such amount, and when I looked myself over I really could not blame them for arriving at that conclusion. But I kept at it, and the last hour of the third day I dropped into the office of W. W. Chandler, who then as now, represented the Star Union Transportation Company. Such a thing as a refrigerator was scarcely known throughout the west; they were just beginning to operate a little in Chicago. I had got wrought up by that time, and I spoke my little piece with no small degree of emphasis, and he whirled around and bent those black eyes upon me, and said: "Well, sir, if you represent any such amount of cheese as that, we will do anything you say. Who are you? What is your name?" I repeated it to him, and he says: "What do you want?" The keen farsight of the true man of business saw the point at once. I said: "Mr. Chandler, our people

know nothing about refrigerator car; they know nothing about transportation in this line. I want you to send a refrigerator car to Watertown, to the meeting of the dairy board of trade, and I will try and have a few factory men of the State there, and I want you to explain this service to them. Come up there; take some stock in us. And I want you to make a rate of \$1.00 a hundred, from Wisconsin to New York, in ice cars." He says: "Is there anything else you want?" "Not now." But the man was so impressed with the fact—and I laid it before him—that if we could secure this easy and safe outlet, that I believed the business would increase from that instant, and that Wisconsin would respond to the great profit of any company that would so step forward and give her relief. He sent up the car; a few people gathered—fifteen or twenty; and from that little, humble beginning, have grown the wonderful results we have seen. He made the rate we asked; at once the whole business began to move between here and the seaboard, and in answer to this, Wisconsin rapidly came to the front.

In 1876, we held the first dairy fair that was ever held in the history of the United States, inviting men from New York to come here and see our goods and disabuse their minds of the prejudices they had concerning them. This little dairy fair was held in conjunction with the state fair, and your humble servant had something to do with it.

This history has been in my mind for years; I have wondered if at some time I hadn't better give the account of it. Now, to-day, my friends, from 3,000,000 pounds of cheese we have risen to the neighborhood of forty or fifty million pounds, from 6,000,000 pounds of butter up to 45,000,000 pounds, and the organization of this work has cost the struggle of years to build up. It is too sacred, too costly a heritage to be laid by idly, or to be attacked ruthlessly.

Fourth, it took hold of the question of dairy education among farmers, and secured the aid of the state to hold valuable conventions and scatter broadcast the best dairy thought of the age. How little do we think that it is the

quality of a man's thought, not the hardness of his hands that determines his fortunes. That it is the quality of every man's thought and judgment that makes his success, and that much labor, blindly bestowed in any direction, may amount to a thousand per cent. less than a little wisely administered. As a people, we need constant attention along these lines.

Fifth, it was the great moving force that first took hold of the experimental station work, stood behind Prof. Henry and backed him in his efforts with all the force and intelligence it could command. That worthy representative of this Association, the late Hiram Smith, who became the first regent from the agricultural ranks of the state, exercised a powerful impress upon the educational progress of our state. He was in many respects an almoner of bounty to the progress of Wisconsin.

Sixth, it was the source from which originated the farm institutes of this state, the idea having been discussed in an executive meeting of the association two years before it was finally brought into shape. From its ranks has gone forth a considerable portion of the talent that has made of the institutes the educational force they are.

Seventh, it was the great moving force that created the Food and Dairy commission of the state, which is now meeting with such vigorous attack from all food adulterators and their friends throughout the land. The question of food adulteration has grown to such an extent that it threatens very largely the work of the farmer, who is the principal manufacturer of food. It is estimated by careful men that the food production of the farmer is supplanted through adulteration to the extent of 25 per cent. Adulteration is rampant and stalks the land in every direction. It seems as though the crystalized judgment of our people should be expressed in some effort to put a stop to this nefarious practice. Not only is the financial interest of the producer at stake, but the health and well-being, the brain and the purpose and the spirit of our people are threatened. What is a man's religion worth if he is starving to death, what is the nation worth if it can't have pure food? Said a



German professor, "What good is it to me if I educate my boy in all the languages and he dies at twenty-one?" Said an eminent physician to me in Boston the other day, "I believe that many of the modern diseases, which are threatening our people, like Bright's disease, is largely induced by the adulteration of food, and that to such an extent has this abuse gone that it calls for the steadfast and persistent effort of every intelligent citizen to put a stop to such a practice." Certainly the farmers of the land ought to be the first to move in this direction.

Eighth. It has exercised a watchful eye over the legislation of the state in promoting the interests of agriculture. All that it has ever asked has been laws that shall give the honest manufacturer of human food his just rights in the market as against fraud and deceit.

It has been one of the grandest farmers' organizations ever known in history. It has put more wealth and prosperity into the homes of farmers and the coffers of the state than any other organization. It has nothing to do with politics or religion; it is not trying to fill the offices, but it is trying to fill the heads of Wisconsin farmers with solid chunks of modern dairy sense.

There are about 1,300 cheese factories and creameries in this state with about an average patronage to each of fifty farmers, or a total of 65,000 farmers, engaged in co-operative dairying.

In addition there are thousands who are supplying milk for consumption in cities and towns and engaged in private or individual dairying. I estimate that there are at least 80,000 farmers in Wisconsin who are identified with this great dairy interest. They demand of our law-givers the enactment of laws and the establishment of law enforcing machinery which shall put dishonesty and fraud in the background. They demand that the law makers of Wisconsin shall not show a more willing ear for political lobbyists, who are in the employ of Chicago fraud butter manufacturers, than they do for this mighty interest that stands under the material prosperity of the state as no other single interest does.

Let us look at the question for a moment from the farm standpoint, for there is where dairying must begin and end. The cow is at the bottom of the whole business. Whether she is profitable or not depends upon the energy and intelligence of the man who owns her. You may build all the cheese factories and creameries you have a mind to, they will not add one single cow to the lot. Men often say, "Won't this business be overdone?" I don't know. I know one thing; that if every man in Wisconsin should resolve to-morrow morning to go into it, it would not increase the cows by a single animal. There would not be a single cow more in the business to-morrow morning. So you see, my friends, that everything depends upon the cow, and it takes two years to make a cow, and then half the time she isn't worth making.

The factory and creamery is the last thing to consider. The first thing is the farmer.

I regret, indeed, I am ashamed to say, that right here in Wisconsin where so much has been done, so much good, sound thought brought out, so much hard work put forth to make the farmer see what it means to be a successful dairyman, we still have thousands who are dragging along with poor cows, poor feeding and still worse handling, who with high-priced land and high-priced feed and low prices for butter and cheese, are hanging to a lot of poor cows that do not pay for the expense of their keeping.

These men do not see the great foremost principle of success, namely: Never keep an acre of land or a cow that does not pay a good yearly profit. It is hard to reach these men with the preaching of a better gospel.

Not one in a hundred of the dairy farmers of this state have ever attended the meetings of this association. Not one in a hundred read a dairy paper. The only progress has been by example, here a man and there a man, an example powerful enough to cause a little ripple upon the face of human effort. Some way to reach these men must be devised. I believe that we, as an association, must enter upon a new line of missionary effort. We must make use of the cheese factories and creameries as dairy centres of

thought, and hold meetings where the patrons can get out and attend them. When Mahomet commanded the mountain to come unto him, and it didn't come, he took the most philosophic view of the case, and said, "I will go to the mountain." Here stands this great mountain of thought, mountain of effort, much of it is rudely fashioned and expressed, much of it is unprofitable, all of it deserves to be profitable. The best interests of the state call for more profit and the present condition of things is largely due to a lack of dairy intelligence amongst men who have entered upon this business without proper preparation. How shall we reach them? I hope to see the day when all the factories and creameries of Wisconsin will be organized into districts, and that these districts shall be easy of access, and that we shall have meetings, more particularly during the winter, where discussions on these questions can be held, and better understanding and practice evolved. The great crying need is to get the farmer to adopt right ideas of dairy practice on his farm. He does not need more capital, he don't need more land, heaven knows he has too much already, he don't need more cows, I wish there were only half the number of cows today in Wisconsin, and that each cow was doubly a better one. That would reduce the cost of keeping the cows, one-half, for it costs just as much to support the carcass of a poor cow that is making but 125 pounds of butter a year, giving only 3,000 pounds of milk, which is the equivalent, it costs, I say, just as much to support the carcass of that cow as it does one that gives 6,000 pounds of milk and makes 300 pounds of butter.

The additional cost is only that which goes to the food of production, but the food of support is the same in each case, according to live weight.

A cow is a good deal as Voltaire said concerning certain women. He said, "If you get them to love you, you must first fill them up with love for themselves and what runs over belongs to you." It is so in keeping cows. The farmer too often does not see clearly the important part that this food of support plays, does not see that here is where his lost profit goes. We need among dairy farmers:

1. Right ideas of breeding, feeding and handling a cow, so as to have a profitable cow.

2. Right ideas of producing dairy food for this cow, so as to save expense in the production of food. This is a very important thought just now. Here we are to-day, with all kinds of cow feed, clear up to the top notch in price. How many men are addressing themselves right resolutely and sharply to an understanding of the question, "How shall I produce that feed on my own farm, and save buying such quantities of bran?" How many men are addressing themselves to the question of clearly understanding the value of bran as a dairy food? How many men are asking themselves, "Can't I grow a substitute for that and thus save this expense?"

In addressing conventions in the past month, in Maine, in New Hampshire, in Vermont and in Canada, I found there earnest men addressing themselves to this question. In the eastern states they pay \$23 and \$24 a ton for bran. They say, "We must take up the production of some protein food that shall be a substitute for it. What shall it be?" They are turning their attention to the production of peas. Pea meal is one of the most important butter foods we can get. Every single great butter test that has ever been made in the United States has always had as an important part of the ration, pea-meal, and it is a very important food, and it can be grown in Wisconsin just as readily as elsewhere, if men will understand how to grow peas. Now, we need some such study as this, practical, close study along these lines of a substitute for bran.

Just a word on that pea culture. The mischief with all of us in growing peas is shallow culture. We have not learned that peas must be deeply planted. An old gardener elucidated that question when I saw him planting my peas eighteen inches deep, and I said, "Bless you, I will never see them." He was an Englishman, and he says, "They will be a long time coming up, but they will be a long time doing business when they are up." He was right. I found men in Canada engaged in growing peas very profitably plowing them under from four to six inches deep and hav-

ing magnificent crops. We sow them in Wisconsin so that after a rain storm we can count half of the seed on top of the ground, and then we say it is hard work to grow peas.

We must learn as farmers, how to produce a food that is equivalent to bran, and save the expense of buying. My friends, you need not look for cheaper bran. The demand is increasing faster than the supply, and you can expect high prices just as long as you swell the ranks of buyers. Demand always preceeds supply.

We must have better notions about stabling and handling our cows. We are fast coming to winter dairying, where the cow must make milk in the stable more than in the pasture, hence we must study to make her as comfortable in the stable as in the pasture. If every man would survey that cow from the standpoint of motherhood, if he would stop and say right here, "That animal is a mother. I have no business to treat her except as a mother should be used and fed, if I do she will punish me with the loss instead of profit." You would see these miserable stables, you would see these cold barns, these tubs of ice water for drinking and everything else banished in a moment. The cow is a mother, and the man that does not understand how to treat a mother, had better ask his wife and his own mother. She will tell him. I wish that men would consult with their wives and mothers more every day, particularly on dairy questions.

The most intelligent farmers will get hold of these ideas first and be making money out of them for years before the slow ones know anything about it, unless there is an organized effort in some direction to push this knowledge out among the people.

I believe this association ought to appoint a committee of the most practical men in it to prepare a circular, setting forth the most approved methods of stabling and housing cows, with cuts and diagrams. Let these be printed in all languages of the state and scattered among the patrons of the factories and creameries. Let another committee draw up directions for the care of milk before reaching the fac-



tory. Have these printed and scattered in the same way. The expense would be but trifling.

If we had such committees at work and they would prepare such matter, we could push forward the cause of dairy intelligence greatly. The cheese factories and creameries furnish the means for their distribution. You could send these to the cheese factories and write on them, "Please hand these to patrons." Our reports never reach the great body of patrons, a large proportion could not read them if they had them, because they are printed in a language they do not read.

I want to see the great mass of dairy farmers reached somehow, and I can think of no better way than I have indicated for the supplying of this much needed knowledge.

We are on the eve of a great revolution in the methods and practice of dairying. The oil test has come like a gleam of lightning amidst dense darkness, to disclose the folly of our present system of adjusting dairy values. Changes are coming faster than we have knowledge and understanding to provide for them.

We must know the truth and how to handle it, or else error will punish us badly, just as truly in dairying as in religion. Christ said, "The truth shall make you free." It is the truth, the truth, the constant studying of the truth concerning right dairy practice and the cow, and a thousand and one things that belong to this pursuit, that we should earnestly study. If we are not students of the truth we will be punished most assuredly by a pain in the pocket that comes from error.

I am convinced that this association is but just entering upon its grandest service to the people of Wisconsin. Let the grand old spirit that actuated it when it was born, that has actuated it in its manhood, actuate it ever, till it dies *Pro bono publico*, may that sentiment animate its leaders always. It was born for true missionary purposes, may it ever so exist.

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Mr. Faville — I want to say one word in addition to what Brother Hoard has told us in regard to the transportation

matter. He told you strictly the truth, but he didn't tell quite all of it. He has told you what he and Mr. Chandler said. He has not told you that Mr. Chandler came up with the refrigerator car himself to look the ground over. I think he doubted from Hoard's appearance whether he told the truth, but he followed that car up here and explained and showed it to us, and I want to say to the honor of Mr. Chandler that it was his keen insight into business and his effort in putting us dairymen in touch with the market at New York prices at which we could afford to sell our product, that this has been a very important element in our dairy prosperity.

When he was telling about what a wonderful thing this Wisconsin Dairymen's association has been, it kind of made me swell up with pride until I nearly burst the buttons off my vest. I have been through the whole of it, we have worked and tugged, but this magnificent audience gathered here this evening makes me feel good.

The Chairman — We all feel good, and we are going to keep on feeling better until that banquet is over, any way, even if we have a headache the next day.

The convention adjourned to meet at 9 o'clock A. M., the next day.

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The convention met pursuant to adjournment at 9 o'clock A. M., February 12th.

President Henry in the chair.

The Chairman — This session will be a cheese session pre-eminently. Mr. Decker, who will now address you, was a Fond du Lac boy who spent four years with us at Madison, and last summer he was sent by our Dairymen's association to Canada, for the purpose of gathering up facts. I say it with no pride, but in some respects our Canadian friends are ahead of us, their cheese sell sometimes a little better, and we of Wisconsin are anxious to get hold of the market on the other side, and compete with the Canadian people.

## A VISIT TO THE CANADIAN CHEESE FACTORIES OF WESTERN ONTARIO.

By JOHN W. DECKER, Experimental Station, Madison.

The executive board of the Wisconsin Dairymen's association directed me to visit the Canadian factories, examine their cheese and methods of making, and report my observation to the association.

The best cheese is made in the district surrounded by Lakes Ontario, Erie, Huron and Georgian bay, the latter, Georgian bay, being 150 miles north of Lake Erie.

Ingersoll, twenty-five miles north of Lake Erie, used to be the center of the cheese industry of Canada, but it has been transferred to Stratford and Listowel, twenty-six miles apart in the center of this district.

The southern part of the territory is quite level; around Stratford and Listowel it is rolling, and farther north, toward Georgian Bay, it is very hilly and stony.

I saw but little corn, while, on the other hand, flax, peas, wheat, oats and turnips go to make up the main crops.

In the southern and middle portion there is not an abundance of cold springs, but in the northern part springs greet one at every turn of the road. The climate is very much the same as in Wisconsin. The extremes of temperature may possibly be greater here than there, but at Guelph, on August 3d, the thermometer at the experiment station registered 100° in the shade.

The pastures were good, but I do not think them any better than ours. The difference in prices must have some cause other than the excellence of the pasture, or the salubrity of the climate.

### THE FACTORIES.

The factories that I visited were: Tavistock, East Zorra & Blandford, Strathallan, Black Creek, Avon Bank, Fullarton, Gore of Downie, Newry, Elma, Bluevale, Har-

riston, Cotswold, Varney, Flesherton, Markdale, Honey Grove, D. A. Dempsey's, Harrietsville, Belmont, Sherman and German Union.

The smallest one, the Markdale factory, was getting 5,300 lbs. of milk at the time of my visit, and the largest ones: Harrietsville, East Zorra & Blandford, known as the "Big Factory," and Black Creek were getting respectively 27,000 lbs., 26,000 lbs., 26,000 lbs., and several had run up over 40,000 in flush of feed. Tavistock, Bluevale, Elma, Strathallan and German Union were getting over 20,000 lbs. daily.

To make up these large quantities of milk, from three to five hands beside the head cheese maker are employed. The factories too are well built so that an even temperature can be maintained. The curing room is still better built, and is usually a separate building. The Bluevale factory cost \$3,850, while the one at Tavistock and the factories modeled after it cost about \$5,000.

In order to give an idea of the Canadian factories, I will give descriptions of two of them.

#### DESCRIPTION OF THE TAVISTOCK FACTORY.

The Tavistock factory was built about twelve years ago by Ballantyne & Gillard. Since then other factories have been built on the same plan, among which are Strathallan and Elma. The factory is at present owned by Mr. Thomas Ballantyne, a heavy cheese exporter of Stratford, and Mr. A. T. Bell, who is said to be one of the very best cheese makers of Canada. Mr. Bell superintends the work of the factory.

The accompanying diagram will show the dimensions and relations of the different rooms to each other. On the south end and west side of the factory are covered driveways where the milk wagons drive up to deliver the milk. On entering the factory from the southwest corner we step into the vat room 30x40 feet. At the south end and west side of the room are recesses in which are platforms for receiving the milk. The milk is emptied from the cans on

the wagon through a window for the purpose either by hand or with the help of a crane. A piece of leather belting upon which to rest the can while emptying it is stretched across the window. The milk is received in a large weigh can like those used in our factories. The can is set on a six beam platform scale. By means of the six beams several patron's milk can be weighed in the can before emptying it, each beam registering the milk sent by a separate patron. A row of six six thousand pound vats standing side by side is placed along the west side of the room. The vats run east and west, the west end being the upper end. There is room to pass along their upper ends and between them. They are heated by steam, water being used under the vat. They have the old fashioned way of dumping, i. e. knocking a block from under the lower end.

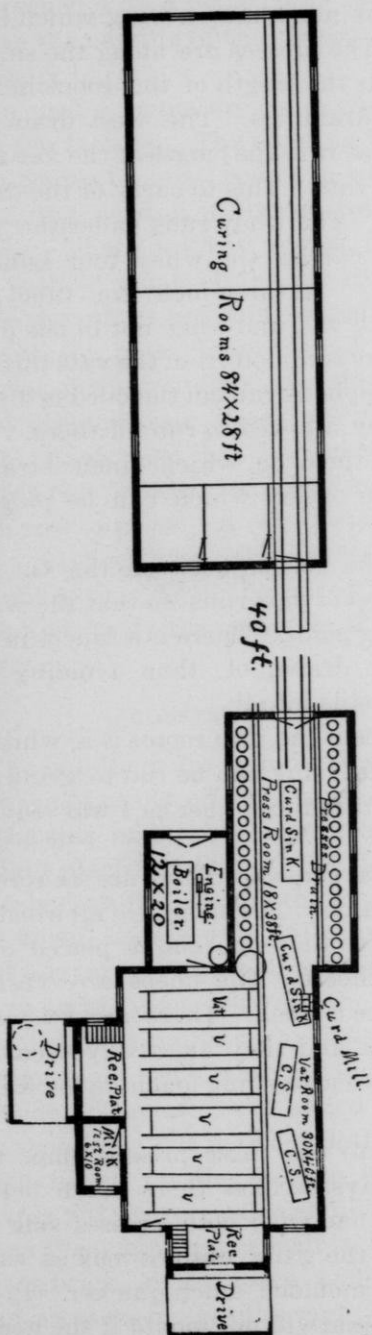
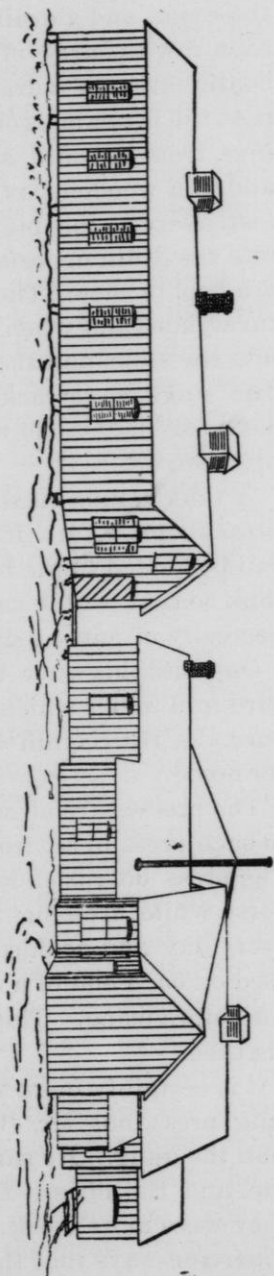
#### STEAM STIRRING MACHINERY.

On the vats is steam stirring machinery which stirs the milk while the vat is being filled and while the milk is ripening, and also the curd after it is cut. This machinery consists of a wooden frame placed lengthwise over the middle of the vat. A shaft extends along the top of the frame and on it are geared four vertical shafts on the lower ends of which are hung pairs of detachable paddles. These paddles are four pairs in number one pair stirring each linear quarter of the vat, and they are set alternately at right angles to each other so that when one pair is turned in the longitudinal direction of the vat the next pair is across it.

On the side of the room next to the receiving platform is a room 6 x 10 used for the measuring extract, weighing salt, testing milk and etc. This is quite handy as it keeps glass ware and small instruments out of the way.

Opposite the north end of the row of vats is an engine and boiler room 12 x 20, containing a twelve-horse boiler and six-horse engine. The fire door and steam guage are opposite the door so that they can be easily watched from the vat room. The east side of the vat room is used for curd sinks. It would be better if it were a little wider.





The Tavistock Cheese Factory.

This part of the room runs north into a wing which is the press room 18 x 30 feet. The presses are along the sides of the room, and a drain runs the length of the room next to each row to carry off the drainings. The west drain is a continuation of a drain that runs the length of the vat room past the lower ends of the vats. This to carry of the drainings from the curd sinks. The whey runs under the floor and in a wooden box. It carries the whey four hundred feet away to the piggeries. A three-inch iron tube goes into the drain opposite each vat, and when not in use plugs are kept in them. The whey is run off from the vats through tin siphons and when the siphons run out the curd is dipped into the sinks and the whey allowed to run off there. The sinks have racks in them on which linen strainer cloths are laid. They have outlets which can be plugged up when desired.

A tank stands next to the corner between the vat and press rooms. Into it a steam pipe runs so that the water can be heated to the boiling point. There is a faucet in the tank so that water can be drawn of, thus avoiding the necessity of putting dirty pails into it.

Opposite this tank between the two rooms is a whitlow curd mill under which a curd sink can be run to grind the curd. A Harris mill was introduced just as I was leaving for home.

The presses are all vertical screws. There are six screws to each press in an iron frame. The hoops are all wooden. The press boards slide out so that one end is placed on a horse while dressing the cheese. The hoops are washed every day and scalded once a week. There are two caps used on each end of a cheese and they are always scalded out before using. They have a washing machine for washing them.

It is certainly more work to use these presses than the gang press, but Mr. Bell says he likes them much better than the gang. He said he had tried both presses side by side, and the cheese from the gang did not look as well. They were more moist, and moulded much quicker. Prof. Robertson says that the cheese will not mould if the hoops

are washed with a little borax water. The borax will be left on the outside of the cheese and would not be enough to do any harm.

The curing rooms are in a separate building forty feet from the factory. The building is 84x28. In the front end are a couple of small rooms in which the hands sleep. The remaining portion is divided into two large rooms for the cheese. There are two rooms, for it is sometimes desirable to hold some of the cheese at a lower temperature while the others are being cured.

From the press room a track runs along one side of the interior of the building. On this track is a car that will carry eight cheese. Posts are placed between ceiling and floor. Each post has four cross-pieces on which planed boards rest for shelves. This makes four double shelves on each row of posts. A wood stove is in one room for heating. A sheet-iron jacket is balanced over a wire by a weight so that it can be raised to tend to the fire. The jacket prevents the cheese in the vicinity from getting too warm.

#### CONSTRUCTION OF THE BUILDING.

The buildings are so built that the temperature of the inside is not easily effected by the temperature outside.

The sills and joists are strong enough to sustain the weight placed on them. The floors are made of two-inch matched stuff. Before the floor of the curing room was put down, boards were nailed on the under side of the joists and a layer of plaster about an inch thick put on. This gives an air space between the plaster and the floor. The studding was nailed up as is usually the case, and in the curing room brick were put in on their sides flush with the outside. The lath were nailed on the studding so that an air space was left between lath and brick. Two-by fours were nailed on the outside horizontally, and the outside boards put on vertically and battens nailed over the cracks. Then the curing room wall is, on the outside boards, an air space brick, an air space, and lath and plaster. The vat and press rooms are the same with the brick left out. The

windows fit tight, so that the temperature will not be effected by the passage of air through the cracks. The factory is set up from the ground so that air may circulate under it and keep the ground dry.

#### BLUEVALE FACTORY.

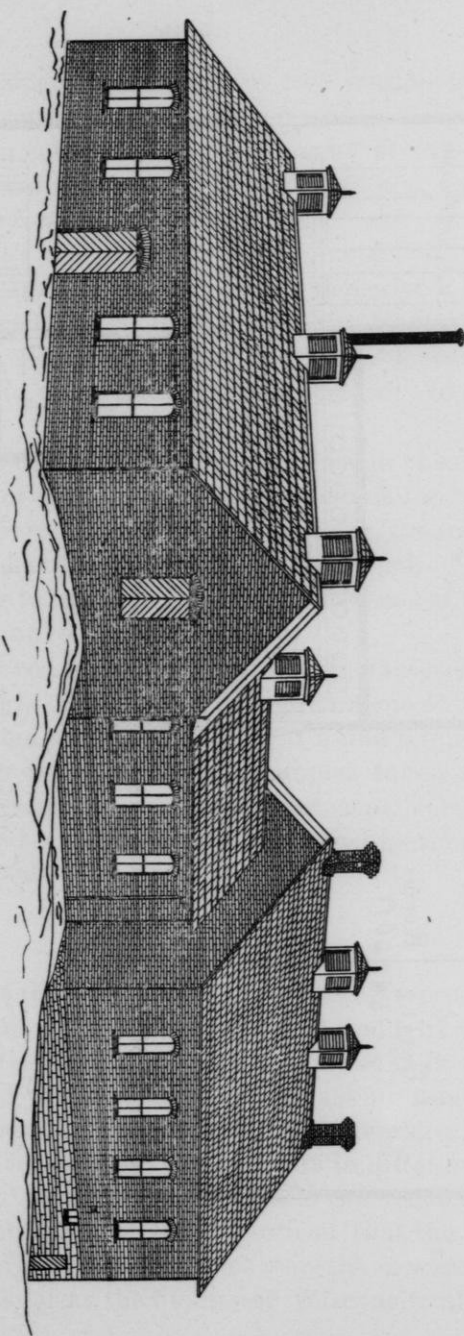
The Bluevale factory is built of brick, and cost with furnishings \$3,850. The building above foundations cost \$2,190. There is a good foundation, and the floors are made of two-inch matched stuff. The walls are made of two single layers of brick with an air space between them. The two walls are tied together by wire every few courses. The walls inside the building are plastered. The ceilings are twelve feet high, and ventilators go through the roof. The accompanying diagram will show dimensions and relations of the rooms.

The vat room is 26x73 feet, and the milk is taken in at each end. A row of three six thousand-pound vats is placed at each end, and an alleyway for the curd sinks is left between the rows.

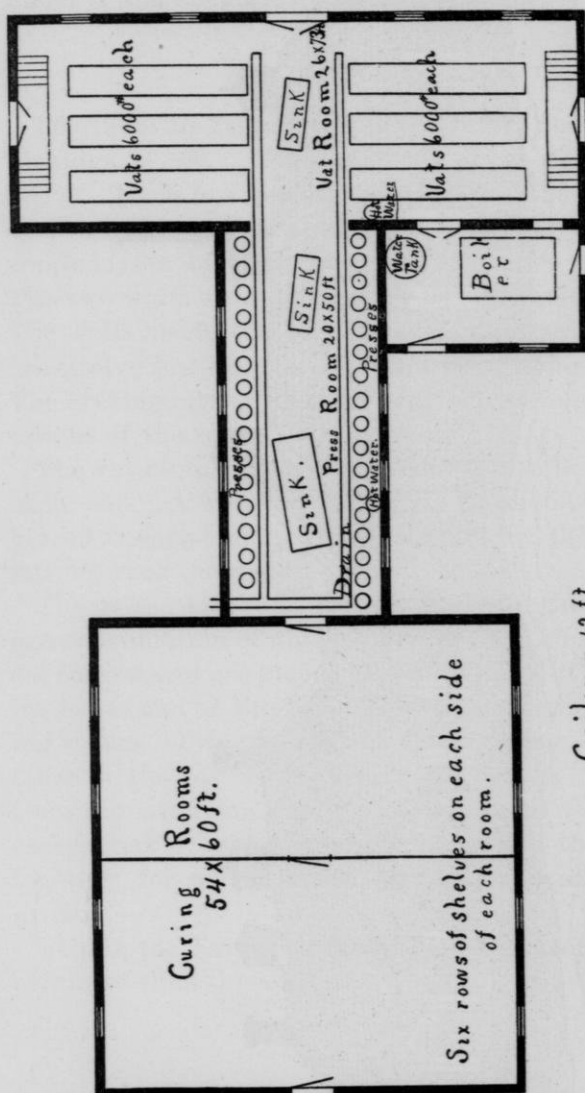
The press room runs at right angles to the vat room, and is a continuation of this alleyway. The presses are vertical screws and are placed along the sides of the room. At the lower end of the room is a door opening into the currying rooms. Two barrels, one in the press room and the other in the vat room, furnish hot water. A door opens from the vat room into the boiler room. Mr. Dillon, the cheese maker, said it would be handier if the vats were all together, for as it was the work was spread over too much ground.

I think the Tavistock factory is much more conveniently arranged than this one.

BLUEVALE CHEESE FACTORY.

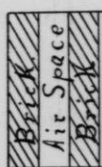






Ceiling 12 ft.

Section of wall  
of building.



Stone foundation.

Total cost of building  
and apparatus \$3850  
Cost of building  
above foundation \$2190

Bluevale Factory.

## MILK.

We will consider the milk from two standpoints, first quality, and second general condition.

By quality we mean richness or per cent. of fat.

By general condition we mean flavor and the conditions of temperature for making fine cheese.

I took a Short's test and lactobutyrometer with me, and tested milk at quite a number of the factories. I visited most of them with Mr. J. B. Harris. Mr. Harris was the milk inspector sent out by the Dairymen's association of Western Ontario, and I had a good opportunity to get samples.

Although the Canadians are ahead of us on cheese, I find that they are not quite up to Wisconsin on methods of milk testing. The German pioscope, lactometer, cream guages and lactoscope have been the instruments used. They are, however, going to improve in this line, as some of the most active of them have Babcock's test.

My tests showed a few patrons in most factories to run 2.50 to 3 per cent. These were of course some of the poorest patrons culled out from the rest. I found a few samples that would run over 4 per cent. Samples taken from the vats would sometimes run over 3.50 per cent. One case of two vats showed 3.20 per cent. One case of exceptionally poor milk showed 3.07 per cent.

## HIGHEST AVERAGES.

I noticed that the averages of the factories were about 10 lbs. of milk for a pound of cheese. I thought from the samples I had tested, the poor quality of the milk might be the cause, and I wrote Prof. Robertson asking him if it was not in his opinion the cause for the high averages. He replied that in 1889 samples from the vats in different factories had been analyzed at Ottawa, and the results showed 3.50 per cent. and over of fat. I noticed that the factories on the list from which his samples were taken were the best on my list. As far as the quality of Wisconsin milk is con-

cerned, I think it is up to that in Canada, but I do not mean by that, that it could not be a great deal better. What we want is cheese with the quality in it.

#### GENERAL CONDITION.

I took special pains to investigate the condition of the milk cans, and much to the surprise of the Canadians themselves, found a great many dirty cans, some of them filthy. When Mr. Harris and I visited a factory, he would take samples of the milk as it came in, while I got upon the milk wagons and examined the cans and covers. The seams of the cans were, as a general thing, smooth, and were less a cause of complaint than the covers. Sometimes a lid would have the edge turned over a wire to stiffen it, and I could usually scrape out a goodly quantity of "duck feed," as Mr. Harris called it, on my knife.

I visited the poorer factories, as well as the gilt-edged ones. The worst cans I found were at the factories where whey was returned to the patrons in the milk cans. Only one factory that I visited, where they were returning the whey in the cans, was making what might be termed *fancy* cheese. This was the Newry factory, at Atwood. This factory was getting 11,000 pounds of milk, and was owned by a Mr. Morrison. His daughters were making the cheese, and I was told that they were very particular, and everything had to be clean. At these factories, where the whey found its way into the cans, I could usually find some cheese with a whey flavor to them. This flavor is what is known as a "bucky" flavor. It is hard to describe, but it is enough to say that one's stomach rises up against it. In the best factories the whey is disposed of at the factory, and I did not, of course, find this flavor in one of them. The factories making the finest cheese received the best flavored milk, which was brought in the best lot of cans. A few factories wash the cans at the factory. Mr. Ballantyne has an arrangement with the Honey Grove factory, by which he is to get all of their cheese at the highest market price, and it all goes to London, England. The cans are washed at the factory. The milk is turned into

the weighing can on one side of the wagon, and then the can is handed over on the other side, where two girls stand ready, one to wash the cover and the other the can. They are first washed with lukewarm water, then with scalding water, and last of all scalded with hot steam. This is accomplished by placing the can on a low bench, through which a steam pipe projects, and the steam is turned on and off by a lever. I took pains to see if there was any dirt in the cans so washed, and found some in several covers in which there was a wire in the rim, but they were sterilized by the hot steam every day, and were a vast improvement over the general run of cans. The cheese showed it, too, for they were fancy. They were so near alike in size, shape, texture, quality, etc., that it would take an expert to tell the difference between two cheese made within a few days of each other.

#### THE CHEESE.

The cheese are made to suit the English market. I saw no flats. All are cheddars of sixty-five or ninety to a hundred pounds. The cheese most all go to London or Liverpool, and are consumed by all classes of people. The large cheese are usually uncolored. They are made to imitate a kind of English cheese. They are bought mainly by one class of people, while the sixty-five pound cheese are bought by the working classes. Mr. Ballantyne told me that the weather in England affected the cheese market. When the weather is sunshiny, the working classes carry cheese for their dinner. When it is not sunshiny they do not, so that cloudy weather in England will weaken the English cheese market.

#### CARE OF THE MILK.

The factorymen of Ontario all, so far as I visited them, recommend plenty of airing for the milk and very little cooling. As one means of caring for milk better and getting the milk well aired, and at the same time preventing it from being chilled with water is a system of keeping it in pails.

A four-by-four is placed horizontally between two posts at a convenient height, and screw hooks put in the under side far enough apart so that the pails will not interfere one with another. The pails used are twelve quart tin milking pails. The milk is strained into the pails and the pails hung on the hooks. Then a person takes a quart dipper and bails the milk in each pail a few times and the result is a thorough aeration of it. The milk is left in the pails over night and poured into the can in the morning. The morning's milk should be aerated the same way. Patrons who are using the method praise it very highly and say that it is not as much work as the old inferior method of placing the can in a tub of water and changing the water several times. Mr. Harris says that milk should not be cooled below 60 F. Sixty-eight degrees is about right for night's milk when mixed with that of the next morning, and my experience is the same.

Another method highly praised by the cheese-makers is the use of the Casswell globe aerator. This aerator is a large basin with a capacity of two or three pails. The milk runs out very slowly through a strainer in the bottom in a thin hemispherical stream. By putting the milk through this aerator two or three times it becomes thoroughly aired. After this is done no water is placed around the can unless the weather is exceedingly hot.

#### METHOD OF MAKING.

The method of handling the milk after it gets to the factory in good condition, of course makes all the difference between good cheese and poor. The general plan followed by the Canadians is not so very different from the plan followed in Wisconsin, but it is the care in some of the little points that makes all the difference in the cheese. Perhaps the best way of giving the Canadian method will be to reproduce the method from my note book, as I wrote it down at Tavistock. I read it over to Mr. Bell and his head assistant to get their approval of it.



## METHOD AT TAVISTOCK.

The milk haulers begin to come in with the milk about 7 o'clock, and it is all in by 9. The milk is agitated by the patent steam stirring apparatus, and heated up to 86 F. where it is ripened. Several vats may be ready to set at the same time. In order to save time in testing the ripeness they use one dram of Hansen's extract to eight ounces of milk at 86 F. and expect it to curdle in twenty-four seconds.

It is set with home-made extract, and is expected to be ready to cut in thirty-five minutes. It requires about six ounces of this extract to do this. They cut the curd as soon as it will break over the finger clean. When they want an extra solid cheese they cut fine. This is done to make it cook sooner and more thoroughly. The whey will run off from a well-cooked curd better than from one not cooked well.

They cut lengthwise of the vat with the knife with horizontal blades and then across the vat with the perpendicular knife. They finish with this knife, cutting it till it is fine enough. Some use the horizontal knife and then wait a few minutes before using the perpendicular, but this is not done at Tavistock.

## DRAWING THE WHEY.

Part of the whey is drawn early so that when the acid begins to show, the rest of the whey may be gotten off without delay. The hot iron is used for a test for dipping the curd. When an eighth of an inch of acid shows on the hot iron the remainder of the whey is run off rapidly and the curd dipped into the curd sinks and stirred to drain off the surplus whey. They would not allow a quarter of an inch of acid on the curd before dipping, because it makes the cheese too crumbly, cuts the color and destroys the texture.

As fast as the curd is dipped into the sink by one or two men, another man stirs it until no pools of whey will form when left standing for a little while. When this point is

reached the curd is allowed to pack together and is broken once in about fifteen or twenty minutes into chunks three or four inches in diameter and stirred to air. It will be noticed that the curd is broken instead of cut into chunks. It is perhaps a little handier than the cutting and amounts to the same thing. The curd is not piled very high; about eight inches.

#### GRINDING.

When the curd shows an inch of acid on the hot iron, it ground with a *knife* mill. There is a great advantage in early grinding as less fat is lost and a fuller bodied cheese is obtained.

If the curd is very gassy it may be necessary to grind twice. If it is necessary to grind twice it should be done at once, so as not to open a fresh wound. Unless it is absolutely necessary do not grind more than once. Then stir once in a while to air. By heaping up after grinding gas can be got rid of. Some very gassy curds are put into hoops and pressed for half an hour and then torn to pieces *by hand*. When they are pressed up again they make very close cheese. A badly tainted curd should be well aired. At this factory they left a curd all night in the sink to air.

When they have curd left over it is pressed up in a hoop and the next morning cut again with a knife into cubes about an inch in diameter. It is then thrown into a vat a little while before the curd is dipped, and is worked up with that day's curd.

#### SALTING.

When a little curd is squeezed in the hand, and a mixture of half fat and half whey runs out between the fingers, *and the flavor is good*, it is said to be "ripe" enough to salt. The curd should not have a burnt flavor when tried on the hot iron, but a cheesy smell. It is salted at the rate of two and one-half pounds of salt to the thousand pounds of milk, and perhaps a quarter of a pound more in the fall,

and as soon as the harsh feeling has left the curd it is put to press without delay.

#### PRESSING.

The curd is put into the hoops and the followers put on and left for fifteen minutes to settle together. Then pressure is applied very gradually. In an hour they will be pressed down pretty well and can then be dressed. The cheese are then turned over in the hoops to square them up. The full pressure is now applied and the last thing at night they are tightened up with a longer bar. The first thing in the morning they are again tightened with the long bar. In about an hour the hoops are turned over on their sides so that the cheese may have a chance to loosen while the men are at breakfast. When they return, the cheese are turned in the hoops and examined to see if any of them are faulty. If any rinds have not formed well, they are washed with warm water to assist in the formation of the rind. They are then tightened up and left till between ten and eleven o'clock, when they are put into the curing room.

#### CURING CHEESE.

The first cheese of the month are placed on the upper shelves for a few days to get warmed up, as the upper part of the room is warmer by several degrees than the lower. They are then placed on the lower shelves. The next cheese are placed on the middle shelves and left there, while the last cheese of the month are placed on the upper shelves, and the cheese of the month are cured up more evenly than if they were put on the shelves most any way and left to shuck for themselves.

A record is kept of each curd. Each cheese has the date and number of the vat on it, so that by referring to the record any defects may be remedied in future cheese. They like to keep the temperature between 68° and 70°. This is accomplished on warm days by closing up the room in the heat of the day and opening up in the evening. Cheese need a certain amount of air for a fine flavor. When asked the question if cheese needed air to cure, Mr. Bell said he had boxed a cheese and it had cured up and become

cheese, but it was not as fine flavor as those on the shelves from the same batch. The caps are left on the cheese for a couple of weeks to make a fine rind. They are then taken off and the rinds greased.

This is the method as practiced at Tavistock, but there are some little points that need special emphasis.

#### SPECIAL POINTS.

1st. Ripen the milk, and in testing the ripeness always measure the extract exactly, always measuring the milk exactly and always have it at the right temperature. In order to have the milk the same every day these points must be adhered to.

Prof. Robertson told me he thought the three following points the cause of much trouble with Wisconsin cheese.

2nd. Dilute the extract with clean warm water, and stir it into the milk thoroughly. If it is mixed in the milk unevenly more moisture\* will be held in some portions than others and the different portions will work unevenly.

3rd. Cut the curd evenly. If some portions are large and some small, the small ones will cook up thoroughly, but whey will be left in the large ones and sour and we have an uneven mottled cheese.

4th. If whey is allowed to gather in pools on the curd, these portions work faster and we have a mottled uneven cheese that may perhaps sour. At any rate it will break too short.

5th. Some judgment should be used in salting the curd. Salt preserves the flavor and texture of the cheese. The April and May cheese requires more extract and less salt for they are expected to cure rapidly, and go upon the market as soon as possible. The quantity should be increased through the season. Use two and one-half pounds in June, July and August, and in September and October when the milk is richest use as high as three pounds to give it body. The Canadian August cheese is kept for the Christmas market in England, and September's and October's are held till the

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\* Ontario Agl., Exp. Station report P. 165. I do not find this difference in moisture when using different quantities of rennet.

next spring. Without salt enough they will go off flavor and lose body. While in Canada I tasted a cheese two years old. How many of our Wisconsin cheese will keep two years? If a curd is moist more salt should be used for some of it will run off.

6th. When the curd will tear in one direction it is ready to grind. The hot iron is not always a sure test. Then grind with a knife mill. The curd is bruised and squeezed too much with a peg mill. The Harris mill is the most in use in Canada because it cuts each piece of curd the same size and the salt works in evenly. The cheese also has a more flinty texture where this mill is used. Other knife mills in use are the Casswell, which is an imitation of the Harris mill, the McPherson and Whitlow. If the curd is left too long before grinding, fat is lost by the operation. The wound made by the mill should have a chance to heal over before the fat can get through it, and this chance is had before the curd gets "ripe."

7th. Do not salt the curd till it is ready. A good test used by Mr. Harris to tell when a curd is ready to salt is to rub a piece of curd on a hot iron and if it has the smell of toasted cheese it is ready to salt. Stir the salt in thoroughly and turn it over to prevent the salt running off in a brine if the curd is moist. As soon as the harsh feeling has left, put the curd into the press without delay.

8th. Keep an even temperature in the curing room. Varying temperature may spoil all the good work done before. Have the cheese neat, clean and of exactly the same size. Have two curing rooms.

9th. Keep a record of each batch of cheese made. The following is a record of a day's cheese made at Bluevale:

Date.	Vat No.	Temp. set.	Rennet, oz. per M of milk.	Time set.	Minutes thickening.	Time thick.	Time cut.	Time dipped.	Time ground.
Aug. 6.	86	9.51	3	9.57	9	10.00	10.15	11.50	2.45
	86	9.59	3	9.59	13	10.12	10.29	12.30	2.05
	86	9.55	3	9.55	9	10.04	10.18	12.22	2.20
	86	9.58	3	9.58	9	10.07	10.23	12.10	2.27



Time salted.	Weight of salt used, lbs.	Time put to press.	No. of cheese.	Order put to press.	Weight of milk.	Old test in s.c. of extract.	New.	Remarks.
3.15	16½	5.50	7	4	5,800	15	14	
4.25	16½	4.45	7	1	5,700	19	15	Colored.
5.05	14½	5.22	6	2	5,200	20	15	
5.10	14½	5.35	6	3	5,200	15	13	Tainted cu d.

Perhaps this is the place to speak of the color and rennet used in the cheese. When the cheese are colored Hansen's color is invariably used.

The rennet extract made by Chr. Hansen is used in a great many factories, but a great many others only use it for testing the ripeness of the milk, as it is of standard strength. Some use rennetine powder, while other reliable makers use extract prepared by themselves, as they say it costs them much less. One factoryman said it cost him only 40 cents a gallon, not counting the little time it took him to prepare it, making extract equal in strength to Hansen's. The following is his plan of preparing it:

Make a brine with clean water, using one pound of salt to twenty pounds of water in a forty-two gallon barrel. Take 500 good Bavarian rennets and cut the nubs off and open them. Then soak them in this brine for a week. Wring out the rennets in a wooden wringer, such as is used for clothes. Place this liquor in a barrel and throw in an excess of salt. The rennets are again soaked for a week. The liquor in the barrel is drawn off from below and the scum left in the barrel. The rennets are again wrung out and the liquor placed in the barrel and an excess of salt added and allowed to stand for a week as before. This is done four times so that the operation takes about five weeks. The scum that is left after the four liquors have been drawn off, is the richest part of the rennets. The barrel is filled with brine and the scum nearly all dissolves. This cheese maker, Mr. Robert Facey, did not find it necessary to filter his extract. It was then barreled up and put in a cool place.

## METHODS OF OPERATING CANADIAN FACTORIES.

Under this head comes milk hauling and handling of the whey and private and joint stock companies.

I will take up the milk hauling first, as it is common to both private and stock company factories.

In the first place the firm agrees to make the cheese for a certain price per pound furnishing everything. They agree for this price to take the patron's milk from the milk stand at the roadside, and deliver the cheese into the patron's wagon at the factory. By this means one man does the same work that ten would do and takes no more time. Timid patrons or those who could not spare the team or the time to go to the factory will send milk and increase the milk received at the factory. Each patron is expected to haul the amount of cheese his milk makes.

The factories all haul milk on about the same plan, but in order that the system may be better understood, I will describe the system at Black Creek.

## MILK HAULING SYSTEM AT BLACK CREEK.

Each patron has the privilege of hauling his own milk or hiring it hauled, and for this he is allowed 50 cents per thousand pounds of milk by the factory. The hauling is let by the factory by routes. The patrons on each route get together and each one puts in his bid for the job of hauling the milk on that route, and the job is let to the lowest bidder. Occasionally the job may be let for two or three years. Mr. Ballantyne very kindly allowed me to make note from their contracts, and I reproduce the notes here.

In 1887 Peter Rofferich's route sent 135,335 lbs. of milk to the factory for which one dollar per thousand was paid for hauling. In 1888 there were 140,000 lbs., and the job was let at 70 cents per thousand, and in 1889 the job was let for one dollar per day.

In 1887 Michael Boos hauled milk on their route for one dollar per cow. On another route \$1.50 per cow was paid.

Another route sending 277,978 lbs. was let at 60 cents per thousand.

In 1887 Rob't McEwan's route sent 339,913 lbs. and it was let to Rob't McEwan for 1888 and 1889 for 75 cents per thousand. But in 1889 the milk had raised to 455,096 lbs., and the route was let for 1890 at 70 cents per thousand.

The longest routes at this factory are eight miles. The longest route I found at any factory was eleven miles.

#### DISPOSAL OF THE WHEY.

In the poorer factories the whey is returned in the cans and they get the consequences, but different plans are followed by the better factories, and it is the plans of the better factories we are after.

At a great many of the factories are piggeries four to six hundred feet away from the factory. The piggeries and whey are let to some person at a given price, or the whey is fed by the factory with peas, bran, oats and corn. In other cases the whey is sold to a farmer who hauls it away at from \$2.50 to \$8 per ton of cheese made. The average price is \$4.50. In 1889 the East Zorra and Blandford factory made 225 tons of cheese, and sold the whey for \$8 per ton of cheese. This gave them \$1,814.40, and as they paid \$1,322 for hauling the milk, the returns exceeded this cost by \$492.40, which would go quite a little way on supplies.

The Avon bank factory sells the season's whey for \$200. They were getting 16,500 lbs. of milk a day when I was there July 30.

Mr. Oliver White was the hog feeder, and said that the large white breeds seemed to do the best. He wanted to buy a Danish hog weighing from 90 to 100 lbs.

#### PRIVATE AND JOINT STOCK FACTORIES.

##### *Private Factories.*

The private factories are much the same as in Wisconsin as they make the cheese for so much per pound plus the whey.

*Joint Stock Companies.*

The joint stock companies are associations of patrons incorporated to do business. When a corporation is organized, officers are elected and shares of stock issued. The value of a share varies, but they are usually \$20, and one share is entitled to have 15,000 pounds of milk made up at stockholders' rates. There are two prices for making, known as patrons' rate and stockholders' rate. When a person's milk runs over his share, he has to pay patrons' rates for having the excess made up. The company buys hogs and feed, and sells the hogs when they are ready to go, and the profits are divided among the stockholders in proportion to the milk sent by them. This leaves the patrons out in the cold, as they have to pay the higher rate for making and do not get any rebate on excess of cost of making, and also lose their whey. The object of this is to make every farmer take stock in the factory. There is a board of directors, and a president and a secretary and a treasurer and a salesman. The secretary and treasurer usually look after the business, and are paid a very little money and a great deal of honor. The salesman is usually paid something too, if the secretary and treasurer do not sell the cheese.

## STATISTICS.

While in Canada I gathered some figures that may be of interest to Wisconsin people. In the first place I will give the wages paid to cheese-makers.

At the East Zorra & Blandford factory, with 26,000 pounds of milk, the cheese-maker makes the cheese and furnishes everything for seventy-five cents per hundred weight of cheese. He employs as help one man at \$18 per month and board, three other men at \$14 per month and board apiece, and one girl at \$10 per month and board.

At the Bluevale factory, with 22,000 pounds of milk, the cheese-maker gets forty cents per hundred weight. He does all the work including boxing of the cheese but furnishes nothing. He employs three men at \$30, \$22 and \$20 per month, without board. He had another man learning, to whom he paid nothing.

The Gore of Downie factory with 6,000 lbs. of milk, owned by John Dempsey, employs two hands. The cheese maker gets \$25 per month and board, and one girl helping gets \$9 per month and board.

At the Tavistock factory with 22,000 lbs. of milk, the cheese maker gets 75 cents per hundred, and furnishes help and supplies, except boxes. He pays his best man \$26 per month and board, two other men \$15 and board, and a fourth \$12 and board.

At the Strathallon factory, six miles from the above factory, the cheese maker gets 60 cents per hundred and furnishes help and everything, but boxes. He has three helpers to whom he pays \$20, \$18 and \$14 per month and board.

Also two girls at \$9.50 per month and board, and a girl that helps two days of the week at \$6.50 per month.

It will be noticed that women are employed in the factories. The Newry factory is run by women. D. A. Dempsey's factory getting 7,000 lbs. of milk is run by two women.

The preceding figures will give an idea of the help employed and the prices paid. Perhaps also some figures on the amount of milk handled, the averages required for a pound of cheese, and the prices they get may be of interest.

The following is a report of the Tavistock factory for 1889:

	Milk received.	Cheese made.	Average.	Money received.	Average price per lb.	Due patron per M of milk.
	<i>Lbs.</i>	<i>Lbs.</i>				
April and May.....	255,849	23,102	11.07	\$2,090.80	\$9.05	\$6.277
June.....	525,242	47,469	11.06	4,931.60	9.75	6.922
July.....	596,954	51,759	11.53	4,914.18	9.49	6.412
August.....	531,038	46,914	11.31	4,886.07	10.41	7.346
September.....	416,609	38,938	10.70	4,380.66	11.25	8.553
October.....	352,417	36,538	9.64	4,110.48	11.25	9.488
November.....	43,276	4,525	9.56	509.06	11.25	9.570
Average.....			10.91		\$10.24	\$7.4553

The average per pound of cheese due patrons was 8.14 cents.



ANNUAL REPORT OF THE TAVISTOCK CHEESE FACTORY FOR THE  
YEAR 1890.

*To the patrons of the Tavistock Cheese Factory.*

We beg to submit to you the following report of our transactions for the year 1890:

The amount of milk received from you at the Factory during the season just closed was as follows:

April and May .....	205,162 lbs.
June.....	542,422 lbs.
July.....	577,669 lbs.
August.....	402,602 lbs.
September .....	469,791 lbs.
October.....	342,143 lbs.
November.....	23,403 lbs.
Total for the season. ....	2,653,392 lbs.

From this were made in—

April & May	18,210½ lbs	of Cheese, which sold for \$1,640 98, averaging 9 01-100 Cents.
June	49,816	" " 4,484 70, " 9 "
July	50,922½	" " 4,647 45 " 9 12-100 "
August	44,984	" " 4,723 91, " 10½ "
September	45,688	" " 4,798 29, " 10½ "
October	35,616½	" " 3,739 75, " 10½ "
November	2,530½	" " 265 71, " 10½ "
Total	247,767¾	\$24,300 79, 9 80-100 "

The quantity of milk required to make a pound of Cheese was:— In April and May, 11 26-100, June 10 88-100, July 11 34-100, August 10 95-100, September, 10 28-100, October 9 60-100, November 9 25-100. And for the whole season 10 70-100.

After deducting commission for manufacturing there was due the patrons per 1,000 lbs. of milk:—

In April & May.....	\$6.225
In June.....	6.433
In July.....	6.284
In August.....	7.762
In September .....	8.270
In October .....	8.849
In November.....	9.195
Average price per 1,000 lbs. for the whole season.....	7.290
Average price per lb. of Cheese for the whole season.....	7 80-100 cts.

All of which is respectfully submitted.

Tavistock, Dec. 23rd, 1890.

BALLANTYNE & BELL.

The Avonbank factory is turning out as fine cheese as any factory in Canada. The cheese-maker is John B. Muir.

The following are the statements of the factory for 1887 and 1889:

	Lbs. milk delivered to factory.		Pounds of cheese made.		Average.		Price per pound.		Receipts.	
	1887.	1889.	1887.	1889.	1887.	1889.	1887.	1889.	1887.	1889.
May.....	362,540	320,305	32,818	29,759	11.00	10.76	9.35	8.50	\$3,069 02	\$2,517 32
June.....	576,042	463,748	51,355	42,854	10.59	10.82	8.85	9.17	4,796 21	3,928 23
July.....	511,479	520,540	45,694	46,780	11.16	11.12	10.375	8.75	4,741 16	4,093 77
August.....	446,449	428,290	40,965	38,887	10.89	11.00	11.375	10.00	4,659 76	3,888 70
September....	390,915	302,091	39,056	29,618	10.00	10.02	11.25	10.75	4,393 80	3,183 94
October.....	285,104	244,359	29,103	25,376	9.80	9.63	11.25	10.75	3,271 83	2,727 92
November.....		26,878		2,987		9.00		10.75		321 00
Total.....	2,572,529	2,806,241	241,991	216,266	10.63	10.66	10.30	9.55	24,931 78	20,660 93

The Elma factory at Atwood is a joint stock factory. The cheese turned out is fancy, and I saw considerable of it in cold store. The following is the milk received and cheese made:

1889 to	Pounds of milk.	Pounds of cheese.	Average.
May 22.....	289,239	26,006	11.132
May 30.....	162,359	15,451	10.508
June 30.....	579,061	532,234 $\frac{1}{4}$	10.8739
July 31.....	650,929	57,549 $\frac{3}{4}$	11.3107
August 31.....	518,817	46,931 $\frac{1}{2}$	18.04
September 30.....	400,408	37,825	10.5858
October 30.....	268,338	88,288 $\frac{1}{2}$	9.625
November 15.....	77,719	8,549	9.09
Total.....	3,046,170	283,825	10.732
1890 to			
May 15.....	243,150	20,986	11.5863
May 31.....	278,614	24,767	11.25
June 30.....	679,557	60,036	11.32

## SUMMARY.

I think that the following are the principal reasons why the Canadians get higher prices for their cheese than we do:

First. They make only full cream cheese, and have the reputation among the English of making nothing else. Mr. Thomas Ballantyne said to me:

"We have not made a pound of skim cheese in Ontario. We have stood for the quality of the goods and we get the prices too. If a factory were to make skim or filled cheese they would be run out in twenty-four hours. People are getting more fastidious about what they eat, and are afraid of adulterations. It pays to look to quality before quantity."

Second. They do not allow whey to be returned to the patrons in the milk cans. One factory man told me he would close up his factory before he would allow it.

Third. They get the whey out of their cheese.

Fourth. They make more solid, fuller-bodied cheese than we do.

Fifth. The cheese are put up in neat shape.

Sixth. Requiring no 10 lb. rule.

In closing I wish to say that I was well received by the Canadians. I am especially indebted to Messrs. Thomas Ballantyne & Sons, of Stratford, and Mr. J. B. Harris, for it was through them especially that I had opportunities of seeing the factories and making closer investigations. I was well received by the cheese-makers themselves, and the acquaintances I made among them were very pleasant.

There is one thing that I feel it is necessary to mention in closing. Occasionally I would find a shiftless underhand that thought he would go to Wisconsin where he could get a factory to run for higher wages. If they are not good enough to run Canadian factories they are not good enough for ours. Of course Wisconsin will welcome reliable Canadian makers, and such makers can get recommendations from Mr. Thomas Ballantyne, of Stratford, E. Casswell, of Ingersoll, or other Canadian cheese dealers of like standing.

The chairman — Mr. Deckers's report was summarized in what he read to you. The extended report will appear in the proceedings of this society.

Before opening up this subject for discussion, I wish to introduce Mr. J. B. Harris, of Antwerp, New York, who has labored with our Canadian friends for some six years as cheese instructor and inspector. This last season Mr. Harris visited and supervised one hundred factories in Canada. He has spent two seasons in Scotland, having been exported from this country to help our Scotch friends in the art of cheese making. He has been with us this winter at Madison, at our Dairy school attending Dr. Babcock's lectures and taking milk instruction under Mr. Decker. So in introducing Mr. Harris I have the pleasure of introducing a student at Madison and also an instructor of other people.

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### POINTS IN CHEESE MAKING.

J. B. HARRIS, Antwerp, N. Y.

I am rather an old student but I am a willing one. I can always learn something from every factory I go to.

It is said that Apelles, a great painter of ancient times, by dint of years of patient practice with a piece of chalk upon a blackboard, attained at last the skill of drawing with a single sweep of his arm a perfect circle; and we have heard of another worthy in the east who was able, after many years of practice at a distance of several yards, to hit the point of a pin with dry peas thrown or tossed by hand; and we have all seen with what skill balancers and ball tossers sometimes acquire in the practice of their respective arts.

Cheese making is an art at which men become more or less expert according to the degree of intelligence which they bring to bear upon it in its practice, not only the hand but the eye, the taste, the sense of smell and the judgment, must all be educated to it.

It doubtless was a difficult matter for the artist to learn

to strike the circle, and perhaps the tossing of peas was yet more difficult, but these were comparatively simple arts as against cheese making.

We all know from personal experience that that faculty of the mind which we call the judgment, however well educated it may be, will now and then fail.

For a human being to do or perform any particular act always and forever exactly alike, is not possible. The bank teller, who has grown grey at the counter, will now and then make a mistake in delivering you the amount due on your check or draft.

In making cheese the operator first of all is called upon for the exercise of judgment. The material upon which he is to act is of a fickle and fluctuating nature; it is one thing to-day and another and quite a different thing to-morrow. To-day it is tractable as a well-broken horse, to-morrow no zebra was ever more unmanagable, and to meet it in its various moods and eccentricities and subdue them is a work requiring the exercise of a high order of intelligence.

In my experience as cheese instructor I have come to realize the difficulty of educating the judgment.

A great majority of the makers seem to seek or desire some arbitrary rule or rules upon which to act in preparing their material for the chemical changes it is to undergo; and when they are advised that no such rule can be given, but that the eye, the taste and the smell, are to be brought into requisition and so educated as to determine the course to be pursued, and that these are the agents upon whose accuracy they are to stand or fall, they seem lost, and the more indolent among them decide at once that so far as they are concerned the case is hopeless, and they go forward as formerly in a hit or miss fashion, leaving the result to chance or fate.

It is astonishing to see how great a per cent. of the cheese of the country is made up without the exercise of any of that higher order of discrimination which comes of long and patient observation and clear and intelligent judgment.

Take for example the maker who is too indolent to exercise his mental faculties, but who has been told that



milk ought sometimes be heated before introducing the rennet to ninety degrees, but who has not learned why or under what circumstances this should be done, he will go on heating always to ninety degrees and wondering why the result is sometimes good and sometimes bad.

To these men milk always looks, tastes and smells the same or if it has a peculiar look, taste or smell, the fact is of no consequence, or if the idea occurs to them vaguely that a peculiar taste, smell or appearance are indications of a peculiar chemical condition they never trouble themselves to resort to experiments or to treasure up in memory the aggregate of results in the make up.

A man of this description might learn in the course of ninety-nine years to draw a perfect circle at off hand, but he never can learn to make cheese.

In view of the fact that the world is full of cheese makers who are defective all along the line in the matter of judgment, we have often thought of the benefit resulting to the industry from the discovery of some chemical or mechanical contrivance, the application of which to the process here and there at its points of uncertainty, would relieve the understanding by ocular demonstration. It would be a great point gained if some instrument were invented, which when applied to milk, would indicate its progress toward maturity and exhibit to the eye, as the thermometer indicates temperature, the exact moment for the introduction of rennet.

The rennet test as introduced by me in the year 1882, when carefully applied and intelligently observed furnishes us with the information we desire, but even in this close observation and experience have a part to perform and the educated judgment can alone read the language it speaks; and we are led to the conclusion from long years of patient observation that wherever the judgment can be relieved and the business turned over to the hand and eye greater uniformity in the product is the result.

At one of these points of uncertainty in the process of making cheese, human ingenuity has come to the front and

given us a very successful arbitrary help, and that is a curd mill.

Before the introduction of these machines as many of our older makers will recollect, the condition of the curd for salting was determined by the length of time in which the whey was allowed to remain on the curd, and the power of the acid developed in the latter; for it was this part of the process which was known to exert an all powerful influence in determining the character of the cheese when made up, and on the shelves.

To determine this and say by the exercise of the judgment, when the action of the acid had proceeded exactly far enough to secure the best possible results, was a feat which the best makers in the world frequently failed to perform.

We do not say that it was a wonderfully difficult thing to learn, or beyond the comprehension of the ordinary mind, because it was not, but it was a difficulty with which the mind had to contend at least once a day through an entire season, and this was enough, as we have already intimated, to insure a by far too large an aggregate of mistakes, for as we have said, it is impossible for us to do even the simplest thing always and forever exactly alike.

It was an element of uncertainty in the process which never slept, and was always on the watch for an opportunity to leap out upon the maker, if for a single instant he lost his presence of mind or permitted his thoughts to wander; and being more persistent and tenacious of purpose than is possible for any human being to be, it all too frequently succeeded in its purpose, and alternate huff and leak huff and leak along the shelves of the curing room indicated the success of its pranks.

If at the time when the degree of acidity upon the curd was to be determined, the maker's attention was called to something else, or if in the exercise of his judgment, he failed in even so much as a tick of the clock, and the acidity was kept on by that much too long, the result was either a hard, crumbly or leaker, and by even the same brief space of time it was curtailed the result was a lopper.

The curd mill has relieved us of all this, and the element of uncertainty, of which we have been speaking, remains no longer to trouble us, no longer is it necessary to watch the development of the acidity as a means of securing texture and elimination of gases, as a cat watches at the hole for the forthcoming mouse, for we have another and more perfect means of accomplishing the same results, and that is matting and the curd mill.

In the process of matting the granules of curd settle together and adhere, and by this means the smallest possible surface is exposed to the cold. The curd is thus kept warm, the whey is expelled and the result which in the old system was accomplished by the dangerous and doubtful action of whey acid, is now effected in a much safer, cleaner and more satisfactory way.

A word or two in this connection with regard to a criticism upon our method published in *Hoard's Dairyman*, September 19, 1890:

In that issue the editor quotes a paragraph from my book entitled, "Cheese and Butter Makers' Hand-book," and takes credit to himself for the last part of the paragraph. In this I describe the curd when ready for the mill. And the worthy editor construes my meaning, and says, "A healthy curd has no such odor," but that I have been betrayed into making a statement stronger than the odor, for the purpose of exalting the merits of a curd mill in taking it out, which I claim the mill does, I being the inventor of one of the best of them, we are told. He further says, "If there really is such an odor in the matted curd of pure milk, we would say that is a strong point against matting at all, for to 'cook' a stink into curd two or three hours will give it a fragrance that simply cutting it will not take out. We don't believe that pure milk ever makes curd with such a stink, whether matted or granular; but if it is in impure milk it will stay there, notwithstanding the cutting or the granulation. Development of acidity will take out or neutralize some odors, but to say a knife drawn through it will do it is simply silly. People impute to a knife what is done by a semi-chemical change."

I repudiate it in toto the editor's imaginary stink, as I never said the curd stunk, neither do I claim that simply cutting on the hill will relieve any odor. We will say, however, that if a curd is found to emit a disagreeable odor, cutting it into thin slices or parallelograms, puts it into the best possible form for the operation of the atmosphere and pure air is the best remedy known for the elimination of stinks, but we do not contend, that the use of the knife purifies the smell or sweetens the flavor of cheese.

And so it comes to this, after all that the learned editor in the above extract, fights with a man of straw and discharges his editorial shotgun at a phantom of his own, over-wrought, and heated imagination.

We have read the discussions, which have been going on of late, in the agricultural journals of the country, with regard to the dry, granular curd system, now in use in Wisconsin, and here and there an insular instance elsewhere, from which we gather, that process consists of drawing the whey, sweet, and in stirring the curd incessantly, from one to five hours as needs may require.

On the face of it this is a system which I do not care to learn, it is too laborious, too much stirring is a weariness to the flesh; moreover, discouraging to one who knows there is another, and to say the least, just as good a way with much less labor, and it will not require an elaborate experiment or learned dissertation to prove that if curd lying still will accomplish for itself all and more than curd in motion, that it is the best and easiest way to permit it to lie still.

If it be contended and susceptible of proof that by this excessive stirring superior results are attained, and the dry granular curd system has anywhere established a superiority over the cheddar system, then of course the extra labor given to stirring is of no consequence and might be endured with patience.

But we have never heard it so contended or proved, and we don't see the point in all this commotion with regard to the dry granular system.

Thus far in the history of cheese making the palm of

victory is in the hands of the men who matt and mill, and until there shall arise a class of makers who by some other system are able to take it out of their hands we shall be found marching in their column and shall continue to lift up our voice in commendation and praise of their achievements.

It has been said in public prints and private conversation that because I am the proprietor of a curd mill that, therefore, I continue to urge their use. And the suggestion has doubtless closed the ears of some, and will doubtless hereafter, prejudice others against whatever I may have to urge upon this subject here and in public elsewhere, but this can make no difference with the facts the dry granular process is still in the rear. Moreover, it will be borne in mind that it is not the curd mill for which I especially contend but the matting.

In the course of my varied experience I have come to regard matting as an almost indispensable pre-requisite to perfect cheese.

To be sure I have never had the means to accurately ascertain, nor can I clearly state the exact chemical change which takes place in curd as it lies together in a solid mass for a short time immediately after its liberation from the whey, but we do know that while in this state it is kept at a temperature essential in nature to the work she has to accomplish, and during that time certain changes do go on always in a satisfactory way, without which, success is always more or less doubtful.

To me a well-matted curd is always a source of confidence, as to the texture and flavor of my product; and until I meet with some more lucid statement than I have yet seen of the dry granular process, I shall continue to think that it lacks the essential factor to good cheese, which the matting process supplies.

It is my opinion that in the adhesion of the granules of curd, a means of communication and circulation is afforded and appropriated by nature, and that certain subtle and, at present, unknown changes and influences are carried on in the mass, with a uniformity of benefit which can never be



realized by maintaining the individuality of the granules. This idea would seem to be borne out by the singular phenomena exhibited by a healthy curd, at a certain stage of the matting process, namely, its disposition to become fibrous.

This disposition is only a part of nature's work.

It is nature, after all, who makes the cheese; and nature seems to insist upon the right to bring the curd to this fibrous or stringy condition.

She is wiser than we are, and always has a purpose in whatever she does.

She is in this as she is in her other chemical formations; she will have her salt crystals in a certain form, her sugar crystals in a certain other form. She builds her sandstone in one way and her lime rock in another, and when left to herself does whatever she has to do uniformly and perfectly.

Of course these are only speculations of my own, in which I have been led to indulge from knowing, through years of experience and patient observation, that nature really does something for the benefit of cheese when the curd is matted.

With regard to the curd mill, our contention is for this and this only, that in changing the curd from a solid mass to pieces a knife mill, of proper construction, accomplishes the purpose with a uniformity and nicety which cannot be attained in any other way yet discovered.

When the benefits of matting have been attained and the purpose therein sought have been effected the next business is the application of salt, and it will require no argument to prove that in this, uniformity of permeation is highly desirable. Neither will it require any argument to show that if the mass of solidified curd is reduced to slices or parallelograms of uniform size and appropriate thickness and the salt is applied to these, the desired result will be very effectually accomplished, more effectual, indeed, than by any other known way.

I am in favor of any mill which will accomplish the result as above stated, because in doing this it separates the mass smoothly and without injury to the texture or fiber of

the curd, and I am against any and all machines which divide the mass by tearing or mashing it into fragments, because in so doing they destroy both texture and fiber and liberate the fats, and consequently impoverish the product.

To illustrate the difference between knife mills and those which tear or mangle, we will state, we know a cheesemaker of wide reputation, who has in his factory both the knife and a mangling mill, by stress of business he is sometimes compelled to use the mangler, and he states to me that he can go into his curing room in the dark and pick out, by the source of feeling alone, the cheese made with each mill, accurately, and without ever a mistake he discovers the cheese made with the mangler by its oily feeling.

One remark further and we are done. One of the tests applied by the buyer when he comes to place a value upon your product is the texture, and this he ascertains generally, by breaking the plug; if he finds it breaking squarely like a piece of decayed wood, he says at once that it lacks texture, that the fiber has been broken down and the mass is without grain or life.

A common expression, used to describe such cheese, is that it is short.

If on the other hand, the plug breaks flinty and flaky, and upon the grain something after the manner of live, sound timber, it is satisfactory and commands a high price. This difference always exists and may be relied upon to prove the sort of mill used in manufacturing the cheese. The first was made by some mill which broke and destroyed the fiber of the curd, the latter by some mill that inflicted no injury, but did its work cleanly and effectually.

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#### DISCUSSION.

The chairman — We are making cheese for money, and if we can get anything out of the Canadian system, that will increase our cheese the small valuation of a cent a pound, we should be willing to adopt it, and now is our chance to get the information.

A gentleman — Being a Canadian myself I am somewhat interested in this matter. Will you kindly tell the cheese makers here what the causes are that lead to a rusty curd. Have you ever heard of that rusty appearance in curd?

Mr. Harris — Oh, yes, a thousand times, but I never heard it explained intelligently, and I will have to give it up. In New York state around Governour and Campin, they have that trouble, and I couldn't do a thing with it. There is something in the soil, I think. There was no iron anywhere near there, and they had good, clean water: I have inquired of all the makers in the country and they can give me no satisfactory answer.

Gov. Hoard — Did it interfere with the character, the quality of the cheese?

Mr. Harris — No, not a bit. To get rid of that spotted cheese they had to color their cheese quite highly.

A member — You claim there is less failure in making a fat curd, running your curd mill than in making a dry curd cheese. We don't agree with you. Have you had experience in the dry curd cheese?

Mr. Harris — Yes, I have made ten thousand of them and never yet made a fancy cheese until I quit the granular system and made a cheddar cheese. In Antwerp, where I live, we run five large factories. We all used the granular system formerly, and now all use the cheddar system, and our cheese are always quoted fancy in the New York market.

Gov. Hoard — Do you not think that the habit which prevails among so many cheesemakers of leaving the curd in the whey and developing the acid in the whey, is a practice which is destruction in two ways: in the first place that it is liable to take the fat out of the curd, and, second, more liable to leave all bad flavors that may be in it, in the curd. I know that to-day in Wisconsin a number of cheese makers adhere to that practice.

Mr. Harris — My idea is that as soon as you get acid on the whey, enough so that it will cut the butter out of the curd, so much that it will probably try on Babcock's test from one to one and a half per cent. of fat. At factories work-

ing under the old granular system, I have seen six inches of pure butter fat on top of the whey tank, and when I commenced instructing in 1880, over in Canada, they all made by the granular system and they all made their own whey butter, and since I got the thing running rightly they could not get any whey butter off their vats. They couldn't get enough off of some of them to grease a pair of boots. You draw your whey sweet and there is very little fat that will come with the curd.

Mr. Fleming—What amount of acid will it take to cause that waste of one or one and a half per cent.?

Mr. Harris—Sometimes it will get the start of you. Of course, that is a large per cent. Mr. Decker has experimented considerably in that line.

Mr. Fleming—What do you think the minimum percentage of butter fat ought to be?

Mr. Harris—About three-eighths to three-tenths of one per cent. The less the better.

Mr. Decker—Four-tenths is pretty good whey, or rather pretty poor whey. It isn't so good for the hogs, but it is better for the cheese.

A member—In former years we used to have trouble in our curds where it was cut with the knife mill. Sometimes it was a little cold and our curd wouldn't stick together good.

Mr. Harris—The particles of curd will remain cold and stiff if you don't cut it when it is warm. You want to cut your curd thoroughly when it first begins to mat together, and keep it up to 95 or 97 or 98 degrees, until it is matured, and I will guarantee your cheese will close up all right. I suppose it gets down to about 80 after you get the salt on.

Question—How long do you consider it is good to hold your curd in the whey?

Mr. Harris—An hour is long enough, plenty. You make just as good cheese as by holding it two hours.

Gov. Hoard—In the manufacture of cheese we are constantly confronted with this question. How can we get the whey in a condition which will be of the largest value to the farmer? The great drawback to it in the minds of

thousands of men is the fact that they cannot make a proper use of the by-product. The whey goes to the farmer in a condition that it takes off more fat from the hogs than it puts on. Sour whey is one of the most powerful agents for the removal of fat. If you have got a fat greasy calf, you can't get the fat out of him so fast any other way as with sour whey. Now, the question in regard to the saving of the whey in proper condition for feeding is a very practical one. How can it be saved sweet to the farmer?

Mr. Harris—If you will only have your cheese maker keep his whey vat perfectly sweet and clean, that whey will not get so sour that it will do any harm to the hogs.

Prof. Twitchell, New Hampshire—We have, through some experiments made, found that by heating whey up to 160° and then immediately cooling it down to 45°, it can be kept for two days sweet.

Mr. Harris—There are some factories that never scour out their whey vat from spring to fall. It gets to be a very filthy place, and that whey is almost poison to feed to anything. The whey vat ought to be scoured out and and scalded at least once a week, and every other day would be much better.

Mr. Noyes—In our section our rule is to clean our whey vats just the same as our cheese vats every day, and if the patrons bring their milk to the factory sweet, we do not develop any acid to amount to anything on our whey, and as soon as it is drawn into our whey vats, we heat it immediately to 140°, and the whey is sweet until the next morning. We do not cool it back immediately. I think that would be a good plan. My whey vat is half way into the ground and we have a steam pipe right from the boiler into the whey. Sometimes the milk is brought to us a little sour, then, of course, our whey is sour.

Question—Then, can you make a good cheese out of that sour milk?

Mr. Noyes—It depends on how sour it is. I would rather have sour milk three times over than to have a can of tainted milk. I have put a can of loppered milk into a full vat and no harm appeared, but I wouldn't advise that.



The chairman — I wish to say that Mr. Noyes represents a section of Richland county that is rapidly coming to the front. I want to go on record as making a prophecy. I want to make this statement, that if Richland county keeps on her present line of progress, she is going to lead so far as quality and price is concerned, every county in the state of Wisconsin in regard to cheese. She has got the brains, she has got the energy, and she has got the push, and her men are showing it by their call for a State Dairymen's Association Instructor, by their willingness to pay more for an Instructor than he asks, by their sending some cheese makers and others to the Dairy School, and by having them at this Association. Some of these counties that are saying: "We are the biggest cheese county in the state," if they don't brace up in some directions, they are going to be second in this race, and I just a lief tell you that now, and you have a chance to get on your feet and go ahead in time.

A member — How long are you going to give Richland county to get to the front?

The chairman — Five years.

Mr. Noyes — One year. I would like to say those Richland county men have made an application for instructors, and we have had one in our section and he is a good one, and there wasn't enough appropriation made, so they drew on us, three dollars for each factory, and we all paid five instead of three, because we feel that we have received such an amount of good from that instructor. Gentlemen, I am ready to pay twenty-five dollars this year for an instructor. Another thing, I am ready to pay five dollars to have them send an instructor out there to our meeting in the month of March, and I have lots of neighbor factories that are ready to do the same thing. This last year our county made the best cheese it has ever made, and the consequence is we are going to have more cheese buyers in our section this year than we have had in ten years, and our cheese is going to sell at a better price. Buyers in Chicago told me last fall that they had as good cheese from Richland county as anywhere in the state of Wisconsin.

Mr. Fleming — My observation in respect to this question of the proper handling of whey, is corroboratory of what Mr. Noyes has said. I know of fifty factories in Wisconsin where whey is being handled as he has suggested, and with splendid results. The first whey which we run from the cheese vats can very easily be gotten into the whey tank sweet; but there is yet remaining a considerable portion of whey in the curd, and some of which also runs from the press, while the cheese is in the hoop. Now, this has become permeated with lactic acid, and if permitted to go into the whey tank, in a very short time is going to spread acidity in the whole, and now that you have done a great good by getting this whey from the milk vat sweet, and into a good, pure tank, it is a great mistake to undo the good that you have done, by permitting this other whey, which has acid in it, to flow into that tank. I realize that a large number of the dairymen of the state of Wisconsin are receiving very bad returns from the feeding of their whey, and I believe it is justly attributable to this fact, that they not only get it home sour, but when they get it there they feed it cold. To a calf it should be fed warm and sweet, not less than three times a day, and then you can be sure of raising good calves, which in time, will become good cows.

Mr. Monrad — On this line of keeping whey in good condition I want to say that in the Danish creameries they are doing as Gov. Hoard says with the skimmilk. They heat it up and cool it immediately, and thus keep the skimmilk perfectly sweet for two days. I want to ask Mr. Harris whether he has had any experience with the acid test, the chemical titration test. I see they are using them in England.

Mr. Harris — I never have tried it, I don't know anything about it.

A member — Some one of these gentlemen has said that a whey vat under ground is worse than above ground. Now, why is that?

Mr. Monrad — Because it is very difficult to keep clean. I have visited hundreds of cheese factories, and I have yet

to see an underground tank where there was not some smell around it on a hot summer day.

A member—Come twelve miles south of Fond du Lac and I will show you one.

A member—I have read somewhere that if Jersey milk or milk very rich in butter fat is made into cheese, a certain part of the fat is run off into the whey vat, and might as well be taken off before it is made into cheese. Now, I wish Mr. Decker would tell us what is the limit of fat that can be incorporated in the cheese without any detriment to its fat quality.

Mr. Decker—I did some experimental work at Madison during November and December. We were buying milk according to test, and it would run from 3.6 to 4.6 per cent. of fat in the milk, and I was unable to find any more loss in the richer quality of milk than in the other. I do not state it for a fact, but it is my opinion that five per cent. of fat, that kind of milk can be worked up without any more loss than the three per cent. Of course, you have to be careful, but I think a cheese maker ought to be able to do it.

Gov. Hoard—Can it be done with the same ease?

Mr. Decker—Well, I think he can do it if he knows his business, and he should know his business.

Gov. Hoard—I am asking you, doesn't it require more skill to handle five per cent. milk and incorporate the fat than it does three per cent.?

Mr. Decker—I don't see as it does very much, it may very little.

Gov. Hoard—Doesn't it require more skill to handle eight per cent. milk and incorporate the fat?

Mr. Decker—Yes, but I don't think you will get eight per cent. milk.

Gov. Hoard—I can furnish eight per cent. milk.

The chairman—How much, governor?

Gov. Hoard—Enough to make a cheese.

The chairman—There isn't a dairyman in the state of Wisconsin that will turn over 100 pounds of milk that will analyze eight per cent.

Gov. Hoard — I can furnish you a cow in Wisconsin that can do it. I have found cows around Ft. Atkinson that will make a pound of butter from eleven pounds of milk, not herds but individual cows.

Mr. Beach — Have you ever found any too rich to make into cheese without skimming?

Mr. Decker — No sir, I have not.

Gov. Hoard — I want to ask Mr. Decker as an intelligent cheese maker whether the commercial standard today of good cheese does not range somewhere near about four per cent.

Mr. Decker — Yes, I think it does.

Gov. Hoard — Now, if you put five per cent. into your cheese, one or two per cent. more fat, do you get paid for it upon the market?

Mr. Decker — Here is the point, you get it in the yield and you get better cheese. The Canadians have been getting good prices for their cheese, but Mr. Bellantyne has said that their Canadian cheese would not come up to the Scotch cheese and he thought that the difference was in the quality of the cheese, the fat that was in it.

Gov. Hoard — I heard him say it and I talked with Mr. Robertson who made that Scotch cheese. Mr. Robertson told me that there was about ten per cent. more fat in it. That the Canadian cheese averaged about thirty to thirty-five per cent. fat, and the Scotch cheese from forty to forty-five, and it made a difference of seventeen shillings, English money, in the price per hundred weight of cheese, but Mr. Noyes says you get more yield. Now, one pound more fat at twenty-five cents will return you a pound more cheese at ten cents.

Mr. Decker — Your cheese will bring more money per pound.

J. A. Smith — You can't get any more per pound for it. You will get a little more yield.

Mr. Phillips — This milk that Mr. Decker referred to as testing 3.6 and 4.6 was worked up exactly the same way, no more care used with one than with the other.

Gov. Hoard — Do you think you handle milk more carefully than the average cheese maker?

Mr. Phillips — Yes, I think we do. The cheese are not old enough yet to tell what they are in quality. I don't think that the cheese that had the most fat in it will cure out as much.

Mr. Adams — I would like to ask these gentlemen, Mr. Decker and the others, who have been abroad through the state visiting different factories, if they believe there is a solitary factory in the state of Wisconsin that incorporates five per cent. butter fat in their cheese.

Mr. Phillips — I don't think they get it to incorporate.

Mr. Monrad — Is not the high price that they are getting for Stilton cheese on account of the fat which they incorporate into the cheese?

Gov. Hoard — Yes, but it is not made on the Cheddar system.

Mr. Monrad — How is it that September and October cheese is quoted higher than June and July?

Mr. Decker — Because it is richer.

Mr. Monrad — Because the milk contains more fat? Thus we come back to the fact that the increase of fat really makes an increase to the market value.

The chairman — Are you all satisfied with Mr. Decker's description of this curing room? I think if there is anything in Wisconsin to-day that needs re-generation it is the average Wisconsin cheese curing room.

Mr. Fleming — I hope the president does not intend to intimate that we have got to go to Canada to find model curing rooms. I believe we have got as good cheese in Wisconsin as they ever make in Canada.

A member — I have seen a good deal better cheese factories in Wisconsin than I ever did in Canada, and I am a Canadian. I was educated into this business with the real cheese King, not Ballantyne, and just as good authority as Ballantyne or Prof. Robertson.

Mr. Monrad — How many of those good curing rooms have you seen in Wisconsin?

The member — I am representing one of the leading



cheese houses in Chicago. I have visited most every section in the southern part of Wisconsin, and you take it around Elkhorn and Burlington, and those cheese sections, and I think you will find just as good factories as you do in any part of Canada.

Mr. Thom — We can raise a scrub steer in ten thousand dollar barn, that won't bring but  $2\frac{1}{2}$  cents a pound on the market. The point we want to get at is that we want to recognize the fact that Canada as a rule gets more money for her cheese than Wisconsin and we want to get at the secret.

The member — You must remember one thing. They have only one market to suit in Canada, and we have got to make all kinds here, for the Southern market, the Eastern and every other kind of market.

Mr. Noyes — We have curing rooms in Wisconsin that they keep up to  $94^{\circ}$  and  $96^{\circ}$ . I have pretty good curing rooms, but not as good as they ought to be.

Mr. Decker — Lots of cheese is spoiled in the curing room.

A member — I would like Mr. Noyes to tell us what his cheese patrons get.

Mr. Noyes — The milk of my factory last year netted a little over seventy-four cents.

A member — That beats the Canadian figures some.

Gov. Hoard — The curing room is a matter which has occupied my attention for a good many years. I think we have yet but very little understanding of the proper method of curing cheese. The finest cheese that I ever saw in Wisconsin was made in the Cold Springs Factory in October, put into a large vault, managed by a sub-earth duct, and held there for seven months, and taken out the following May. At the same time that cheese was taken out I had an English prize cheddar in my office that took the first prize and had been sent to me. The cheese came out of that sub-earth duct a finer cheese than the English by every single element. It had only shrunk a pound and a half in sixty. It had cured so slowly and gently and the temperature had been held so evenly that the gases had not evolved, thereby cutting out the solids of the cheese,

and the cheese cured very solidly and put off an exquisite flavor. That cheese was a lesson to me. This last fall I saw Mr. Conover, and he told me that he had gone through a very interesting experience in the same manner with another vault, and that he had become convinced that he did not understand the proper curing of cheese. That principle was the fact of holding the temperature down to an even point and keeping it there. Now, you take the heating of our curing rooms, how is it done? I had quite a contest the other day with a man about the heating of his curing room. He was going to put a coal stove in, and by that you see he would raise the temperature at this point near the stove, and over yonder it would be a good many degrees colder, and that is the way that nine out of ten of our curing rooms are arranged in the fall when cheese is worth the most. The only system I ever saw of warming a curing room in the fall and keeping it at an even temperature was to run steam pipes on the outside. It takes a little care, of course, but, bless you, there aint anything from a baby up to a Holstein calf that don't need care.

The chairman — I want to say that the comparison made by the gentleman at my left about the steer and cheese don't compare at all. The curing room is not a cold storage room. I think the coming heat for such purposes is hot water. It takes a long time to heat up, but it holds its heat after it is heated. It has been found at the Michigan Experimental Station where two green houses stood side by side, built by the same carpenter, and covering the same area, that the green house heated with hot water, held its temperature better and more evenly than the other. If you are talking about putting in a heating system look up the water heat. It don't cost any more than steam and keeps a much more even heat.

Mr. Beach — I want to say that I had a piece of this sub-earth-cold-storage cheese that Mr. Hoard has told us about, and it was the finest we ever had in the house.

Mr. Favill — I had a chance to taste that cheese myself, and it was simply magnificent. I want to say that ten years ago I knew a good deal about the curing rooms in

Wisconsin, for I was buying cheese, and if I had a dollar for every scolding I have given cheese makers in regard to their curing rooms, I would have a good deal more money than I have now. There's lots and lots of cheese that is well manufactured that is spoiled in the curing. Cured and dried are two different things. Drying is the evaporation of moisture, curing is a chemical change that comes from holding it just in the right condition.

The chairman — Mr. Decker, we want to know how the walls of this curing room are built?

Mr. Decker — In the first place the floor and sills were put down heavy, then joists were put in, and on the under side of the joists inch boards nailed on, and plaster put on about an inch thick. That leaves an air space; then, they put on two inch flooring. Then, in putting up the walls, they put studding, 2x4s; then they put bricks between the 2x4s and flush with the outside. Then they put on 2x4s horizontally and nailed on boards vertically, and put battens on so as to make it tight. Then, inside they lathed and plastered. So you have two air spaces and the brick wall. For heating in this factory they have a stove with a jacket. The jacket is hung by a wire, or weight, that balances it so they can raise and lower it. They are talking about putting in a furnace now.

Mr. Burchard — I don't believe there was any air space in the walls of that building at all. In the first place the air would get through the cracks on the batten. In the next place it would get through the brick, and in the next place it could get through the plaster, so there was no air space there at all. We can do very much better than that by putting in building paper, and it don't cost half the money.

Mr. Noyes — What is the right temperature to cure cheese in October and November? A. About 65° to 70°. I would rather have it 65°. One thing we must remember, you must have air to cure your cheese, you must have the oxygen.

A member — What does it cost to build a curing room like that, for say, five or six thousand pounds of milk?

Mr. Decker—This whole building cost \$5,000. The curing room perhaps cost most of that money. A building for five or six thousand pounds of milk, would cost, probably, \$1,500. We must remember one thing, the Canadians have larger factories. With us, a man gets up to five or six thousand pounds of milk, and the patrons begin to think he is making lots of money, and they go to work and put up another building and cut down the price, and so there are too many factories making small amounts, and they can't afford to have things as they ought to be.

Gov. Hoard—Yes, we have poor cheese factories, small ones, poor cheese makers and poor results.

Mr. Monrad—I think it is a fact that the great majority of cheese in Wisconsin is sold and taken away from the factory before it is cured at all. Ten days from the press it is taken away and sold. You see here also there are two rooms in this curing room, and if we want to hold cheese for more than thirty days, we want to have two rooms in order to have different temperatures. I want to ask also, isn't it a fact that it is not only a question of temperature in all curing rooms, but a question of moisture. I think the time will come when we will measure moisture just as carefully as we now measure, or ought to measure the temperature.

Mr. Noyes—I have been in factories where the factory-men have put water on the floor to get the necessary moisture.

The chairman—I wish to mak another prophecy, that the time is near at hand when Wisconsin's curing rooms will be properly built, they will be heated by hot water furnaces, and there will be a hydrometer and thermometer in those rooms. Each man will watch the moisture, and add to or take from it; and they will watch the thermometer. Only a few tons of coal will keep a greenhouse warm, which is sixty or eighty feet long, and twelve or fourteen wide. You know by that system the hot water keeps traveling round and round through the pipes.

Gov. Hoard—It takes but very little water. A quart a day will furnish all the waste water.

A member — Supposing there was a boiler already at hand. Would you advise anyone to get that hot water furnace?

The chairman — You would have to use steam with the boiler. You had better get this system throughout. I do not think you could connect it very well with a steam boiler. I should think that the system could be put in from about two hundred dollars up to four hundred dollars, depending upon the number of pipes and the length of them of course.

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### HONESTY IN DAIRYING.

GEN. GEO. W. BURCHARD, Fort Atkinson.

It was the maxim of a witty French philosopher that "our virtues lose themselves in our interests like rivers in the sea." I do not think this statement is universally true. There are some men and many women who would scorn to do an ignoble or dishonest act without reference to resulting gains or losses. Daily observation, however, compels the admission that, with many of us, honesty seems to be conditioned by self-interest, and the law of ethics is looked for in our account books and the market reports.

To be sure we rail with great emphasis at the Goulds and the Armours — specifically, and all millionaires generally; but, if the foundation truths were admitted, it would be apparent that our condemnation of their methods results quite as much from inability as from indisposition to follow where they lead. Playing marbles for keeps is sinful business, especially when the other boy wins. Were it not for a very prevalent desire to get something for nothing professional swindlers would find fewer victims, and filled cheese would no longer handicap the honest factoryman's market.

It is every day experience that where honesty is not the most remunerative policy, honesty has a hard time of it and that, too, without regard to time, person, place or circumstance. Only our objective vision is usually more



acute than subjective vision. We do not fail to characterize in fitting terms the grocer who weighs us out only fifteen ounces of sugar for a pound, or the merchant whose yard-stick was made of unseasoned lumber; but who ever heard a dairyman complain because he could get only 120 ounces of butter—seven and one-half pounds—into an eight pound bail box.

In short the man who gets the best end of any bargain is pro tanto an optimist. His vision takes in the roses and leaves out the thorns. By the universal laws of contraries the other man, the party of the second part in that transaction, is pro tanto a pessimist. Where his eyes rest only the thorns and blighted flowers appear.

I know that the declaration which we piously and patriotically read every Fourth of July, affirms "that all men are created." The affirmation is not only true, but, as claimed, it is axiomatic also in the sense in which it is there made. All men are equal before the law and equally entitled to its protection. It does not follow, however, that all men are equal in intelligence, capacity, or virtue. If they were,—if all of us could be equally successful in driving sharp bargains, or (dropping euphemisms and circumlocution) equally successful in dishonesty, there would be no profit in it for anybody and hence no motion in that direction.

But because the vast majority of us are less successful in roguery than the small minority, it becomes necessary for the general welfare, to restrain the few, by erecting barriers against their cupidity. And when we come to do this, I can discover no distinction in ethics, between counterfeit coin and counterfeit butter. With those who do not, or cannot, distinguish between the genuine and the spurious, either may be equally current, if not equally valuable. If I can, at an expense of five cents, fabricate an apparent fac-simile of a half dollar, which some unsuspecting landlord will accept for a dinner, who shall say me nay? Certainly not, the man who serves me oleomargarine for butter, or chicory for coffee, or sells my wife alum for cream tartar,

or those who aid and abet, or vindicate and uphold them in so doing.

It is a question of practical ethics and we need not concern ourselves overmuch, with the speculations and arguments of the philosophers as to the basis and origin of ethical distinctions. They do not agree. If your curiosity is excited in regard to these questions, or you should need a counter-irritant for too close attention to the problems connected with the construction of a properly balanced ration for milch cows, you may refer to your cyclopedia, and read there, that Hume found a uniform ground for moral distinctions, in general utility; that Hobbes saw no natural distinction between right and wrong, but averred that pleasure and pain are the natural guides for human action, and consequently, that only the civil power, could place bounds and limits to human greed and selfishness. On the other hand, Grotius and Pufendorf argue that moral distinctions do not depend upon human convention, but exist in the law of nature. Others again, can find no efficient solvent for ethical problems, outside of divine revelation.

The outcome is much the same to whichever school of philosophy we may attach ourselves; for practically, neither the law of nature, nor general utility, nor the revealed will of God is of much effect in dairying until reinforced by the civil power in the form of statutory enactments with a prosecuting officer and a prison not too far in the back ground. The question is, therefore, along what lines, and upon what principles, and how, shall we seek to correct our own views, mould public opinion and influence legislation. Kant seems to have reduced the rule which should govern in practical ethics to its lowest terms in the following formula: "Act only on such a maxim as may also be a universal law."

The men who by adding water increase the quantity of milk they may deliver, (and it is immaterial when or how the water is added); or, by judicious intermixture of sand make nine pounds of sugar weigh out ten pounds; or, increase a crop of berries by elevating the bottom in the boxes; or, make full cream cheese from skim milk and

stale butter; such men furnish a maxim to justify some other man—for instance—the man, who by dextrous manipulation made a one dollar treasury note resemble a ten dollar bill and disposed of it as such, a few weeks ago in Milwaukee. Yet in the latter case the man is rewarded by a term of five years in state prison, and in the former cases there be those who contend that the buyer and the consumer should look out for themselves. The men who do such things and the law which shelters and protects, (indirectly many times, but for that reason all the more effectively,) are equally at fault because neither “act upon such a maxim as may also be a universal law.”

It may be that this formula when applied to the different professions and occupations of men may require somewhat different maxims, but so far as dairying and its allied industries are concerned, I am persuaded that the words, to each man his own, to each animal or thing its own, or generally, *suum cuique*, furnish a rule which might well become a universal law and constitute the maxim by which to test all our methods and proceedings. Only by living up to it can there be honesty in dairying.

For example: Whether we sell milk for consumption as such, or pro rata, or sell it at a cheese factory or creamery, let each man receive his own and no part of another's. It is no new thing under the sun to be told that neither quart cups nor platform scales have ever furnished satisfactory or adequate *criteria* for judging the value of milk. Until quite recently they were the only available aids in that direction. The chemist was too far away and his methods too slow and too expensive. Now, however, we have tests, as accurate and as simple as those applied to grading wheat and corn, for determining the relative values of milk, and because of its varying values there is less good sense in marketing or pooling milk by measure or by weight than there would be in buying or selling wheat, or barley, or corn, or hay, or calico, or sugar, or cranberries, or lumber, without regard to quality.

In the first annual report of the dairy and food commissioner of Wisconsin—may the powers that be, whether or-

dained of God, or otherwise, grant that it shall not also be the last report of its kind in Wisconsin—in this report, which is as interesting as history, and as instructive as geometry, I find that 408 samples of Wisconsin milk, including specimens of this staple from a dozen or more counties, and doubtless fairly representative of the general product of the state, were accurately analyzed under the direction of the commissioner. Five of the samples contained over 5 per cent. of butter fat; nine of them contained less than half that amount; 149 samples contained between 3 per cent. and  $3\frac{1}{2}$  per cent.; 128 between  $3\frac{1}{2}$  per cent. and 4 per cent; and 107 samples carried over 4 per cent. When you consider that fifty pounds of 5 per cent. milk is as valuable as 106 pounds of  $2\frac{1}{2}$  per cent. milk, and that 100 pounds of 4 per cent. milk will make as much butter, and nearly, if not quite, as much cheese as 136 pounds of 3 per cent. milk, the fallacy and the injustice and the essential dishonesty of paying for milk according to quantity without regard to quality becomes mathematically as well as ethically apparent. To each his own, not more, not less.

And it behooves the men who furnish the milk to insist for themselves upon their rights and to see to it that each receives his own. The factorymen have no interest in the matter and will not have until the men who produce the better grades stubbornly refuse to be further robbed. The producers of poor milk are willing to have milk of better qualities pooled with their own and will do nothing looking to more exact methods. Draw out of the pool, let the factories run on thin milk for a few weeks, and you may be sure they will come to your terms and give to each his own.

Worse, infinitely worse, than all the direct losses resulting to individuals, is the demoralization and degradation of the men and women, and the boys and girls—aye, and and the very cows themselves consequent upon present practices. They offer special premiums and rewards for direct dishonesty and irrevocably tend to the perpetuation and breeding of unprofitable cows. Therefore it is that

our special maxim should become a universal law,—to each his own.

So to when we market our products, whether it be “full cream” or “skim” cheese, regular or “patent” butter, let each be sold for what it is,—according to its own deserts and not those of something different. *Suum cuique*. I am not here to contend that butterine is inferior to butter, but to each its own. Let every tub stand on its own bottom and its contents be sold and swallowed for what they are.

And what about golden June butter in January? I know that accidents are likely to occur when one skates on thin ice or bathes in deep water. Nevertheless, “butter color” is in our path and it would be cowardly to go around it with closed eyes. Conceding that it is as legitimate to cater to the eye as to the tongue of the consumer, and that the butter color of to-day is innocuous of itself, it does not follow that its use can be justified on grounds of expediency or abstract right. It is a present fashion, and like others I defer to it in my own dairy, but not without some inward protests. Theoretically the artificial coloring of butter can no more be defended than can the bleaching of barley. Certain it is that butter color is the *sine qua non* of all fraud butter. Without it not a lumber camp, boarding house or hotel would dare to use butterine or oleomargarine upon its table, and I venture to rest my fame as a prophet upon the prediction that not many years hence, it and many other current pious frauds will be as unpopular as they are now popular.

And market reports? Does each receive its own there? By no means. As a matter of fact the butter which brings the highest price in the open market, in Chicago, Boston, Philadelphia or New York is made in private dairies, but the quotations do not recognize these sales. Neither do they recognize a very large number of sales of dairy butter at “fancy creameries” prices. Just why this is so I do not know and do not now care to inquire. The fact remains and it is the the occasion of much discouragement, and heavy pecuniary losses to private dairymen. Because



of this fact a very large amount of strictly fine butter required for local Wisconsin consumption is sold in local markets at from three to ten cents below its actual market value, and there is scant stimulus for the production of improved qualities.

When a creamery man consigns a shipment of butter to his commission house in Chicago, and receives returns at or near the highest quotations reported for the day of sale he feels measurably content; but let the account of sale show three to five cents off, and an investigation occurs to ascertain the cause and apply the remedy. The same rule and similar reasoning apply to the private dairymen. Let actual sales be reported, and when his returns show five to ten or fifteen cents below market price for best grades of dairy butter you will find that man's sons and daughters, if not himself and his wife, in keen search for the whys, and the wherefores.

Good sirs, of the press and the commission houses, in sending out your market reports please remember our maxim, and give "to each its own."

The time-tried and fire-tested secretary of this association, who arranges the programmes for these meetings, little thought what a mine he was opening when he assigned me as a topic, "Honesty in Dairying"; and to confess the truth, I little thought how impossible it would be to cover the ground in the usual time allotted for papers. It seems as though the more I wrote the more there is that cannot be omitted.

There are the cows themselves, and the other half of the herd! They have some interest in our topic, and, in fact, "Honesty in Dairying" should commence with them. To each its own. To be successful we must be honest with the breeds and with each individual and with ourselves. We do not expect to gather grapes from thistles, nor figs from thorns. Every cow has her limitations, precisely as do thistles, thorns and grapevines. Like poets, cows are born not made. Here is one that by the secret alchemy of her digestive organs can transmute grass and grain into golden butter and rich cheese in profitable ratios. Per-

chance her next neighbor in the stable is not built that way. Do the best she can, and evermore it requires ten cents worth of feed to produce nine cents worth of milk. Here as elsewhere to each her own. The slaughter-house for one and long years of usefulness in the dairy for the other and her progeny.

But let there be a fair trial before passing judgment. You would not condemn a locomotive engine for not drawing a train of cars when there was too little fuel in its fire box, or impure water in its boiler, or a lack of lubricants in its boxes. Neither is it a fair show for a cow when you feed her only marsh hay and shelter her at the side of a rail fence. As a cow she has a right to demand of you the conditions and environment necessary to the normal performance of her allotted functions.

And she, too, has a right to be judged by quality of performance as well as by quantity. My little Nuphar Haughton that does not give to exceed 28 pounds of milk per day, but turns out a pound of butter for every  $12\frac{2}{3}$  pounds of milk, and gives me a profit of 100 per cent. on food consumed, and her daughter, Bernice, that can do even better than that, are decidedly and rightfully opposed to pooling their milk with that from three or four or even 5 per cent. cows. *Suum cuique.*

#### WHEREFORE?

Because I believe that this association should take advanced ground in favor of honesty in dairying; that it should discountenance and condemn fraud, deceit and speculation which is near its own door, with as much certainty and vigor as it pronounces anathema upon the more distant violations of the ethical laws which should obtain in manufactures and commerce; that it should memorialize our state legislature, now in session, to perfect and make more stringent the laws, now upon our statute books, relating to the adulteration of milk, cheese and butter, adding such new provisions as experience has demonstrated to be alike necessary to protect the consumer and the producer, and to secure to all men, "each his own;" that the menace to

future success in dairying lies more in the absence of sound business ethics among dairymen themselves, than from any and all other sources combined; for these reasons and others like them I have written. If dairymen will in all things act upon our maxim — *suum cuique* — to each his, her or its own, we shall soon have better cows, better products, better prices, better men, better — yes better women, better laws, better society, and better times generally.

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## DISCUSSION.

A member — I would like to know if any one has had occasion to meet with the oil test in the cheese factory.

Mr. Tupper, of Iowa — In Iowa they are buying milk by test for cheese.

A member — Was this test that you speak of made at the cheese factory or was the milk carried to the chemist in the city of Madison?

Mr. Burchard — I see by this report that these samples must have been taken, some of them, from milk delivered in the city, but the larger portion were from samples delivered to cheese and butter factories.

A member — I know some localities where they deliver honest milk. Some watered milk was delivered by patrons but they were found out and fined.

The chairman — How was it found out?

The member — By watching, laying all night and all day. In the first place the milk was tested in these little candle concerns, and they were satisfied there was water in the milk, and so they watched the man. As he came out from dinner he pumped a pail of water, and carried it in the house. Then he pumped another pail and carried it on his arm, leisurely along to the barn, and went in. When he came out he didn't have that pail. That was a leader to these detectives, and they prowled around and got into the barn and found the pail hanging up there, and saw it was water, and by watching they saw him close the door at

night and pour the water in the milk. This was in Sheboygan county and it was private enterprise that ferreted it out. They didn't call upon the state to come forward and assist them in detecting the man.

Mr. Hyatt — They would have to lay a good many nights before they could catch me.

Mr. Fleming — If they saw you laying around the barn, wouldn't you be liable to be shot?

The member — An honest man fears nobody. He don't care how many are watching him. I would be thankful to have anybody watch me around my barn.

Mr. Noyes — If a man is going to lay around my barn, he is more apt to be a thief than an honest man, and if he comes around my house or my barn he is going to get a cold chunk of lead.

Mr. Thom — Where are you going to raise this police force to watch every supposed dishonest man in Wisconsin who milks a cow?

The member — I don't propose to raise any police force. A cheese factory man ought to understand his business, and it belongs to him to look after the interests of the factory. The banker or the merchant don't call upon the public to set spies around to see whether he is being cheated.

Mr. Noyes — Do you want the cheese maker to make cheese all day and watch in the barn all night?

Mr. Monrad — I would like to know if the gentleman over there is making an argument for abolishing the state dairy commissioner's office. The state dairy commissioner enters with the authority of the law and can go into the barn and make a test of the milk. It is quite true that the cheese maker ought to have the interest of his patrons at heart, but you know very well if he is trying to catch his patrons it creates friction. He don't want to hurt the feelings of any man, but an officer appointed by the state comes into the cheese factory, and that friction will be eliminated, and I think we should all stand against the idea of abolishing the state dairy commissioner.

Mr. Hyatt — It seems to me that for the good of the patrons, that that is one of the best laws, that ever was en-

acted in this state. When a factoryman takes eleven and six tenths pounds of milk for a pound of cheese, it is pretty hard to say where the cheating comes in, and the dairy commissioner is pretty likely to find out.

The member — I don't intend my argument to be construed as opposing this dairy and food commission. I mean to say, only that in our factory we have detected men in three instances. We made the agreement in the spring, that this thing should be worked this way, and our factorymen collected, over \$126, which was divided among the patrons.

Mr. Noyes — If your man has taken his milk, received it he has no right to take \$126 of the man's money, and spread it around among the patrons, and he can get that money out of those patrons, if he takes the right course.

The member — We had one man that thought he could recover that money, and he sued in a justice court, but what does a jury of farmers care about law? The verdict of that jury was: "No cause of action." The plaintiff took an appeal to the circuit court, but did he fare any better?

Mr. Hyatt — Had the same farmers' jury, didn't he?

The member — They were honest men. He gained nothing.

Mr. Noyes — We had a case of that kind in our county and the patron got his money back by law. If we have a man that is bringing watered milk to the factory, the state dairy commissioner is the man to deal with him.

Mr. Boyd — We had a case of this same kind in Illinois, in my neighborhood, and Mr. Noyes is perfectly right about it. The law will sustain him every time. The court decided in this case I speak of, that there was no case against this man, simply because it was brought in the name of the factory man instead of in the name of each one of the patrons.

Mr. Morrison — I would like to ask Col. Burchard, or some one else who will know, if he can give any estimate of the number of pounds of butter from private dairies that are sent to Chicago from Ft. Atkinson.

Gov. Hoard — There is less butter now shipped out from



Ft. Atkinson, on private dairy account than there was two or three years ago, but at that time it was no unusual thing to see an express wagon going to the train with from 1,200 to a ton of butter, sent to commission men in Chicago, and various other places in the east by private dairymen. In 1872, there were just two men in Jefferson county who made their butter and shipped and sold it in the butter market. They were Milo Jones and Henry Drake. In 1886 there were 1,500 such men. Mr. Burchard's point upon the education of the individual butter market is a good one. The moment a man puts his butter upon the market, and sells it in a butter market and not in a local market, then he gets some education and tutelage. Mr. Goodrich has been spoken of here. He gets his thirty-two cents a pound for the reason that he has earned the reputation for his skill. His butter is marked, "C. P. G." He sends it to Merrill & Eldridge's firm. That has become a mark of excellence. It goes from Merrill & Eldridge to grocers throughout the city. The customer gets "C. P. G." butter and likes it, and wants more, and so it runs, from the mouth of the consumer back to the skill of the producer. Mr. Goodrich sells about four ounces of butter to twelve ounces of skill.

The chairman — I want to say one word for our school at Madison. We have enrolled this year ninety-three pupils in agriculture. We have students from nine states in the Union and Canada. Their ages range from sixteen to sixty-two years. We have men who have worked up forty thousand pounds of milk a day enrolled as students. We have young men who are working by the month on farms, as farm hands, enrolled as students. Now, I hope the good people of Berlin, who have already sent us one or two students, will not forget our school; give us more in the future. We have had to turn away a good many students for lack of room, but we have our short course, and that helps boys in getting points on wool and beef raising, etc. Our school is not a mere dairy school. We have boys there who do not intend to follow dairying, but are going to raise horses and sheep and cattle and carry on other lines of farming.

Convention adjourned until half past one o'clock.

Convention met pursuant to adjournment at 1:30.

The president in the chair.

The chairman — Prof. Short will now illustrate to the convention the manner of making analysis of milk, beginning with the Babcock method. I will say that Mr. Short, while chemist for the Experimental station, devised what is known as Short's method. Shortly afterwards Prof. Patrick, of the Iowa college, devised a method which we think is a little simpler, and then Prof. Babcock devised this method which we think is superior to both the previous ones, as it is extremely simple. That tube measures the quantity of milk, and after the experiment is closed the fat rises in the tube and upon it we read the per cent. In making any of these experiments you have to be very careful to get a fair sample of milk, which can only be done by pouring from one vessel into another two or three times, and then take the sample up into the pipe at once. The chemist uses in making these tests commercial sulphuric acid, and it is well to know that the antidote for that acid is ammonia. The person who should be most interested in this test is the farmer who is milking cows. He has cows in his herd which are cheating him every day, and until he weeds them out he cannot complain if he does not get the highest price for the milk of his herd at the co-operative factory where other farmers are bringing rich milk. Of course, you know that this test shows only the percentage of butter fat, and not the butter that may be manufactured from the milk. For instance, if there are four pounds of fat in 100 pounds of milk according to this test, that milk should make about five pounds of butter, because the butter contains not only the fat, but the salt and other solids.

Mr. Burchard — The average per cent. according to my experience, is that four per cent. milk will make 4.44 pounds of butter. One per cent. milk will make less than a pound of butter. You lose just about so much of the fat in skimming and in churning, whether you have one per cent. milk or ten per cent. milk.

The chairman — I think the fairest test is to report the fat the cow gives, the per cent. of fat, and not the pounds

of butter. The cow has given the fat, and it is there waiting for man to get it out. By one system he gets out more than by another, but it is not the cow's fault. Mr. Short is now ready to put in the hot water to carry the fat to the the top of the tube. You see the whole process has taken but a few minutes. Two years age it would take a chemist twenty-four hours to accomplish it. You see the difference in those two samples. That milk shows 3.2, and this 6.2. This one 3.6, and the last one 5.4. Now, you see this man that is bringing this 6.2 milk to the factory, if he is pooling with this 3.2 it brings his away down, and there is no known way of deciding between these two samples any simpler or quicker than this. No man can tell with his eye or by the cream gauge. You see in this way you learn to be your own chemist.

A member — Wouldn't it be a fair sample if we should milk right into the bottle when we are about half through the milking?

Mr. Sawyer — I do not think it would be right to take a certain part of the milk until you have all the milk into the pail after you are all through milking. Then you should take a dipper or something and separate it thoroughly. The first part of the milk that the cow gives is generally a little poorer than the latter part.

Mr. Decker — Experiments have shown about two per cent. difference.

The member — Then I should think about the middle would be about right.

Mr. Burchard — Different cows vary much in that particular, and it is only by taking a fair sample of the whole product that you can compare one cow with another.

The chairman — Another thing you don't know when you strike the middle of the milking. One cow gives down her milk readily and quickly, and there is perhaps no perceptible difference between the first and the last milking. Another one is differently constituted, the first milk is very poor and the last very rich, and cows will sometimes differ different days.

The chairman — This is a pretty big subject and I don't

think we are going to get at it all now, but get one of these machines, there is no patent on it. Dr. Babcock, of the Experimental Station, gets this thing up and gives it to the people as it is his duty to do. Get a four-bottled machine and test your cows. Mr. Monrad made eighty tests in one day. The agents of the different machines are here and you can talk with them.

The only person that ever brought a tub of butter to this association and scored a perfect score, was Mr. C. R. Beach, of Whitewater. Mr. Beach is a private dairyman, and has always run his own farm.

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## FOOD VALUE OF DAIRY PRODUCTS.

By C. R. BEACH, Whitewater.

The first and most important question that confronts the people of every nation, every age and every locality, is the question of the supply of food. Every living thing must have food or perish. The king and the beggar both alike must have something to eat every day of their lives. We boast of our improvement in agriculture through the application of science and by the use of labor-saving machinery, yet with all our scientific knowledge and all of our improved machinery, we have not as yet been able to put two years supply of food between us and starvation, and the probability is that this margin will in the future grow narrower rather than wider.

A distinguished writer upon social and political economy claims that the people of the United States waste in over eating or by improper combinations of food more than enough to feed us. A statement that I can easily believe to be true, and one that I am not inclined to question, Prof. Roberts, of Cornell university, says: That in the future we shall give as much study to have well balanced and economical food rations for men, as we now do for calves and pigs. Should that time ever come I have no doubt that we shall live longer, enjoy better health, and be able to do more efficient work, both intellectually and physically, than

we now do, and the cost of living will be far cheaper than it now is. We shall study more closely and better understand the food value of our various farm products.

The Wisconsin Dairymen's Association which has been in existence nineteen years, has had for its object, and is still laboring to promote, and to extend the dairy interest in the state. In doing this work it has put forth effort mainly in three directions. First, to increase production; second, to improve the quality of such productions; and, lastly, to lessen their cost. In each of these ways it has been measurably successful, but in all this time it has said and done but little to impress upon consumers the value and relative superiority of dairy products over most articles of human food. And I sometimes think that we as producers have not ourselves attached to them their full value.

Among all the various articles of food compounded in the laboratory of nature, or science, milk is entitled to the first place, in its ability to sustain life and promote physical development, and also on account of its unrivaled cheapness. Do you ask for proof? Have any of you ever seen a bullock more symmetrical in form than a six months old calf that has run with its dam? Do any of you expect that the future horse will show finer points or more graceful action than the colt at weaning time?

In all the wide world have any of you ever seen any thing more perfect in its physical beauty than the boy or girl baby of a year old that has been nursed by a healthy mother? Yet all these various forms of physical development and of beauty may be mainly attributed to milk. You may, and probably will say, that milk may be good for little children and young things, but that it is altogether too thin to form any considerable part of the diet of one who works. I shall not contend for the exclusive use of milk as food, for the fact that we have health would indicate that the system needs some fibrous substance. But one of my neighbors, a farmer past fifty years, lived on milk for six months without a particle of any other food, and to day thinks himself the better for it. During this whole time he



was about his farm or riding to town as his business required.

Prof. Huxley is my authority for saying that the average weight of the human body being taken at 154 pounds, under ordinary conditions and ordinary surroundings will, through the action of the lungs, skin, kidneys, etc., lose in 24 hours, 6 pounds of water, 4,000 grains of carbon, 300 grains of nitrogen, and about as much mineral matter composed chiefly of phosphate.

Three and one-half quarts of new milk (7 pounds) will contain 6 pounds of water, 4,200 grains carbon, 308 grains nitrogen, and about the same amount of mineral, chiefly phosphates.

Almost precisely the amount and in almost the precise proportion of the natural daily waste of a full grown man.

One of the conditions of using milk for food is that it be sipped slowly, so that it be thoroughly mixed with the saliva.

To supply this waste of the system with beef alone would require over  $1\frac{1}{2}$  pounds to supply the nitrogen, and 2 1-6 pounds to supply the carbon and to drink at least 5 pounds of water; but no man could eat this last quantity, and if he could, the system would not digest it. If we used bread it would require still more. Chemically, 3.7 pounds of milk is equivalent to one pound of lean beef in nitrogeneous or flesh-forming elements; 3.2 pounds of milk is equal to a pound of beef in carbohydrates. Therefore,  $3\frac{1}{2}$  pounds of milk is worth as much for food as a pound of boneless beef, both being equally digestible, but the milk has the advantage over the beef in this respect. Yet many of us scrimp our families in the use of milk that we may carry it to the cheese factory, and realize in summer less than 2 cents for the  $3\frac{1}{2}$  pounds of milk, and then pay the butcher 12 cents for the pound of beef which was worth no more, if as much, for food. Do not suppose for a moment that I am attempting to persuade you to adopt an exclusive milk diet, or to discard the use of beef, or other meats. The fact that we are supplied with teeth would indicate that the system needs some fibrous food, and we need a variety

anyway. But to show the relative value of these articles and also the extreme cheapness of milk, and the desirability of an increase, and more general use of it, in making up our daily rations.

If pitchers of new milk, the richer the better, were daily found upon our table, and young and old used it freely, we might reduce our meat bills a good many dollars a year. Hot milk might be made to take the place of tea and coffee, and the most of us be the better for the change. Nothing is more refreshing to one exhausted than a glass of *hot* milk. A celebrated physician in New York recommends its use to cure the alcoholic habit, and I sometimes think that if the Women's Christian Temperance Union, who are desirous of doing missionary work, would in cities and villages fit up attractive rooms, furnished with daily newspapers and current literature, and would sell by the glass, hot and cold milk, butter milk, milk shakes, custards, ice creams, ginger cakes, crackers and cheese, etc., they would do much to counteract the baleful influence of saloons. I have said that milk is nearly a perfect food—but when made into butter or cheese, the harmonious combination of its nutritive values is broken up, and a large per cent. is lost.

Dr. Lord, of Elgin, Ill., is my authority for saying, that in making butter or cheese or butter and cheese from the same milk, one half of the solids will be found in the waste products. That must be extremely good business in the carrying on of which one can afford to throw away one half of the raw material in producing a manufactured article. To be sure a part of the value of dairy wastes is recovered by feeding them to calves and pigs.

But this is like sending flour to a mill to be ground over, when we are positively certain that the miller will take three-fourths of it for toll and then return an inferior article.

The man who shall invent a cheap method by which all of the nutritive value in skimmilk and whey can be recovered in a form to make wholesome, human food will be a benefactor to society.

With perhaps the exception of eggs, cheese is the most concentrated food that comes to our tables. Without being scientifically accurate, I may say that good mill cured, full cream cheese, is composed of nearly equal parts of butter fat, caseine and water. It has 20 per cent. less water and twice the amount of both muscle making and heat producing elements than lean beef, and if equally digestible, is worth twice as much per pound as human food. Johnson, in his agricultural chemistry, places its value still higher. As beefsteak and cheese are generally retailed at about 12 cents per pound, so that if bought at retail, a dollar invested in cheese will buy as much food as two dollars invested in beef-steak, but for a patron of a factory, his cheese will not cost him to exceed eight cents, so that for him a dollar's worth of cheese would have the food value of three dollars worth of boneless beef purchased of the butcher at retail, and yet the Americans use cheese very sparingly. It is partly from the force of habit and partly in the way we eat it.

The most of us make a full meal of meat, vegetables, bread and butter, etc., eating much more than our wants require; and then we finish off with pie and cheese, and then when oppressed with the amount we have eaten we groan and say that cheese don't agree with us.

Another reason why more cheese is not used is because so large a share has been robbed of its proper share of butter fats. When new the same bulk of skim cheese will weigh nearly as much as full cream, water having taken the place that should have been filled with fat, but when such cheese becomes cured the water disappears leaving the caseine dry, hard, tasteless, and indigestible. Wanting in the important element of heat production, and also wanting in taste that will cause it to be eaten with a relish. The better the cheese, the more will be eaten. If cheese was used in Wisconsin in proportion to its relative value as food the whole amount now made in the state would not be sufficient for home consumption. Were half the meat consumed in Wisconsin to be displaced with an equal amount of food value in cheese and milk we should suffer

no loss in either physical or intellectual force, and would save money, millions of dollars annually, in the amount of our food bills.

As to butter I need not sound its praise before this or any other American audience. Chemically it is composed mainly of carbon, and as it melts at the temperature of the body it is more digestible than any of the other fats taken into the system. Its chief use as food is to supply fat in the system and to maintain animal heat.

But it has a money value much greater than is indicated by its chemical composition. It aids digestion by giving an increased relish to almost every other dish on our table. The boy's definition of salt will apply to butter. "It is that stuff that makes potatoes taste bad if it 'ain't on 'em."

It makes our joints and muscles more supple and at the same time softens our tempers and makes our tongues less harsh and in many ways contributes to the growth and practice of the domestic graces. It oils the wheels and cogs and shafts of the social machinery by making us in better humor with ourselves and so with everybody else.

As it requires those qualities that makes the good citizen to be a good butter maker, so the eating of good butter has a civilized and refining influence upon the consumer and the better the more elevating the influence.

That young man was right who when told by his landlady that the butter (of which she thought he was eating too fully) cost 35 cents per pound, cut off a still larger piece saying at the same time *well it is worth it*.

This idea of elevating society through the men eating of this or that kind is not as some might think a new whim of the fancy. We all admit the debasing influence of strong drink or how dyspepsia induced by improper food prevents a man from being at his best, or how the taste of blood arouses in flesh eating animals a savage ferocity, or how breeds of domestic animals improve or depreciate by favorable or unfavorable food and surrounding.

Strike out from our list of foods all the products of the dairy that are used as food, or are used in preparing the

various dishes, that appear upon our tables, and do you believe that civilization would make any further advances without them? Tell me out of what you would make a day's ration that the eating of which would not make you feel that you had gone back to the savage state, out of which your progenitors emerged more than a thousand years ago?"

The opinion seems to be entertained by many that muscular force comes mainly through eating animal food, while the real truth is, that the excessive use of meat requires such an amount of vital force to digest it, or to eliminate it from the system, that there is little left to exert upon external objects. There are many old farmers whose joints are stiff from eating too much salt meat rather than from hard work.

I hope then that I shall not be looked upon as a crank, when I express the opinion that man's further improvement, physically, intellectually, socially, morally and financially will be affected largely by a more intelligent and more judicious use of foods; and that one of the factors in such improvement will be an increased use of dairy products.

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#### DISCUSSION.

Mr. Faville — The paper to me would have been a little more complete if the writer had advised some way in which we could secure cheese worth eating. It is an unfortunate truth that we cannot. I don't know anything about Berlin, but I know our own place and I know Madison, and other places.

Mr. Beach — They are making better cheese than they did when you made it.

Mr. Morrison — The Star Union route takes all the good cheese east.



## CAN WISCONSIN PRODUCE BETTER CHEESE?

T. J. FLEMING, Watertown, Wis.

The subject which has been assigned me "Can Wisconsin produce better cheese?" I unhesitatingly and emphatically answer, "Yes." If I am asked, "Is she producing good cheese?" I can with good grace and with the same amount of emphasis say, "Yes." The only regret that I have is that the good portion of our cheese is limited in quantity. My friends, let us look fairly at this question. What are the essentials necessary for good cheese production? I believe we find them in a trio of combinations.

First of all come natural facilities, which are universally conceded to the state of Wisconsin, good climate, good water, good grasses—those are the foundation in the production of good cheese. Another element is the human agencies which I shall divide into two parts or classes.

First, the man who performs the actual manufacturing or manipulation of the milk; second, the large element of Wisconsin farmers who are engaged in the production of this milk. Now, I am going to take up this line of thought with your permission for a few moments, because I believe that a very important part played in the production of good cheese is that which devolves upon the patrons of the different factories of the state, and it is only through the medium of this combination of farmers, through institutes, agricultural meetings and such like that we can effectually disseminate the information necessary to be received by this element of our people. I do not mean to imply by that that the cheese manufacturers of this state do not need schooling, but I am happy to say that through the combined mediums of our dairy school now in operation at Madison and the state cheese instructors who have been sent out under the auspices of the Wisconsin Dairymen's association, that we are going a long ways towards bringing that necessary education and development of skill about. But I wish to say that in my opinion our natural

facilities coupled with the very best skill upon the part of our manufacturers, is inadequate to produce good results in cheese-making until they have the hearty co-operation of the patrons of the factories.

Now, what are the duties of the patrons of the cheese factories of the state? The cow is undoubtedly the fountain source from which the raw material is produced. It is right there that one of the mysteries of nature takes place. Criticism has been brought out here upon the cheese manufactured in this state, and the question asked why is not the cheese produced in Wisconsin to-day as good as it was years ago. I myself believe that it is not as good, and I believe that it is because the milk is not as good. I can remember years ago when the pastures abounded in constant flowing springs, a great majority of which are to-day dried up, and sink holes are left in their places. I believe that the character of the water which a milch cow receives cuts an important figure. I will also say that I believe fifty per cent. of the milch cows in this state during the warm portions of our summers are receiving their supply of water from stagnant pools, and I believe that is one great reason why we are producing so much inferior cheese in Wisconsin. If your pastures are so situated that your animals have had free access to these stagnant pools, let me earnestly advise you to get rid of them. We often hear the argument that if a cow be placed between a pure spring of water and a stagnant pool that she will take the stagnant water. But you must put into the scale your intelligence. This dumb beast must be under the influence of your higher judgment. This water goes into her stomach and goes through the process of digestion. It courses through every portion of the animal's system, it goes into the mammary glands, and hence into the udder, where that fine mystery takes place, the elaboration of milk. I am simply saying this to show you that water of an inferior character must necessarily influence the quality of the milk. In normal milk we have eighty-seven pounds of water to 100 pounds of milk. Do you believe that your cows can go to a sink hole and take in water which is no-

ticeable by its color and offensive odor, and then give pure milk which contains eighty-seven pounds of this water to the hundred? Next, I want to speak of an element in the production of milk which is not generally properly recognized, and that is salt. Give your cows plenty of pure water and plenty of salt.

This brings us to the subject of the manufacture of cheese itself. You cannot exercise too much cleanliness in the milking of your cows, otherwise you will get into that milk objectionable elements, animal elements, and other matters of an organic nature. We should strain the milk immediately, and I believe not less than twice. I am, upon general principles, opposed to the use of the cloth strainer. It goes entirely over the surface of the can. After you have strained the cow's milk through it, it becomes moist. The milk goes to the centre and runs through in one large stream. There are many objectionable odors in that milk which will run through with it, but which cannot raise out of it, because of this wet blanket, which you have thrown over the can. Strain slowly, and when the milk has been strained as carefully as possible, is that all that is necessary? No. I am one who is an earnest advocate of thorough aeration. I know there are men in this audience who will get up and say, "Do you pretend to tell us that a cow is not able to produce good pure milk?" I believe I am forced to say that I think she is not. There yet seems to be in that milk animal odors which are decidedly objectionable. There is one point I wish to emphasize, for I believe there are many farmers in Wisconsin who have been misinformed as to their duty in one respect. I can remember when the universal doctrine of cheese manufacturers was that the milk should be, immediately after it is drawn, put into pure cold water, the colder the better. Now, I believe that that is decidedly objectionable and precisely what you should not do, and I will tell you why.

What is the cooling of milk? The cooling of milk is condensing it. Instead of putting that milk into cold water immediately, you should provide yourselves with a dipper, holding at least one gallon, go down into the milk,

and raise up a dipper full, and pour and re-pour it through the air, so that these objectionable odors can be driven out. After you have performed that duty not less than five minutes, without any water coming in contact with the milk, you have done two good things. You have prevented the cream from rising, which is a good thing in cheese making, and you have enabled these gases to pass off. In this respect there is a difference between the manufacture of butter and cheese. Butter is the product of the butter fat in the milk, the lightest solid of the milk. Cheese is the product of the combined butter fats and caseine, coupled with the necessary amount of moisture. Setting the milk for butter making in cold water is all right. It brings the cream to the top where you want it.

One more word. It is a common practice among farmers to bring back from the cheese factory, whey, in the cans that the milk was furnished in. If you must continue that practice you must make an effort to keep those cans clean, and it takes a good deal of an effort. They must be scalded with hot water.

I am positively opposed to the dairyman bringing the night's milk and the morning's milk in one can. If you must do that, you should cool the morning's milk thoroughly by aeration before you put it in with the night's milk, and that is almost an impossibility, for it means you have got to get the help up an hour earlier in the morning, and that you know is not easy.

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The chairman — I wish to introduce Mr. Tupper, who is here from the state of Iowa. We have got so used to bragging in Wisconsin that we have almost forgotten that Iowa is pushing ahead. While we are talking about doing away with a dairy and food commissioner, Iowa is sending her commissioner all over the country to learn what he can. Mr. Tupper will give us a three minutes' talk.

Mr. A. C. Tupper — Mr. President, Ladies and Gentlemen:

I come to Wisconsin to listen, not to talk, to learn something and quietly take it back to our people. We have in our state some twelve or fifteen dairy counties that make over two million pounds of butter each, and we have other sections of the state where our people are not into dairying at all. I have found since coming here that your state has sections also where they have not gone into dairying at all. Now, I want to give those people who would go into dairying a warning. If they contemplate in the near future, starting a creamery or cheese factory, if it is on the co-operative plan, or the joint stock company plan, I want them to send a conservative committee of three men to the nearest county, where dairying has been carried on for a long while. Let them go to the creamery or cheese factory they will always find people there to post them, and to point out the mistakes that have occurred in their experience. If they will do this they will buy their dairy supplies at about what they are worth; they will not be talked into investing too much money, or too little money so that the business will be paralyzed. They will learn about what they need and start out in a modest way and grow up with the business. If they will go to a county where there are a dozen cheese factories or creameries running, it is a fair indication that the first ones that started were successful. If they will take this advice they will spend their money wisely and well, and they will start about right. If I had the time I would like to give you some fearful examples of calamity that have overtaken some who have done differently.

From some cause or other it has been recommended from the powers that be, to your next legislature to do away with your dairy and food commissioner. It is but a few years ago when there was a great agitation by the dairy people of the United States to obtain a tax on every package containing butterine. After that tax was obtained it had the effect of reducing the manufacture of butterine, so there is not probably over one-sixth of what there was before the bill passed. Now, if you want to preserve your dairy and



food commission, I want to tell you the way to get at it. There is nothing in the world a man that is in the lower house of your legislature or in the senate, or in your governor's chair, wants so much as to be continued there. Now, then, we don't sign petitions to any large extent. When we went to congress there was against us the ways and means committee, and that was the only committee that had a right to oppose a revenue law, and in the senate it was the same way. In the Iowa dairy commission we give the advice, "Boys, don't sign any petitions. Write letters to your member of congress. They will bother them, they will want your vote next time and they have got to answer your letters." Why, the member from my district told me that he took in a bushel basket of letters on his shoulder and dumped them down at the feet of the ways and means committee and says, "That is the way my people feel about a tax on oleomargarine." If you want a state dairy commissioner strike or write. Write all the time to these legislators. I will tell you in this state the party at the next election will want votes, and if they think that they have got to allow the farmers what they want, they will be just as fast when they realize it to do what they want as any party. Go for them. They are your servants. Demand what you want, keep it up and you will have a dairy and food commissioner with more money than you have ever had.

The chairman — Mr. J. H. Monrad, of Chicago, is here. He is of the Danish Dairy School, and will address us.

Mr. J. H. Monrad — Last night Gov. Hoard spoke upon a matter that I think ought to be given more attention. It was this question of getting near the farmers and doing it through the factories. I think we have got to work on that line, to get up schoolhouse meetings at every factory I want to say to the factory men, you have in your hands now the means of interesting your patrons, bring them together, induce them to bring samples of milk from their cows and test them there together, so they can see the difference. Get them interested in that work and they will

listen to you with more deference as to what you have to say with reference to the care of the milk from the cow to the factory. It was also suggested that a committee be appointed to write up instructions how to take care of the milk. I want to give you a hint taken from the Danish Dairymen's Association. They have offered a premium of one hundred crowns for the best article to be published by the Dairymen's Association about the care of the milk from the cow to the factory. I hope these suggestions will be taken up. Gov. Hoard spoke about what this Association has done, and what your Experiment Station has done. That is true. It is also true that it is only in the later years when these gentlemen came down from their high position and went into ocular demonstration that they touched the farmers.

In closing I want to say one word which may sound a little like bragging, but it is true that the position that this matter has come to to-day, we owe to the late Prof. Fiord. He is the father of practical dairy experimenting, and as you saw by *Hoard's Dairyman*, he has lately passed from us. I say it with pride, as a dairyman, that the dairy school of Wisconsin has been created by the work of the late Prof. Fiord.

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Mr. Burchard took the chair.

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The chairman—It is true that Wisconsin, for years, has learned a great deal from Denmark, and the men who have been foremost there, in the matter of dairy experiment and dairy education. It is a little bit to our credit, I think, that we have been more than content, anxious to take up all the good things that we could find, no matter where they originated. The best is none too good for Wisconsin.

## THE ADVANTAGES OF DAIRYING.

MR. JOSEPH MATHEWS, Auroraville.

While attending the exposition at New Orleans, as I was passing through the immense government building, I saw quite a crowd gathered around something that seemed to be interesting them very much. As I came near I saw a sign "Art Gallery," there stood a young man with brush in hand; I heard him cry out "Who will have the next picture, a beautiful landscape, painted in eight minutes, only one dollar?" I, too, was interested. I thought I would spend eight minutes in seeing what kind of a beautiful picture an artist could produce in so short a time, — Everything all ready — almost before I had time to think, the blue sky appeared on the canvas, then clouds with silver lining, next hills in the distance, a forest, then fields, some waiving with golden grain, some with meadows. Then a beautiful brook came meandering down from the hills, and on its banks a barn, next a white cottage appeared. By this time I began to think he was about through but something seemed to be lacking, I did not know just what it was, but almost with lightning touch there appeared three beautiful cows, one drinking out of the brook, the other two cropping the rich green grass growing on its banks. I drew a long breath and felt more at home. As I stood admiring that beautiful scene, with another touch of that magic brush — lo, a lovely young girl appeared with milk pail in hand, and a boy coming down after the cows. I felt at home, the picture was complete, and to my mind nothing was lacking.

If, in my attempt to place before your minds a word picture of the advantages of the dairy, I fail to place "Daisy and Brindle and Bet" prominently in the foreground, to the satisfaction of your artistic taste, it will be a failure of the head and not of the heart. I purpose in this paper to speak on this subject mostly from a local standpoint; perhaps what I have to say may apply to other localities. I

doubt if this association ever held a meeting where there was so great a difference in the condition of things pertaining to this business as there is in a radius of twenty miles around this city. The diversity of soil and the convenience and inconvenience of water, are so great that it would be impossible to suggest any system of management that would meet the wants of all.

I want to reach out a helping hand to all by a few words of counsel and advice, but more especially to those who think themselves the most unfavorably situated. I am so thoroughly convinced by my own experience and by my observation of what others are doing, that I am not afraid to stand before this assemblage of intelligent men and women and risk my reputation (if I have any) for common sense, by saying that I believe there is not a tillable 40 acres of land within the boundary of Green Lake and Waushara counties, if put under the management of intelligent dairy labor, but would yield from five to ten fold more profit to its owner than it does, farmed as much of it is at the present time.

I suppose some of you are saying as you have said to me before: "That is not practical; it is all theory." No sir, it is not. We cannot trust to theory; it is too often the deceptive mirage that has deluded many a weary traveler through his life, who was thirsting for things that were unattainable, until his hopes of success were blighted by so many failures, that he gave up in despair and died. Well, now that I have disposed of theories, I will give you a few solid, practical figures. The most of these farms are better adapted to corn and clover than any other crop. I will now take forty acres for a basis to estimate from. An average forty acres of this land will produce ten tons of ensilage per acre; that will be 400 tons, or 800,000 pounds. fifty pounds a day is considered a ration for one cow; that will give us 16,000 rations — enough to feed forty-three cows 365 days, and have 305 pounds left to feed to your chickens. Now let us get as near as we can at what this will cost. For plowing forty acres of land, \$60; seed, \$25; planting and cultivating, \$70; interest on land, valued at \$20 per

acre, \$56; putting into silo, at 40 cents a ton, \$160. Total, \$371. Now, let us add \$12 per cow for grain rations, \$516. We have now a total cost of feed for forty-three cows for one year, \$887.

Now let us make an estimate of your income from forty-three cows at \$40 each, which will be \$1,720. Now deduct the expense, which will leave you \$833, for your labor in running the dairy, and interest on stock and tools.

Now my dear grain farmers, I will leave you to draw the comparison between your mode of farming and mine. I believe that when you estimate the cost of producing a bushel of rye and hauling it from ten to twenty miles to Berlin, and selling it for 40 cts. a bushel and not getting over twenty bushels to the acre, that you will see that there is a decided advantage on the side of the dairy.

I do not say that these figures can be reached at first, but I do believe they can be much sooner than you imagine. You see the more corn you raise the more ensilage, the more ensilage the more cows you can keep, the more cows the more manure, and the more manure the more corn, and so on, increasing *ad infinitum*. I have heard some of our best dairymen say that their land was becoming so rich with continual manuring that they could not raise small grain; it would grow to straw and fall down. I have had this experience myself, but I have never seen any land too rich for corn or clover.

I am inclined to believe that the professors in the agricultural department of the State University know what they are talking about when they tell us that \$200 worth of wheat at last year's prices carry from the farm \$67.60 worth of fertility, while 800 lbs. of butter at 25 cts. per pound, value \$200, carry off only 91 cents in fertility; thus the dairy producer loses less than half of one per cent. while the wheat raiser loses 33 per cent.

By exclusive grain raising you are continually draining the fertility of your soil, until many of you have learned by sad experience that you can not much longer continue your present mode of farming. Gentlemen, let me invite you to join our dairy ranks, there is yet plenty of room.



You will perceive by what I have already said that I believe in the silo. I cannot help it, my faith is founded on personal experience.

Prof. Cook says: "In this quest for improved methods no single thing, I am sure, will stand so prominently as a grand practical aid, as does the silo; it will multiply the herds and products secured from them; it will increase the manure and the fertility of the soil, and consequent productiveness. I have already suggested to your minds the feasibility of making the silo take the place of pasture in summer, which I believe to be far more economical in the end. It seems to me that the silo has so far revolutionized the dairy that it has made it beyond all doubt, the most paying business of any branch of agriculture. Now let me give you a few more suggestions in regard to the advantages of dairying. The grain crop may fail, by unfavorable seasons; potatoes will rot, the price of pork will go down, till we are obliged to sell for less than the cost of production, but old Daisy and Brindle and Bess will let down the lacteal fluid all the same, which can be converted into cash in a very short time; so that we can go to our grocer, hardware merchant and dry goods store, and pay for our goods, thus giving us a great advantage over the credit system. You may pass through any dairy community and I will venture to say that you will not find many debts of this kind of long standing. I believe the merchants and other business men of this city will bear me out in this assertion, that the dairymen in this vicinity are better customers and better payers than before they went into that business. If any dairyman is an exception to this rule he is a reproach to our profession.

Another advantage of the dairy business, especially to us who are so far from market, is the ease of handling and transporting our goods. One thousand dollars worth of butter at 25 cents a pound weighs 4,000 pounds, one thousand dollars worth of wheat at \$1 a bushel, weighs 60,000 pounds. The dairyman has to handle and pay freight on only two tons, while the grain farmer has to handle and pay freight on 30 tons of his goods, i. e., fifteen loads

of grain to one of dairy goods, freight from Berlin to Chicago on dairy goods, \$5.20, on grain product, \$69 or a little over thirteen times as much. Another point that must not be overlooked is the pleasure and happiness that the true dairyman enjoys in the care and social companionship with his cows. I doubt very much if a man can be a truly successful dairyman unless he has some of this finer feeling in his nature, a bond of sympathy existing between us, a feeling that we are on friendly terms. I believe that the cows are ready to adopt Mr. Blaine's theory of reciprocity, you be good to me and I will be good to you. I believe that if we all would adopt this treatment of our cows and teach it to our children and hired help, it would add much to the happiness of dairy life. I once heard Mr. A. M. Kimball say to a dairyman, that he did not believe that he kept his cows for profit alone, but for the pleasure of handling and caring for them. I wish that could be said of every dairyman in the land.

I have often heard farmers say that they would go into the dairy business if circumstances were favorable. When I was traveling in the Rocky mountains I one day saw what might be called an unfavorable circumstance. Some time or other a pine seed had germinated, and grown up through a hole in a projecting rock, until it had filled the hole, then instead of getting discouraged, it had kept right on growing until it split the rock, and when I saw it, it was a tall, well-formed tree.

That tree has always since been a useful lesson to me. It taught me that I too could split some of the rocks of circumstance and grow above them. When Napoleon was told that the Alps were in the way of his armies, he said: "There shall be no Alps."

If we would put more of this will power and Gen. Grant's stick-to-it-iveness into our business we would soon see that many of the obstacles that seem to stand in our way are nothing but men of straw. Perhaps what we most need to-day in our business is not talent but purpose, not the power to achieve but the will to perform. What I mean is this: We know more than we are willing to practice. The

country is full of dairy literature, almost every paper that comes to us has a dairy column fraught with the best thoughts and experience of the most practical men; and with the light that is emanating from our experimental stations we have no business to be blundering along in the dark, guessing at what we are doing. We have had line upon line and precept upon precept. Every man who means to be successful must single out from a vast number of possible employments some special work, and to that devote himself thoroughly. The man who attempts to do everything will rarely accomplish anything.

As this is a time of severe and unceasing competition in all industries, the struggle for existence is fierce in all departments of labor, and it becomes us as men true to our own best interests, to lay hold on any and every lever that will prove the most advantageous in bringing success to our business, and prosperity and happiness to our homes.

In the dairy business, we have here as elsewhere the survival of the fittest; no one will doubt that it is pre-eminently ahead so far as profit is concerned, of any other branch of agriculture. I believe we are yet only in the dawn of the day, of the possibilities that will soon be realized. Even now the immensity of the business is surprising. Reliable authority estimates that two billion dollars are invested in it, and that fifteen million cows are required to supply the people of the United States with milk and its products, and that to feed these cows sixty million acres of land are cultivated. The agricultural and dairy machinery is valued at two hundred millions dollars, while seven hundred and fifty thousand people are employed in the business. The average cow yields 450 gallons of milk in a year, which gives a total product of six billion gallons. At twelve cents a gallon, which is a fair price, the milk is worth eight hundred and ten million dollars a year. In Wisconsin alone it brings in an annual income of twenty million of dollars.

Now, I will tell you something of the progress that we are making in this young dairy country. Green Lake county is just waking up to the importance of this busi-

ness. The east end of Waushara is already alive to its best interests. About fifteen years ago the first cheese factory was built in the town of Aurora. For the first few years, but little was done, but the farmers soon began to see that it paid, and since then there has been a steady growth, until now we have fifteen, and all prospering nicely. The Aurora Cheese & Butter' company received last season from April 7 to November 21, 2,650,050 pounds of milk; made 258,728 pounds of cheese, which was sold for \$20,054.53. It would be hard to convince the patrons of that factory that there are no advantages in dairying. This factory is now equipped with the best appliances for making separator butter, and since November 21 has been running very successfully as a butter factory.

There was sold in Berlin this season about \$135,000 worth of cheese, and this does not include nearly all that was made in this section. I think it would be safe to say that the butter sold here would amount to about the same figures.

L. E. Davis, the enterprising editor of the *Berlin Courant* foreseeing the future development of the dairy interest in this part of the state, has commenced the publication of the *Dairymen's Exchange*, a valuable paper which will prove a great help; and it is to be hoped that it will be substantially sustained by a long list of subscriptions, by dairymen throughout the state and the great northwest.

Prof. Daniells, when he occupied the chair that Prof. Henry now fills, visited the country northwest of Berlin, as far as Auroraville, and he said that in his judgment it had better natural advantages for the dairy than any other part of the state that he had seen.

He was charmed with the timber, the soil, and the flowing wells of pure water, gushing upon almost every farm.

Now, gentlemen, if any of you doubt the correctness of Prof. Daniells' judgment, we give you a cordial invitation to come up and see for yourselves the dairyman's Utopia.

# READING OF AWARDS ON BUTTER AND CHEESE BY THE SECRETARY.

## CLASS 1 -- DAIRY BUTTER.

First premium — G. W. Thompson, Rosendale, 94 points.

Second premium — H. W. Kellogg, Ripon, 93 points.

Third premium — S. W. Richardson, Berlin, 92 points.

## CLASS 2 — CREAMERY BUTTER.

First premium — Charles Thorp, Burnett Junction, 95 points.

Second premium — O. G. Peterson, Barre Mills, 94 points.

Third premium — E. L. Eastman, Saukville, 93 points.

## CLASS 3 — PRINT BUTTER.

First premium — H. McClelland, Berlin, 98 points.

Second premium — W. B. Cockville, Berlin, 95 points.

Third premium — Mrs. H. Churchyard, Ripon, 94 points.

## CLASS 4 — CHEESE.

First premium — E. L. Eastman, Saukville, 97½ points.

Second premium — J. W. Decker, Madison, 97 points.

Third premium — J. R. Wilcox, Hamilton, 95½ points.

## CLASS 5 — SILVER CUP.

J. W. Decker, Madison, 95 points.

The previous winners of the silver cup are A. H. Weaton, Aurora, 1878; Olin & Clinton, Waukesha, 1879; W. S. Baker, Cold Spring, 1880; H. A. Conger & Son, Whitewater, 1881; August Cleasing, Centerville, 1882; Marr & Dyer, Whitewater, 1883; E. P. Ingalls, Milford, 1884; H. Z. Fish, Richland Center, 1885; T. P. Fish, Richland Center, 1886; Burns Cheese association, Burns, 1887; H. Z. Fish, Richland Center, 1888; S. Fish, Cazenovia, 1889; W. H. Porter, Marshall, 1890; J. W. Decker, Madison, 1891.

The following table showing the score as made in the different classes:

*Class I.—Dairy Butter. Dairy butter made only in Green Lake, Winnebago, Waushara and Fond du Lac counties; Judge GEO. W. WELLS, New Richmond, Wis.*

Name of Exhibitor.	No.	Flavor 45.	Grain 30.	Color 15.	Salt 10.	Total 100.
G. W. Thompson, Rosendale .....	5	43	28	14	9	94
H. W. Kellogg, Ripon .....	7	40	28	15	10	93
S. W. Richardson, Berlin .....	3	42	28	14	8	92
L. H. Chaplin, Berlin .....	1	38	28	14	9	89
H. McClelland, Berlin .....	2	42	25	14	9	90
Mrs. H. Churchyard, Ripon .....	4	33	25	15	10	83
M. Safford, Berlin .....	6	39	25	15	8	87



*Class II.—Creamery Butter. Creamery butter made in Wisconsin. Judge; GEO. W. WELLS.*

Name of Exhibitor.	No.	Flavor 45.	Grain 30.	Color 15.	Salt 10.	Total 100.
Chas. Thorp, Burnett Junction .....	66	44	27	15	9	95
O. J. Peterson, Barre Mills .....	71	41	28	15	10	94
E. L. Eastman, Saukville.....	72	40	28	15	10	93
L. W. Soles, Omro .....	62	40	28	15	9	92
A. C. & Butter Co., Auroraville.....	63	42	25	15	9	91
C. P. Baldwin, Weyauwega.....	34	42	26	15	9	91
Koro Creamery, Koro.....	65	42	26	15	9	92
Berlin Creamery Co., Berlin .....	67	40	26	15	10	91
H. J. Noyes, Richland City .....	68	42	26	15	9	92
Egbert Wittke, Beaver Dam.....	69	42	25	15	9	91
Angus & Humphrey, Oshkosh.....	70	38	26	14	8	86
J. A. Smith, Saukville .....	73	40	28	15	9	92

*Class III. — Print Butter.*

Name of Exhibitor.	No.	Flavor 45.	Grain 30.	Color 15.	Salt 10.	Total 100.
H. McClelland, Berlin.....	91	44	29	15	10	98
W. B. Cockeville, Berlin .....	92	42	28	15	10	95
Mrs. H. Churchyard, Ripon.....	94	42	28	15	9	94
A. C. & Butter Co., Auroraville.....	90	40	28	15	9	92
D. L. Dewey, Berlin.....	93	40	26	12	8	86

*Class IV.—Cheese, Cheddars or Flats made in Wisconsin. Judge: W. C. DICKSON, 183  
50 Water Street, Chicago.*

Name of Exhibitor.	No.	Flavor 40	Quality 40.	Color 10.	Salt 10.	Total 100.
E. L. Eastman, Saukville.....	110	40	38½	10	9	97½
J. W. Decker, Madison.....	111	39	38	10	10	97
J. R. Wilcox, Hamilton.....	107	40	38	8	9½	95½
J. J. Clark, Berlin.....	109	37	35½	7	8	87½
Chas. Gasch, Jr., Stockbridge.....	109	35	30	10	10	85
Angus & Humphrey, Oshkosh.....	112	38	37	10	8	93

*Class V.—Silver Cup. Judge: W. C. DICKSON, Chicago.*

Name of Exhibitor.	No.	Flavor, 40.	Quality 40.	Color 15.	Salt 10.	Total 100.
J. W. Decker, Madison.....	143	38	38	10	9	95
J. R. Wilcox, Hamilton.....	141	37	38	8	10	93
J. J. Clark, Berlin.....	142	36	37	10	9	92

The following cheese were brought from the Experimental Station for exhibition, and to see how they would score:

	Flavor, 40.	Quality, 40.	Color 10.	Salt, 10.	Total 100.
No. 1000.....	39	39	10	9 $\frac{1}{4}$	97 $\frac{1}{2}$
No. 1001.....	38	39	9	10	96
No. 1002.....	38	38	9	10	95
No. 1003.....	38	38	8 $\frac{1}{2}$	10	94 $\frac{1}{2}$

The chairman — If any one questioned the importance of these meetings or the interest they excite in all sections of the state, they have but to reflect upon what has occurred here this afternoon. A large and magnificent audience has sat here through two hours and a half, without any special attraction, no music, no brass band, nothing of the kind, and listened most attentively to what has been said. It certainly is suggestive that the people are hungering and thirsting for information along these lines, and I think you have earned the pleasure which is in store for you at the banquet, this evening.

The convention will adjourn to meet at the banquet and at 9:30 o'clock to-morrow morning.

## THE BANQUET.

The banquet given Thursday evening was equal to similar one of former meetings. Library Hall presented a handsome appearance with the long tables so beautifully arranged. At 6:30 the doors of the hall were thrown open and the seats soon filled. The ladies having the matter in charge had worked hard and the hearty good cheer and jollity that reflected from the faces of those present was a satisfaction. Seats had been provided for 408 and it was found that a few more could be accommodated which was done. As the feast progressed the tables grew lighter, and the people although heavy laden with good things, grew lighter in heart and spirits. After the feast for the stomach came the mental feast of toasts. At each plate were neat souvenir cards with "W. D. A." and the cut of a cow upon it. Printed programs of the toasts were also furnished. The following is the program as prepared:

## POST-PRANDIAL.

Toast Master, H. C. Thom.

- 1 Excelsior Medley.....Banjo Club
- 2 "Our Guests".....Hon. R. L. D. Potter
- 3 "Our Hosts".....Pres. W. A. Henry
- 4 "The Old Dash Churn".....Sec. D. W. Curtis
- 5 The Boy { His Place } .....Ex-Gov. W. D. Hoard  
              { His Pay }
- 6 Beverages { Water } .....H. C. Adams  
              { Sweet Milk }  
              { Butter Milk }
- 7 "Bella Bocca Polka".....Banjo Club
- 8 "The Cow a Savings Bank".....T. J. Fleming
- 9 3 Legged Stool { Faith in Butter Future } .....C. R. Beach  
                      { Hope in a Large Yield }  
                      { Charity for the Ugly Cow }
- 10 The Evening's Waiters, The Hope of The Next Generation, J. B. Harris
- 11 Butter Makers { Girls } .....G. W. Burchard  
                      { vs. }  
                      { Machines }
- 12 The Largest Cheese.....C. A. Peck
- 13 City Skim Milk vs. Country Full Cream.....J. H. Foster  
Singing, America.

Toast master Thom announced the different parts of the program and in a very pleasing manner commented upon the peculiarities of those who were to respond and made many good hits, but some of them bounded back at him with considerable force.

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Convention met pursuant to adjournment at 9:30 A. M., February 13th, 1891.

Mr. Adams in the chair.

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## THE IMPROVEMENT OF DAIRYING IN RICHLAND COUNTY.

A. SCHOEMAN, Plain, Wisconsin.

Located in southwestern Wisconsin you will find as fine a dairy section as can be found on this broad continent. We have the sloping hillside and the fertile valleys. We have the fresh water springs branching into rivulets and creeks, winding their way lazily across our broad acres, affording unsurpassed pasturage for our herds. We also have farmers, if properly aroused, capable to cope with any question belonging to their calling. I ask then: What is there to hinder us from advancing with a rapid stride to the front ranks of profitable and noteworthy dairying? Why is it that the Canadians are out-selling us so badly on cheddar cheese on the open markets of the world? Is it because they have a better adapted country geographically? To that I answer no. Is it because they are, as a rule, better educated and more intelligent. In the name of the little red school house I answer no. Is it because they are fully alive to their best interests, and have spared no pains, nor money, to establish a system of cheese instruction which challenges the world for a superior. Being fully aware of the noble example they have set for us, shall we still linger in the rear, content and satisfied? Gentlemen, I feel as if the time had now arrived for a general uprising in behalf of better methods in dairying, and the establishment of a thorough system of cheese instruction.

Although we have much improved in dairying in Richland, and especially so, in cheese manufacturing, I consider it my duty, to point out the defects, of the thousands who have not, as yet, been lifted out of the old ruts, but are still treading the same old path they have trodden for years.

For successful cheese manufacturing, two things are absolutely necessary. First, the study and skillful planning of the dairyman: How to produce the greatest possible amount of good normal milk, at the lowest possible cost, and to furnish such milk at the delivery window, pure, sweet and untainted: Second, that the manufacturer makes No. 1 cheese of No. 1 milk, and puts forth all his energy, skill and perseverance, to raise the standard of our cheese to a higher plane.

Our manufacturers are making a noble fight, but our milk producers are not keeping up with the times, and I am convinced, that some sections of our country, are on an average, producing milk cheaper than we are. You may ask if they produce milk cheaper. How do they do it? They have bent all their study and skillful planning, toward the subject in hand, and have graded or transformed their herds from common to special dairy cows. The men who have raised their average per cow, from 3,000 to 5,000 pounds of milk per season, in a few years, with but little money cost, but a large amount of study and skillful planning, can be counted by the hundreds. A man has two cows that stand side by side in the same stable, get the same food, one cow's milk amounts \$30, the other, \$15. The cost of keeping is \$25 per head. On the one he gains \$5, on the other he loses \$10. And yet such money destroyers are often kept for years, annihilating, as it were, all the profits of the best portion of the herd. Gentlemen, there is sound dairy knowledge sorely needed throughout the length and breadth of this broad land, and if you are a dairyman and keep 5 cows, and can read the English language, when some kind friend sends you a sample copy of Hoard's Dairyman for pity's sake and your pocket-book's sake, don't thrust it aside, but read it and study it, and



wisely follow the example of those who have devoted their life-long study, to give you profitable information.

I see no other road to profitable dairying. We must follow the example of our bright, active, thinking dairymen or take a back seat. We must study how to raise the milk flow of our cows with a cheap silo ration, as all thinking dairymen wisely do. Study how to cheaply transform your herds to special dairy herds; cull out the poorest cows, get a good milk bred sire, and keep the work of "grading up" going on. But while you are "grading up," don't forget to keep an eye single to economical feeding. We know of hundreds of farmers that feed their cornstalks alone till all fed, then all wild hay, and in spring, feed clover hay (being a balanced food in itself), with a grain ration, not knowing, I presume, that cattle fed on purely carbonaceous foods, crave for the other needed elements, and gorge their stomachs to discomfort, and much food is wasted for want of a balanced food. But not one-half the farmers even try to find out how to feed economically, but are willingly crying hard times, or perhaps curse the cheese market, or cheese maker, while the wasting of food goes on year after year, their same old brindle cow, perhaps a money destroyer, is kept because she is a cow and gives milk, but whether she is robbing him or enriching him he certainly does not know. While such business is cow keeping, it certainly is not dairying in the true sense of the word. The body of the animal as well as the human system, needs different and varied elements.

If feeding all carbonaceous foods and then most wholly nitrogenous by themselves, is all right. Why don't you eat all pork four months, all wheat bread four months and white beans the rest of the season? If salting your herds every week or two, once is all right, why don't you go saltless two weeks and then eat a lump to make up lost time, and another lump to keep you in salt two weeks in advance? Yes, it has actually been proven by experimental tests, that with-holding the salt from a dairy cow twelve days, lessens her milk flow  $14\frac{1}{2}$  per cent. Think of the thousands of dairymen who, year after year, accept \$85 50 for \$100,

through their own folly, by the neglecting of a little pinch of salt rightly administered. Yet this is grand and glorious Wisconsin, with her boasted school system, but not the faintest glimmer of a text book containing a syllable concerning agriculture can be found inside the walls of the little red school house. A cow is a machine to convert your rough forage of your farm into concentrated food products.

Now, gentlemen, what would you say if you saw a man harvesting a 100-acre field of grain, with a self-rake machine, having it bound by hand. You would say: "Oh! foolish man, you are way behind the times." Why not get a superior machine, a binder, and get your grain done up in a much cheaper way? Why Mr. Self-rake it will cost you so much more to get your grain on the open market, that the men who are using the superior machine will starve you out. But are not thousands of dairymen doing that very same thing? Year after year plodding along way behind the times. Using that same old machine, the common cow, being a poorly adopted machine to convert forage into milk. While all the thinking men are seeing their folly; say! Oh foolish men, you are way behind the times. We are using a superior machine, the special dairy cow, a machine especially adapted to make our business profitable. It is thus plain that those using the superior cow machine can supply the market so much cheaper with milk, butter and cheese, that "Mr. Common Cow," like Mr. Self-rake will have to work at a starving price, while their thinking neighbors are prosperous and well-to-do. But a careful study of the question has led me to believe that the average dairyman's greatest loss comes through the unskilful handling of his milk from the cow to the cheese vat. It is right here where untold thousands are lost to the hardworking dairyman through his own carelessness and untidiness. I often wonder why advocates of "Handling milk for cheese factories," say so little about cleanliness, while I as a cheese-maker, have found filthiness, among some milk-producers "a holy terror." I say let cleanliness be the watchword of every cheese factory proprietor, of every

cheese-maker; of every cheese instructor, and of every cheese factory patron.

And thousands, yea, millions will be saved to our dairy fraternity. And, further, a careful study of keeping milk over night for cheese factories, has revealed to me to the utmost satisfaction, that the ordinary way of keeping night's milk in the carrying can, with which sour whey is carted home daily, is an exceedingly unprofitable business. In our factory there are 27 patrons delivering milk 200 days per season,  $27 \times 200 = 5,400$ . You will therefore see that in one factory there will be 5,400 chances of having either good or bad milk. Now, in a miscellaneous lot of 27 patrons, you will find clean hands, and you will also find unclean hands, and more than that, you will find some very careless hands. This being the case, can it be wondered at, that out of those 5,400 chances much bad milk is delivered to the average cheese factory? The Wisconsin State Dairymen's Association sent J. W. Decker to Canada to find out good points of Canada's superior methods and rules of cheese making. And here is part of his first report: But one factory, of all the factories visited, allowed milk to be carried in the same can wherewith sour whey is carried. And I heard one maker say he would close his factory before he would allow it. Oh! what a blessing would such a rule, well enforced be, to our Wisconsin cheese makers. And I hope the day may be near at hand, when this rule will be in force from our sunny borders on the south to the bold and rugged shores of Lake Superior.

Fellow dairymen, there is a bright star of hope ascending for us in the shape of a system of cheese instruction, which, if properly carried out, puts untold thousands, which now go the winds, into the pockets of our milk producers. Imagine yourself in a cheese factory in the month of June or July, with the thermometer dancing at 90 or 100 in the shade, with the milk, as such weather and careless hands often produce, rolling in at the delivery window by the tons; the cheese in the curing room, as well as its maker, dripping with sweat; prices down to the lowest

notch; seven days labor per week, without a sign of rest till the chilly winter blast gives a sigh of relief.

Those are trying times for the manufacturer of cheese, and the weary maker, perhaps, being deluged with bad milk, becomes discouraged and himself gets careless; with a longing gaze will he look for any help or words of cheer at such a time. Oh! what wonderful good can a well skilled cheese instructor work to a cheese factory at such a crisis. I mean a cheese instructor who, by his acts, could impress upon the mind of the average maker, as well as farmer, that he has come as a teacher and a worker, and not as a "boss." I mean a cheese instructor, that will be able to convince the patrons of their great folly of delivering No. 2 milk and demanding No. 1 cheese. I mean a cheese instructor, with milk tester in hand, protecting the honest and persecuting the rogue who waters or skims. I mean a cheese instructor who will aid the maker to enlighten the patrons to fully understand that every penny gained by the delivering of good, clean milk, and the making of good cheese therefrom, goes into their pockets and not into the manufacturers. I mean a cheese instructor that will have the grit and courage to protect the patrons, by lending his aid to oust every lazy, careless or unworthy cheese maker, and have him replaced by a competent and worthy man. I mean a cheese instructor that will be able to teach the average maker how to make a cheese that will tickle the average Englishman's palate in such a way that he will be willing to part with his shillings for it. I mean a cheese instructor that will instill into the minds of every cheese maker that whey left in the cheese for the purpose of gaining weight is a false and delusive practice, and must be stopped.

The State Dairymen's Association sent us an able cheese-instructor last spring with instructions that every factory receiving his services pay \$3 into the fund supporting his salary. And what was the result? As soon as the factory men saw and appreciated his noble mission they almost to a man increased the sums to \$5 and \$10, and some even \$40

per factory; which pleased the association to such an extent that the man was left with us practically all summer.

And all our best cheese-makers agree that we (including about 40 factories) were benefited to the extent of at least  $\frac{1}{4}$  cent per pound on an average, which means \$10,000 extra into the pockets of our milk producers. I furnish a western retailer with cheese partly and this is what he said: "I can get western full cream cheese cheaper from Sioux City wholesale grocers, than you sell out of the factory." "Why don't you buy of them exclusively," I asked. "Well, I will tell you. I retail their cheese for 12 cents and your cheese for 15 cents, keep them side by side on the same counter. I sell two of your cheese while I sell one of the cheap kind." Is it not therefore plain that the average American will buy twice the amount of No. 1 cheese at a much higher price.

Therefore, if we succeed in establishing a system which will turn out a uniform No. 1 cheese our gain will be two-fold. It will give us a reputation and raise our standard as to price, and at the same time increase the consumption and demand, and give us a ready sale for all we can produce. Canada has set us a noble example. Let us look at her record:

The exports of cheese from Canada in the six months ending October 31st, 1878, were 358,000 boxes. The exports from New York during the same period in 1878 were 1,902,000 boxes, or nearly six times as much. The exports from Canada during the six months ending October 31st, 1890, were 1,297,000 boxes, and from New York during the same period in 1890 the exports were 998,000 boxes, being nearly 30,000 boxes less. Or, in other words, in 1878 we exported nearly six times as much cheese as Canada and last year, 1890, we exported not quite four-fifths as much. The above is a simple example of what a well-organized system of cheese instruction will do for its organizers.

The signal success of our cheese instructor in southwest Wisconsin has given a loud call for instructors all over the state and far beyond the capacity of the State Dairymen's Association supply. But Prof. Henry has already assured



us of their avowed intention of doubling the force the coming season. Shall we stand idle and let them plead in vain for a suitable appropriation to carry out their well-meant plans? Or shall we echo back in thunder tones, that a few thousand is no suitable appropriation for so large and powerful a class of tax-paying people as the dairymen of this state now represent.

And further: It is now quite evident that there is a certain element in this state, who are forever howling against any law for the betterment of our agricultural classes and dairymen; and bills for taking away our "Dairy and Food Commissioners" and "Farmer's Institutes" were boldly introduced. Let our present legislature, in their ardent desire for economy, rob us, as farmers and dairymen, of these things, and we will let them hear from us in November, 1892. It is universally acceded throughout the Union, that Wisconsin has sounded the key note to successful "Farmers Institutes," and great is the benefit to our agricultural classes, in uplifting, and educating our average farmer. I ask then, can any sane man call it economy to hamper our farmers and dairymen of this glorious state, for the paltry sum of a few thousand dollars?

Gentlemen and fellow-dairymen — An era of successful cheese making is dawning upon us, but the road is rough and hard to travel, and many, of little faith, are left by the wayside; and some, perhaps, are branching off into by and forbidden paths of doubt and dissatisfaction. But the grand march of all thinking dairymen will be onward and upward to prosperity and happiness.

(Continuing): I would like to add one word more of advice. I think we ought to make known our wishes to our legislature about this dairy and food commission business, and I suggest that you all go home and sit down and write two letters, one to your assemblyman and one to your senator, something like this:

*Mr. Assemblyman, or Senator:*

DEAR SIR:— We, as farmers and dairymen of Wisconsin, demand that you support the cause of the dairy and food commissioner, and farmers' institutes. Any departure from our just demands as your constituents shall be considered as to our best interests.

## DISCUSSION.

Member from Waushara county—I would say to the people from the district representing Waushara county that they need not spend any stamps to write to me, but to send their letters to the other member.

Mr. Thom—I rise for information as to the kind of milk that should be supplied to a factory. The instructor who worked last year in Richland county came to me and told me that he had some milk that he was unable to make cheese of that was marketable. Mr. Noyes was present at the time. They did what they could, but still that cheese would huff, would get out of shape and have a bad flavor. The milk was carefully inspected, but they couldn't make marketable product of it. They called upon me to come down there and have it analyzed, and I was glad to go. I found there a factory with twelve or fifteen patrons. The milk was carefully examined, and I was surprised to find that on the whole it was above the average quality. After samples had been taken the milk was run into the vats and the instructor staid there and made the cheese with his own hands. The curd worked somewhat slowly, and it had a peculiar flavor about it that was not normal, and still nothing could be determined until after it had been passed through the curd mill two or three times and we had it on the rack. Then, by careful inspection we found that when two flakes of the curd were separated, that there was a deposit which looked almost like coagulated blood, about the size of half a pin head, and its odor was very strong. Now, we may have many expert cheese makers with us to-day, and I would like to know if any one knows how to meet this difficulty or can explain what it is. The analysis shows that the milk was of good quality, so far as butter fat was concerned. The chemical analysis did not determine anything that was not normal. We did not subject it to the microscopic analysis.

Mr. Phillips—The only way I can answer that question is to say that I don't know what caused it. It was a puzzle to me. I had some milk at the experimental farm in No-

vember just one day of the same character. In this factory that Mr. Thom refers to I don't think it lasted over four or five days. It was something that I never saw in milk before or since, till I run across it at Madison in November.

Gov. Hoard — Did you visit each one of the patrons?

Mr. Decker — I did some of them, not all. As near as I could find out there was not any patron among them but what had good pure water for his cows. I don't think there is any stagnant water in that section.

Gov. Hoard — I was called in a few years ago to help settle a row between the patrons of a cheese factory and the maker. Something of the same character that you describe had developed itself in his cheese. He asked me to come and see if we couldn't hunt it up. I found in the morning one patron's milk that I detected something wrong in. I followed him home, and I found that his thirty or thirty-five cows received all the water that they got from a stagnant pond hole. I told him that I thought that was the secret. That man's milk was kept out of the vats, and the product was all right, and when it was put in it was all wrong. There was a yeasty fermentive condition, microbic in its character, that would go through the milk very quickly.

Mr. Phillips — That milk that we had at the experiment station in November, was from a herd of cows that I am very sure had pure water. This organic matter we found in the curd. The milk was cooled down so cold when it was delivered at the dairy house that we could detect nothing in the milk, but those particles that we found in the curd was examined very closely by Dr. Babcock. I will tell you how this curd worked. We worked the curd just as we would from normal milk, and it was impossible to get any acid in that curd. We left the curd lying in the vat until the next day, about nine o'clock before we salted it and put it to press, and there was nothing but that sick sweetish smell to the curd.

Gov. Hoard — Milk is secreted from the blood. Blood is made up very largely and very quickly from all the fluid exidations. The secretory organ, the maternal organs, are

particularly affected by fluids. I believe if you hunt that thing out, you will find the difficulty lying in some one man's herd of cows.

Mr. Phillips—I think myself that impure water is one of the worst things that the cheese maker has to contend with, but in this particular instance at the experiment station I don't think the cattle had any impure water. We could not trace it to a particular herd because we could not detect any bad odors about the milk when it was delivered. If this thing had happened right along for several days, we could probably have ferreted it out, but it stopped right there, we only had one day, so we had no chance to investigate it as much as we would like to have done.

Mr. J. A. Smith—My guess of that trouble would be this: Inasmuch as it lasted so short a time, I think that some of the patrons were taking milk to the factory from cows that had just come in.

Mr. Phillips—In the factory that Mr. Thom had reference to, I think he picked out a double handful of that matter from this curd. The cheese maker discovered it himself in the first place. He had quite a large quantity of cheese on the shelf that seemed to be all right, but as the curing went on a bad flavor came with it, and there is no doubt but that had been running for some time in that factory. The buyer said to him that there must be diseased milk in the factory.

Mr. Thom—If I am correctly informed they had a bad batch of this at one time which attracted the attention of the maker. These cheese were put on the shelf. Then they had a period when they made good cheese again, then that circumstance repeated itself, and it was brought quickly to the attention of the maker, because the conditions corresponded exactly with those that had preceded.

## INSTRUCTION IN CHEESE MAKING.

By W. H. PHILLIPS, Waupun.

On April 21, 1890, in accordance with instructions from our secretary, I started for Richland county to begin the season's work in cheese instructing. I arrived at Lone Rock that evening, and the next day began my work at Bear Valley factory, some ten miles distant. When I had a chance to look about me and take my bearings, I found I had landed in a very pleasant section more like old New York than anything I had seen since I left my boyhood's home. The green bluffs looked discouraging for grain raising, but furnished fine pasturage for the cattle, which are the chief wealth of the farmers here. All through Richland, Sauk, Iowa, Dane and Grant counties, many factories are springing up, most of them cheese factories, but some of which combine butter and cheese making. During my summer's work, which lasted until November 1st, I visited in all, fifty-one factories, forty-two of which are in this valley of the Wisconsin. As by far the greater part of my work lay there, it is of this section that I shall chiefly speak in this paper.

I have already said that this section is favorably situated for dairying, and I think the subject deserves more than a passing notice. Nature here has outdone herself in paving the way to successful dairying. With the luxuriant pasturage which the bluffs afford, the absence of marshy lands, and the many clear springs bubbling up and furnishing a never-failing supply of pure water, it would seem that nothing more could be desired, and that good butter and cheese should be a matter of course. But notwithstanding this, I was told there that the cheese product in years past had been far from realizing the natural expectations of the producers—that first-class cheese was the exception, not the rule, and that losses from poor cheese were a frequent occurrence.

It is not within the province of this paper to discuss the reasons for this, but it may not be out of place to say that



in those beautiful springs the dairymen found a delusion and a snare. Following out the old-time idea that milk if only cooled enough will be all right for cheese, they put their milk cans into the cold springs and slept the sleep of the just, believing that they had done their full duty. In the meantime, the imprisoned animal odors which proper aeration would have set free, bided their time to wake in floating curds and ill-flavored cheese, and bring consternation to the soul of the long-suffering cheese maker, and panic to the pocket book of the unsuspecting farmer.

Do not misunderstand me as saying that the whole trouble lies in this one point. Much of it no doubt is due to unskillful handling of the milk in factories and other causes might easily be traced, but I sincerely believe that one-half the difficulty lies in this practice of cooling without aeration. However, a most encouraging feature of the dairy outlook in the Wisconsin valley, is the eagerness of the people to obtain information concerning improved methods in dairying, and their willingness to profit by such instruction as comes within their reach. I had not been in Bear Valley a week before letters began to pour upon me asking help in factories. The fee of three dollars required by the Dairymen's association was gladly paid, and in most cases more was willingly offered to aid the association in carrying on the work which owing to limited means must otherwise have been checked. One fact worthy of mention is, that the patrons themselves paid this fee not asking the factorymen to do so. One factory by vote of its patrons, paid the association five dollars per month for the whole season of eight months.

Right here I wish to say that farmers and cheese makers in other localities may learn a valuable lesson from these people. Instead of the continual wrangling which exists in many places, we find them united and friendly. The cheese makers, instead of being at sword points, manifest a feeling of thorough good-fellowship, visit each others' factories, talk over their work, and obtain much valuable aid thereby. And further, if a disgruntled farmer, whose milk has been rejected at one factory, presents himself at

another, he finds no sympathy there. Back to his own factory he must go, or keep his milk at home.

In visiting a factory for the first time, I usually stayed two days, the first day making the cheese myself as a practical illustration of our method, and the following day overseeing the maker as he followed my teachings. Much of my work lay with the farmers. As they gathered at the factory in the morning I made it a point to be there and inspect each can as it came, in the meantime giving such hints as the care of milk as I thought necessary. I also held cheese meetings where it seemed advisable for the further instruction of the patrons. With few exceptions, they manifested a desire for information and to improve upon their old practices.

Their interest may be judged by the fact that frequently as I made cheese, from fifteen to twenty would gather in the factory to observe the work. After visiting a factory once I returned to it as I found occasion. Frequently when the day's work was finished in one factory we would drive back to the factory last visited and sometimes to two or three. In this way I was able to keep an oversight over those who were following my instructions and correct any little errors into which they might fall.

Of course there is a great diversity in the factories, and it may not be out of place to speak of some of the things I noticed, commendable and otherwise.

Some of the greatest faults in factories I visited were, lack of room, lack of cleanliness, lack of proper facilities for washing utensils, neglect of whey-tank and drainage, and neglect to secure proper temperature of curing-rooms. In one factory I found the vat-room 24x30. In this were crowded three vats and two presses. There was a small curing-room below, but most of the cheese was kept above in a room where the temperature sometimes reached 100° F. 14,000 pounds of milk daily was converted into cheese under these circumstances. Was it any wonder I ask you, that money was lost, and that patrons and maker alike became discouraged. Another point worthy of mention in the same factory, is that for a long time the maker had

been having trouble with his cheese. He finally cleaned and scalded his whey-tank which had become sour and filthy. An immediate change for the better in his curds demonstrated the fact that the whey-tank cannot be neglected with impunity.

In happy contrast to some of these badly constructed and carelessly managed factories, are a few which stand as examples of the push and enterprise of their owners. One at Richland City is deserving of special mention. Without all is inviting. The building itself is neatly painted and the flower-beds in the yard give evidence of taste. Foul smells and bad drainage are conspicuous by their absence. The whey-tank is scalded out each day, and the whey kept sweet for patrons' use. Within all is clean and neat. The hot water sink insures cleanliness of utensils. The curing room, cool enough in summer is heated when necessary by steam pipes. This is a combined factory, butter being made during the winter months.

The factory at Twin Bluffs is also a fine one and is similar in many respects to the one just described. Here the curing room is separate from the factory, and the temperature very even, the mercury never rising above 70° F.

I cannot close this paper without some slight tribute to the people whose kindly interest in my work made my task so much easier. The path of the reformer is usually thorny, owing to the fact that people are slow to desert long established customs, but my summer's experience has shown me, that even this rule may have its exception, for I met with uniformly kind and courteous treatment from people not only willing but anxious to change their ways whenever a better way was offered.

The future of the cheese industry in Wisconsin will indeed be bright when people in other parts of the state manifest the spirit of progress that is shown in the southwestern part of the state. When the clams, who are now decrying the attempts of the Dairymen's Association to raise the standard of Wisconsin cheese, shall come out of their shells and acknowledge that the world does move, and that better cheese can be, will be, and is now made

than they could make in the good old days of twenty years ago.

In looking back upon my summer's work, there is much of encouragement therein, but by far the most gratifying thing is the fact that twenty-five or thereabouts of the men with whom I worked this summer are now members of our State Dairy school, of which we are justly proud. Some of these men are old cheese or butter makers, but not too old to learn, so they are there and they will come away not only prepared to make better cheese, and better butter, than ever before, but their association with others having like interest will have broadened and deepened their ideas, and quickened their enthusiasm, so that they will be better citizens than ever before.

All honor to the founders and supporters of our excellent Dairy school. Too much cannot be said in praise of it, and them. No young man who intends to be either dairyman or farmer can afford to deny himself of the privileges to be obtained by a few months spent at the school, or in taking the short course in agriculture.

The spirit of the times demands intelligence and brain-work of farmers now as never before, and the man who succeeds must "keep up with the procession." We cannot do better than to take these words of Abraham Lincoln's as our watchword: "I shall try and correct the errors when shown to be errors, and I shall adopt new views as fast as they shall appear to be true views."

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#### DISCUSSION.

A member—Do you find any difference in the smell of the milk brought in spring wagons and that brought in those without springs?

Mr. Phillips—I cannot say that I do.

Question—Wouldn't it be natural if the milk was not properly cared for that it would make a difference?

Mr. Phillips—My experience is that a good share of the night's milk is cooled down so that the odors cannot be de-

tected. There is only one time when milk gives off impurities, when it is at animal heat.

Question — What is the best process of airing milk; by dipping and pouring or with one of these funnel shaped institutions?

Mr. Phillips — I never used one of those. I should use a milk aerator. It is a strainer that sets upon legs about a foot from the can, and the milk is poured into this, and it goes trickling down into the can in a great many fine streams. If I had not one of those, I should take a gallon dipper, go to the bottom of the can and bale the milk for fifteen minutes. Then I should let it stand awhile before water was put around it. I don't think we can get too much aeration in milk.

Gov. Hoard — Do you notice any increased separation of cream on account of the milk being brought to you cooled down to a low temperature?

Mr. Phillip — No, sir; I do not. There is no doubt in my mind but what the cream was separated, some, from the milk.

Gov. Hoard — Of course, we all know that that is the method taken to raise the butter fat — to separate it. Now, I want to ask you, as a skillful cheese maker, do you not find it quite difficult to incorporate the fat when once it is separated in that manner?

Mr. Phillips — Yes, that is true. I would not advise any farmer to cool his milk down below seventy for cheese making, but to aerate it, stir it.

Gov. Hoard — In Canada this winter I was very much interested in the discussion on aeration. I have been told that the Canadian cheese makers are after the farmers with a sharp stick, and it was not very gently handled always either, and that a body of opinion and sentiment was being crowded right down upon the man who makes the milk. He is the man that makes the cheese practically, the cheese maker only separates it afterwards, and this question of aeration and proper cooling seemed to be the chief points of conviction of the best men in Canada as to the means



for the proper handling of milk in order to make a fine cheese, and I believe it to be founded upon sound philosophy.

Question — Do you use cold water with these aerators?

Mr. Phillips — No, sir; keep water away from your milk until it is thoroughly aerated.

Question — What is the cost of that aerator?

Mr. Phillips — Three to four dollars. The one that I described here I had made and it gave good satisfaction. It was one that was sent to me by Cornish, Curtis & Green.

Mr. Smith — Suppose an amount of milk was kept in gentle agitation all night, would it improve the milk for cheese making?

Mr. Phillips — I think it would, although I have not had any experience in that line. Of course, the agitation must be gentle, so there would be no danger of churning.

Mr. Smith — You have seen in *Hoard's Dairymen* that such an apparatus has been made by a gentleman in Illinois. It strikes me that machine is just what we want. It is a small spring moter that is clasped on the edge of the can and you wind it up as you would a dollar clock, and it keeps in motion all night. It seems to me it would be a good plan to have our association look into it and find out the facts about it. I understand they go clear to the bottom of a can with a screw motion that gently raises the whole contents of the vessel.

Mr. Noyes — I think our October and November cheese are hurt a good many times by the farmers letting their night's milk get too cool. There was a grand good article on October cheese published in *Hoard's Dairymen* last fall. In regard to cheese made in Richland county last year, Mr. Dickson has purchased a good deal of cheese in that section last summer and the summer before, and I would like to hear what Mr. Dickson has to say about it, particularly with reference to Mr. Phillip's visits.

Mr. Dickson — I think the cheese after Mr. Phillips' visits there were worth from 50 to 100 per cent. more than they were in the fore part of the year. It was distinctly noticed in one particular factory, the difference between their cheese and that in the other factories in that section

where they would not let him in for a long time. Another thing; last year toward the close of the season when the buyers of Chicago found out the quality of the goods in that section, there were from two to three more buyers there than there had been the previous year.

Mr. Noyes — We have always heard what a grand cheese they were making in Sheboygan county and we about made up our minds we ought to get up to Sheboygan cheese or we would be left. I bought quite a quantity of cheese in our section this summer for parties in Chicago, and I asked the firm when I went down there if our cheese was not as good as Sheboygan cheese. He says, "Not quite, it is pretty close to it." But before I left the office, his partner says, "Mr. Udell is a little partial to Sheboygan county, but we get as good cheese from Richland as from Sheboygan."

Mr. Smith — How do your sales compare with those on the board of trade at Plymouth and Sheboygan Falls?

Mr. Noyes — There was not much difference. When we first commenced sometimes we would run a little lower, about a quarter or an eighth per cent., but I noticed as we got along up toward fall, we came closer to them all the while. We get just about as much for the cheese when you count the difference in the freight.

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## THE PRODUCTION OF CREAM.

H. S. WEEKS, Oconomowoc.

"The production of cream" is a subject which should be treated according to the purposes for which it is intended to be used. If for butter making, entirely different methods may be employed in some parts of the process than those which will give best results in cream for table use. I shall take it for granted, however, that I am asked to tell what I know about it from the latter standpoint, because many are aware that my farm has for years been devoted exclusively to furnishing cream for city consumption, a

branch of dairying which has grown to quite large proportions of late years in regions contiguous to large towns and cities where wealth has accumulated rapidly and luxuries of all kinds are urgently called for. The great hostelrys of modern times, where guests are entertained in almost regal style, require much cream of quality suited to the most fastidious tastes; the restaurant, confectionery and ice cream saloon, the drug store where soda is dispensed, all consume quantities of cream that in days of yore was not dreamed of. Time was when there were few families whose tables were furnished with more than a diminutive cream jug, containing perhaps enough to soften and tone down the morning cup of coffee, and obtained solely by skimming the quart or two of milk left daily by the milkman, the quantity being in ratio to the elasticity of his conscience when previously performing the same operation himself. Now, however, the vender of milk must carry a goodly can of cream, and if his route is in the best part of the town a large proportion of his customers will patronize it liberally.

The question is, Where are the purveyors for the establishments I have named, and where is this milkman to procure a supply of cream? The latter cannot resort to the old tactics of skimming his own cow's milk, for the "dairy and food commissioner" and his detectives are abroad in the land and might make it unpleasant for him if the standard of butter fat was minus in his milk. Well, the city milk depot keeps a stock on hand shipped in from the surrounding country, but it does not solve the question very satisfactorily, as the consistency is apt to be on the boundary line between milk and cream, and its uncertain age and varying stages of ripeness are sometimes more suggestive of churning time than breakfast time, furthermore the supply is not always equal to the demand. Thus it comes about that the searcher for good pure cream goes out into the country and hunts up some honest farmer to supply his wants. If his "eye-teeth are cut," he looks well about him before concluding an arrangement. He not only talks with the proprietor, but the family and hired

help come under his scrutiny, also the place where milk and cream are kept, the cows and the stables they are kept in, the farm and crops, the pasture and water supply; after which he can readily determine whether he wants this man's cream at any price or not. If the verdict is favorable, he will proceed to make the best terms possible.

But my good friends, if any one of you is the before mentioned honest farmer thus visited, and you know in your heart of hearts that all of the points that this city man has been weighing are right and as they should be, do not be in haste to accept any but a good fair offer, because you may be sure that the places are few where he can find just what he is looking for, unfortunately there are too many farms where hardly any one of the conditions for supplying it would meet his approval; hence, as I have said, be not in haste to close a bargain that does not give you fair remuneration for the conscientious and painstaking labor necessary in this or any other branch of dairying that is well done; the chances being that should he leave without the matter being closed, you will receive a letter by mail next day, more likely a telegram, saying, "Ship the cream, your terms;" but don't you do it until you have paid him a return visit and looked up his "pedigree" on the financial question and reputation of doing as he agrees. "One good turn deserves another," and if you furnish him good cream you want good money for it, but you do not want to take the risk of throwing up a good butter business, possibly for an uncertain cream business.

Now what has all of this to do with the production of cream? Just this: To show you in the first place that there is a large and increasing demand for it, and that as the limit of distance and extent of territory taken in from centers of population is constantly widening, it is well for those who are favorably situated to take advantage of it, for while equally profitable with other branches of dairying it largely economizes labor, which I need not emphasize, as it is patent to any one, and the same benefits accrue as in butter and cheese making, the bye product, skimmilk, be-

ing left upon the farm to be fed to other stock, and ultimately to increase the fertility of the land.

Now what are the principle points in detail which the typical cream buyer whom I have conjured up will take into account in forming his judgment. I have said that he would scrutinize the family and hired help, because he wants to see whether they are neat and tidy, and thus likely to keep all utensils and cans used in the business sweet and clean, a most important item; the place and manner of handling and setting the milk for a like reason, and the further one to ascertain whether it is subject to any bad odors, to its great detriment; the cows and stables to learn their condition and surroundings, whether the latter are kept clean and free from foul odors and gases that taint milk and cream, and to see that feeding stuffs are sound and of good quality; the farm and crops, to note whether a wise and judicious system is practiced to produce sufficient feed to meet the exigencies of all seasons, so that the probabilities favor a steady supply of cream; the pasture, to see if good sweet herbage grows there to the exclusion of noxious weeds that injure flavor; and lastly the water supply, that from whatever source it comes it is pure and sweet beyond a peradventure, and the cows have access to no stagnant pools, hog wallows or the like, for so sure as they do he will look for no well-flavored cream of good keeping quality from that farm.

These are, however, all matters that are continually preached to you, whether the discussion relates to milk and cream, or their manufactured products, butter and cheese, and are beyond a doubt *prime essentials* in any line of dairying, hence I need not dwell further upon them.

But there are some things to be considered which are peculiar to the production of cream for table use, viz.: appearance, consistency or texture, flavor and keeping quality; as to the first, it must be free from dirt and specks, uniformly smooth and of a rich "cream color." Clean stables, clean cows, clean milkers and good strainers will eliminate dirt and specks; deep setting in ice water will make it smooth and uniform, and feed will have much to



do with color. When cows are on grass it will usually be satisfactory, and in winter ensilage will do better than dry fodder; but breed is an important factor here, Jerseys and Guernseys put some color into their cream on any feed. As to consistency and texture, cream is thick or thin according to the way it is raised and handled. I hardly need say that the old system of open setting in pans will not do for the kind of cream we are discussing; too long time is required in the separation for it to be safe for shipping, and the lumpy condition caused by the dried surface, though still preferred by some "old fashioned people," is not the cream of the period. The Swedish system of deep setting in ice water is a necessity, and there are various ways of accomplishing it. With the plain or "shot-gun" can set in a tank, the Cooley cans submerged, or some of the different cabinet creameries on the market, by which the skimmilk is drawn through faucets from beneath the cream. It is not my purpose to make any invidious comparisons between the merits of these different systems, all of which are doubtless good when properly used, and the difference is more in the matter of convenience than net results.

The separation may be made in a few hours, within a small fraction of entire, if the milk is set immediately after being drawn from the cows, and sufficient ice is used, but thin cream will result, which is explained by the savants as owing to the rapid rising of the fat globules surrounded by more or less of the milk serum, from which they will become disentangled if left to stand long enough, leaving condensed or thick cream at the top. I therefore recommend and practice setting at least twenty-four hours before making the final separation, and if for "whipping," another fad of our city cousins, double that time. It remains to speak of the flavor and keeping qualities, and they will result from a faithful performance of all the conditions I have enumerated, beginning with the care and feed of the cows, and ending with the temperature being kept at as near 40° as possible up to the delivery of cream at destination. There is, however, one point in regard to flavor upon which I have not touched, and which

is important, viz: the necessity of so managing the breeding that there shall be a succession of fresh cows throughout the year, in order to avoid having too large a proportion of milk from cows advanced in gestation, which is liable to give a bitter or unpleasant flavor to cream. This point also bears upon the ability to furnish a steady supply the year 'round, and should not be neglected on that account.

The object of this paper thus far has been to show how good merchantable cream may be produced by methods attainable on the average farm. I say nothing about the "Separator," or the "Extractor Separator," that latest marvel of the dairy world, and it would seem almost a work of supererogation to go into the details of methods that will 'ere long be considered obsolete, in view of what is accomplished so simply by these machines, but the day is not yet when they can come into general use on the farm. I shall not enter into the question of cost and profit in cream production further than to say that the same rules govern in these respects as in any other branch of dairying, the first and most important being, the use of such cows as will yield the largest amount of cream for the feed and care expended on them, and in a general way it may be set down that the cow whose milk yields the most butter fat will be the most profitable, but in these days of accurate milk and cream tests it is not safe to state that as a fixed rule, it having been found that bulk of cream does not necessarily indicate the amount of butter fat, and while cream should test a certain per cent. of fat to be up to standard, yet it is not paid for on that basis, and therefore the quart or gallon measure must for the present be the index of profit in cows for cream production.

The question of special feeding for richness of milk is one about which science and practice are somewhat at loggerheads, it being claimed on the one hand that if a cow is fed a well-balanced ration to the limit of her digestion and assimilation, there will be little variation in the quality of her milk from feeding any especially rich food; while on the other hand many practical dairymen are equally confi-

dent that "richness can be fed into a cow's milk," as proved by their own experience; these discussions, however, refer rather to the butter fat than quantity of cream, and pertain more especially to the subject of butter making than cream production. I do not know that a valid claim can be made, based on actual experiments, in favor of any especial feed to produce bulk of cream, but my own experience leads me to believe that there is nothing better than corn and oats ground together in about equal proportions, and it is my practice to use it as a supplement to pasture or soiling crops in summer, and I fancy that I thus obtain cream of better texture or solidity than green feed alone will produce. For winter feeding, silage made from well matured corn, with ground oats or bran, and oil meal, are my chief dependence for good cream, and if the silage is deficient in ear corn I add corn meal.

In conclusion, let me say that it pays to establish a reputation for uniformly good cream, just as it does to have the name of making only gilt-edge butter, and in neither case can it be done by slighting any part of the process. Do not, for instance, fancy that all you have to do is to skim a little deeper to make up quantity when it is lacking, and that it will all pass for cream without notice. If you allow yourself to do this once, and it appears to "go through all right," you are in the condition of the man who wins in his first option deal, the habit is formed, and you will soon drop into the ranks of the producers of "commercial cream" so called, a better name for which would be "'alf and 'alf."

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#### DISCUSSION.

Mr. Bender—I would like to ask Mr. Weeks what kind of a cabinet or cream-raising outfit he has got.

Mr. Weeks—I have never used any kind of cows but Jerseys; I have about fifty head, mostly full-blooded. As to the process of making cream, I am at present using the Occident Creamer, made by Moseley & P. Manufacturing Company, and for my business I can conceive of nothing better, for economy of ice, and the entire separation made

quickly and for general convenience it is about as near perfect as anything I know of. Before I purchased this creamer I used a very good process, but it involved a great deal of labor, which is avoided in my present method. My former method was to use a plain shotgun can set in a tank of water with ice. After setting my milk in these cans with the covers partly raised between milkings, then I put the covers on and set them in compartments in the ice house where there was a drip above and an overflow below. They stood in a few inches of water and I let them stay there twenty-four hours, and sometimes sixty hours before shipping, and I never yet had a particle of complaint about the cream. Of course, the amount of cream grows less after twenty-four hours. My average production is about twenty per cent. in bulk. I ship in plain cans holding five gallons each, and during July and August I take a salt sack, have it manufactured so it will just fit this can nicely, and wet it in ice water before putting it over the can, and then ship the can with that on, make a jacket of it. I use ice summer and winter, every day. I do not ship my cream until it is twenty-four hours old. I hold one day's cream before shipping, and I fancy that I have thicker and heavier cream by its standing still in cold air. The under part of this cabinet creamer is in the shape of a refrigerator, and I let my cream stand there. I fancy the cream becomes thicker, and furthermore, as I ship it to a hotel that must have it every day in the year, I don't want to risk any accidents happening that will prevent my shipping, and I always keep it a day ahead.

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### THE COW.

A. X. HYATT, Sheboygan Falls, Wis.

Since I was nine years of age I have milked nearly as regular as I have eaten, except the three years I helped Mr. Lincoln put down the rebellion. My average for years must have been twenty; and I have fed hundreds of calves, both for myself and my father. I graduated as a calf-

feeder at fourteen — I'll tell you how I graduated. There came a big bull calf that would not own me as its mother. My fingers might not have tasted as he expected, or perhaps the milk was in a swill-pail, and cold and dirty; I know he tried his best to spill his breakfast. He seemed to think I had no business with him. I called him names — I called him lacking "Mother Wit." I felt very much imposed upon, and became angry. I said, "I'll show you," and squaring him 'round I straddled him to shove him to a corner. I surged backwards and we went out through an unfastened door, eight feet below, into a very filthy barnyard; I under and he on top. The calf took it for a joke and had a great picnic. I sneaked to the house, and my darling mother came to my relief. I have been a big kind (mother) brother to little baby bosses ever since. In those days my love was divided between four parties, my mother, my school-ma'am, my neighbors' girls and father's calves — I often thought I loved the calves the best of all.

#### THE COW.

What we need most as regards the cow is knowledge, to know or have a clear perception of all matters connected with her. Practical knowledge or learning, hypothesis or theory as regards anything is quite a different thing. Locke said, "Learning dwells in heads replete with thoughts of other men; knowledge in minds attentive to their own." Knowledge is the part to be chosen in this work-world. It costs much diligent search. Don't it Prof. Henry? But when found it amply repays us, for it cannot be taken away. A man of great knowledge cannot be overestimated. A man of great learning should not be underestimated. Knowledge is understood to be what has been gained by experience. Dr. Franklin in studying the nature and laws of electricity started out with the inquiry, "Is not the electrical spark identical with the flashes of lightning?" This was his guess or supposition, which, by repeated experiments he succeeded in proving to be true. Let the average dairyman that takes no first-class dairy paper and votes the institute a useless expense, be inter-



rogated by his neighbor on almost any subject concerning his vocation, his answer is almost sure to come in, I guess, I think, I reckon, or I believe. Ah! says his neighbor, I am much as you, I have been attending a farmers' institute lately, and I am beginning to find that I know but little and know that not quite certain. There should be no lack of knowledge with those that are sent out to teach such men. Mistaking learning for knowledge is one of the greatest hinderances to progressive dairying to day.

The best teacher of agriculture, (if not agricultural chemistry), is the farmer that comes embrowned from the manure heap, with which, by judicious application, he has made 1,000 bushels of rutabagas, and 100 bushels of corn grow to every cultivated acre. The best teacher of the art of rearing a herd of dairy cows, is he who by experience has become well acquainted with all their habits, from early childhood to mature cowdom. To be able, Mr. President, to discriminate between knowledge and learning, should be awarded great honor. Knowledge is power, and books that are books, and papers that are papers (and we have them), greatly assists in getting possession of this pearl of great price.

This association was founded to scatter dairy knowledge. This being the purpose of its founders, the question naturally suggests itself, how can this good be most effectually attained? The fact of meeting annually will not of itself secure it. Something must be gained, we must know more at its close, or it will come far short of the noble purpose, that stimulated its founders to action. We read that in the olden time men did not expect to "gather grapes of thorns, or figs of thistles." I am surprised that men who want the prettiest and smartest women for their wives, the soundest ears for their seed corn, the smoothest tubers and the most prolific hills for seed potatoes, and must even know the pedigree of a squash, should not exercise some degree of similar caution in the reproduction of their dairy.

The opinions of learned men are so at variance, it would only waste time to recommend one breed over another; but

I will protest against the simple policy that prevails with so many, and in the face of common sense and all knowledge, persist in the rearing of inferior cattle, simply because they have sprung or are said to have originated from some thoroughbred family, that has made some great record in the long, long past. The art of breeding for special or specific points, is of modern origin. Down to the time of Bakewell and the Collings, the cow was considered a calf and milk-producing animal; their owners little dreaming of the commotion she was doomed to cause, and the importance she was to assume in this mundane sphere. Job was the happy owner of 500 yoke of oxen just before Satan pitched into him so fiendishly, and I wonder if the mothers of those oxen looked much more "scrubby" than specimens that can be found upon many farms in Wisconsin to-day. I think the domestication of the ox is mentioned in the writings of Moses. Nearly all of us must have read of the golden calf of Aaron. The first step toward improvement could only be to breed from the best and when good sense is used, the result is often surprising. The merit of a first cross has often been observed by me. Bakewell put together white-faced and black-faced, white-legged and black-legged, horned and hornless, long-wooled and short-wooled sheep, and so he did with cattle. From such heterogeneous material have the modern breeds of cattle and sheep been made. The new breeds were soon scattered, as by the blasts of the hurricane, into many parts of England, Scotland and Ireland. It is stated that as high as 400 pounds were given for the use of one ram for a season. In an incredibly short time, the uncultivated cattle, in many parts of this country, disappeared before imported "Short Horns," like the Indian, before the onward march of civilization.

There were two ways open to breeders, discard their own stock and accept the new, which was very costly, or seek improvement by crosses, of which their own herds should be the foundation, and seek improvement by breeding only from the best. Breeding from the best starts from the highest point and is most permanent. The slab-side, the

big head, the thick neck, is sure to appear if this is not done. In the oldest flocks of Liecester sheep appear occasionally gray faces and black legs. All artificial breeds have a tendency to return to their primitive types. I think you will all agree with me, that no breed is so pure (not even the Holstein), but care is essential for their preservation. In no department of the business of this country is sound common sense more needed than in the rearing and caring for the dairy cow. The notions of men are so unsettled on this subject, that if old Mr. Jacob had been obliged to listen to all the treatises on the subject in one year as to how one excels in this, another in that and another all combined (as mine do), it would have caused grave doubt in his mind, whether his ring, streaked and speckled cattle were worth the trick and sin it cost him. It matters but little what breed one chooses or discards, if he lays by common sense in selecting, feeding and milking, and trusts to breed and blood, he is sure to be disappointed. The origin of the different races lies beyond the limits of this paper. There is no doubt it depends much upon soil, feed and climate, and what is more remarkable, these characteristics, however caused, are transmitted and perpetuated from one generation to another. This is shown in man as well as in the lower animal.

Do any of you ladies and gentlemen believe for a minute that our ex-governor would have possessed all those grand qualities of head and heart if he was a "thorough bred" anything? No, no! it takes the best qualities of a half dozen different breeds and races, to make up such men. Is there, I ask, on "God's footstool," a "thorough bred" race of men and women, that will begin to compare with this everlasting conglomerated Yankee nation? Bakewell and the Collins Bros. no doubt were cognizant of this fact, when they conceived the idea of improving the English breed of cattle, which has added untold millions to the wealth of the world. That the dairymen of this country might practice to their advantage on this idea, has long been to me too plain for argument. Anyone supposing that we can keep our cattle up to the standard of the old

countries by importation, mistakes the element of success. Our climate is different, the food they eat is different, and one might as well expect the phlegmatic John Bull to continue the portly John Bull, after being imported and fed the food of a Yankee, as to expect a thorough bred race of American animals by any other way than by improving those that have been acclimated here. This should be no cause of discouragement but furnish a strong incentive to the ambitious stock grower.

Tell me, my learned Brother Burchard, why the same physical laws of improvement in races do not apply to this as well as the other side of the Atlantic. We have a great variety of grades and mixtures of races, some of them of great worth that have been acclimated here, and how many of good sense can doubt, that by great care in selecting for propagation, the same caution as respects crosses and the same regard for their health and comfort, in regard to food and shelter, that breeders of the old country employ, we could have breeds and races as valuable to us as theirs are to them. I bought and sold over 100 cows in four years to get fifteen that suited me. Of what breed, do you ask? Any breed or no breed, if she was a jewel. Do you suppose I would not sanction my boy's choice for a wife, if I knew he had won a gem, though she might not be a "full blood" "Yankee," I want no "scrubs" around, not even for a daughter-in-law, any more than I want a "scrub" "thoroughbred" cow. I feel some as I imagine a kill-sheep dog must feel, when there is a scrub anything around. My dairyman father taught me the doctrine of the "survival of the fittest," years and years ago, in a practical way, before Darwin ever wrote. "Full bloods" have never had any charm for me without positive proof that they were "pure breds." I am only travelling a road my father trod so successfully and I shall doubtless continue to follow to the end. I do now look for physical marks in raising my calves.

A critical examination alone can tell a male from a female, large heads, short muzzles, large thick necks, full high shoulders, large legs, short thick tails and coarse hair,

fail to put in an appearance. I take them from their mothers before twelve hours old and provide them with food and care, suitable to their condition, which means as near as practical as you would for a young child, that must be fed artificially. The first three days the milk from the mother should be given to it in small quantities three times a day, don't tell me it cannot be done, it would be done if it was your baby. This milk is a food medicine, that is essential to the health of your calf, and it should have no other food for the first nine days but 4 or 5 quarts of clean whole milk at 98 to 100 degrees Fahrenheit. A calf should be muzzled the first nine days of its life; to prevent anything but milk entering its mouth, changing to skim milk should be done gradually and cautiously. Hundreds of calves are killed every year by kindness, thousands are destroyed by ignorance. After four weeks old a grain ration, thoroughly cooked, may be added to the skim milk or whey but it must be done understandingly, one overdose works great mischief, regularity in time of feed and the quantity given are essential to health and safety. Young calves will sometimes sicken and die from fright. Your calves, if not your boys, should become "heavy drinkers." They should learn to drink large quantities to become heavy milkers. Do not understand that they should become "pot-bellied." They should not be fed so as to develop only marvelous girth extension.

#### THE FIRST CALF.

This is the most critical time in the cow's life, milking before parturition can only be the lesser of two evils, it should not be necessary. Hundreds of the best specimens are annually spoiled by too much to eat. One needs to be well balanced to milk a high spirited heifer with a badly caked udder. A sweet-heart, a mother or your minister should be standing near, if a church member with a bad temper, a prayer would be advisable. The future of many a young cow has been blasted at this time. The first year is the year of years with her, rapid milking that suits her, caressing to win her affection, feed of the right kind neither too



much or too little and milked to within seven or eight weeks of parturition and she is established. Some learned men advise milking to within three or four weeks of parturition, which shows plainly their knowledge is limited.

#### CARE AT CALVING TIME.

If there is a time more than any other that the "righteous man should regard the life of his beast," it is when they bear their young. By what is called "down in the bones," it can be told from six to ten hours before parturition. Bulky food should be withheld, she should be in a suitable place, rather dark, where nothing will make her afraid; she should be looked after enough to know that "all is well." Sometimes a moment's work of straightening a leg, will save suffering that must make "angels weep." A little assistance will often save the life of a cow. Be man enough to do by the calf "as you would wish to be done by." The udder should be looked to at once, an obstruction can be removed from a teat the first hour, that might baffle science after. Hard milkers can be made easier and cows inclined to leak, can often be benefitted. A pail of well scalded oat meal gruel, with from three to four quarts of her own milk in it, should be given her as soon as possible. If cold weather (a calf is very dumb when very cold.) Show the calf the ration "made and provided," and leave the young mother to enjoy for a few hours, the fruits of her labor. There should be no further trouble, but by some curious hook or crook, there sometimes is. If a cow retains the placenta, it should be removed before twelve hours. One need not be over-stocked with brains (with a little showing the first time) to do it safely now. To attempt its removal after, would indicate to me a serious lack of brains. As to the cause of this trouble, many learned men seem to know about as much as our city school-boys. An experienced dairyman should be able to trace the cause nearly every time. She may be too fat, she may be too poor, but the overwhelming cause is damaged feed and lack of care.

A neighbor, a breeder of black and white cattle (often called Holstein), a good feeder, a good stable, and watered

properly, had this trouble with 20 of 26 cows. My attention was called to this case. An investigation showed his silage had been very poor, cause enough. In another herd 16 of 16 retained the placenta, damaged clover hay did the mischief here. A cow needs from 100 to 175 pounds of water a day, in some shape, if she must get it at one drink, from the ice, she must suffer — a common cause. Milked too near parturition has a very bad effect. There are more causes, but I must proceed.

#### MILK FEVER.

This fatal disease should always be prevented; 'tis easily prevented — 'tis sometimes very hard to cure. Hundreds of dairymen fail to take the precaution. Their knowledge tells them they should. I am accused of being a heavy feeder, but I have no more cases of it. I know it is easily prevented, and prevention is much better than cure. "Exercise" many learned men are proclaiming, "no more exercise for milch cows" (that their legs are of but little more use than their horns), that "giving milk is exercise enough for cows." I have a cow soon due with her eighteenth calf, that seems to love her little walk down to the spring just as well as she did sixteen years ago, when she was a young lady. It is so easy and perfectly natural for my cows to give milk that I don't believe there is any exercise about it. It may be harder work for the little Jerseys. Learning clashes with knowledge here again. Dairyman Goodrich, on page 37, bulletin 4, Farmers' Institutes, tells of his poor luck in trying to find a "general purpose cow" He bought a roan heifer of the Durham breed, a fine specimen with a fine udder that gave 60 pounds of good milk (sometimes more), at four years old, but insisted on going dry at eight months. If his cow had continued to pour it down to within seven or eight weeks of the next calf, and then had to be put upon short rations to be dried at all he would have fairly described some of my cows. Sixty pounds of milk from one cow suits me better than from two or three, it takes less time to milk it, less

feed, less stable room, less time to care for her, and sometimes a little less taxes. Anyone acquainted with the roan or white Durham of the "milking breed" knows they generally go dry at seven or eight months. I would like to send Mr. Goodrich a calf and have him feed it with his Jerseys and give us the result four years from now. If cows weighing from 1100 to 1300 and giving great quantities of good milk are "general purpose cows" I have them.

#### MILKING.

The difference in poor and good milking on a herd of twenty cows in twenty years will place a heavy mortgage on one farm and pay one on another, all other conditions being equal. A heifer from a line of milkers as long as a moral law or the genealogy of Joseph, can be spoiled in six months by poor milking. Profane swearing will dry up cows. An eternal jabber between your hired help, while milking, though they may be cooing like doves, causes shrinkage. They should be made to "dry up," or our cows will. On the other hand, I can sing in thunder tones, "I'll chase the devil around the stump, and give him a kick at every jump," and they continue to pour down; but let me chase them round the barn, and give them a kick at every turn, and the milk grows scarce. Noise that cows are perfectly familiar with, friendly noises, do no harm. The amount of noise my cows hear from me seems to have considerable to do with the amount of milk carried to the factory.

#### BLOOD.

Blood is good, provided it is accompanied with plenty of milk and cream. I don't pay \$20,000 for a horse entirely on the merit of some of his ancestors. I want present merit along with it. We have scattered over Sheboygan county hundreds of "scrub" cows that are direct descendants of what were bought for "thorough bred bulls." To pay \$300 for a yearling bull and find that his progeny are good for nothing for cows, and too slab-sided even for oxen, shows Satan is to pay somewhere. It is quite common now to hear farmers bragging how much "full blood" there is

"OUT of their cows." A few years ago an admirer of the Holstein spoke of one of his cows as being 16-15 Holstein. I guess she was, for she came from a family that took thirteen pounds of milk for a pound of cheese and thirty-five pounds for a pound of butter. Another of the \$300 "dears" (an Ayrshire this time) produced cows so nervous and short-teated that they were not worth their weight in "Holstein scrubs," or sawdust. Dairymen of progressive Wisconsin, should such things continue? "By their fruits do I judge them."

#### A CHASE FOR BLOOD.

About a score of years ago Mr. — owned as fine a herd of Durham cows as could be found in this county. He was ambitious and was pining for something better. He brought home three beauties, "full-blood" Devons. The long-horned beauties soon supplanted many of his grand cows; but they did not fill the bill, or satisfy his cravings. But blood was on his brain, and again "thorough-bred" cattle, registered, Durhams were the prize. With these he could raise great oxen—but oxen would not raise milk for his factory. The Holstein craze came and he got it bad—he has learned knowledge, but it has been dearly learned for him. Mr. — is not the only man in the county, that, in attempting to raise a herd of thorough-bred cows, has only raised "Cain." Sometimes just a little common (cents) sense will save very many dollars.

#### THE KICKING COW.

After giving more than a hundred their first lessons in the last ten years, and not one of them proving to be a kicking cow, have I not good reason to believe they are made, not born? Man is more to blame for kicking cows, scolding wives, and crying babies, than is taught in our creeds. I speak what I believe, and give testimony of what I don't have around. G. W. Peck, of Sheboygan Falls, in a toast to the cow, once said: "Speak to your cow as you would to a lady;" men don't all speak alike to a lady. We are told to "love our cows." Very well, but

how can a man be expected to love his cows that don't love his wife and children? The doctrine of hell-fire is tough to swallow, but how can a God of Justice get even with some of his creatures any other way for their fiendish treatment of their families and their animals? When mankind becomes entirely civilized, and, judging from the 500 assembled in the banquet hall of Berlin, the time is fast approaching when kicking cows, scolding women and crying babies will be numbered with the things that "have been."

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## THE PROFITABLE AND UNPROFITABLE CARE OF COWS.

WELLINGTON VAN KIRK, Nepeuskin, Wis.

"There's nothing new under the sun." In the treatment of this subject we have no hope of presenting new ideas. At most this paper must consist of a re-hash of what other men have thought and said ever since the dairy cow came to be so thoroughly discussed in public and through the medium of the agricultural press. Few persons can be induced to go into the dairy business for the fun there is in it, yet statistics, and our own observation, prove that many dairy men are getting nothing else out of it, and they too are the very ones who can least afford the fun. To this class, and not to the successful dairyman, shall we direct the little that we have to offer on this occasion.

Since care in looking after the details of any business is very necessary to success, the question of profitable vs. unprofitable care of cows becomes one of no little importance to the man who would get a respectable living, to say nothing of amassing property from the business.

In this day and age of the world when the house of every farmer who pretends to be up with the times, is flooded with agricultural literature of all sorts, they are few, very few, who really do not know how to take proper care of a cow. The greatest trouble with us all is that we don't do the best



we know. Eternal vigilance is the price of success. We most sincerely pity the disappointment that must come to the man, who embarking in the dairy business, does so with the idea that he can just as well as not attend all the social suppers, entertainments and regular meetings of the I. O. G. T., the I. O. O. F., the Y. P. S. C. E., and a dozen other societies that ever and anon we are told we ought to join or organize and sustain.

Successful men attribute much to regularity, but how can the cows be regularly milked and cared for when the dairyman is so much of the time away from home. We trust that none will get the idea that we pretend to have arrived at anything like perfection. Any one looking for a model dairy, or the dairy operated on anything like a model plan, need not trouble to visit us, for we hope to make many important improvements yet, and while we preach to others it is to be hoped that we may be stimulated to better work ourselves. The time-honored custom of taking an extra half or three quarters of an hour's sleep on Sunday morning, has not, with us, been abolished as yet, and we are not quite sure that it ever will be, but we do feel sure that the dairy would do better if milked and fed with as much regularity as the ordinary railroad train is started.

In this life of rush and bustle we are too apt to do the chores as quickly as possible, then hurry away to something else when it might be more profitable in the long run to take a little more time to it, and in the meantime do a little more careful thinking, pay a little more attention to the individual wants of the cows. We have little time and less inclination to engage in that seeming sentimentality that would name all the cows, and talk to them as one talks to human friends, but we do plead for that close study into the tastes and characteristics of these highly sensitive, nervous creatures that has often led even the most sensible of men into what, to the casual observer, seems like nonsense.

It is not the grand residence extravagantly and stiffly planned and furnished, that makes life to us enjoyable, but the simple home comforts and the kindness of our friends.

So, it is not the costly barns, or the elaborate fittings, desirable though they may be, that go to make up happiness for the cows, but the little cares and comforts that the thoughtful cowkeeper is sure to provide. For instance, the thoughtful man doesn't turn the cows out into the yard on cold windy days, when he would not like to be left out there himself in the clothes he ordinarily wears about the barn, and then go off to town, leaving the cows out until such a time as he shall finish his business, talk over the news of the day with the neighbors he meets there, and return to put them in again.

We quite frequently run across men, even yet, and men too, who have not the least thought of being unkind to their animals, who still think that the old fashioned, inflexible stanchion is a good-enough way of fastening cows. We are willing to admit that, while the cow is standing squarely in front of the stanchion it is easy enough, but when she lies down a little to one side, as she almost invariably does, go and see if you can get your hand between her neck and the side of the stanchion. If you can, if there is plenty of room there, and if after sleeping one night with your own head between two immovable poles, you conclude that it is a comfortable rig, it may be well enough for you to use them.

The thoughtful man of experience does not need to be told that whatever adds to the comfort of the cows adds to the sum total of his profits. On this account, if no other, he appreciates the stable that fronts to the south, with plenty of large windows to let in the sunlight. He appreciates plenty of dry bedding, too, and will have it if it is to be had, and it usually is. Then there is the matter of watering. Two or three years ago there was a great boom for the tank heater and many was the man who was ready to stand up and swear that warming the water for the cows would double the milk product, and if our memory serves us rightly, even more extravagant claims than this were made. We do not wish to be understood as discouraging the use of the tank heater. If water must be pumped in quantities into tanks standing out of doors,—

there to remain from day to day, by all means use some contrivance to keep it warm. We can conceive of nothing that detracts more from the comfort of the cow, than to turn her out to drink her fill through a hole in the ice, and then stand shivering — sheltered from the bleak winds only by a rail or barbed wire fence while nature does for that water what the dairyman ought to have had sense enough to do. Our plan is to pump it fresh from the well when the cows are ready to drink. The temperature then is always the same and warm enough to be satisfactory with us. We are not particularly enamored of the job of pumping water by hand and don't intend always to do it, but we prefer it to having the cows drink ice water. It is not within the scope of this humble effort to treat the all-important topic of feeding. We gladly leave that to men of greater ability and experience.

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### SECRETARY'S REPORT.

#### *Mr. President and Members of the Convention:*

At the meeting of the Executive Committee, held at Madison, to determine upon the work of the instructors, the President, Secretary and Treasurer, were empowered to hire instructors and put them at work as soon as the factories commenced operation in the spring.

It was resolved that the sum of three dollars (\$3.00) should be paid by each factory receiving instruction, to partly assist in paying the expenses of the instructor.

T. J. Fleming, Watertown, Wis., W. H. Phillips, Waupun, Wis., and E. M. O'Connell, Waldo, Wis., were secured as instructors.

T. J. Fleming gave instruction in the northern part of Jefferson county, in Dodge and Waukesha counties during the first half of the season. During the latter part he worked in Calumet and adjoining counties.

W. H. Phillips' work was in Richland county; and the benefits derived from his instruction in this county were perhaps more plainly seen than from the other instructors. Many placed the increase of income from the sale of cheese in this county at ten thousand dollars (\$10,000.00) over that of the previous year. Some factory owners were so well pleased with the work of the instructor that they voted five dollars (\$5.00) per month towards paying the instructor; others paid five dollars (\$5.00) for each visit. This is only mentioned here for the purpose of showing that the work of the instructor was appreciated.

E. M. O'Connell's work was confined mainly to Sheboygan county, where he had worked the previous year; some little time was given to Fond du Lac county, but not much.

A little different plan of instruction was pursued this year from that last year, in having the instructor remain at the factory until the cheese maker was fully instructed in the manner and method of doing the work. It is to be regretted that too many cheese makers "know it all," and are very slow to take hints when imparted to them gratuitously. It is hoped that the dairy school at the experimental station at Madison will remedy all this; and that all cheese makers will find it to their interest to attend this school, and keep up with the march of progress in cheese making.

It was intended to print in full the report of each instructor, showing the work performed by each, as taken from their daily reports, but it was found to be impracticable, owing to their size. One of the reports is given as an example, after being reduced by eliminating many of the details contained in the original. A condensed report of Instructor Fleming's work in thirty-nine (39) factories is given. As this report will give a general idea of the work done, the others are not given.

The Association paid to instructors the past year, \$1,978; and out of this amount, \$428 were received from factories where work was done. It was clearly demonstrated in the work of last year that where instruction was given free it was not always received in the same spirit with which it was given. By asking a small fee towards defraying the expenses of the instructors, and thereby enabling the Association to carry the work later in the season, no mistakes were made as to whom wanted instructors and who did not.

The work performed was very satisfactory in almost every instance, and if the cheese makers themselves, would try as hard to learn as the instructors try to have them, there would be less poor cheese and more good ones. But instruction in a cheese factory is not so very much different from instruction in a school room. In both cases a few desire to learn, and will, if given half a chance, while the balance look forward to the close of the day's work, heave a sigh of relief when it comes, and wonder why it is that this sleepy old world does not better appreciate intelligence and genius when mixed up with books and poor cheese making.

The expenses of my office for the past year have been \$77 35, an itemized account of which has been furnished to the Executive Committee.

Respectfully submitted,

D. W. CURTIS,

*Secretary.*

From the reports on file, Mr. T. J. Fleming made:

Official visits.....	44
No. of different factories.....	39

Of these number run on co-operative plan.....	22
Number non-co-operative.....	17
Number reported paying cheesemaker by the month.....	15
Highest wages paid.....	\$65 00
(Five factories pay at this rate.)	
Lowest wages paid.....	25 00
Average wages paid.....	45 40
Fifteen factories report assistant, average wages.....	16 07
Whole number of patrons reported.....	1,029
Largest number to one factory .....	60
Least number to one factory .....	6
Average .....	26
Whole number of cows reported .....	10,025
Largest number, one factory .....	600
Least .....	100
Average ... ..	257
Whole number pounds of milk reported.....	180,924
Largest amount to one factory.....	12,280
Smallest amount to one factory .....	700
Average .....	4,639
Total daily product of cheese.....	17,530
Largest output from single factory.....	1,150
Smallest output from single factory... ..	69
Average.....	451
No. of factories making flats.....	8
No. of factories making flats and cheddars.....	5
No. of factories making flats and Y. A.....	2
No. of factories making cheddars .....	14
No. of factories making cheddars and Y. A... ..	1
No. of factories making Y. A... ..	1
No. of factories making brick .....	7
No. of factories making brick and Limburg.....	1
Equipped with self heating vats.....	15
Steam heating vats.....	24
Curd sinks .....	1
Curd mills.....	29
Draw whey sweet .....	34
Give 1 pound for 10.....	10
No. of talks to patrons.....	23
Average attendance.....	33

In eight cases cheese makers from other factories were present to receive instructions.



DETAILED STATEMENT OF WORK AND FACTORIES BY INSTRUCTOR O'CONNELL.

[illegible]

## WISCONSIN DAIRYMEN'S ASSOCIATION.

[illegible]

## TREASURER'S REPORT.

*Mr. President and Members of the Association:*

The following itemized report is made, showing the source from which all moneys paid into the treasurer's hands were received, and the disbursements paid on orders from the secretary, which I hold as vouchers:

## RECEIPTS.

		Cash on hand.....	\$1,972 32
		Memberships, 1890.....	159 00
April	3.	From state treasurer.....	2,000 00
Total receipts.....			\$4,131 32

## DISBURSEMENTS.

Feb.	12.	Telegram to Gov. W. D. Hoard .....	\$ 27
Feb.	13.	Freight on reports .....	1 00
		Supper tickets for judges of dairy products.....	2 00
Feb.	14.	Ribbons for premiums.....	30
		Columbus Democrat, for printing....	1 75
		Hiram Smith, expenses attending Columbus meeting.....	1 55
		A. D. De Land, expenses attending Columbus meeting .....	7 05
		H. K. Loomis, expenses attending Columbus meeting.....	5 25
		A. D. De Land, hotel bill, Milwaukee.....	2 25
		Hiram Smith, " " .....	2 25
		Hotel bills at Columbus—	
		C. R. Beach.....	3 75
		S. Faville.....	4 50
		John Boyd.....	4 00
		W. H. Gilbert.....	4 50
		Hiram Smith.....	4 50
		T. J. Fleming .....	4 50
		Dr. Babcock.....	2 75
		A. D. De Land.....	4 50
		C. Hazen.....	4 50
		D. W. Curtis.....	4 50
		H. K. Loomis.....	4 50
		T. H. King.....	2 50
		— Gorden .....	1 00
		W. H. Gilbert, for attending Columbus meeting ...	64 00
		H. C. Thom, hotel bill.....	1 50
		Mrs. Howard Kelly, reporter, expenses.....	10 50

# WISCONSIN DAIRYMEN'S ASSOCIATION.

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March 15.	Chas. Remus, $\frac{1}{2}$ premium, class 1.....	\$2 50
	John Rowland, premium, class 1.....	3 00
	N. E. Allen, premium, class 1.....	2 50
	L. W. Carncross, premium, class 1.....	7 00
	Ira H. Ford, premium, class 4.....	5 00
	Peter Chattell, premium, class 3.....	1 50
	Edward Bowen, premium, class 3.....	3 00
	O. A. Trowbridge, premium, class 3.....	5 00
	H. H. Neville, premium, class 2.....	5 00
	Robert Wiltke, premium, class 2.....	7 00
	W. H. Porter, premium, class 2.....	10 00
	W. H. Porter, premium, class 4.....	7 00
	Stephen Faville, expense attending Columbus meet- ing.....	6 44
	D. W. Curtis, expense attending Columbus meet- ing.....	2 14
	H. C. Adams, expense attending Columbus meet- ing.....	2 00
	A. D. De Land, premium, class 4.....	10 00
	Chester Hazen, expense attending Columbus meet- ing.....	4 13
	C. A. Eaton, expense attending Columbus meet- ing.....	19 70
	T. J. Fleming, expense attending Columbus meet- ing.....	2 25
Apr. 14.	Mrs. R. Howard Kelly, reporting Columbus meet- ing.....	74 00
	W. H. Morrison, hotel bill, Columbus.....	1 50
May 14.	W. D. Hoard, printing.....	29 45
	T. J. Fleming, instructor.....	36 00
June 9.	T. J. Fleming, instructor.....	106 50
June 16.	E. M. O'Connell, instructor.....	70 00
July 3.	W. H. Philips, instructor.....	21 00
	W. H. Philips, instructor.....	66 00
July 7.	T. J. Fleming, instructor.....	99 00
	W. H. Philips, instructor.....	61 00
July 14.	E. M. O'Connell, instructor.....	67 00
Aug. 4.	W. H. Philips, instructor.....	74 00
	D. W. Curtis, expense attending committee meeting World's Fair.....	17 25
Aug. 9.	T. J. Fleming, instructor.....	112 50
	E. M. O'Connell, instructor.....	84 00
Sept. 6.	H. C. Adams, attending committee meeting, World's Fair.....	18 78
Sept. 8.	W. H. Philips, instructor.....	79 00
	E. M. O'Connell, instructor.....	80 00

Oct.	1.	T. J. Fleming, instructor.....	\$100 50
Oct.	13.	W. H. Philips, instructor.....	79 00
Oct.	20.	E. M. O'Connell, instructor.....	80 00
Oct.	27.	D. W. Curtis, services as secretary.....	150 00
Nov.	6.	E. M. O'Connell, instructor.....	66 00
		W. H. Philips, instructor.....	91 00
Dec.	15.	C. R. Beach, expense attending Columbus meeting.	6 00
		John Boyd, expense, Columbia Exposition.....	200 00
		H. K. Loomis, expense attending executive committee meeting, December 2 .....	2 50
1891.			
Jan.	17.	S. Faville, expense attending executive committee meeting, December 2.....	5 53
Feb.	8.	W. D. Hoard, printing .....	20 75
		H. C. Adams, expense attending National Dairy and Food convention meeting at Washington .....	56 00
Feb.	11.	C. R. Beach, expense attending executive committee meeting, December 2 .....	5 00
Feb.	20.	D. W. Curtis, expense of secretary's office.....	77 35
		John W. Decker, trip to Canada, to investigate cheese making.....	125 00
		W. H. Philips, expense attending co-operative meeting at Medford.....	16 29
		H. K. Loomis, exchange on drafts and postage.....	4 77
		T. J. Fleming, instructor.....	193 50
		Balance in hands of treasurer.....	1,499 32
			<u>\$4,131 32</u>

Respectfully submitted,

H. K. LOOMIS,

*Treasurer.*

The treasurer's report was submitted to the executive committee and by them approved.

## REPORT OF COMMITTEE ON RESOLUTIONS.

The committee on resolutions beg leave to submit the following resolutions:

*Resolved*, That the Wisconsin Dairymen's association appreciates and will ever remember the grand welcome extended to it at its nineteenth annual meeting, by the mayor of the city of Berlin and the people of the surrounding country. We have been inspired in our work by a local hospitality both generous and intelligent.



*Resolved*, That President Henry and the officers of this association have performed their work during the past year with a directness of purpose and an effectiveness which entitles them to our lasting gratitude.

*Resolved*, That to the railroad companies that have favored us with reduced rates and many other courtesies, we extend our hearty thanks.

*Resolved*, That nothing has contributed more to the pleasure of this convention than the tribute paid to it by the ladies of Berlin, who in a magnificent banquet, prepared by them blended taste, talent, comfort and womanly sympathy, in a manner which has not been excelled and will not be forgotten.

*Resolved*, That as the States in the American Union will stand on exhibition at the Columbian Exposition, before the nations of the earth, it is the duty of the Wisconsin loving citizens of this State to see to it that her splendid products of field and forest, of mines and mills should be represented in a creditable manner, and to this end, as representing the dairy interests, which employs \$125,000,000 of the capital of this commonwealth, we hereby ask our legislature to make an appropriation sufficiently large to secure a proper exhibit, and our executive committee is hereby directed to formulate a definite statement of our needs in this direction, and present it to the legislature.

*Resolved*, That we look with surprise and regret upon the movement to abolish the office of Food and Dairy Commission. This office was established in response to an effort by this Association continued through many years. The necessity for it is made clear by the fact that nearly all foods are adulterated, that the honest producer is beaten by dishonest competition, and purchasers deceived and defrauded in both health and pocket. The Commission, as organized by H. C. Thom and his assistants, has been placed upon a solid basis of effective work, the makers of filled cheese have been taught to respect the law, men taking watered milk to factories and skimmed milk to city customers have been brought into court and fined for their dishonesty, and public sentiment has been stirred and strengthened by a fearless administration of the dairy and food laws; and we earnestly protest against their repeal, and ask for more stringent legislation, that the power of the commission may be increased and fraud in dairy products be made dangerous in Wisconsin.

*Resolved*, That the president of this association be requested to appoint a committee on legislation, whose duty it shall be to take under consideration the suggestions contained in the president's address relative to the issuing of a state brand or trade mark for Wisconsin Full Cream Cheese, and devise and carry into effect the proper method for such an arrangement.

*Resolved*, That as an association we are greatly pleased with the work of the cheese instructors the past year. Experience has demonstrated that in no other way can proper uniformity in character and quality of cheese be

obtained throughout the state and we recommend that a still greater outlay be made for this important work the ensuing year.

W. D. HOARD,

H. S. SACKET,

H. C. ADAMS.

On motion of Mr. Favill the report of the committee was adopted.

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## REPORT OF COMMITTEE ON NOMINATIONS.

Your committee on nominations respectfully beg leave to report —

That it was the unanimous desire of your committee to conform to a time honored custom by re-nominating President Henry, who has so faithfully and acceptably served this association the past year — but upon consultation with him he informed us that on account of his many duties at the experimental station he would be obliged (much to his regret), to decline the honor. We therefore, with equal unanimity, present to you the following nominations:

For president — W. D. Hoard.

For secretary — D. W. Curtis.

For treasurer — H. K. Loomis.

CHARLES R. BEACH,

GEORGE W. BURCHARD,

STEPHEN FAVILL.

On motion of Mr. Bender the report of committee was adopted.

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## REPORT OF COMMITTEE ON DAIRY UTENSILS.

Your committee on Dairy Utensils, beg leave to submit the following report: In the short time allowed it was impossible to determine which was the best, and your committee are of the opinion that all of the goods exhibited were of good quality and would give good satisfaction.

Cornish, Curtis & Greene, Fort Atkinson, Wis., exhibited a 4 Bottle Babcock Milk Tester, to determine the butter value of milk. They also exhibited Thatcher's Orange Butter Color. John Boyd, Chicago, Ill., exhibited Boyd's Automatic Ripening Cream Vat and Fermenting Can.

Western Dairy Supply Co., Chicago, Ill., exhibited Rennet Extract Cheese Color, and various other articles pertaining to butter and cheese making.

J. E. Murphey, Berlin, Wis., White Ash Butter Tubs of superior manufacture.

D. H. Roe & Co., Chicago, Ill., Babcock Milk Test with improved swinging heads. Also a Burette for measuring acid, in connection with the milk test.

F. B. Fargo & Co., Lake Mills, Wis.—A Babcock Milk Test, with lamp attachment for heating water in the tank; also their Improved Butter and CheeseColor Rennet Extract, etc.

Creamery Package Manf. Co., Chicago, Ill.—The Beimling Milk Test with swinging heads, for determining the butter value of milk.

A. J. Decker & Co., Fond du Lac, Wis.—A Babcock Milk Tester to tell the butter value of milk; also Harris Curd Cutter for the better production of cheese.

R. M. Boyd, Racine, Wis.—A fine display of Vacuum Pan Dairy Salt, made by Butters & Peters, Ludington, Mich.

Tripp's Produce Exchange, Chicago, Ill.—Western agent for Genesee Salt; had a large display of this popular dairy salt.

Respectfully submitted.

CHESTER HAZEN,  
A. X. HYATT,  
JOHN MATHEWS.

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The chairman—Gentlemen of the convention, the motion is carried and Gov. Hoard is president of this association, and will now take the chair.

President Hoard—Mr. Chairman, ladies and gentlemen, friends and brethren: I need not say to you that I am deeply grateful for this expression of confidence on your part. I am also deeply sensible of the fact that I have never been called to the discharge of any duty which shall involve a more conscientious exercise of all there is in me than this. It is no light thing to administer the duties of this office in a manner commensurate with its responsibility. Every year witnesses the constantly increasing demand for intelligence and thoroughness and conscience in the discharge of the work of this association. It is increasing, and the largeness and thoroughness of the work constantly need to be brought into requisition.

This is the first time that I have ever been asked to take this position with reference to this association. I was its secretary during the first three years of its life; I did what I could to start it right. It has been to me a pet, a thing endeared by long years of service and thought, and I am

deeply grateful to-day, as I said before, for this expression of confidence. All I have and all I am will be most sincerely at your service the ensuing year. I thank you.

We have had a very successful convention, as much so in many particulars as any which has hitherto been held in the history of this organization. The spirit which has prevailed round about has been of a strong and sympathetic character. The feeling of the people that we have come among has been friendly and earnest in the support of the purposes of this association, consequently we have had a good meeting. In going away, back to our homes, let us carry with us a strong sense of this one fact, that the work of our hands must first be baptized with the work of our minds, that good thinking, true thinking, strong thinking, along the lines of dairy effort, must precede hard work, and good judgment; and these associations are for the purpose of carrying forward the work of substituting good judgment for bad. The farmer is essentially the builder of purposes through deeds.

I will give you a little analysis that I once heard a negro make concerning Gen. Grant, and it illustrates the position of the farmer. A lot of us soldier boys during the war were seated in a hotel in New Orleans discussing Gen. Grant. We were thoughtless and shallow in our estimates of men and things, and one of us voiced the sentiment of the rest, very clearly, when he said: "Grant isn't a great man. Grant isn't a smart man. He can't make a speech. If a man knows anything he can say it, and if he can't say it, it is a good sign he don't know it." And so we settled down on that shallow judgment. A mulatto who had been born in the hotel St. James, and belonged to that estate, and only found his freedom when Butler came to the city, had been a waiter there and had learned to read and write, and was one of the most original thinkers I ever saw. He said, "Gentlemen, may I say a word?" We said, "Yes." And then he uttered this piece of analysis which so impressed me that I remembered it ever after: "According to my observation," he said, "there are two classes of talent in this world, both must be thinkers and both must think to-

ward expression. The first class think towards expression in words, to that class belong your poets, your orators, your writers and your speakers. The second class think towards expression in deeds. To that class belong your painters, your sculptors, your builders, your managers of business enterprises, and your generals, and I know not by what right we measure the greatness of the one by the greatness of the other." It was a magnificent analysis of men and character, and never in my life did slavery appear so hateful to me as it did when I thought that from out the brain of a slave had come so clean-cut and intelligent an understanding of men, and their relation to human affairs.

Now, my friends, the farmer stands in the same position as the builder of thought through deeds, and he must think towards expression. Thousands of good thoughts have never gone to benefit the world because they have never found expression. Thousands of good ideas in farming and in dairying never yet have been expressed, and we must constantly think towards the construction of the best quality of our thought and these stimulating conditions; these conventions that give us stimulus, that give us a lift, that give us encouragement, that give us some idea that there is in this business a chance for the exercise of the broadest intelligence that we may possess, is something that will do us good if we will rightly understand it.

I now declare this convention adjourned *sine die*, and may God bless us all.



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