Twenty-fourth annual report of the Wisconsin Dairymen's Association : held at Chippewa Falls, Wisconsin, February 12, 13 and 14, 1896. Report of the proceedings, annual address of the president, and i...

Wisconsin Dairymen's Association
Madison, Wisconsin: Democrat Printing Company, State Printer, 1896

W. A. HENRY,

Dean College of Agriculture.

President Wisconsin State Dairymen's Association, 1890.

TWENTY-FOURTH ANNUAL REPORT

OF THE

WISCONSIN

Dairymen's Association

HELD AT

Chippewa Falls, Wisconsin, February 12, 13 and 14, 1896.

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

COMPILED BY

D. W. CURTIS, Secretary.

MADISON, WISCONSIN:
DEMOCRAT PRINTING COMPANY, STATE PRINTER
1896.

LETTER OF TRANSMITTAL.

OFFICE OF THE SECRETARY,

Wisconsin Dairymen's Association,

FORT ATKINSON, May 10, 1896.

To His Excellency, W. H. UPHAM,

Governor of the State of Wisconsin.

I have the honor to submit the twenty-fourth 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 a Chippewa Falls, Chippewa county.

Respectfully submitted,

D. W. CURTIS,

Secretary.

TABLE OF CONTENTS.

OFFICERS 1896.

PRESIDENT.

GEN. G. W. BURCHARD,
FORT ATKINSON, JEFFERSON COUNTY.

VICE PRESIDENTS.

HON. CHESTER HAZEN, RIPON, FOND DU LAC COUNTY,
President Wisconsin Dairymen's Association from 1872-4.

HON. HIRAM SMITH, SHEBOYGAN FALLS, SHEBOYGAN COUNTY,
President Wisconsin Dairymen's Association from 1875-6. Died May 15, 1890.

HON. A. D. DELAND, SHEBOYGAN, SHEBOYGAN COUNTY,
President Wisconsin Dairymen's Association, 1877.

HON. H. F. DOUSMAN, WAUKESHA COUNTY,
President Wisconsin Dairymen's Association, 1878.

HON. Z. G. SIMMONS, KENOSHA COUNTY.
President Wisconsin Dairymen's Association, 1879.

HON. STEPHEN FAVILL, MADISON, DANE 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, ELKHORN, WALWORTH COUNTY,
President Wisconsin Dairymen's Association from 1883-6. Died December 13, 1893.

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.

EX-GOV. W. D. HOARD, FORT ATKINSON, JEFFERSON COUNTY.
President Wisconsin Dairymen's Association from 1891-3.

C. H. EVERETT, BELOIT, ROCK COUNTY,
President Wisconsin Dairymen's Association from 1894-5.

SECRETARY.

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

TREASURER.

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

ARTICLES OF ASSOCIATION.

(Adopted February 15, 1872.)

Article I. The name of this organization shall be, the Wisconsin Dairymen'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 president, 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 be held 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.

LIST OF MEMBERS, 1896.

Allen, M. T., Waupaca.
Allison, James, Durand.
Aderhold, E. L., Neenah.
Agen, James H , Superior.
Anson, Brant, Albertville.

Butscher, Albert, Boyd.
Bodum, Peter, Boyd.
Bodman, Homer, Chippewa Falls.
Brown, David, " "
Batman, A. P., " "
Barker, C. P., " "
Beandith, Vila, " "
Bowe, Nick, " "
Bennett, Ed. F., " "
Bohl, John, " "
Boettcher, August, " "
Buchli, Sam, " "
Barker, Albert, " "
Bartlett, W. B., Eagle Point.
Bates, R. R., Spring Creek.
Baranne, Joe, Bloomer,
Buchanan, York, Cartwright.
Berg, Nick, Boyd.
Balty, Wm., Anson.
Buska, Aug., Anson.
Boss, Henry, Anson.
Barney, James, Anson.
Briggs, H. A., Elkhorn.
Bradley, W. C., Hudson.
Bates, R. M., Elgin, Ill.
Bruce, A. C., 803 Guarantee and Loan Bldg., Minneapolis, Minn.
Byers, W. H., Hawksburg, Ont., Can.

Cartwright, D. J., Cartwright.
Chrisler, A., Mix Corners.
Canary, John, Chippewa Falls.
Cassidy, A. J., " "
Cleaves, E. A., " "
Chase, Frank B., " "
Cannon, Hugh, " "
Colburn, Frank, " "
Crowley, Joseph, " "
Cass, S. E., Anson.
Clineschmidt, E. C., Anson.
Cameron, W. D., "
Curtis, F. C., Rocky Run.
Carpenter, W. H., Aniwa.
Chapman, W. H., Oakfield.
Curtis, L. M., Lake Geneva.
Cornish, Curtis & Green, Fort Atkinson.
Casey, Wm., Potsdam, N. Y.

Drace, Nick, Boyd.
Dorwin, V. W., Durand.
Duax, Tafild, Chippewa Falls.
Dorland, G. W., " "
Dickinson, Ralph, " "
Durch, A. J., " "
Dallman, Wm., " "
Davis, John, " "
Dachel, Joseph, " "
Duenow, Carl, " "
Dorland, Wm. E., " "
Dickinson, Chas. H., Chip. Falls.
Diselit, John, Anson.
Douglas, D. S., "

Douglas, Lyman, Anson.
Douglas, Richard, "
Douglas, Jas. A., "
Douglas, E. O., "
Darwin, V. W., Durand.
Davis, F. M., Potsdam.
Dilly, T. H., Star Union Line, Chicago, Ill.
Dailey, J. G., Hudson.
Dibble, C. A., 87 Michigan street, Milwaukee.
Dillie, N. E., 2 Sherman St., Chicago.

Emerton, Thomas, Cooks Valley.
Ellis, Llewellyn, Craft.
Evanson, Eli, Cooks Valley.
Eder, Jos., Chippewa Falls.
Etten, B., Boyd.
Earl Bros., Chicago, Ill.

Fowler, Benj., Chippewa Falls.
Fowlds, Wm., " "
Firth Maguis, " "
Flint, Warren, Estella.
Foils, E., Anson.
Ford, Arthur, Anson.
Fargo, F. B., Lake Mills.

Grady, J. N., Cooks Valley.
Gehring, Joseph, Chippewa Falls.
Gunkle, Conrad, " "
Gower, A. C., " "
Gough, Arthur, " "
Gregg, John, " "
Goslow, John L., Edson.
Giangen, David, Edson.
Goetz, Henry, Chippewa Falls.
Gormley, Chas., Anson.
Goodrich, Perry, Fort Atkinson.
Grandine, J. D., Sherwood.

Haag, Adam, Boyd.
Haag, John, Boyd.
Hall, M., Chippewa Falls.
Hebert Louis, Chippewa Falls.
Harwood, George, " "
Hartman, George, " "
Harck, Gustave, " "
Hayes, C. A., " "
Howard, Lucius, Tarrant.
Hanson, C. P., Cartwright.
Hukes, J. C., Anson.
Hutchinson, Chas., Anson.
Hamlin, Fred., "
Hamlin, H. J., "
Hayes, Dr. C. A., Chippewa Falls.
Haecker, T. L., St. Anthony Park, Minn.
Hill, Chas. L., Rosendale.

Jacobs, Anton, Boyd.
Jacobs, E. C., Waneka.
John, Mathias, Chippewa Falls.
Jennings, A., " "
Junkins, Frank, " "
Jones, W. T., Burnett Junction.
Jennings, A. A., Star Union Line, Chicago.

Kelly, S. J., Eagle Point.
Kissack, Wm., Middle Ridge.
Kinneman, Wm., Chippewa Falls.
Kanichney, Geo., Anson.
Kenyon, Buss, "

Licht, N., Sr., Boyd.
Lynn Wm., Chippewa Falls.
Le Boenf, F., " "
Lebers, Henry, Bloomer.
Lawrence, Thos., Anson.
Lake, Wm., "
Luddell, Thos., "
La Nue, Peter, "
Linn & Son, G. W., 87 S. W. St., Chicago.
Linse, Chas., La Crosse.

Mack, E. J., Cartwright.
Moon, Wm., Sr., Cooks Valley.
Meloney, J., Bloomer.
Monroe, F. L., Cadott.
Meinhart, Geo., Boyd.
Mayer, Peter H., Edson.
Milling, Paul, Boyd.
Meyer, Ludwig, Chippewa Falls.
Miller, Valentine, " "
Morse, A. B., " "
Mason, August, " "
Middleton, E., " "
Muhan, John, " "
Monat, John, " "
Mass, Robt., Anson.
Melville, Frank, Anson.
Melville, Geo., "
Melville, John, "
Mopan, Jeffry, "
Monrad, J. H., Winnetka, Ill.
Mansfield, G. D., Edgerton.
Meyers, Chas., Kewaunee.

McKinnon, Archie, Chippewa Falls.
McKay, D. G., " "
McIntire, G. W., " "
McKinnon, James, " "
McLaren, Duncan, " "
McGraw, J. H., " "
McDonald, Patrick, " "
McKinnon, Wm., " "
McLaren, Aleck, " "
McWitting, A. P., Cooks Valley.
McCart, D. W., Vale.
McGill, John, Anson.
McIlquham, ----, Anson.
McBride, Q., 1 Clybourne St., Mil.
McKinstry, A. P., Winnebago City, Minn.
McKerrow, Geo., Sussex.

Nabor, Fred, Chippewa Falls.
Noyes, H. J., Richland City.

Olson, Nils, Colfax.
Oleson, Sam'l, Anson.

Prince, A. P., Vale.
Patten, Robt., Boyd.
Prout, G. L., Honey Creek.
Pound, Thad. C., Chippewa Falls.
Polzin, Wm., " "
Patten, James, Edson.
Pozell, J., Anson.
Pitch, Rudolph, Anson.
Pheatt, H. D., 85 Mich.St., Milwaukee

Richardson, Len, Chippewa Falls.
Roe, Peter F., " "
Rhingans, Phillip, " "
Rada, Joseph, " "
Roycraft, Thos., " "
Roycraft, John A., " "
Riley, Joseph, " "
Rooney, J. S., " "
Robbins, H. P., Eau Claire.
Ruff, Wm., Bloomer.
Raven, John V., Bloomer.
Rhingaus, Jacob, Eagle Point.
Rooney, John, Anson.
Reffenberg, J. L., Anson.
Ryall, E. C., Augusta.
Robbins, H. P., Eau Claire.
Robbins, J. H., Lomira.

Snyder, Wm., Cooks Valley.
Scitsnuir, C. N., " "
Schmitz, Phillip, Edson.
Spade, Adam, "
Shunk, Peter, Stanley.
Sholl, Stephen, Chippewa Falls.
Shaw, G. R., " "
Stoffel, Peter, " "
Sunderland, Rich'd, " "
Schick, John, " "
Scheidler, Jos., " "
Smith, Thos. G., " "

Strong, S. B., Chippewa Falls.
Stafford, A. K., " "
Stevens, B. S., " "
Stanley, L. C., " "
Sellers, J. W., " "
Sellers, Abel, " "
Shollenberg, Henry, Anson.
Shollenberg, A. D., "
Stickney, L., "
Shipman, A. M., "
Schoenman, A., Plain.
Stoffel, Peter Jr., Vale.
Snyder, Byron, Cinton.
Stone, A. L., Burnett Junction.
Sharples, P. L., Elgin, Ill.
Scott, L. E., Neenah.
Skidmore, Henry, Stockbridge.

Turney, C. L., Anson.
Trepus, C., Chippewa Falls.
Thomas, J. W., Anson.
Taylor, C. S., Barron.
Tupper, M. E., Craft.
Thurston, H. F., Farmers' Review, Chicago.
Thorp, Chas., Burnett Junction.

Viruth, Brum, Chippewa Falls.
Viles, B. D., " "

Ward, H. K., Anson.
Williams, W. H., Anson.
Ward, E. H., Craft.
Willis, J. C., Cooks Valley.
Williams, Joseph, Stearns.
Webber, J., Elk Mound.
Woodruff, A. N., Chippewa Falls.

Zweifethofer, Jacob, Chip. Falls.
Zimmerman, Peter, Boyd.
Zimmerman, Stephen, Boyd.

TWENTY-FOURTH ANNUAL MEETING

OF THE

Wisconsin Dairymen's Association,

Held at the Court House, Chippewa Falls, Wis., Chippewa County, Wednesday, Thursday and Friday, February 12, 13, 14, 1896.

PROGRAMME.

WEDNESDAY MORNING SESSION

I. President Everett will call the Association to order, and the business of the Convention will commence at once.

1. Organization of Convention.

2. Address of Welcome, Mayor C. A. Stanley, Chippewa Falls, Wis.

3. Response by Hon. H. C. Adams, Madison, Wis.

WEDNESDAY AFTERNOON SESSION.

II. At this session will be discussed the management of Dairy Farms, and how to change from grain raising into milk producing. Discussions will follow each paper read at the Convention.

1. Annual Address of President.

2. How to Become a Dairyman—Chas. Meyers, Kewaunee, Wis.

3. Dairy Management on a Dairy Farm—W. C. Bradley, Hudson, Wis.

4. Care and Feed of Dairy Cows—W. D. Bartlett, Eagle Point, Wis.

WEDNESDAY EVENING SESSION.

III. The value of Pure Food, of whatever kind or nature, is of vital importance to every man, woman and child.

1. The Dairy and Food Commission; Its Importance to the Material Interests of Wisconsin—Hon. H. C. Adams, Dairy and Food Commissioner, Madison, Wis.

2. The Dairy Cow *vs.* the Beef Cow—Prof. T. L. Haecker, Prof. of Dairy Husbandry, Minnesota Agricultural College.

THURSDAY MORNING SESSION.

IV. An important session for every one to attend, whether he keeps cows for profit or pleasure.

1. Our Agricultural College and Its Work—Prof. W. A. Henry, Experiment Station, Madison, Wis.

2. How to Make Dairying a Success—A. D. Baker, Ex-Pres. Dairymen's Association, Aurelius, N. Y.

3. The Cow and the Hog—Theodore Louis, Dunn County, Wis.

THURSDAY AFTERNOON SESSION.

V. The Morning Session continued.

1. What Shall Be Done to Make Dairying a Success in Northern Wisconsin?—Ex-Gov. W. D. Hoard, Fort Atkinson, Wis.

2. How to Breed a Herd of Dairy Cows—Maj. G. W. Burchard, Fort Atkinson, Wis.

3. The Value of the Silo to the Wisconsin Milk Producer—C. P. Goodrich, Fort Atkinson, Wis.

4. Gov. W. H. Upham.

THURSDAY EVENING.

Banquet.

FRIDAY MORNING SESSION.

VI. Butter Making on the Farm and in the Creamery.

1. Practical Butter Making on the Farm—F. C. Curtis, Rocky Run, Wis.

2. How to Start and Operate a Co-operative Creamery—Geo. L. Prout, Honey Creek, Wis.

3. An Improved Breed of Dairymen—C. R. Beach, Ex-Pres. Wisconsin Dairymen's Association, Whitewater, Wis.

FRIDAY AFTERNOON SESSION.

VII. A free discussion as to the Needs and Wants of the Dairymen of Chippewa County.

1. The Factory and the Patrons; the Duty of Each to the Other—E. L. Aderhold, Neenah, Wis.

2. Should the Farmers of Chippewa County Give More Attention to Dairying?—Jesse R. Sharp, Sec'y Chippewa Co. Agricultural Society.

3. Feeding and Handling Common Cows for Winter Dairying—J. W. Thomas, Anson, Wis.

4. The Question Box.

PREMIUMS.

BUTTER AND CHEESE.

The Association offers the following Premiums on Wisconsin Dairy Products:

Class I—Dairy Butter $50.00
Class II—Creamery Butter... $50.00
Class III—Print Butter. Not less than three pounds made into prints.
First premium..... $5 00
Second premium..... $3.00
Third premium..... $1.50
Class IV—Cheese. Cheddars, Flats, Young Americas, Swiss or Brick $50.00
Class V (Special Cheese) Silver Cup

The premiums under classes 1, 2 and 4 will be awarded, on the excess pro-rata plan, to all entries in their respective classes scoring over 90 points. Exhibitors will be limited to one package only in each class, and not more than $15.00 shall be awarded in one class to any exhibitor.

SPECIAL PREMIUMS FOR CHEESE.

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 from the milk of a single herd of cows owned by one person, firm, or corporation, and made on the premises where the milk is produced, shall be classed as Dairy Butter. Butter from the mixed milk or cream of two or more herds owned by different persons, firms or corporations, and made in a factory habitually using the milk or cream from more than a single herd, shall be classed as Creamery Butter

---

RULES.

BUTTER AND CHEESE EXHIBIT.

1. Every exhibitor MUST be a member of the Association. One dollar secures a membership and the annual report of the Convention.

2. Butter made at any time and packed in eight pound pails, or twenty pound tubs or over, except in Class 3.

3. Scale of points for judging butter: Flavor 45. Grain 25. Color 15. Salting 10. Packing 5. Total 100.

4. Scale of points for judging cheese: Flavor 45. Texture and Stock 30. Color 15. Finish 10. Total 100.

5. Exhibitors will be limited to one package only in each class.

6. Butter and cheese may be shipped by express, charges must be prepaid, with name and address on each package, to H. K. Loomis, Chippewa Falls, Wis.

Manufacturers, dealers and inventors of dairy goods are invited to make an exhibit. No award or premium will be given. Ample room provided.

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.

The Filled Cheese Law, 1896.

54TH CONGRESS, 1ST SESSION, H. R. 8008.

AN ACT defining cheese, and also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of "filled cheese."

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purposes of this act, the word "cheese" shall be understood to mean the food product known as cheese, and which is made from milk or cream and without the addition of butter or any animal, vegetable, or other oils or fats foreign to such milk or cream, with or without additional coloring matter.

SEC. 2. That for the purposes of this act certain substances and compounds shall be known and designated as "filled cheese," namely: All substances made of milk or skimmed milk, with the admixture of butter, animal oils or fats, vegetable or any other oils, or compounds foreign to such milk, and made in imitation or semblance of cheese.

SEC 3. That special taxes are imposed as follows:

Manufacturers of filled cheese shall pay four hundred dollars for each and every factory per annum. Every person, firm, or corporation who manufactures filled cheese for sale shall be deemed a manufacturer of filled cheese. Wholesale dealers in filled cheese shall pay two hundred and fifty dollars per annum. Every person, firm, or corporation who sells or offers for sale filled cheese in the original manufacturer's packages for resale, or to retail dealers as hereinafter defined, shall be deemed a wholesale dealer in filled cheese. But any manufacturer of filled cheese who has given the required bond and paid the required special tax, and who sells only filled cheese of his own production, at the place of manufacture, in the original packages, to which the tax-paid stamps are affixed, shall not be required to pay the special tax of a wholesale dealer in filled cheese on account of such sales.

Retail dealers in filled cheese shall pay twelve dollars per annum. Every person who sells filled cheese at retail, not for resale, and for actual consumption, shall be regarded as a retail dealer in filled cheese and sections thirty-two hundred and thirty-two, thirty-two hundred and thirty-three, thirty-two hundred and thirty-four, thirty-two hundred

and thirty-five, thirty-two hundred and thirty-six, thirty-two hundred and thirty-seven, thirty-two hundred and thirty-eight, thirty-two hundred and thirty-nine, thirty-two hundred and forty, thirty-two hundred and forty-one, thirty-two hundred and forty-three of the Revised Stat utes of the United States are, so far as applicable, made to extend to and include and apply to the special taxes imposed by this section and to the persons, firms, or corporations upon whom they are imposed: *Provided*, That all special taxes under this act shall become due on the first day of July in every year, or on commencing any manufacture trade, or business on which said tax is imposed. In the latter case the tax shall be reckoned proportionately from the first day of the month in which the liability to the special tax commences to the first day of July following.

SEC. 4. That every person, firm, or corporation who carries on the business of a manufacturer of filled cheese without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than four hundred dollars and not more than three thousand dollars; and every person, firm, or corporation who carries on the business of a wholesale dealer in filled cheese without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than two hundred and fifty dollars nor more than one thousand dollars; and every person, firm, or corporation who carries on the business of a retail dealer in filled cheese without having paid the special tax therefor, as required by law, shall, besides being liable for the payment of the tax, be fined not less than forty nor more than five hundred dollars for each and every offense.

SEC. 5. That every manufacturer of filled cheese shall file with the collector of internal revenue of the district in which his manufactory is located such notices, inventories, and bonds, shall keep such books and render such returns of materials and products, shall put up such signs and affix such number to his factory, and conduct his business under such surveillance of officers and agents as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may by regulation require. But the bond required of such manufacturer shall be with sureties satisfactory to the collector of internal revenue, and in a penal sum of not less than five thousand dollars; and the amount of said bond may be increased from time to time, and additional sureties required, at the discretion of the collector or under instructions of the Commissioner of Internal Revenue. Any manufacturer of filled cheese who fails to comply with the provisions of this section or with the regulations herein authorized, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not less than five hundred nor more than one thousand dollars.

SEC. 6. That filled cheese shall be packed by the manufacturers in wooden packages only, not before used for that purpose, and marked, stamped, and branded with the words "filled cheese" in black-faced letters not less than two inches in length, in a circle in the center of the top and bottom of the cheese; and in black-faced letters of not less than two inches in length in line from the top to the bottom of the cheese, on the side in four places equi-distant from each other; and the package containing such cheese shall be marked in the same manner, and in the same number of places, and in the same description of letters as above provided for the marking of the cheese; and all sales or consignments made by manufacturers of filled cheese to wholesale dealers in filled cheese or to exporters of filled cheese shall be in original stamped packages. Retail dealers in filled cheese shall sell only from original stamped packages, and shall pack the filled cheese when sold in suitable wooden or paper packages, which shall be marked and branded in accordance with rules and regulations to be prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury. Every person who knowingly sells or offers to sell, or delivers or offers to deliver, filled cheese in any other form than in new wooden or paper packages, marked and branded as hereinbefore provided and as above described, or who packs in any package or packages filled cheese in any manner contrary to law, or who falsely brands any package or affixes a stamp on any package denoting a less amount of tax than that required by law, shall upon conviction thereof be fined for each and every offense not less than fifty dollars and not more than five hundred dollars or be imprisoned not less than thirty days nor more than one year.

SEC. 7. That all retail and wholesale dealers in filled cheese shall display in a conspicuous place in his or their sales room a sign bearing the words "Filled cheese sold here" in black-faced letters not less than six inches in length, upon a white ground, with the name and number of the revenue district in which his or their business is conducted; and any wholesale or retail dealer in filled cheese who fails or neglects to comply with the provisions of this section shall be deemed guilty of a misdemeanor, and shall on conviction thereof be fined for each and every offense not less than fifty dollars and not more than two hundred dollars.

SEC. 8. That every manufacturer of filled cheese shall securely affix, by pasting on each package containing filled cheese manufactured by him, a label on which shall be printed, besides the number of the manufactory and the district and State in which it is situated, these words: "Notice.—The manufacturer of the filled cheese herein contained has complied with all the requirements of the law. Every person is cautioned not to use either this package again or the stamp thereon again, nor to remove the contents of this package without destroying said stamp, under the penalty provided by law in such cases." Every manu-

facturer of filled cheese who neglects to affix such label to any package containing filled cheese made b him or sold or offered for sale by or for him, and every person who removes any such label so affixed from any such package, shall be fined fifty dollars for each package in respect to which such offense is committed.

SEC. 9. That upon all filled cheese which shall be manufactured there shall be assessed and collected a tax of one cent per pound, to be paid by the manufacturer thereof; and any fractional part of a pound in a package shall be taxed as a pound. The tax levied by this section shall be represented by coupon stamps; and the provisions of existing laws governing the engraving, issue, sale, accountability, effacement, and destruction of stamps relating to tobacco and snuff, as far as applicable, are hereby made to apply to stamps provided for by this section.

SEC. 10. That whenever any manufacturer of filled cheese sells or removes for sale or consumption any filled cheese upon which the tax is required to be paid by stamps, without paying such tax, it shall be the duty of the Commissioner of Internal Revenue, within a period of not more than two years after such sale or removal, upon satisfactory proof, to estimate the amount of tax which has been omitted to be paid and to make an assessment therefor and certify the same to the collector. The tax so assessed shall be in addition to the penalties imposed by law for such sale or removal.

SEC. 11. That all filled cheese as herein defined imported from foreign countries shall, in addition to any import duty imposed on the same, pay an internal-revenue tax of eight cents per pound, such tax to be represented by coupon stamps; and such imported filled cheese and the packages containing the same shall be stamped, marked, and branded, as in the case of filled cheese manufactured in the United States.

SEC. 12. That any person who knowingly purchases or receives for sale any filled cheese which has not been branded or stamped according to law, or which is contained in packages not branded or marked according to law, shall be liable to a penalty of fifty dollars for each such offense.

SEC. 13. That every person who knowingly purchases or receives for sale any filled cheese from any manufacturer or importer who has not paid the special tax herein provided for shall be liable, for each offense, to a penalty of one hundred dollars and to a forfeiture of all articles so purchased or received, or of the full value thereof.

SEC. 14. That whenever any stamped package containing filled cheese is emptied it shall be the duty of the person in whose hands the same is to destroy the stamps thereon; and any person who willfully neglects or refuses so to do shall, for each such offense, be fined not exceeding fifty dollars or imprisoned not less than ten days nor more than six months

SEC. 15. That the Commissioner of Internal Revenue is authorized to have applied scientific tests, and to decide whether any substances used

in the manufacture of filled cheese contain ingredients deleterious to health. But in case of doubt or contest his decision in this class of cases may be appealed from to a board hereby constituted for the purpose, and composed of the Surgeon-General of the Army, the Surgeon-General of the Navy, and the Secretary of Agriculture, and the decision of this board shall be final in the premises.

SEC. 16. That all packages of filled cheese subject to tax under this act that shall be found without stamps or marks as herein provided, and all filled cheese intended for human consumption which contains ingredients adjudged as hereinbefore provided to be deleterious to the public health, shall be forfeited to the United States.

SEC. 17. That all fines, penalties, and forfeitures imposed by this act may be recovered in any court of competent jurisdiction.

SEC. 18. That the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall make all needful regulations for the carrying into effect the provisions of this act.

SEC. 19. That this act shall go into effect on the ninetieth day after its passage, and all wooden packages containing ten or more pounds of filled cheese found on the premises of any dealer on and after the ninetieth day succeeding the date of the passage of this act, shall be deemed to be taxable under section nine of this act, and shall be taxed, and shall have affixed thereto the stamps, marks, and brands required by this act or by regulations made pursuant to this act; and for the purpose of securing the affixing of the stamps, marks, and brands required by this act, the filled cheese shall be regarded as having been manufactured and sold or removed from the manufactory for consumption or use on or after the day this act takes effect; and such stock on hand at the time of the taking effect of this act may be stamped, marked, and branded under special regulations of the Commissioner of Internal Revenue, approved by the Secretary of the Treasury; and the Commissioner of Internal Revenue may authorize the holder of such packages to mark and brand the same and to affix thereto the proper tax paid stamps.

Approved June 6, 1896.

Dairy and Food Laws

OF WISCONSIN.

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

1. Appointment, term and compensation. [Sec. 1, ch. 452, laws of 1889.] 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.

2. Assistants, their qualifications and salaries. [Sec. 2, ch. 452, laws of 1889.] 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 neces-

sary and actual expenses incurred in the discharge of their official duties.

3. Commissioner's duties. [Sec. 3, ch. 452, laws of 1889.] 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.

4. His powers—Sealing samples—Refusing to sell for analysis. [Sec. 4, ch. 452, laws of 1889.] 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 cause 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 commis-

sioner 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.

Questions of evidence as to sealing and analysis. 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 have testified. 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, thus making it air-tight, 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 has analyzed some which was proven to have been sold by the defendant, is admissible. Commonwealth v. Holt, 146 Mass., 38.

5. District attorneys to assist—Disposition of fines. Sec. 5, ch. 452, laws of 1889.] 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.

Counsel may be employed. See paragraph 23, which also provides that district attorneys shall assist the commissioner.

6. Analysis of articles—Assistance at institutes, etc. [Sec. 6, ch. 452, laws of 1889.] 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.

7. Payment of salaries and expenses. [Sec. 7, ch. 452, laws of 1889.] The salaries of the commissioner 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.

8. Laboratory, and materials for. [Sec. 8, ch. 452, laws of 1889.] 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 annually. The appropriations provided for in this section shall be drawn from the state treasury upon the certificates of the governor.

9. Biennial report. [Sec. 9, ch. 452, 1889, as amended by ch. 109, 1893.] Said commissioner shall be furnished a suitable office in the capitol, at Madison, and shall make a biennial 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 biennially, as other official reports are published, and of which five thousand copies shall be bound in cloth.

Stationery. Ch. 197, laws of 1895, authorizes the commissioner to obtain stationery for the use of his office.

SALE OF IMPURE MILK.

10. Penalty for. [Sec. 1, ch. 425, 1889.] 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 unmerchantable, 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.

Validity of statute. A New York law (ch. 183 of 1885, ch. 202 of 1884), providing 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," has been sustained as a valid exercise of legislative power. People v. West, 106 N. Y., 293.

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 negatived on the face of the indictment. People v. 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 v. Schaffner, 16 Northeast. Rep., 280; 146 Mass., 512.

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 v. Holt, 14 Northeast. Rep., 930; 146 Mass., 38.

Intent to sell, evidence of. 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 on 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 v. Rowell, 15 Northeast. Rep., 154; 146 Mass., 128.

Effect of the act of 1889 upon previous laws. It seems reasonably clear that sec. 1, of ch. 425, laws of 1889, paragraph 10, supersedes sec. 1, of ch. 157, laws of 1887, as to the offense of selling diluted, impure and unclean milk. Both the acts referred to cover the provisions of sec. 4607, R. S., and hence that section is not in force.

11. Standard for pure. [Sec. 2, ch. 425, 1889.] 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 and unskimmed, contains 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 dis-

eases or ulcers or other running sores, then and in either cases the said milk shall be held, deemed and adjudged to have been unmerchantable and adulterated, impure or unwholesome, as the case may be.

Validity of provision as to standard of purity. The supreme court of New York has ruled that a statute which provides that milk which contains less than three per centum of fat shall be declared adulterated is unconstitutional. The ground upon which this was held was that the statute deprived the defendant of his liberty and property without due process of law, in that it barred him of the right upon the trial of the accusation against him to have the issue determined according to what might be the proof, and compelled him to submit to the statutory declaration thereof without regard to the truth. People v. Cipperly, 37 Hun, 317. This decision was not unanimous, and on appeal was reversed by the court of appeals, without opinion, and on the grounds given by the dissenting judge of the supreme court. People v. Cipperly, 101 N. Y., 634.

A law of New Hampshire (ch. 42, laws of 1883), prohibited the sale of adulterated milk, or milk to which water or any foreign substance has been added, or, as pure, milk from which the cream or a part thereof has been removed. It authorized inspectors of milk to take samples and cause the same to be analyzed, and expressed that in all prosecutions under it if the milk is shown by analysis to contain more than eighty-seven per cent. of watery fluid, or less than thirteen per cent. of milk solids, it shall be deemed for the purposes of the statute to be adulterated. It was contended that the clause fixing the standard was unconstitutional. In answer the court said: "The statute tends to discourage the breeding of a certain class of cattle for the supply of the milk market. The difficulty of guarding against the adulteration of milk may have influenced the legislature in fixing a standard of richness. 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 as such is constitutional." State v. Campbell, 13 Atl. Rep., 585; 64 N. H., 402.

In Rhode Island a similar provision has been sustained against an objection to its validity on the ground that it virtually confined the testimony to the analysis of the samples taken by the inspector, which sam-

ples were destroyed in making the analysis, so that the testimony could not be controverted. The court, however, was of the opinion "that the testimony, though it may not always be practicable to controvert it directly by another analysis, can be controverted by evidence of collateral facts going to prove that the analysis is incorrect, and, therefore, that the act is not unconstitutional for the reason alleged." State v. Groves, 15 R. I., 208; 2 Atl. Rep., 384. Shivers v. Newton, 45 N. J. L., 469, is to much the same effect.

Intent immaterial.—The doing of the act condemned by the law constitutes the offense, if it is silent as to the knowledge or intent of the person who is charged with violating it. People v. Kibler, 106 N. Y., 321, 12 N. E. Rep., 795.

12. Proof of adulteration, how made. [Sec. 2, ch. 157, 1887, as amended by ch. 344, 1889.] Proof of adulterations and skimming may be made with such standard tests and lacometers as are used to determine the quality of milk, or by chemical analysis.

13. Sale, etc., of milk or cream containing antiseptics injurious to health. [Ch. 168, 1895.] Any person who shall sell or offer for sale, or consign, or have in his possession with intent to sell to any person or persons, any milk, cream, butter, cheese, or other dairy products, or who shall deliver to any creamery or cheese factory, milk or cream to be manufactured into butter or cheese, to which boracic acid, salicylic acid, or compounds containing them, or other antiseptics injurious to health, have been added, shall be deemed guilty of a misdemeanor, and upon conviction thereof be punished by a fine of not less than twenty-five nor more than one hundred dollars for each and every offense.

Intent to sell. See note to paragraph 10.

IMITATION BUTTER AND CHEESE.

14. Filled cheese. [Sec. 1, ch. 30, 1895.] No person, by himself or by his agents or servants, shall manufacture, or shall buy, sell, offer, ship, consign, expose or have in his possession for sale any cheese manufactured from or by the use of skimmed milk to which there has been added any fat which is foreign to such milk.

15. Size of skimmed-milk cheese. [Sec. 2, ch. 30, 1895.] No person, by himself or by his agents or servants, shall manufacture, or shall buy, sell, offer, ship, consign, expose or have in his possession for sale, within this state, any skimmed milk cheese, or cheese manufactured from milk from which any of the fat originally contained therein has been removed, except such cheese is ten inches in diameter and nine inches in height.

16. Imitation butter. [Sec. 3, ch. 30, 1895.] No person, by himself or by his agents or servants, shall render or manufacture, sell, ship, consign, offer for sale, expose for sale, or have in his possession with intent to sell, any article, product or compound made wholly or partly out of any fat, oil or oleaginous substance or compound thereof, not produced from unadulterated milk or cream from the same, and without the admixture or addition of any fat foreign to said milk or cream, which shall be in imitation of yellow butter produced from pure unadulterated milk or cream of the same, with or without coloring matter; provided, that nothing in this act shall be construed to prohibit the manufacture or sale of oleomargarine in a separate and distinct form and in such manner as will advise the consumer of its real character, free from coloration or ingredient that causes it to look like butter.

Validity. The foregoing section is almost an exact copy of sec. 1, of ch 5, acts of Massachusetts, 1891. The words "ship, consign," "and without the admixture or addition of any fat foreign to said milk or

cream," found in this section, are not in the Massachusetts act. In Commonwealth v. Huntley, 156 Mass., 236, 30 N. E. Rep., 1127, the question of the validity of the act referred to came before the court. It was an agreed fact that the oleomargarine sold by the defendant was brought to Massachusetts from another state, and was sold there in the original package, and assumed by the court that it was wholesome, palatable and nutritious The validity of the act, so far as the state constitution was concerned, does not appear to have been questioned. On this branch of the subject, the court quoted from the opinion of the court of appeals of Missouri in the case of State v. Addington, 12 Mo. App., 214, 223, language which had been approved by the supreme court of Pennsylvania in Powell v. Commonwealth, 114 Penn. St., 265, 295, a case which was carried to the supreme court of the United States, and there affirmed, Powell v. Pennsylvania, 127 U. S., 678: "If an article of food is of such a character that few persons will eat it knowing its real character; if, at the same time, it is of such a nature that it can be imposed upon the public as an article of food which is in common use, and against which there is no prejudice; and if, in addition to this, there is probable ground for believing that the only way to prevent the public from being defrauded into purchasing the counterfeit article for the genuine is to prohibit altogether the manufacture and sale of the former, then we think such a prohibition may stand as a reasonable police regulation, although the article prohibited is in fact innocuous, and although its production might be found beneficial to the public, if in buying it they could distinguish it from the production of which it is the imitation." The Massachusetts court also said that "in New Hampshire, Missouri, Minnesota, New York, New Jersey, and Pennsylvania, statutes prohibiting the sale of oleomargarine made in imitation of butter have been upheld by the courts as valid. State v. Marshall, 64 N. H., 549; State v. Addington, 77 Mo., 110; 12 Mo. App., 214; Butler v. Chambers, 36 Minn., 69; People v. Arensberg, 105 N. Y., 123; State v. Newton, 21 Vroom (50 N. J. L.), 534; Powell v. Commonwealth, 114 Penn. St., 265." To the same effect are McAllister v. State, 72 Md., 390; Weideman v. State, 56 N. W. Rep., 688; State ex rel. v. Horgan, 55 Minn., 183. The doubtful question in the Massachusetts case arose under the provision of the constitution of the United States giving to congress power to regulate commerce among the several states. On this point, inasmuch as the statute only applied to oleomargarine which was deceptive, and authorized the sale, under restrictions, of that which was not deceptive, and did not forbid the transportation or storage of the former, a majority of the court held it valid. Commonwealth v. Huntley, 156 Mass., 236; 30 N. E. Rep., 1127.

The ruling of the United States supreme court. The validity of the Massachusetts statute, so far as it was affected by the clause of the federal constitution giving congress power over commerce, came before

the supreme court of the United States in Plumley v. Massachusetts, 155 U. S., 461. It was there held, by a majority of the judges (three dissenting), that the federal statute imposing special taxes upon manufacturers and wholesale and retail dealers in oleomargarine does not restrict the power of the states over the manufacture and sale thereof within their respective limits. "The taxes prescribed by that act were imposed for national purposes, and their imposition did not give authority to those who paid them to engage in the manufacture or sale of oleomargarine in any state which lawfully forbade such manufacture or sale, or to disregard any regulation which a state might lawfully prescribe in reference to that article. . . . Nor was the act of congress relating to oleomargarine intended as a regulation of commerce among the states. Its provisions do not have special application to the transfer of oleomargarine from one state of the union to another. They relieve the manufacturer or seller, if he conforms to the regulations prescribed by congress or by the commissioner of internal revenue, under the authority conferred upon him in that regard, from penalty or punishment so far as the general government is concerned, but they do not interfere with the exercise by the states of any authority they possess of preventing deception or fraud in the sales of property within their respective limits."

The opinion of the court then proceeds to discuss the validity of the statute of Massachusetts as affected by the commerce clause of the federal constitution. "It will be observed," said Justice Harlan, "that the statute of Massachusetts which is alleged to be repugnant to" that clause "does not prohibit the manufacture or sale of all oleomargarine, but only such as is colored in imitation of yellow butter produced from pure unadulterated milk or cream of such milk. If free from coloration or ingredient that causes it to look like butter, the right to sell it 'in a separate and distinct form, and in such manner as will advise the consumer of its real character,' is neither restricted nor prohibited. It appears, in this case, that oleomargarine, in its natural condition, is of a 'light yellowish color,' and that the article sold by the accused was artificially colored 'in imitation of yellow butter.' Now the real object of coloring oleomargarine so as to make it look like genuine butter is that it may appear to be what it is not, and thus induce unwary purchasers, who do not closely scrutinize the label upon the package in which it is contained, to buy it as and for butter produced from unadulterated milk or cream from such milk. The suggestion that oleomargarine is artificially colored so as to render it more palatable and attractive can only mean that customers are deluded, by such coloration, into believing that they are getting genuine butter. If any one thinks that oleomargarine, not artificially colored so as to cause it to look like butter, is as palatable or wholesome for purposes of food as

pure butter, he is, as already observed, at liberty under the statute of Massachusetts to manufacture it in that state or to sell it there in such manner as to inform the customer of its real character. He is only forbidden to practice, in such matters, a fraud upon the general public. The statute seeks to suppress false pretenses and to promote fair dealing in the sale of an article of food. It compels the sale of oleomargarine for what it really is, by preventing its sale for what it is not."

After reviewing many of the cases decided by the supreme court of the United States and relied upon by counsel for the defendant to support his contention that the statute was void, the opinion uses this language: "In none of the above cases is there to be found a suggestion or intimation that the constitution of the United States took from the states the power of preventing deception and fraud in the sale, within their respective limits, of articles in whatever state manufactured, or that that instrument secured to any one the privilege of committing a wrong against society. . . . If there be any subject over which it would seem the states ought to have plenary control, and the power to legislate in respect to which it ought not to be supposed was intended to be surrendered to the general government, it is the protection of the people against fraud and deception in the sale of food products. Such legislation may, indeed, indirectly or incidentally affect trade in such products transported from one state to another state. But that circumstance does not show that laws of the character alluded to are inconsistent with the power of congress to regulate commerce among the states. For, as said by this court in Sherlock v. Alling, 93 U. S., 99, 103: 'In conferring upon congress the regulation of commerce, it was never intended to cut the states off from legislating on all subjects relating to the health, life and safety of their citizens, though the legislation might indirectly affect the commerce of the country. Legislation, in a great variety of ways, may affect commerce and persons engaged in it without constituting a regulation of it within the meaning of the constitution. . . . . And it may be said generally, that the legislation of a state, not directed against commerce or any of its regulations, but relatin to the rights, duties, and liabilities of citizens, and only indirectly and remotely affecting the operations of commerce, is of obligatory force upon citizens within its territorial jurisdiction, whether on land or water, or engaged in commerce, foreign or interstate, or in any other pursuits."

The opinion of the court then proceeds to point out that the case of Leisy v. Hardin, 135 U. S , 100, in which it was held that ardent spirits, distilled liquors, ale and beer, were subjects of exchange, barter and traffic, and, being articles of commerce, their sale while in the original packages in which they are carried from one state to another, could not, without the assent of congress, be forbidden by the state into which they were transported, was not conclusive of the case before it, because

the articles sold in that case were what they purported to be. The opinion of the majority of the court on the Massachusetts statute concluded thus: "We are of opinion that it is within the power of a state to exclude from its markets any compound manufactured in another state, which has been artificially colored or adulterated so as to cause it to look like an article of food in general use, and the sale of which may, by reason of such coloration or adulteration, cheat the general public into purchasing that which they may not intend to buy. The constitution of the United States does not secure to any one the privilege of defrauding the public. The deception against which the statute of Massachusetts is aimed is an offense against society; and the states are as competent to protect their people against such offenses or wrongs as they are to protect them against crimes or wrongs of more serious character. And this protection may be given without violating any right secured by the national constitution, and without infringing the authority of the general government. A state enactment forbidding the sale of deceitful imitations of articles of food in general use among the people does not abridge any privilege secured to citizens of the United States, nor, in any just sense, interfere with the freedom of commerce among the several states."

17. Sale of. [Sec. 4, ch. 30, laws of 1895.] It shall be unlawful for any person to sell or offer for sale to any person who asks, sends or inquires for butter, any oleomargarine, butterine or any substance made in imitation or semblance of pure butter not made entirely from the milk of cows, with or without coloring matter.

18. Notice of sale of oleomargarine, etc. [Sec. 5, ch. 30, laws of 1895.] It shall be unlawful for any person to expose for sale oleomargarine, butterine, or any similar substance not marked and distinguished on the outside of each tub, package or parcel thereof by a placard with the word "oleomargarine," and not having also upon every open tub, package or parcel thereof a placard with the word "oleomargarine," such placard in each case to be printed in plain, uncondensed gothic letters not less than one inch long, and such placard shall not contain any other words thereon.

Provision valid. See note to paragraph 16. A statute which provides that no person shall sell any lard, or any article intended for use as lard, which contains any ingredient but the pure fat of healthy swine, under any label bearing the words "refined," "pure," "family," unless

every package in which the article is sold is marked "compound lard," has been sustained as valid by the supreme court of Iowa. State v. Snow, 47 N. W. Rep., 777.

In Minnesota a statute which makes it a misdemeanor to manufacture for sale within that state, or to sell or offer to do so, baking powder containing alum, unless each package thereof is labelled, "this baking powder contains alum," has been sustained. Stoltz v. Thompson, 46 N. W. Rep., 410.

In Ohio it has been held that it is "within the undoubted power of the legislature to prohibit the sale of substances having the semblance of butter or cheese, but not wholly made from pure cream or milk, unless each package of such substance should have printed, stamped or marked thereon in the manner prescribed by the statute, the name of each article used in, or entering into, the composition of such substance, and this power is possessed by the legislature over the sale of articles protected by letters patent as well as of those not protected." Palmer v. State, 39 Ohio St., 237.

19. Same, notice, how given. [Sec. 6, ch. 30, laws of 1895.] It shall be the duty of every person who sells oleomargarine, butterine, or any similar substance, from any dwelling, store, office or public mart, to have conspicuously posted thereon the placard or sign, in letters not less than four inches in length, "oleomargarine sold here," or "butterine sold here." Such placard shall be approved by the dairy and food commissioner of the state of Wisconsin.

20. Notice of sale from vehicles. [Sec. 7, ch. 30, laws of 1895.] It shall be unlawful for any person to peddle, sell or deliver from any cart, wagon or other vehicle, upon the public streets or ways, oleomargarine, butterine, or any similar substance, not having on the outside of both sides of said cart, wagon or other vehicle the placard in uncondensed gothic letters, not less than three inches in length, "licensed to sell oleomargarine."

This section is not in the exact words of sec. 4, ch. 412, acts of Mass., 1891, though it is modeled after it. That act does not use the words "on the outside of both sides," etc., but contained the phrase "on both sides of the vehicle." It was held that placing the placards on the inside of the cover of the wagon, which was open at both ends, was not a compliance with the law. It was also ruled that the statute was not

in conflict with the act of congress authorizing the licensing of the sale of oleomargarine. Commonwealth v. Crane, 158 Mass., 218; 33 N. E. Rep., 388.

21. Notice to guests at hotels, etc. [Sec. 8, ch. 30, 1895.] It shall be unlawful for any person to furnish, or cause to be furnished, in any hotel, boarding house, restaurant, or at any lunch counter, oleomargarine, butterine, or any similar substance to any guest or patron of said hotel, boarding house, restaurant or lunch counter, without first notifying such guest or patron that the substance so furnished is not butter,

See notes to secs. 16, 18, 20. This section is similar to sec. 5, ch. 412, Mass. acts, 1891.

22. Penalties. [Sec. 9, ch. 30, 1895.] Any person who shall violate any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished for the first offense by a fine of not less than fifty dollars nor more than five hundred dollars; and upon conviction of any subsequent offense shall be punished by a fine of not less than one hundred dollars or more than five hundred dollars, or by imprisonment in the county jail of not less than ten days nor more than sixty days, or by both such fine and imprisonment, at the discretion of the court.

23. Duty of district attorneys — Special counsel. [Sec. 10, ch. 30, laws of 1895.] It shall be the duty of the district attorney in any county of the state, when called upon by the dairy and food commissioner of this state, or any of his assistants, to render any legal assistance in his power to execute, and to prosecute the cases arising under the provisions of this act; and the dairy and food commissioner shall have power to appoint, with the approval of the governor, special counsel to prosecute or to assist in the prosecution of any case arising under the provisions of this act.

24. Butter and cheese, use of in state institutions. [Sec. 7, ch. 165, laws of 1891.] 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.

25. Penalty. [Sec. 8, ch. 165, laws of 1891.] 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.

26. Disposition of fines. [Sec. 9, ch. 165, laws of 1891.] One-half of all the fines collected under the provisions of this act shall be paid to the person or persons furnishing information upon which conviction is procured.

The other sections of ch. 165, laws of 1891, are believed to be superseded by ch. 228, laws of 1893, paragraphs 27-32.

BRANDING CHEESE, ETC.

27. Sale of falsely branded. [Sec. 1, ch. 228, laws of 1893.] No person shall offer for sale, sell, ship or consign cheese labeled with a false brand or label as to the quality of the article.

28. Uniform brand. [Sec. 2, ch. 228, laws of 1893.] The state dairy and food commissioner is hereby authorized and directed to issue to the cheese manufactories of the state, upon proper application therefor and under such regulations as to the custody and use thereof as he may prescribe, a uniform stencil or brand, bearing a suitable devise or motto and the words "Wisconsin full cream cheese."

29. Brand, how used—Registration of factories. [Sec. 3, ch. 228, laws of 1893.] Every brand issued shall be used upon the side of the cheese on the bandage thereof, also

upon the package containing the same, and shall bear a different number for each separate manufactory, and the commissioner shall keep a book in which shall be registered the name, location and number of each manufactory using the said brand, and the name or names of the persons at each manufactory authorized to use the same.

30. Fraudulent use of brand. [Sec. 4, ch. 228, laws of 1893.] It shall be unlawful to use or permit such brand to be used upon any other than full cream cheese, or package containing the same.

31. Brand for skimmed cheese. [Sec. 5, ch. 228, laws of 1893.] Every person who shall, at any cheese factory in the state, manufacture skimmed cheese, shall distinctly and durably stamp upon each and every such cheese, and upon the box, the words "Wisconsin skimmed cheese." All cheese not manufactured as in sections 1, 2, 3 and 4, of this act, shall be deemed to be skimmed cheese under the provisions of this act. The brand herein provided by this section of this act, for designating the grade and quality of cheese provided by this section shall be such as to produce an impression not less than three inches in width and five inches in length, and shall be in full-faced capital letters of as large 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 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 by this section.

So far as the act of 1893 relates to branding skimmed cheese, it is probably superseded by that part of ch. 30, 1895, embodied in paragraph 15. The provisions of the act of 1893, relating to branding full cream cheese, are in force, and supersede ch. 165, 1891.

32. Penalty—Dispositon of fine. [Sec. 6, 228, laws of 1893.] Whoever violates the provisions of this act shall be deemed guilty of a misdemeanor and for each and every package so falsely branded or omitted to be branded as herein provided, shall be punished by a fine of not less

than twenty-five nor more than fifty dollars, one-half of which shall be paid to the person or persons furnishing the evidence upon which such conviction is made.

CLEANLINESS OF FACTORIES AND CONDEMNATION OF IMITATION DAIRY PRODUCTS.

33. Powers of dairy and food commissioner. [Sec. 1, ch. 257, laws of 1895.] The dairy and food commissioner or his agents shall have full access and ingress to any factory or building where any product of the dairy is manufactured or stored for sale or shipment of the same, and shall be empowered to enforce such measures as may be necessary for the perfect cleanliness of said factories, buildings and surroundings, also for the cleanliness of all the utensils necessarily used in the manufacture and general handling of the dairy product. Any person refusing the privilege of such access to the dairy and food commissioner or his agent, or opposing him in any way shall be considered as having committed a misdemeanor.

34. Warrant for seizure of imitation products. [Sec. 2, ch. 257, laws of 1895.] When complaint shall be made on oath to any magistrate authorized to issue warrants in criminal cases, that imitation butter or imitation cheese or any substance designed or intended to be used as a substitute for butter or cheese, is in the possession or under the control of any person or persons contrary to the provisions of law of this state, and that the complainant believes that it is concealed in any particular warehouse, store or refrigerator for mercantile purposes, the magistrate, if he be satisfied that there be cause for such belief, shall issue a warrant for such property.

35. Terms of the warrant. [Sec. 3, ch. 257, laws of 1895.] All such warrants shall be directed to the sheriff of the county or his deputy or to any constable of the county, commanding such officer to search the house, building, store or other place where the imitation butter or imita-

tion cheese or any substance designed or intended to be used as imitation butter or cheese for which he is required to search is believed to be concealed, which place and property to be searched for shall be designated and described in the warrant, and to bring such property when found and the person or persons in whose possession the same shall be found before the magistrate who issued the warrant or before some other magistrate or court having cognizance of the case.

36. Preservation, analysis and confiscation of property. [Sec. 4, ch. 257, laws of 1895.] When any officer in the execution of a search warrant under the provisions of this act shall find any imitation butter or cheese, or any substance designed or intended to be used as an imitation for butter or cheese and for which a search is allowed by this act, all the property so seized shall be safely kept by the direction of the court or magistrate, so long as shall be necessary for the purpose of being produced as evidence on any trial; provided, that it shall be the duty of the officer who serves a search warrant issued for imitation butter or imitation cheese or any substance designed or intended to be used as imitation for butter or cheese and alleged to be in his possession or under the control of any person or persons contrary to law, to deliver to the state dairy and food commissioner, or to any person by such commissioner authorized in writing to receive the same, a true and perfect sample of each article seized by virtue of such warrant, for the purpose of having the same analyzed. If any sample be found to be imitation butter or imitation cheese, or substance designed or intended to be used as an imitation for butter or cheese and that the same, at the time of such seizure, was in the possession or under the control of any person or persons contrary to any of the provisions or requirements of this act, then and in such case the property so seized shall be confiscated and destroyed, under the direction of the court or magistrate; otherwise the same shall be forthwith returned to the person or persons from whom it was taken.

37. Penalty. [Sec. 5, ch. 257, laws of 1895.] Any person or persons violating any of the provisions or sections of this act shall be guilty of a misdemeanor and upon conviction thereof be fined not less than twenty-five nor more than fifty dollars for the first offense, and for each subsequent offense not less than fifty nor more than one hundred dollars or to be imprisoned in the county jail not less than thirty nor more than ninety days in the discretion of the court before whom such conviction may be had.

38. Disposition of fines. [Sec. 6, ch. 257, laws of 1895.] One-half of all fines collected under the provisions of this act shall be paid to the person or persons furnishing information upon which conviction is procured.

FRAUD IN DAIRY FACTORIES.

39. Penalty. [Sec. 1494a, R. S.] 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 of the number cut or otherwise disposed of, and the weight of each, shall for each and every offense forfeit and pay a sum 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.

ADULTERATION OF FOOD, DRUGS, LIQUORS, ETC.

40. Adding injurious substances to food, etc. [Sec 1, ch. 248, laws of 1879.] 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.

As to the analysis of articles purchased under chapter 248, laws of 1879, (paragraphs 40-43), see paragraph 57.

41. Same as to drugs. [Sec. 2, ch. 248, laws of 1879.] 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 affect 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 section 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.

Sec. 4601, R. S., is probably superseded by the above. It was there provided that "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." See paragraphs 44, 45.

42. False labeling of food, drugs, etc. [Sec. 3, ch. 248, laws of 1879.] 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.

The penalty imposed by this section for a first offense may be collected in a civil action brought by the state. Such offense is not a misdemeanor, nor the penalty provided for a fine within section 3294, R. S. State v. Grove, 77 Wis., 448.

It is held in New York that "there is no rule of law which requires the plaintiff in a civil action, when a judgment against the defendant may establish his guilt of a crime, to prove his case with the same certainty which is required in criminal prosecutions. Nothing more is required in such cases than a just preponderance of evidence, always giving the defendant the benefit of the presumption of innocence." New York & Brooklyn Ferry Co. v. Moore, 102 N. Y., 667, fully reported in 18 Abb. N. C., 106. It is held in a late case, brought by the dairy commissioner of that state to recover the penalty fixed by the act to prevent deception in the sale of dairy products, that the rule "stated is the proper one applicable to the measure of evidence in civil actions, and such seems to be the weight of authority. (See cases collected in

note to Sprague v. Dodge, 95 Am. Dec., 525.) And there is no apparent reason for making any distinction in that respect in behalf of a defendant in an action for a penalty, in which the people are the party plaintiff. It is no less a civil action because so brought. The purpose of the action, is not the punishment of the defendant in the sense legitimately applicable to the term, but such action is brought to recover the penalty as a fixed sum by way of indemnity to the public for the injury suffered by reason of the violation of the statute. The effect of the recovery is merely to charge the defendant with pecuniary liability, while a criminal prosecution is had for the purpose of punishment of the accused." People v. Briggs, 114 N. Y., 56, 65.

43. Definitions. [Sec. 4, ch. 248, laws of 1879.] 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.

44. Adulteration of liquors, candies, etc. [Sec. 4600, R. S.] 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.

The provisions of this section so far as they relate to food, are probably superseded by sections of the act of 1879, found in paragraphs 40, 43.

45. Liability of druggists for quality of drugs, etc. [Sec. 13, ch. 167, laws of 1882, as amended by sec. 11, ch. 227, laws of 1895.] Every owner or conductor of a drug store shall be responsible for the quality of all drugs, chemicals or medicines, sold or dispensed by him, except those sold in the original package of the manufacturer, and except those articles known as patent or proprietary medicines. And should any owner or conductor of a store

intentionally and fraudulently adulterate, or cause to be adulterated, any drugs, chemicals or medical preparations sold in such store, he shall, for any and every such offense forfeit the sum of one hundred dollars, and if such person shall be a registered pharmacist, or a registered assistant pharmacist, his registration and certificate of registration may be, by said board [state board of pharmacy] revoked and annulled; whereupon such person shall cease to be a registered pharmacist or registered assistant pharmacist.

46. Adulterated honey, marking of. [Sec. 2, ch. 40, laws of 1881.] 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 one of this act.

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.

47. Penalty. [Sec. 4, ch. 40, laws of 1881.] 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.

48. Fines, how disposed of. [Sec. 5, ch. 40, laws of 1881.] One-half of all fines imposed by the enforcement of this act shall be paid to the person who informs against and prosecutes such offender to conviction.

49. Imitation cider vinegar. [Sec. 1, ch. 394, laws of 1891.] 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.

50. Adding injurious ingredients to vinegar. [Sec. 2, ch. 394, laws of 1891.] 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.

51. Adulteration and false labeling of vinegar. [Sec. 3, ch. 394, laws of 1891.] 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.

52. Standard of pure vinegar; marking of. [Sec. 4, ch. 394, laws of 1891.] 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.

It is competent for the legislature to make it a misdemeanor to add artificial coloring matter to vinegar, regardless of whether the matter added is injurious to the health of the consumer or not. People v. Girard, 73 Hun (N. Y.), 457.

53. Penalty for violation of law. [Sec. 5, ch. 349, laws of 1891.] 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.

54. Sale of unwholesome provisions. [Sec. 4599, R. S.] Any person who shall knowingly sell any kind of diseased, corrupted 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.

55. Sale, etc., of flesh of diseased animals. [Ch. 431, laws of 1891.] Chapter 187 of the revised statutes is hereby amended by incorporating therein a section to be known as section 4607g of said revised statutes, and to read as follows: Section 4607g. It shall be unlawful for any person to sell or expose for sale, or to give away for the purpose of food, or to can or pack for the purpose of transportation and sale to other markets any unwholesome, stale, emaciated, blown, tainted, putrid or measly meat or the flesh of any diseased animal or of any animal that shall not have been slaughtered for the purpose of food, knowing or having good reason to believe that such meat is unwholesome, stale, emaciated, blown, tainted, putrid or measly, or that such flesh is the flesh of a diseased animal or of an animal that shall not have been slaughtered for the purpose of food. It shall be unlawful for any person or corporation owning or operating any slaughter house or packing establishment within the state of Wisconsin, to

receive for the purpose of killing or to kill any diseased animal, or to render the carcass of any animal that shall have died by disease or through exposure, or that shall not have been butchered for food, knowing or having good reason to believe that such animal or animals were diseased or had died from disease or exposure, or that the same shall not have been butchered for food. 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 pay a fine of not less than ten dollars nor more than one hundred dollars, or both in the discretion of the court.

56. Coloring grain. [Sec. 4606, R. S.] 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.

Affect the color. See note to paragraph 52.

OF THE ANALYSIS OF FOOD, DRUGS AND LIQUORS.

57. State analyst, appointment of. [Sec. 1, ch. 252, laws of 1880.] 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.

58. Who may submit articles for analysis. [Sec. 2, ch. 252, laws of 1880.] 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 [paragraphs 40–43, ante], 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.

59. Articles to be sealed. [Sec. 3, ch. 252, laws of 1880.] 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 into 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 held in all the courts of this state as prima facie evidence of the properties of the articles analyzed by him.

60. Refusing to sell articles for analysis. [Sec 4, ch. 252, laws of 1880.] 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.

61. Analyst's report. [Sec. 5, ch. 252, laws of 1880.] 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 analysed and by whom submitted.

62. State board of health may submit articles. [Sec. 6, ch. 252, laws of 1880.] 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

TRANSACTIONS

WITH

Accompanying Papers and Discussions

OF THE

Wisconsin Dairymen's Association

AT THEIR

TWENTY-FOURTH ANNUAL CONVENTION,

Held at Chippewa Falls, Wis., February 12, 13, and 14, 1896.

The Twenty-fourth Annual Meeting of the Wisconsin Dairymen's Association convened at the Court House, Chippewa Falls, Wisconsin, at 10 o'clock a. m., February 12th, 1896.

Vice President Hoard in the chair.

Mr. Hoard—In the absence of President Everett, who is at present doing yeoman's service before the sub-committee of Ways and Means in Washington, at work striving by all that in him lieth to promote legislation against the fraud of filled cheese, it devolves upon myself as one of the vice presidents of this Association, to call this convention to order.

This Association has been an active and living factor in the promotion of the dairy industry in Wisconsin since 1872, when it was first organized. The progress of the state, the marvellous advance it has made, the standing it has taken among the states of the nation, the fact that it has become a permanent exposition of dairy knowledge, is very largely due, gentlemen,

to the existence of this Association. It has been composed of men who have been patriotic, who have put their purpose above themselves, who have worked in season and out of season to promote the honor and the industry and the prosperity of our beloved commonwealth. For this reason, wherever it has appeared in any portion of the state, it has acted as a fertilizing agency upon the conscience and the intelligence of the people, and it has come for the first time into this great northern portion of Wisconsin, which is destined in the future to be an empire of itself, and it will, in its deliberations here, strive by all that it can do, to encourage, to enlighten, and to charge the minds of the farmers of this portion of Wisconsin with the truth of dairy science. It should be hailed as a friend, it should be understood to be an agency for the betterment of any community and any portion of the state, by all the business interests of this section. It has so operated elsewhere and it will so operate here, and I hope that in our deliberations the same old spirit of devotion that has always characterized this organization, may here have free course, run and be glorified.

ADDRESS OF WELCOME.

Mayor C. A. Stanley, Chippewa Falls, Wis.

Mr. President and Gentlemen of the Dairymen's Association of Wisconsin:

In behalf of the people of the city of Chippewa Falls, Chippewa county, and the Chippewa County Agricultural Society, through whose efforts this convention is held in our city, I extend to you a most cordial welcome. We are glad to have you with us, knowing that if our farmers will profit by the experience and wisdom they may gain here, that it will be of great value to them and to the whole people of this county. The county of Chippewa is one of the largest in the state and without doubt one of the richest in her agricultural possibilities.

We have thousands of acres of wild land only waiting the tickling of the hoe to bring forth abundantly. Our people have been giving their time and attention to the lumber interests of the county, but the lumber industry is fast slipping away and it will only be a few years until it is a thing of the past. It is time that we were turning our attention to something else and I know of nothing that offers better returns for the money and time invested than the dairy industry. Prof. Henry has said that the northern part of the state was peculiarly adapted to dairying on account of its rich grasses and pure water. The sooner our farmers find that there is more money in making a pound of butter than in growing a bushel of oats, we think they will conclude that they better make the pound of butter and at the same time they will build up the fertility of their farms. I think where you find the dairying industry the leading industry of any community, there you will find the fertile farms, good buildings and everything that goes to make farm life desirable. I am sorry to say that Chippewa county with a population of about thirty thousand, has only two cheese factories and no creameries. This ought not to be and it does seem to me if our farmers were alive to their best interests that it would not long remain so. There has been some attempt to run one or two creameries, but through some difficulty or lack of management they were not a success. We hope your session here may awaken an interest in this branch of farming and our county may in a few years become dotted with cheese factories and creameries and noted for her dairy products. Then, and not until then, will the farmers of Chippewa county prosper as they ought. We have here the cheap lands, the good soil, pure water; what we want now is progressive farmers to take up this industry, and it will surely lead to their prosperity and to the prosperity of the whole people. I wish that we might all remember that upon the prosperity of the farmer depends the prosperity of this nation.

Gentlemen, I am glad to welcome you to our city. You will find here a thriving people, noted for their hospitality and energy, with all the public improvements that go to make a city pleasant to live and do business in, and should you con-

clude to come again we will have a state institution to show you, one whose location cannot be excelled by any public institution in the state. Gentlemen, I thank you for this privilege of welcoming you to our city and hope that your session may be both pleasant and profitable and when you are through that you may say, "We are glad we came to Chippewa."

RESPONSE TO ADDRESS OF WELCOME.

The Chairman—The Chair is very sorry to announce to you that ex-President Adams, who was designated to carry out the pleasant duty of responding to the welcoming address, is very ill, and it has been deemed proper that the chairman should say a few words on behalf of this Association in response to these cheering words. Your Honor, we do not come to Chippewa Falls or into Chippewa county a stranger to the splendid resources which abound here. For many years have I been convinced of the fact that just such a revivifying and energizing agency as this was needed here. I have been a hunter and a fisher all my days—sometimes of men and sometimes of the finny tribe—and I have hunted all over this northern country, following the trout streams and following the tote roads. Noting on every old tote road a magnificent crop of timothy and clover, noting everywhere the prodigious capacity for the production of grass I have felt all the time as if Bishop Heber's hymn was almost true,

"Where every prospect pleases and only man is vile."

The only thought that has been discouraging at all has been the utter lack of comprehension on the part of the farmers as to what their opportunities were and how to take advantage of them. In 1871 I came up here to Chippewa Falls in response to an invitation to attend the opening of your Fremont Hotel, and there were among us four editors, George Brown, ex-Gov. Peck, then plain George W. Peck, and that

genius and wit and humorist, Lute Taylor, and myself. Ex-Lieut. Gov. Pound wanted us to go out here five or six miles to see an improvement, a dam, and it was twenty degrees below zero. We went out and we looked as wisely at that dam as possible, and we asked Mr. Pound what he thought the flowage would be and a few such terms as that, which would indicate that we were not blank nonentities on a dam. We started back and we hadn't gone two miles before one of the axle-trees broke, and we were dumped out and started for Hooper, or Chippewa Falls, the only harbor of refuge at that time. We were long-legged fellows and the party were making good time, when we heard a cry from a man in the rear, Lute Taylor, who, as you remember, used to stutter. We heard him say, "Hold on, boys, hold on," and we stopped and he came up with a sort of a snort, and he said, "If had a known how this cussed expedition was coming out, I would have taken Thad Pound's word for this damned improvement." From that day on I have had a considerable interest in Chippewa Falls and Chippewa county and have noted many things concerning it. I have fished on Long Lake with your lamented citizen, Gen. Ginty, and I wish to speak for this Association in an advisory way when I say that in my observation there is scarcely any portion of the state that can better repay the tillage of good grain and good thought than Chippewa county. Sir, I beg to thank you in return for your cheering words and say to you that if we are able in any sense whatever to revive the hope and encouragement of the farmers of this section, our work will be a thousand times repaid. I thank you.

The morning hour, as a rule, is but the skirmish line when we begin to come up along and range up for the line of battle. We have quite a program, as the farmer used to say, quite a "flooring to thrash off," but we will use a half an hour or so in some miscellaneous talking, and we would like to hear some of the men here that are able to give a reason for the hope that is within them. Ex-Gov. Pound I see is here. Let us hear from him.

Ex-Gov. Thad C. Pound—Mr. Chairman and Gentlemen: I was born a farmer, raised a little way along on a farm, and finally after coming to Chippewa county and experiencing all sorts of phases of life, I fancied that I would like again to be a farmer on the improved plan. After spending a good deal of time, labor and money in experimenting with improvements on the Chippewa river, including the construction of the dam and booms, to which the chairman has alluded, and having about bankrupted myself in that line, I concluded that I would undertake farming again and do it on scientific principles, if I could find out what they were, so I secured a farm over across the river that is now known familiarly as "Pound's Farm." Little by little I undertook to employ the agencies that I thought would be successful in developing that farm, but I really gave it little study myself, and so now I should be sorry to take you into my confidence and undertake to exhibit to you the results of that effort.

The Chairman—Tell us about your mistakes, governor.

Mr. Pound—I think that my chief mistake was that I didn't know how to go to work. I did not know how to employ the proper agencies to bring out results, and another trouble with me was that my mind was being exercised by outside business too much, in speculative business, in undertaking to bring immigration here, to build up the population of Chippewa county. I went to Europe and tried to interest English capitalists in the settlement of this country, and I did organize a company with a capital of a million and a half dollars, which was to come here and purchase wild land and to bring settlers here to develop it; but when I came to put the effort into actual operation, I was confronted with our statutes, which antagonize alien settlers. I found that upon our statute books was a law which prohibited non-resident aliens from owning over three hundred acres of land, and a further statute providing that no corporation, twenty per cent. of the capital stock of which was owned by non-resident foreigners, could own over three hundred acres of land. I undertook to get that statute modified, so that English capital might come in and invest in large tracts and bring settlers here for these lands, but the legislature disagreed with me and that effort failed. I then discovered that

we had a sanitary element which was of great excellence, pure water, which is the rarest thing known on this globe. This state is noted for its springs, but they are mineral springs, nearly all of them, containing lime, and so I concluded that this pure water would be a source of great benefit to this country if it were known, and so I have worked very hard to promote the Chippewa Springs. I believe I am talking now to people who understand the value of pure water. Dairymen certainly ought to. As I understand it, water and milk go hand in hand; they are a sort of dual commodity, and if you are going to dilute milk or anything else with water, it is important that you have pure water to do it with. Water is a great solvent; it will solve pretty much everything. It may possibly solve the money question and I think there is nothing in the world that would solve politics better than pure water. I have just come back from Chicago, where I have been introducing Chippewa Valley water. I shall attend the meetings of this convention as a willing listener.

The Chairman—I anticipate that the governor has given us the solution of a very difficult question. The difficulty is not in the land, it is not in the climate, but in ourselves. Now, let us hear from some one else who is conversant with this section of the country.

Mr. Bates—Mr. Chairman, I will volunteer a few remarks. I have been much interested in the growth and development of this, our Chippewa country. I have been a resident for more than thirty-four years and I have watched its development with much interest, have watched the growth of the buildings in the city here, the improvements upon our farm lands out in every direction. I was raised on a farm, I have made butter all my life, more or less. I have been able at times to produce an article equal, I thought, to any placed upon the market, and while it has been said in my hearing that our mothers made just as good butter as we do now, I cannot help but believe that we make it easier than they did. We have made improvements that are valuable. Mr. Chairman, I came here to tell you of some of the difficulties we experience. It makes me feel sad to think how we are situated. It is the counterfeit that is in our way. We have our hills and valleys covered with the

finest grass, the earth is redolent with the fairest of flowers, we can make the best butter that can be made, but the counterfeit kills us. We can make as fine butter as cows can make, and bring it to this market next June and July and get eight or possibly ten cents for it. Can we live on such prices, can we take any encouragement to increase our herds? Does it pay? That is the great question with all of us when we invest in anything. We often bring a package to town and carry it home again, because we are not going to sell butter at the price offered, or to take goods at the dealers' own price and sell our butter at ten or twelve cents. We have capacity to double our herds throughout this county on almost every farm and we would gladly do it if we could see benefits to our pockets, if we could find a market that would compensate us in any degree for the money invested. But we cannot do it; we walk out into this lumber region that has been spoken of and we take dinner with the lumbermen, and we find upon their tables this counterfeit butter. We ought to be supplying that market but we can't do it. I claim, gentlemen, that it is just as wrong to manufacture a counterfeit package of butter and send it out to the consumer as it is to manufacture a package of counterfeit money and send it out broadcast. Gentlemen, I feel that we have a big battle before us, but let us fight it. Let us put our feet upon this counterfeit and success may be ours.

The Chairman—Mr. Bates has struck a great big keynote. One of the greatest bars to the development of this northern country is the action of our lumber companies, the men who own these lands. For the sake of the small profit between the genuine article and the counterfeit, they are doing more to discourage the final settlement and the final upbuilding of the very lands that they are interested in, and own largely, than any other agency. But, gentlemen, we have got this counterfeit on the run; we are seeing now its back. The sentiment of the country is rapidly crystallizing and all these frauds and counterfeits, which do so persistently annoy us and hinder us, are going to be subjected to the searching scrutiny of law, and they are going. Already the southern states, which constitute the chief market of filled cheese and butterine, are swinging

into line, and this winter will witness the passage of laws in thirty-six states. Already Alabama, North Carolina, Georgia, and other states are swinging into line in consonance with the decision of the United States supreme court upon the anti-color question, and when we get this matter straightened out the cow will have a fair show in the markets of the world and of the United States. We have already passed important legislation in Wisconsin; thank God, there were but two votes against the law last winter, and the potent influence of the Wisconsin Dairymen's Association was felt when between 80,000 and 100,000 names poured into that legislature by virtue of this Association and straightened the men up. Men ground their teeth and swore and voted right. I don't care how much a man swears, providing he votes right.

Mayor Stanley—Is not that bill already driving butterine out of the state, and filled cheese also?

The Chairman—Very largely. Before the passage of the law there were 133 men that held United States licenses in Wisconsin for the sale of butterine. Today there are 9. Mr. Bates, take comfort. Other men take comfort. We have had a long, long fight. Some time in 1885 when the National Butter & Cheese Association met at Battery D in Chicago, and we had a very determined fight and the butterine men were there in large force, when the committee on legislation brought in their report they said, "We ask congress in its wisdom to do something for the protection of the consumer and the producer of honest butter." And I got onto my feet and I moved an amendment to the report of the committee in the following words, "And we demand of congress that it place the business of the manufacture of counterfeit substitutes for butter under the control of the revenue department of the government, and impose a tax thereon of ten cents a pound." And the war opened, and of all the fracases you ever did see, it was there for a day. And the butterine men pranced and danced and executed all manner of warlike gyrations. A gentleman from Philadelphia, with a jaw like a bulldog, walked up in front of me and he says, "I tell you, sir, that butterine has come to stay. We have money and we have organization, and what are you going to do about it?" I said to him that his assumption of

money was an insult, I didn't give a continental how much money he had, or any other butterine man. "Thank God, you haven't got the votes. That is what's the matter in this country, you haven't got the votes. You may have the organization, you may fatten here on your greasy fat as much as you have a mind to, your day is coming." And I said, that when the old farmer had time to hitch up his old mare and go down town on election day, and sit on a dry goods box and whittle out his conclusions, he would in due time inform the gentleman what he was going to do about it. And he did. And the law went before congress; we flooded congress with petitions and money was there in tremendous array, a million dollars was before the United States congress, but it couldn't buy a man. It did buy some men of large political influence, notably one or two from Wisconsin who went there as lobbyists for that fraud and conspired against the interests of their own state, and were unpatriotic enough to make political harlots of themselves. That all could be done, it has been done since, but the stone that the builders have despised has become the chief of the corner, and righteousness and honesty and truth will prevail. My good friends, don't get discouraged.

The cows of Wisconsin were worth in round cash last year, to the state of Wisconsin, thirty million dollars. Here is a fraud in Chicago that has a backing of forty millions, say, and we have men today more interested in protecting a Chicago fraud than they are a Wisconsin industry. Here are a hundred and fifty million dollars that lie under the dairy interests in Wisconsin, and every dollar of it is taxed for the benefit of the state, and every dollar of it stands pledged for the patriotic expansion of our commonwealth, and, my friends, it seems to me as though that sentiment should imbue every man in behalf of that which is true and right and patriotic and belongs to the honor and the glory of our state, as well as of our nation.

Mr. Wilson Hopkins—Mr. Chairman and Gentlemen: I am afraid I cannot say anything that will be particularly pleasing to the Dairymen's Association. In fact, if I was asked today about a young man going into business at farming, what branch he should engage in, one of the last that I should advise him to take up, would be to go into the dairy business, especially

here in Chippewa county. I have tried almost every branch of farming and I have tried dairying, and tried it under opportunities which I think were superior to those existing today, and my own conviction is that although a little money might be made out of dairying, that the labor connected with it and the burden and the counterfeit competition which we have got to encounter, makes it a little discouraging, so much so that I would not advise a young man to enter into it. I admit that we have a good country here, barring our long winters, we have a good healthy climate for cows, we have got good water and we can get as much milk out of cows perhaps as in any part of the state. But what is the use of kicking against the pricks when here is an invention creating a substitute which is equivalent or so far equivalent as to satisfy the taste of the consumer, and I will say here today that I believe that butterine properly made and put upon the market is superior to any inferior grade of butter. Now, if that is so, isn't it time that we tried to develop some other branch of farming? It is my honest conviction that if they can make an article which will fill the place of butter so that we are not obliged to create it on the farm, it seems to me it will be better to stimulate other branches of the business. Now, I am not come here to discourage anybody, and if these gentlemen that represent the dairy business can show me where I am wrong, or where the public is wrong in demanding something cheaper, why I am ready to be convinced. I am not myself in favor of this effort to crush out any industry whether it be the farm industry, or whether it be any other industry. Now, Mr. President, this is contrary to your ideas, and to the ideas of others who are engaged in the dairy business. I cannot get it out of my head that if something better than butter can be supplied, we would be wiser to submit it, and turn our attention to something else.

The Chairman—Is that question answered, something better than butter?

Mr. Hopkins—I will admit that first class butter may be superior to butterine, but the ordinary butter that goes on the market I don't believe is very much superior to good butterine.

The Chairman—You are an old soldier, and I like your style,

because I know where I can find you so I can thump you good and square.

Mr. Hopkins—That is right. In this matter of filled cheese I know but little about it any further than anything that is impure, anything that is detrimental to the health of mankind should be suppressed, and I am told that filled cheese is. I was at one time impressed with the idea that butterine was, but I am not today. I believe good, healthy butterine is just as pure and just as healthy as is butter itself.

The Chairman—How do you know?

Mr. Hopkins—I say I believe it to be.

The Chairman—You believe because you know.

Mr. Hopkins—I will give you a chance to illustrate to the audience that I am wrong. I am quite willing to be convinced. Of course, I know that you gentlemen will teach our farmers better methods, will tell them just how to handle their milk, tell them when they ought to churn, and there are separators and other utensils, all of which help to accomplish it much more easily and perhaps butter can be manufactured much cheaper and certainly a better grade of article can be put upon the market. I have come here to listen to all the things which you will tell us. These gentlemen will tell us what kind of cows will be the best, how the cows will test and that poor cows don't pay. Can they demonstrate that any cow does? They will tell us perhaps how a co-operative creamery can be run successfully. We have tried it here without success. Perhaps they will tell us how to get rid of the class of farmers that will carry skim milk to the cheese factories, and they may tell us about the class of farmers who bring up the amount of the milk their cows give by putting some of this pure water into the milk, so that the honest man takes honest milk to the factory, where he has to compete with the dishonest man. All these things we want to know. We want you to illustrate to us how we are going to make a profit in stocking our farms with cows and going into the dairy business.

Mr. Faville—You told us that you had tried dairying under more favorable circumstances than most of these men and failed. Tell us why.

Mr. Hopkins—I didn't say I failed; I said I abandoned it and

I did that simply because the labor was so great that I thought I could make money on the farm, or at least live on the farm without carrying that great burden. I sold my butter around from house to house, among people that I knew were able to supply themselves with a good article; for two or three years I sold all the butter I could manufacture from fifteen to twenty cows at thirty cents a pound, delivered here, once a week. It did very well till competition came up. Pretty soon there came other farmers who could make it as well as I could that sold it for twenty-five cents a pound. I thought I couldn't afford to do that, so I turned the business over to them, and fattened my cows and sold them to the butcher.

Mr. Brown—I was over in Michigan awhile ago and while standing in a grocery store I saw parties come in and ask for butter, and the dealer wrapped up a small parcel and put a stamp on it and gave it to them for twenty-eight cents a pound. After several parties had been in and gone out in that way, I asked the dealer if I could sell him some first class butter. He says, "No, sir, I don't handle any butter here. I don't want to have anything to do with it." I says, "You are selling butter to people here, aren't you?" He says, "That is oleomargarine, I don't want your butter, because I can't make any profit on it. I buy this oleomargarine for twelve cents a pound and sell it for twenty-eight. What do you want for your butter?" I says, "I can get twenty-six cents at the commission house and I expect to get possibly a little more." He simply said he didn't want to have anything more to do with it. I says, "You are selling oleomargarine here. Isn't that a fraud when these people come in and ask for butter?" "No," he says, "it is no fraud. Look at my license up here. These people don't know whether it is butter or oleomargarine and they don't care." I think that is where the fraud comes in. His customers were asking for butter and he was palming off stuff that he got for a few cents a pound and making a big profit on it and that is where the dairyman is injured. All we ask of them is that oleomargarine be sold for what it is and not for what it is not, and not colored in imitation of genuine butter.

Mr. Faville—Mr. Hopkins, do you buy oleomargarine for

your own table? That is a fair question. You have been advocating it for other people.

Mr. Hopkins—We manufacture all the butter we want for our own use.

Mr. Faville—If you did not make it would you buy oleomargarine?

Mr. Hopkins—Well, that is another question.

Mr. Faville—Do you know a man that is buying it for his own use?

Mr. Hopkins—At the present time perhaps I do not, but I have heard men say that they did buy it in preference to butter. Understand me, I am not here advocating oleomargarine unless people do want it. I agree with the gentleman that it should be sold for what it is. If oleomargarine should come onto the market and compete with butter, and people desire to buy it, I say let them buy it. I would not take the tax off from it, but I would compel them if possible to sell it for what it is.

The Chairman—A great deal of misapprehension prevails among the people as to the digestibility and the goodness of oleomargarine. I am prepared to make this statement and challenge successful contradiction. It is not a digestible product; it is not a wholesome product; and I will make it very clear in a few words. Cow butter melts in the human stomach at 92 degrees, that is, six degrees below the heat of the human body. Nature provided for this, because nature provided butter fat to be a food for the tender young. There is no more perfect food on earth than milk and all its constituents. Butter fat melts at 92 degrees, passes into pancreatic emulsion, and is a remarkable supplier of the brain. Now, oleomargarine melts at from 105 degrees to 108 degrees, and the human stomach, except in a condition of the most extreme fever, cannot melt it. Now, the result of that is that when it is taken into the stomach it is unmelted, and like any foreign substance, is appropriated into the digestion by the sheer outlay of nervous force. It is not a wholesome product, because it is uncooked fat and cottonseed oil. Still more, another point. If you will turn to Frank Leslie's Monthly for 1894, in June, you will find there a very interesting and intelligent article upon the horses of the United States. Among other things it treats

of the value of a dead horse in New York, and says, among other things, his feet and his bones and his hair and his flesh are all used in different ways, and, among other things, the oil rendered from the dead horse is sold to the oleomargarine factories. This is a fact proven by sworn testimony in the commission of New York. What is known as oleo oil is composed of just such things as these. Now, does any man believe that nature produces any compound like that? Any cow? No. Another point. The Armour Company sued by injunction to prevent the commissioner of the state of New York from executing the law a year ago. The United States court compelled Mr. Armour under sworn testimony to state what oleomargarine was made of, and to state the cost of it. I have the records of the court in that case and they throw a red light on this question. Men will tell you that oleomargarine is composed partly of butter. Not one particle of butter is in it. It is composed of such a per cent. of oleo oil, such a per cent. of cotton seed oil, such a per cent. of either caul fat or refuse fat of any kind, from either hog or beef, and such a per cent. of water, and churned in milk to give it a certain flavor. The cost of it, all told, aside from the tax of two cents a pound, is four and seventy-one one-hundredths cents a pound, making it, with the tax, less than seven cents. These men make from two to three hundred per cent. on the investment. Do you wonder they fight? Do you wonder that they become law-breakers? Here are men who stand posing before the world as patriotic men, who try to defeat the laws of their country everywhere, and who furnish money to defeat them. I tell you, my friends, the moment a man touches oleomargarine, he is on a downward course, he is beginning to be ready for strategems, treasons and spoils. Now, then, another point I want to make to you. Not a single reputable hospital in all Europe, or in the United States, dares use it or allows it in the building. They tell you that it is a dangerous thing to feed it to a patient, because of the strain on the nervous system to get rid of it. It reduces the nervous power and force of the patient. There are many men that think their taste is the guide. They can put up whiskey that would deceive the very elect, and yet it is rank poison to every tissue of the body. Adulteration is taking the place

of the pure food of this country to an extent that is terrible. The agricultural department at Washington tells us that from fifteen to twenty-five per cent. of the food of the country is adulterated. When we adopted our dairy and food commission at Madison, we sent out and took thirty specimens of cream of tartar from thirty of the most respectable grocers in the state, and analyses showed that twenty-four out of the thirty specimens did not contain one trace of cream of tartar. They were composed of terra alba, white clay, gypsum and soured with tartaric and nitric acids. These men justified themselves on the ground that they wanted to furnish something cheap to people who demanded cheap goods.

Now, think a moment. Agriculture is in a depressed condition. The farm is the only spot on the earth where food can be produced; the farm is the only rightful food-producer. When a man steps in between the farmer and the consumer, he steps in as an imitator, and imitation is a counterfeit; a counterfeit is a fraud *per se*, and no fraud has the right to stand before the law as an honest product. Now, then, if the agriculture of the United States could have the market today so as to supply even one-sixth or one-quarter more of the food, which is displaced by adulterations, would it not be a consummation devoutly to be wished for?

Mr. Monrad—There is a gentleman here who has made a success of making butter, a Chippewa dairyman. He sells at twenty-five cents the year around. Let us hear from Mr. Hatch.

Mr. Fred Hatch—When this gentleman of my own county says that he would not advise anybody to go into dairying, that goes against my feelings, because I raised grain and sold it until we could hardly pay our taxes, and was, you might say, driven into dairying, and since that time we have improved our land ever so much. I believe that if the farmers don't go into dairying voluntarily in this section, they will soon be driven into it as I was. I think there is plenty of market here for good butter at good prices. The trouble with most of our farmers is in not half caring for the cows, not half feeding them, and then, of course, they are unsuccessful.

Mr. Faville—I want to ask our friend over here who objects to dairying, because there was too much work about it, if he has found any way to make a living without work?

Mr. Hopkins—I just presented this question without intending to throw a fire brand into this convention. If you can refute what I have said or show that it is for the advantage of Chippewa county to turn its attention to dairying, I should be very glad to take it back.

Mr. Monrad—Mr. Hatch has told me coming up on the road, how his land had been impoverished by continuous grain growing, and how now it is picking up since he took to dairying. He is putting money in a bank that cannot break, by improving the value of his farm.

Mr. Hopkins—There is no question but what any adulterated article ought not to be put upon the market. I meant to speak only of well manufactured oleomargarine. Of course, if that is not digestible and you can prove it, that is a great step. The question with us is, Will it pay to go into the market and compete with an article that the consumer can buy at a less price and is satisfied with? Of course, it never should be sold as butter, but if it goes onto the market and is accepted by the public and the public cannot be made to believe it is detrimental, then shall we compete with it? That is the point we have got to settle before we enter into dairying. I think many people will be satisfied with oleomargarine for use in cooking.

The Chairman—The fats that come into cookery are subjected to about five hundred degrees of heat and are changed chemically in their action in the stomach, but in oleomargarine the fats have to be rendered in a raw state out of the animal. They cannot be rendered above 120 degrees.

Mr. Aderholdt—Does this two cent tax increase the price of oleomargarine to the consumer?

The Chairman—I cannot say. Some say no and some say yes. The great question in regard to this oleomargarine matter is, that it is not thoroughly understood by the common people. From 90 to 95 per cent. of all the oleomargarine sold in the United States, is sold as butter, or at least consumed as butter. It is put upon the boarding house or hotel

table in little pats as butter and eaten as butter, so that about 90 per cent. of the traffic is a traffic of fraud. Now, if they were compelled to do away with that element, to that extent would they encourage the production of pure butter. In every state where proper laws have been passed, in Massachusetts, Connecticut, Pennsylvania, New York and Pennsylvania, and several other states, when the fraud is placed on its own ground, it has brought about the same result that has been brought about in Wisconsin. Unless they sell it as butter, they can't sell it. The whole traffic is on that which has come in through greed and gain and not through patriotism.

Gen. Richardson—There have been some inquiries made here with reference to the possibilities of this county in the lines which you represent. Heretofore Chippewa county has been largely a lumber section of country. We have nearly exhausted the lumber, and have reached the point when we can see that there must be some great change. I have been giving the subject some consideration. Take it from Chippewa Falls to the Little Falls dam, we have 65,000 horsepower running to waste, just as soon as the last log has gone down the Chippewa river. If we would adopt the same system that has been adopted in New England where they lease horsepower and they provide that at least two men shall be given employment with each horsepower apiece, there would be at least 130,000 men receiving employment on the power which this river furnishes here. What is true with regard to this river, is true with reference to St. Croix, and the Wisconsin, and nearly all our rivers. For some years past I have given some attention with reference to the possibility of getting emigration to this country. The idea has prevailed that pine lumber was incompatible with good soil, but I had occasion a few weeks ago to go into the northern portion of this county, and there is not on the habitable globe a single section of country that will produce more grass to the acre than will that section of country. It is one single field of splendid grass. Now, if the farming people of the southern part of this state can manufacture butter at a profit where their lands are worth $100 an acre, and two acres there cannot produce what one acre will produce here, in point of grass, and this land can be

bought at $1.25, $2.50 or $5.00 at the outside, to the acre,—if you people in the southern portion of the state can get rich by pursuing that course, there is no reason under the sun why we can't get rich in this section of the country if we pursue the same line of policy that you have, on our cheap lands.

Convention adjourned to meet at 1:30.

Convention met pursuant to adjournment, Vice-President Hoard in the chair.

ANNUAL ADDRESS OF THE PRESIDENT.

C. H. Everett, Beloit, Wis.

When I sat down to write this address, the first thought that entered my mind was, What can I say of the past, present, and future, that will be of benefit to my brother dairymen, that will give them renewed courage, and sharpen their ambition for greater results?

It is not my purpose, neither is it necessary for me, to dwell at length upon the past labors of this Association; its work for the past twenty-four (24) years is a matter of history with which many of you are very familiar. Let me say for the benefit of new members that are annually coming into our circle, that this Association has always worked and exists today for the sole purpose of raising the standard of dairying in Wisconsin.

It is a harmonious body of patriotic men, who work side by side and without a selfish motive; there has never appeared a single ripple of discontent or dissatisfaction among its members. No one man is eulogized or paid a salary, but officers and members work alike and give loyal support to the cause without further recompense than that which comes to every community through united honesty, intelligence and determination. And, gentlemen, if you would have the Wisconsin Dairymen's Association continue to be the strongest state organization of its kind in existence, if you would have it con-

time to foster and build up the greatest industry in the state, bringing happiness, prosperity, and enlightenment into our homes, let harmony and wise counsel prevail in the future as it has in the past.

Twenty-four (24) years ago a few men came together and organized; some of those men are present with us today; time has silvered their locks, but their hearts are warm and their intellects as bright as ever, and I hope that we shall have their wise counsel for many years to come. When these men conceived the idea of organized effort, there were a few cheese factories in the state but not a single creamery.

We had something like 300,000, cows, valued at about $6,000,000.00. We have today 842,639 cows, valued at about $17,442,144.00; 1,325 cheese factories and 729 creameries with a valuation of $2,510,238.00. There was manufactured in Wisconsin, during the year 1895, 52,480,815 pounds of cheese and 74,653,130 pounds of butter. Let us add to this the milk and cream used in our families and in the cities of the state, the large amounts shipped out of the state, then add the value of the by-products, and what have we got? More than $30,000,000 annually as an income from dairying.

This improvement has been brought about largely by the united efforts of this Association. The aid we receive each year from the state, for which we are very thankful, has enabled us to send competent men out over the state as instructors in cheese making. We publish an annual report of our deliberations and scatter them broadcast among our farmers. There are two books published annually in our state that the farmer is anxious to get hold of—our Institute Bulletin and Dairy report. There is often a regular stampede at our Institutes to secure these books.

In every possible way, this Association is striving to improve first, the man, then his cows, his methods, and the product he turns out; and because of this continuous effort towards improvement, Wisconsin stands today as a leader, among the noble states of the union in dairy and agricultural advancement.

Our methods, our Farmers' Institutes, our Dairy Conven-

tions, our Agricultural College, our dairy and agricultural literature is quoted everywhere as being of the very best.

Our laws governing the manufacture and sale of oleomargarine and filled cheese are very strict and are being vigorously enforced by Dairy Commissioner Adams. But we have great need of national legislation. Filled cheese is branded in Chicago "Wis. Full Cream," and shipped all over the world, thus injuring our good name and seriously crippling our trade. There must be something more than state legislation on the subject of oleomargarine and filled cheese.

These interstate restrictions are admirable and in the right direction, but our national law makers must enact such measures as will rightfully govern our export trade as well as to protect each state in the manufacture and sale of a pure article and make it possible not only to recover ground in this direction, but increase both foreign and home trade many fold.

The zenith of our foreign trade in dairy products was during the years 1880 and 1881, when oleomargarine and filled cheese were little known. It is perhaps true that all of the loss in export trade can not be attributed to the presence of these counterfeits, but they have done much towards it.

The United Kingdom has long been our chief buyer, and for that matter is the greatest of all importers of dairy products. During recent years Great Britain has favored dairy development in such of her southern colonies as Australia and New Zealand, taking large quantities of butter and cheese in exchange for her manufactured products, but this does not explain away the enormous decline in purchases from the United States.

Much of this is due to the sophistication of our dairy products. The harm extends also to the West Indies with whom this country has long enjoyed a good trade. Total exports of butter during the year ended June 30th, '95, were only fourteen (14) per cent. of what they were in 1880, and exports of cheese only 40 per cent. of those of '81. During the past five years, England has paid $415,000,000 for butter and cheese made in foreign countries and colonies. In other words, the imports into the United Kingdom are at an annual rate of 4,500,000 tubs of butter, valued at $60,000,000, and 2,180,000

cwts. of cheese, valued at $26,000,000—an annual business of $86,000,000, or more than $7,000,000 per month. Of this five years' business the United States got $48,000,000 or 11 1-2 per cent. Separating the two products, the United States furnished 39 per cent. of England's cheese purchases during the past five years, and only 1.6 per cent. of her butter purchases, showing further what it means for a dairy country of such boundless resources as our own, to get so little foreign business.

It may be noted that Holland, a little country of less than 13,000 square miles, about one-fourth as large as Wisconsin, exports annually nearly as much cheese as does the United States, while her exports of butter are nearly double those of this country. This is indeed a triumph for the butterine magnates. But oh, what a shame to American statesmanship!

There is something wrong so long as it is possible for unscrupulous tradesmen to export oleomargarine and filled cheese in the guise of pure butter and cheese, and foist it on unwilling consumers abroad who thence turn their trade in other directions.

The manner in which we have lost much of our export trade in cheese, owing to the filled abomination, is known to all careful readers, and energetic measures must be taken in order to recover favor for this most important agricultural product. Much has been accomplished through state legislative action and each year finds the untrammeled manufacture and sale of imitation dairy products more and more circumscribed.

There is a bill pending before congress defining cheese, and also imposing a tax upon, and regulating the manufacture, sale, importation and exportation of filled cheese. The bill is in the hands of a sub-committee of the committee of ways and means; this sub-committee has sent out circular letters inviting those interested to appear before the committee and express their views on the subject of restrictive dairy legislation. I wish it were possible for a committee from this body to visit Washington in the interests of needed legislation. I trust that this convention will take prompt action in regard to counterfeit dairy products, that the views of Wisconsin dairymen may be laid before this committee at the earliest possible moment.

When we make nothing but first class cheese and are protected by national laws in our efforts to place before the people honest goods, we will have little cause to worry about our export trade. We will then become the chief consumers of our own product. I have no fear of over-production. Swiss cheese is brought into this country at the rate of 400,000 pounds monthly. A total for nine months, ending September 30, bring 3,608,000 pounds at an average import value of 13.6 cents, compared with 3,551,000 pounds same period a year ago at a higher average value of 14.5 cents. Other fancy cheese and a small quantity of English cream cheese swelled total imports for the two periods to 7,032,000 pounds and 6,193,000 pounds respectively. So long as foreign cheese comes into this country at the rate of $1,200,000 yearly, the manufacture is not overdone.

Wisconsin, owing to her peculiar climatic conditions, is preeminently a cheese state. We can make and are making good cheese, and we claim the privilege of selling them for just what they are. I desire to call the attention of the farmers to the importance of thorough aeration and proper handling of milk prior to its delivery at the factory. Neglect of this duty is the foremost cause of bad flavored cheese. When impure milk is warmed up at the factory, the bad influences multiply rapidly, and render it unfit for the purposes of good cheese.

I would also call the attention of our factory men to the condition of our curing rooms. A study of this question reveals the fact that they are not properly constructed; they are usually built wholly above ground, it is very difficult to regulate and maintain an even temperature under such conditions. In some of our curing rooms, the thermometer will frequently register 90 degrees during warm weather, cheese ripen too fast, dry up and crack open under such high temeprature. The curing rooms in Canada are built partly under ground, with under ground air ducts leading into them; this makes it possible to maintain an even temperature throughout the season and is conducive to slow curing and high flavor. I trust that you will not pass lightly over these important questions. Dairy-

ing today is a science; more skill and intelligence is required to successfully handle a herd of dairy cows than is needed in any other occupation of the farm.

Science means knowledge, penetrating and comprehensive information; it means skill, expertness, investigation of truth, pursuit of pure knowledge; there is no other word that fits the successful dairyman like that word science. He must of necessity be a scientific man; he has to do with the mysteries of nature on every hand.

He must understand the nature of the soil, the composition of his different crops, and the kind of fertility they require; he must know what milk is composed of and what constitutes a balanced ration. In fact, he must have a clear mind and a kind heart. I do not mean to say that dairying can ever cease to be practical, or that such a state of things would be desirable if possible. But it is constantly becoming more a matter of study and science. No amount of information can do away with the necessity for hard work, but a knowledge of principles and the application of scientific laws is of the utmost importance to the farmer. When these are well understood and when sound reasoning and close calculation are substituted for that mixture of tradition and guess-work which once guided all farm work, we may expect to lighten labor and shorten its processes, while we continually increase its products.

When the dairyman begins to study, when he stops to reflect upon the facts and theories of his business, when he learns the results of scientific investigations and experiment, and sees the labor and care bestowed upon them, he becomes interested; as he proceeds, his interest grows into enthusiasm, and this gives him a love for his occupation and a desire to elevate it and attain a high position in it, hence he gains vigor and energy that insures success. Enthusiasm is contagious, magnetic and all powerful. If scientific investigation and well written works on dairying and agriculture had done nothing more than create a love for rural pursuits, they would have rendered an invaluable service to mankind.

This they have done already, and the feeling they have excited is constantly growing. We find today a more earnest

spirit of inquiry and more interest in agricultural pursuits than at any former period. And these alone will lead us steadily and surely to higher results.

I trust, gentlemen, that your work throughout this convention will be characterized by thoroughness and harmony, and that success will crown your efforts.

DISCUSSION.

Mr. Faville—I would like to add one word of commendation of the address as a whole. Mr. Everett is a younger man than some of us, but I think he has grasped the situation very thoroughly and understands the matter perfectly.

On motion of Mr. Philips, Mr. Burchard, of Fort Atkinson, was appointed to draft a memorial to congress, embodying the views of the Association, to be signed by the officers and forwarded to Washington.

HOW TO BECOME A DAIRYMAN.

Chas. Meyers, Kewaunee, Wis.

How to become a dairyman, of course, depends upon whether you have got lots of money and want to keep a dairy for the pleasure there is in it, or whether you are some small struggling farmer, with limited means, willing to make it your life's work. For the benefit of the latter I will give a little of my experience for what it is worth. I was not brought up on a farm, but in the woods of Kewaunee country. In 1880 I started out in life farming on eighty acres of land, a small part of which was cleared. We raised a little grain of different kinds and timothy hay to sell, and made posts and ties in the winter. I knew nor cared nothing for the farm, but we simply drifted into the farm because the valuable timber was nearly all gone. After farming in that way for a few years, the first Farmers' Institute came to town, and, of course, we all turned out to see what kind of a menagerie that was. At that meeting Prof. Henry advised us to go into some kind of animal husbandry, and warned us against selling our farms by the ton

or by the bushel in the form of timothy hay and wheat, and those farmers who did not take his kindly advice are paying the penalty at the present time. Mr. Faville and Gov. Hoard told us a good many things. I remember the governor told us we were the poorest dairymen to be found in the state of Wisconsin. He quoted to us figures that proved that we made the least butter per cow per annum, and sold at the lowest possible price, an average of about eight cents a pound. He told us to get out of our ruts, that that class of dairymen was overcrowded everywhere, and appealed to us to join that higher class that made the butter that sold at the top price on every respectable market. Hiram Smith, Wisconsin's great dairy apostle, told us that the dairyman had to work only ten hours a day, milk his cows in the morning, do up his chores and then he said he could go to town and whittle dry goods boxes and talk politics. Now, that struck me most favorably; that was just the kind of a job I wanted. I had been brought up to swing an ax or pull a cross-cut saw, and I wanted a chance to work only ten hours a day, to say nothing about whittling dry goods boxes and talking politics. At that time the Institute came about twenty-five miles by team. Near Kewaunee they met a farmer driving a cow, and they asked what such cow was worth in that part of the state, and were told twenty dollars. "Now," says Mr. Smith, "if that cow was within seventy-five miles of my farm I would pay fifty dollars for her and make money out of her." I saw the opportunity; that night my wife and I talked it over and we agreed to go right into dairying and we did. We built an addition to the barn and built a silo and built and equipped a dairy house according to the teaching of the Institute. Then I went out and bought a lot of cows. I have no doubt that that cow that Mr. Smith talked about it was a good one, but I bought the other kind, simply because I had no experience and didn't know any better. We began butter-making and shipped the butter to a commission man in Chicago, the same man that we are shipping to at the present time. It was in the spring; butter was quoted seventeen and eighteen cents a pound, and we got twelve. That knocked about all the enthusiasm out of our dairying. Of course we made a great mistake in buying

a lot of the poorest kind of cows, but I believe in telling about your mistakes. We soon found out that we were unable to get any profit out of those cows for the simple reason that we didn't know how. We had an idea that if we could meet those same Institute men once more, and ask them lots of questions, that would help us out, so we drove thirty miles to Green Bay to attend another meeting, and when we got there we found J. M. True conducting what he called a great draft horse institute. I asked why they didn't have some dairymen along, and Mr. True said, "Why don't you go down to Janesville, where the Dairy Association is in session? The leading dairymen are all down there." That is the first time I ever heard about the Wisconsin Dairy Association. But it was too late to go down there, but we did the next best thing, and I advise you, if you are interested in dairying, to subscribe to Hoard's Dairyman. The Dairyman came along week after week, preaching against keeping a lot of scrub cows, having them fresh in the spring and dry in the fall, making butter in the summer when it was hot, butter was cheap and no commission house or any one else cared to handle it, and then having none to sell in the winter when prices are way up, turning the cows out around the strawstack all day to freeze and putting them into a warm stable over night to thaw out; preaching against everything that we were practicing in fact. We were anxious to learn, and it did not take us long to change our methods; we changed into a winter dairy, bought a thoroughbred sire, learned something about feeding, and from that time on we have made money out of the cows. At first we had to work long days and had to hire help to clear up land, etc., but, although we have gone through a great panic, the dairyman who has paid strict attention to his business has no great reason to complain. You can feed a cow better feed, and first class dairy product still commands reasonable prices. Of course, the Babcock tester and the farm separator were brought upon the market just about the right time to help us. Dr. Babcock has made the dairy world a present of his knowledge and experience and every farmer that wants to keep cows ought to have a tester. Then you can tell just exactly how much fat is left in the skim or buttermilk, you can tell which cows are

earning you a profit and which ones you are feeding at a loss. Liberal feeding is absolutely necessary to success. I don't care how thorough you are in butter-making or what the pedigree or breed of your cows may be, unless you feed with a liberal hand you will never become a successful dairyman. We often hear farmers saying, "I can't go into dairying because I haven't got the means." Now, I want to say to you, any young or middle-aged men, that if you have got good health and willing hands you are in possession of the right means to become a successful dairyman. My advice to the average farmer is to begin by subscribing for Hoard's Dairyman. Experience is a good teacher, but it is a much cheaper and quicker way to learn from the experience of others. To the young men I would say, "Go down to Madison and take the short course in agriculture or the dairy course, whichever you think is best. The time has come when the dairyman must work with his brains as well as his hands."

DISCUSSION.

The Chairman—Mr. Meyer has told us, in general outlines, something of the history of his struggle. Now pump him with sharp questions, sufficiently dry to make him feel as though there was a drought up here.

Mr. Briggs—I wish Mr. Meyer would give us some idea as to how his cows were paying him when he first started out. I understand he was doing the best he could then.

Mr. Meyer—We were following then summer dairying and we kept no strict account, but we do know that we couldn't make expenses. During the last few years I have not kept a strict account of each cow, and so I am unable to tell exactly. I sell a number of cows every spring, and then buy a few fresh cows, and always have heifers coming in in the spring. Last year we sold between thirteen and fourteen hundred dollars' worth of butter, and the highest number of cows we milked at one time was twenty-seven and some of them were two-year-olds.

Mr. Faville—In the last year you have been able to make

Mr. Meyer—During the last five we have made more out of

our cows than we ever expected to, and especially the last two years.

Mr. Goodrich—Are your cows liable to get fat? expenses, have you?

Mr. Meyer—Yes, and the fat ones go to the butcher every spring regularly. The number that go to the butcher grows less every year. I would rather have them turn their food into butter than beef.

Question—Are you using any particular strain of cows?

Mr. Meyers—I am grading up with Jerseys.

Mr. Baker—Can you tell us how many pounds of milk it takes to make a pound of butter?

Mr. Meyer—It takes less than twenty this winter. I don't keep a strict account through the year, but I know it don't take as much as it used to.

The Chairman—You bred some butter into the milk?

Mr. Meyer—Yes, sir.

Mr. Linse—Can you feed some butter into it?

Mr. Meyer—I am not sure, but I should say yes and no. You can feed water into your milk; by giving the cows warm water they will drink so much that they will give poor milk, and you can turn the cow out on grass in the spring, that hasn't been very well fed, and she will give you a good big flow of not very rich milk, but by feeding her a good, rich grain ration, you will get some richer milk.

Mr. Briggs—You say you can't tell us exactly what your cows pay. Wouldn't it be better if you did keep a better account?

Mr. Meyer—Yes, I think it would be the proper thing to keep a strict account, but I never got into the habit of it.

The Chairman—Do you grow pretty much all your feed on your own farm?

Mr. Meyers—I only grow the roughage. I buy my concentrated food, all the grain.

The Chairman—How many acres have you?

Mr. Meyer—I have got a hundred and twenty acres of land, but some of it is not fit for farming, it is swamp. I can turn out practically about eighty acres for the use of the cows.

Question—How many cows do you keep?

Mr. Meyer—From twenty to twenty-seven. We have got twenty-six cows and heifers now.

Question—Do you have a silo?

Mr. Meyer—I used a silo for five or six years. I wanted to keep more cows, and I had to tear the silo out of my barn. I intend to build another one outside.

Mr. Potter—How many dollars' worth of butter have you sold during this last year?

Mr. Meyer—We sold a little over thirteen hundred dollars' worth of butter, nearly three hundred dollars for hogs, and I got forty-eight dollars for fat cows, but I sold out also some two hundred dollars' worth of timothy hay,—something over two thousand dollars.

Mr. Faville—How much did you pay out for feed?

Mr. Meyer—Something over four hundred dollars, leaving sixteen hundred dollars for my year's work.

Mr. Faville—What kind of feed do you buy?

Mr. Meyer—Peas and wheat bran mostly; sometimes I buy a little other grain when I can get it cheap.

Question—How do you feed your corn?

Mr. Meyer—Only fodder corn with the ears on.

Question—What do peas cost per bushel?

Mr. Meyer—Ten dollars a ton. They are going up now. I grind them with a windmill.

Mr. Briggs—Do you buy good marketable peas or cracked peas?

Mr. Meyer—Good marketable peas would be about fifteen cents a bushel. I buy peas that the dealers clean out of the peas the farmers bring to market.

The Chairman—Do you grows peas yourself?

Mr. Meyer—Only for hay, and I find them first class, good peas, that is, peas and oats mixed, cut green. It makes a good hay.

Mr. Linse—In feeding ensilage can you feed a smaller grain ration than otherwise?

Mr. Meyer—I don't think I could much; I always fed a large grain ration.

Mr. Goodrich—Can you raise corn in your place?

Mr. Meyer—Yes, first rate fodder corn.

Mr. Baker—How many pounds of bran in your grain ration?

Mr. Meyer—Five pounds of bran and five pounds of ground feed, that is the average. Some don't get that much and some more.

Mr. Briggs—I wish Mr. Meyer would tell us about his method of handling fodder corn. In this section there are as good samples of corn raised as anywhere in the state. About how much corn is there in that corn fodder that you feed?

Mr. Meyer—I am unable to say. I never husk or shock any corn, it is all left in the fodder, but there is lots of big ears on it. I use the Improved Pride of the North fodder corn, and it is run through the cutter and mixed up with hot water with the other grain.

Mr. Briggs—Do you prefer that way of feeding fodder corn to the silo?

Mr. Meyer—No, I rather prefer the silo.

Mr. Briggs—What does your butter average a pound during the past year?

Mr. Meyer—What I ship to a commission house in Chicago I get top prices for, and have done so for five years.

The Chairman—The average in the Chicago market has been about twenty-two cents, or a little less.

Mr. Meyer—But I ship most of it in the winter when prices are up.

Mr. Aderhold—Would you feed silage in preference to fodder corn?

Mr. Meyer—Last year we had no fodder corn when I was feeding from the silo. This year we had a big crop and I had no time to put up the silo.

Prof. Haecker—You stated that you would not reject the cow because she failed to show the desired amount of butter fat in the first year. Why have you come to that conclusion?

Mr. Meyer—I say you cannot test a cow fairly unless she has been full fed for a year.

Prof. Haecker—One of our most successful cows showed up badly at first. She only gave about two thousand pounds of milk, a hundred and sixty pounds of butter, but we banked on her form more than on that test the first year, and were not disappointed later.

Question—What is your yield of butter in pounds per cow during the year?

Mr. Meyer—The cow that does not make close to three hundred pounds I would not keep long. We dispose of from five to eight every spring, some on that account.

Prof. Haecker—I think perhaps that has been stated rather strongly. I would keep a cow provided she was of the right kind. I would stay by her at least a year. If she did not give satisfactory results the second year, then I would dispose of her.

Mr. Briggs—I understand from Prof. Haecker that if a cow is of the true dairy type, you would hang on longer than if she were of the beef type.

Mr. Meyer—I believe that I have made mistakes by rejecting cows too young.

Question—Under your style of feeding is it possible that a cow would be profitable to you after she reaches nine years of age?

Mr. Meyer—Yes, I have kept some older than that.

The Chairman—Now, Mr. Meyer, there are hundreds of farmers up here in this county that are very much in the condition you people were when I went up there the first time. Now, when you made your butter you did not depend upon a local market for it, you got the ideas right there in that Farm Institute of making better butter, feeding better, and making it for a market that was a butter market. Where did you send your butter when you first made it?

Mr. Meyer—I sent it right away to a commission house, Merrill & Eldridge, in Chicago.

The Chairman—You got a little anxious about it, didn't you?

Mr. Meyer—Yes, I did.

The Chairman—And you got some right good lessons from that market?

Mr. Meyer—Yes, I think it taught me a great many things.

The Chairman—I have seen farmers who have sent a batch of butter to a commission man and he would write back that the butter wasn't right, and they would get mad right off and declare that the commission man was a fraud and all that sort of thing. You know that lots of men and some women cannot

stand it to hear things said against their butter or their babies, but there is a good point in that statement of Mr. Meyer's. When you take butter into the market here in Chippewa Falls, the merchant will not tell you the truth, and there is nobody blames him for not doing it; but if you send that butter to Chicago, or to a commission merchant anywhere, in a butter market, the truth comes back to you with a slap in the face, and you are apt to be told just what is the matter with your butter.

Mr. Goodrich—That reminds me of the time when I was trying to get an education. I invested some money in buying butter and selling it. I got as good butter as I could; I shipped it to a commission man and each man's butter was marketed separately, so that I could know whit it would sell for, and there was a great long list of it came back. On that list it commenced at the head a certain name, forty-three cents a pound; another name commenced at thirty-two cents a pound; another name, C. P. Goodrich, thirty cents a pound, and it went down to fifteen cents a pound. Of course those that made the fifteen cent butter I didn't bother to buy any more of. They were all my neighbors, and the man that made the forty-three cent butter I thought a good deal of, and I went right off to him and contracted his butter for six months at twenty-eight cents a pound. He said to me, "Are you doing pretty well with it?" I looked at him, I knew the man pretty well, and I took out the list and showed him where I had just sold his butter at forty-three cents a pound. He says, "You are doing well, ain't you?" "Yes, I am doing well with yours." He says, "You are well satisfied." Says I, "No, I ain't." "What is the matter?" "Well, I don't like to see opposite the name of C. P. Goodrich the figures 30 cents. I want to see opposite mine 43 cents." "Well," he says, "you have not made butter as long as I have, maybe you will be able to do it yet." I says, "I don't want to wait so long, I want to learn something from you," so my wife and I went over there, and we learned something, and prices began to be better on C. P. Goodrich's butter. In those days butter was high. I shipped some butter down to Smith & Dexter, the predecessor of Merrill & Eldridge, and Mr. Dexter wrote back to me something like this: "I

found long ago that it was not safe to tell a man the truth about his butter, but something tells me that it will do to risk it with you." So he went on and he criticised the butter pretty sharply. Well, now, I knew better than to get mad, but I couldn't help it very well, and I will tell you why. My wife made that butter, and I knew she made the best butter in the world, just as every man knows that his wife does. I had a notion to get mad, but after thinking it over awhile I thought that wouldn't do, and I wrote back to him and thanked him and I told him that if ever he could help me by criticising, to go ahead for I wanted to learn. And that is the way I learned, from that and from selling other people's butter. I found out that it was our business to suit the persons that had money and were willing to pay high prices.

Mr. Thomas—I want to shake hands with that fellow. I was in the same boat at that same time, and I got my pointers from Mr. Hoard and Mr. Smith. When we commenced making butter we depended on the local market entirely, but latterly we have shipped to the same man that Mr. Meyers does and we are always glad for pointers; they write back and tell us just what the matter is. I notice that after the third shipment our butter sold within a half a cent of Elgin. They had told us just exactly what the faults were and we remedied them.

The Chairman—You remember that in the Book of Revelations, St. John, the Revelator, speaks about a certain thing that was bitter to the mouth but sweet to the belly. When men are so sensitive that they have no sense—many a wife knows all about that concerning her husband—he fails to see what is to his own benefit. Is is so with this matter of the sharp criticism of the market. Let a man be thrown right onto it so that he has to climb, and there is some hope of salvation for him. The trouble with the outlying farmer all around in our state is that he will not put himself into the sharp light of the truth. He is trying to hide his defects instead of curing them.

DAIRY MANAGEMENT ON A DAIRY FARM.

W. C. Bradley, Hudson, Wis.

In presenting this paper the writer does not expect to give much valuable information to the older dairymen of Wisconsin, like Uncle Goodrich, Beach, Curtis and many others who know more about dairying in a minute than the writer does in a week; but to the young man just starting or the older man who is changing from grain raising to dairying, I hope to present some ideas that may help them to success. In the first place the man should have a happy, cheerful, generous disposition, who sees the sunshine in life and forgets the shadows. A morose, fault-finding, unhappy man will not make a successful dairyman, for we must be generous in our feeding and care, making our cows happy if we expect them to make us any money. And the man who gives it his whole attention, studying his cows, the composition of feeds, how to get a balanced ration so his cows can digest all the food and convert it into milk and not be overtaxing the system with indigestible food as would be the case were the ration too wide or too narrow, who weighs and tests his milk for butter fat, who studies bacteriology in its relation to dairying, who studies the markets and puts his product in the best possible condition to sell, who attends dairy meetings, reads dairy papers and advertises his product in a business-like way, is the man who will succeed best in dairying. And yet not one man in a dozen who is keeping cows ever thinks of these important things. In order for a grain raiser to change and become a dairyman he ought to attend a revival like this meeting and get converted, have a change of heart as sinners do when they join the church. I remember the first meeting of this kind I attended was at Minneapolis, where I listened to Gov. Hoard lecture the dairymen of Minnesota on the wickedness of the man who would ill treat a cow, dwellin especially on the care and handling at calving time, showing the difference between the dairy and beef types. And it was all new to me for I had been raising grain and paying little attention to the cows, but I went home

converted, as I hope some one will do after hearing the governor talk at this meeting.

Bill Nye, when he lived in Hudson, undertook to combine dairying in a small way with humorous journalism. He bought a family cow that was warranted to possess all the qualities of a saint, with the richness of a Jersey's milk, but she gave William much trouble. Instead of going home, when driven into town by the herder in the evening, she would wander around among the neighbors and Mr. Nye would usually find her in the pound, and it would require twice the price for pulling a tooth to extract her from the clutches of the pound master, which would make William angry and his neighbors would make fun of him. But one day he told them his cow had experienced a change of heart, in fact had become very much attached to her home. So the neighbors went over to see what had wrought such a change in the cow and found she had become attached to her home by a 20 foot chain around her neck, fastened to a fence post. So I want you to become converted and have your cows become attached to their homes by a different method.

In building up a herd of dairy cows start with the best you can afford to get. Buy a full blood sire of one of the dairy breeds, saving the heifer calves from your best cows. Feed these calves on skim milk, oil meal, oats, bran, clover hay and ensilage. Keep them growing, but do not let them become fat. Avoid feeding much fattening food. If summer calves, keep them in the stable in a box stall, away from the hot sun and flies. I am not sure which is the best way to handle the calves at first, whether to let them suck their mothers for three or four days, or to take them away at once. I used to let them remain with their mothers, but have lost three fine full blood calves this year when two or three days old with stomach trouble, and think it was caused from getting too rich milk by sucking. So lately we have put the calves in a pen as soon as found so the mother could reach the calf; then milk the cow and dilute about one-half with skim milk. Since doing this have had no trouble and calves grow fine.

BUILDINGS.

Manage to have a good barn, even if you have to go in debt for it. Competition is becoming so close that we must make our cows produce more pounds at a less cost than formerly, and to do this barns should be arranged so the work can be done in the easiest manner and save all the feed possible. The barn should be warm in winter, and well lighted windows on all sides if possible so the sun can shine in all day in the winter, and in the summer they can be removed and thin gunny sacks, colored black, tacked over the frame which will let the air through and darken it somewhat so the flies will not be bad. The walls of the stable should be whitewashed every spring or fall, then with plenty of sunshine in the winter it will have a cheerful look, and you often see cattle covered with lice in a dark, damp stable but seldom in a well-lighted one. Then by the liberal use of bedding and some land plaster or air slacked lime the stable can be kept sweet and clean, and there will be but little danger of cows being affected with tuberculosis. Sunshine and whitewash are just as essential in dairying as in politics.

Manage to have mow room enough for all the clover hay your cows will need, for if stacked in the field without being covered it will damage from 30 to 70 per cent. Manage to have a silo handy to your feeding alley that will hold three tons for each cow you will winter. After feeding seven years from a silo (and it seems to be as good now as when new) I think I can store more good feed at a less cost and waste less in feeding than any other way, and I believe it keeps the cows in a healthier condition. I used to have trouble with cows freshening in the winter on dry feed, but since feeding ensilage have not had a single case of sickness at calving time, and I think it partly due to the succulent food. I know in many places in Wisconsin the silo has had a black eye because the first ones were poorly built, often from one thickness of lumber and too light studding sometimes set on the ground and rotted off in a year or two. And then at first they were filled with B. & W. corn which did not mature and the ensilage was sour, but those

who built right and are filling with well matured corn never have found fault with the silo.

WINTER MANAGEMENT.

As soon as the nights become cold in the fall, cows should be stabled. Never allow your cows to lie down on frozen ground. More cows' udders are spoiled from lying on snow or frozen ground than from any other cause. Garget, inflammation, bloody milk, stoppages in teats, frozen teats, can all be avoided if cows are properly cared for. Be careful of your cows that freshen in the winter; do not let them out of the stable for three or four days after calving; give them warm water. Treat them as gentle as you would a human mother. If they show signs of high fever give 10 to 15 drops aconite or Humphrey's Fever Specific every two hours till fever subsides. Feed light for the first week, gradually increasing the feed. I know there are many men who call themselves dairymen who will say this is all bosh and nonsense. But I saw a good cow last winter that had calved out in the yard on a bitter cold day, whose udder become so inflamed that half of it rotted off and the cow came near dying, and I am sure exposure was the cause.

I have heard men object to these dairy bred cattle because they will not stand the abuse that the common cattle do, and this is true. A neighbor some years ago bought a Holstein sire and turned him to the straw pile with the rest of his herd. He said he wanted to see if they were better than common stock. I told him unless he treated him better than the common stock he would not do as well, but he said the way to find out was to let them all rough it. Well, he has not made a success of dairying.

The feeding, watering and milking should be done by the same men each day and at regular hours. Water should be warmed if cattle are turned out to drink. A better way would be to have water before the cow so she could drink at will. A cow giving milk in winter does not want much exercise, although I think they enjoy themselves in the open air for a little while on nice, warm days. Winter is the time to make butter; and with improved methods we can feed cows as cheap in the stables in winter as on pastures in summer.

SUMMER MANAGEMENT.

As soon as the weather becomes warm you ought to have a few acres of fall rye to use for the first pasture in the spring so as to let the clover or blue grass pastures get a good start. Then as early as you can, sow an acre or two of peas and oats and plant an acre of early sweet corn and sow some early millet. Then when pastures begin to dry up in July, begin feeding the peas and oats in the mangers, following with the early corn and millet. The hardest thing to get a new beginner to do is to feed during the summer. Don't let the cows dry up but begin feeding at the first signs of shrinkage. A few tons of bran at this time of year will usually pay double its cost in keeping up the flow of milk. During fly time, keep the cows in the stable day times. Give their legs and shoulders an application of fish oil twice a week. Perhaps a kerosene emulsion would be just as good and cheaper.

Be as punctual about milking in summer as in winter. I know there is a temptation to let the milking go till late, in the busy time of haying and harvest, but let the other work take second place and tend to the cow.

MANAGEMENT OF MILK.

In testing milk in different parts of the state we find that a great deal of butter fat is left in the milk, sometimes as high as 1 1-2 to 2 per cent. If you are using the deep setting process be sure your milk is strained into ice water as soon as milked and plenty of broken ice kept in the tank all the time, but some one will say if you break the ice up fine it will melt too quick. Now that is just what you want it to do in order to get a good separation. The milk must be cooled rapidly. Do not expect to get a good separation by using well water without ice. Get a test and try your skim milk. If you buy a separator get a test and know that it is doing good work. The separator ought to skim to .01 of 1 per cent., and deep setting, if properly done, to .2 tenths. Thousands of dollars of butter fat is wasted every year in Wisconsin by old fashioned methods of skimming.

If you are going to be a dairyman get as close to the top

as you can. Get good cows, good barns, good machinery, good books, good papers, be wide awake and you will succeed. To deserve success we must fit ourselves for it.

DISCUSSION.

Mr. Riley—In cooling your milk immediately after milking, do you add the second cow's milk to it before you strain it?

Mr. Bradley—No, there are usually two or three men milking. We carry the milk to the creamery in shotgun cans and no milk stands over five minutes in the stable As soon as the shotgun can is full, it is carried out and strained.

Mr. Riley—With the small farmer would it be safe for him to do that, to wait long enough to milk two or three cows?

Mr. Bradley—It would not do to strain one pailful into the ice water and then strain another pailful of milk into the same ice water. You could warm up the whole body of milk before setting it into the ice water and then the separation ought to be good.

Mr. Riley—If a cow is giving ten pounds of milk at a milking and the milk is testing five per cent., would she be a profitable cow to keep?

Mr. Bradley—That would be over a pound of butter a day, it would be eight and a half pounds a week. I should think it would pay.

Question—Would that hold good if she freshened at twenty pounds a day and did not hold it up?

Mr. Bradley—No, I think not. It will pay to keep a cow if she will make over three hundred pounds a year.

Mr. Riley—Has it been your experience when they are fed high from the first that they will keep on improving?

The Chairman—That depends on the constitutional limits of the cow.

Mr. Riley—By heavy feeding, say from six to seven pounds of an ordinary ration with the coarse food, whether she would improve to the fifth year?

Mr. Bradley—I think she will. I think a cow ought to get better each year up to her fourth or fifth calf anyway.

Mr. Aderhold—Do you think that the stable is the proper place for milk to stand at all after it is milked?

Mr. Bradley—Possibly it is not the best place for the milk to stand, but as long as it is warm I don't believe it takes on any stable odors; not until the milk gets down pretty near the temperature of the stable. Of course that does not prevent bacteria from falling into the milk.

Mr. Aderhold—Then why don't you take it out as soon as it is milked.

Mr. Bradley—Because it would be too much trouble. It is ten rods from our stable to our milk house. I suppose we could set it outside of the stable, but we haven't had any trouble in letting it stand in the stable; it doesn't stand there more than fifteen or twenty minutes before the shotgun cans get full.

Question—Do you cover your cans in the barn?

Mr. Bradley—No, sir. It is strained when it is put into the creamery cans. We set our cans under a shelf, which is some protection against falling particles.

Mr. Goodrich—Did you ever cover up any milk tight in the can when it was warm, right from the cow?

Mr. Bradley—Yes, sir.

Mr. Aderhold—I have always preached against that.

Mr. Goodrich—If you want your milk to spoil, you cover it up tight. I don't know whether it is the bacteria you shut in or shut out, but don't you do it.

A Member—I am doing it twice a day and I don't see any bad results.

Mr. Curtis—I wish to say some words with reference to the importance of getting the milk set as soon as possible in the deep setting can. Years ago in my effort to introduce the shotgun can a great deal of opposition was put forth against the use of that can and that brought about some study. I found that milk drawn from the cow at 98 degrees, which is blood heat, I found that in cooling it down to 39 degrees, that it shrunk in volume as much as half an ounce to the gallon. Well, after all my experiments, I came to the conclusion that the advantages that we get from this deep setting process come from the shrinkage of the milk during that process. A fair quality of milk is eighty-seven per cent. of water and thirteen per cent. something else; it heats or cools a great deal slower than water. Now, I reason this way, that when we put that

warm milk into the deep setting can at 98 degrees and set it into cold water, that would cool the outside of the milk in the can first, and in that cooling it shrank in volume and the outside became heavier in proportion to the inside. Hence, we produce a downward motion on the outside, and, of course, an upward current in the middle. I also reason that milk heating and cooling so much more slowly than water, that in this cooling process the water part would cool first and that the thirteen per cent. would not cool quite so quick, hence it would keep its large size, its volume, and the water portion would go to the bottom, producing this downward current on the outside. These little puff ball globules of butter fat did not heat so fast and staid on the top. I found out afterwards from the principle of the separator that my reasoning was right, and consequently it is very important to get your milk into the cold water as quickly as you can, and it must not be disturbed by the additions of milk or anything else. The water wants to be down to 39 degrees, because water shrinks at 39 degrees, and when it gets colder it begins to expand again. By this shrinking and the downward movement these two things work perfectly together. Some years ago I was down at Madison trying to introduce the shotgun can, and, about six months after that, I happened to be out passing a farm house right on the prairie, and there was a long tank sitting out in the sun with cans in it and a man was watering his horses. I stopped and I says, "I see you have got these new fangled cans, or the new fangled notion of setting milk." "Yes," says he. "Where did you get that?" "Oh," he says, "I was down at Madison last winter to the agricultural convention, and there was an old fellow there blowing about it and I thought I would try it." "Well, how do you like it?" "Oh, sometimes pretty well, sometimes they don't do so well." "Does that old fellow know you set it in the sun?" "Oh," he says, "he won't be around here, he won't know anything about it." You see you have to follow directions if you are going to make a success of this thing. I always shut up my milk as tight as possible and I almost never have anything but good results.

Mr. Meyer—Does it injure milk to put it into a Cooley can, cover it up immediately and submerge it?

Mr. Bradley—I don't think it makes any difference whether your milk is put into a Cooley can and submerged, or whether it is in an open can, if there is plenty of water around the milk. We use the Moseley creamery; it will hold about ten or eleven gallons, and it being narrow, it cools very rapidly, but the top is not covered as in the Cooley system.

Mr. Faville—Would you recommend any man starting in dairying with from ten to twenty cows to go to any expense for that kind of creamer?

Mr. Bradley—No, sir.

Mr. Faville—Wouldn't you recommend a separator?

Mr. Bradley—Yes, I would recommend that, but what I want to say is that if people have these appliances, and don't want to go to the expense of buying a separator, even yet they are not doing half as well as they ought to.

Mr. Goodrich—If they have ten or twenty cows, let them go to the expense of buying a separator.

Mr. Thomas—What is the principle in this theory of putting the milk in the cold ice water? Is it simply the sudden contraction? I remember my mother used to sometimes scald the milk in order to force the cream up.

The Chairman—One of the great points about this is, that the milk must be set in small quantities and shallow. In heating up, as you say your mother used to do, unless it can all heat alike and quickly, you have simply started the germs of ferment, and before you can get it cooled down again it will commence to sour. In the cold setting, you plunge this cube of milk into very cold water; the shrinkage commences at once, and forces the butter fat to the top just the same in one sense as you do in the separator.

Mr. Bradley—I want to ask some one in this audience as to the better way of handling calves the first few days. As I have told you I have lost some fine calves this last year by letting them remain with the mother, and have lately changed my plan, taking them right away, diluting the milk, and I have done better. I have got grades and full blooded Jerseys, and I don't like to lose them.

Mr. Thomas—I had a good deal the same trouble two years ago, and I lost two of the best heifer calves I had. After that

I put the calves on some cows that did not give such rich milk, and have had no trouble since.

Mr. Burchard—What age were your calves when they died?

Mr. Bradley—From two to four days. They seemed to be nice and healthy for the first twenty-four hours, and then they would die with some stomach trouble, being sick an hour or two.

The Chairman—Gen. Burchard has had some experience on this point. Tell us what you know about it, General.

Gen. Burchard—I don't know anything about it. I don't believe anybody knows anything about it. I have had the same trouble that Mr. Bradley speaks of, and I have imagined that it was because the milk was too rich in some way. I don't know whether it is the fat in the milk, or whether it is something about what they call the first milk, the colostrum. I cannot quite bring myself to believe that it is simply the butter fat that does it. We have been disappointed in trying to raise a full blooded Jersey calf for two years. We had let the calf suck and we would lose it. This year we are going to raise the calf, but we didn't let it suck its mother.

Mr. Linse—I have had the same experience.

Mr. Woodward—We use a rectangular churn, and have been having trouble with the cream. The churn gets filled up. I have heard that they ought not to be more than one-third full. Perhaps that is part of the trouble, but I think not all.

Mr. Bradley—What temperature do you churn at?

Mr. Woodward—About 70 or 65; it depends on the atmosphere.

Mr. Bradley—What condition is the cream in, thick or thin?

Mr. Woodward—We usually have it so there is a little acidity to it, we do not let it get thick.

Mr. Bradley—Any fresh cows?

Mr. Woodward—Oh, yes, we have fresh cows the year around.

Prof. Haecker—I want to give some of our experience in regard to calves dying. It generally comes at the close of the second or third day that they show signs of sickness. Unfortunately for us the calves that die are the very ones we want to save. Sweet Briar, a valuable cow that gave about

four hundred pounds of butter a year, her calf took sick, and we concluded there was some trouble with the milk and changed the calf to some other cow, and since we commenced that we have lost no calves.

Question—How would you feed a calf, say a day old?

Prof. Haecker—From three to six pints at a feed, according to the capacity of the calf, and we feed only twice a day.

Question—I think that calves are as liable to have trouble from getting too much milk in the stomach as from the richness of the milk. We have been successful in letting them nurse the dam for a little while and then taking them away.

Mr. Linse—I raise hundreds of calves, and it quite often occurs that when you put them on skim milk, it is bad for them. The best remedy I find is to feed them often. I never undertake to feed a calf less than three times a day. As soon as it gets off its feed, instead of feeding them three times a day, I feed very little at a time, but give it to them a half a dozen times a day. I warm it up to about 90 or 95 every time.

Mr. McIntyre—Does the time of the year make any difference in this matter?

Gen. Burchard—We have had just the same trouble in the summer as in the winter and just the same in the spring as in the fall. If we could only treat our calves and our cows as we treat ourselves and our horses, it would be all right. You take your horses, you will put before them more hay than you can carry, and they eat it and no harm is done, but you let your horse or your cow go to the meal bin and fill themselves up with concentrated food and there is trouble every time. Now, one cow has in her milk perhaps fifty per cent. more of butter fat than another cow, or perhaps a hundred per cent. more. What is the result? When the calf has had precisely the same amount of milk, it has got twice as much of the solid nutriment in that milk whatever those soils may be.

Mr. Philips—The keynote of the situation is this: I don't think nature has arranged the cow so that she gives milk that is too rich for her little calf. I think there is no food that does a calf as much good as that which comes from the mother. I think the trouble is that the calf takes more of the milk than it ought to. Mr. Haecker feeds only twice a day. You

let a calf have its breakfast of this rich milk, and then you leave it till night, and it gets very hungry, and will take more than is good for it.

Mr. Monrad—I would like to ask these gentlemen who lost their calves whether the calves were running all day and night or whether they let them suck them only twice a day.

Mr. Bradley—Two of the calves that died ran with the mother all day. The one that died last summer was let in to the mother twice a day, morning and night.

CARE AND FEED OF DAIRY COWS.

W. D. Bartlett, Eagle Point, Wis.

When I look over this audience and see those here who have grown gray practicing the art of caring for and feeding dairy cows in the older settled parts of the state, I feel as though I was entirely out of place in attempting to tell any one how to do the same. Perchance by my giving some of my experience in that business in this part of the state, I may help some one here who thinks of trying to start a dairy. Probably there are some here who can remember how our cows used to fare here 25 to 35 years ago. They used to have to get their living in the brush in the summer and from the straw stack in the winter, and look to the straw stack for protection from the cold and storms. We have found out that that course will not do. We find that to get the best results from our cows we must keep them comfortable by night and by day. It is not necessary to have expensive stables or barns; they must be warm, have plenty of light and air. We have warm stables, well lighted, and through the cold season keep our cows in them most of the time, letting them out once a day to water them, having warm water for them to drink. To get good results from cows I do not think that they should be compelled to stand out in the cold all day and drink ice water and hug a wire fence for protection, even if they have warm stables at night. We try to get our cows to eat all they can, believing that a cow is simply a machine to convert rough products into milk,

from which to make butter or cheese, and the better the machine the more profit there is. There is much more profit in keeping a cow that will make 300 pounds of butter per year than one that will make 100 pounds or 150 pounds. We have usually in the few past years fed our cows hay and ground feed mixed with bran. Last year we cut our corn fodder after it was cured, with very good results, but this last summer we built a silo and in the fall we put in 15 acres of corn and find it the cheapest feed we ever used. We think the silo will save us enough this winter to pay for the cost of it. And our stock has never looked as well as this winter, and considering their age our cows have never done better. They have been averaging one pound of butter per day this winter. Three of them are five years old, five are three years old, three are two years old this fall. Our cows have averaged 300 pounds per year for several years.

In feeding our cows this winter we feed ensilage in morning before milking, with their meal on it. The meal consists of two parts bran and one part ground oats. We tried feeding one part bran to two parts ground oats, but found that the cows were drying up and we had to change. After milking they are fed a light feed of hay, then at 11 a. m. they are turned out to water, put back in stable and given another feed of ensilage; then given a light feed of hay. At 5 p. m. they are fed more ensilage with their meal on it, same as morning. After milking they are fed some hay for the night. I presume this mode will not agree with the practice of some people, but we get very good results. Our cows are looking well and giving very rich milk, testing from 6 to 8.2 per cent. butter fat at the institute held in Bloomer last December. Bear in mind, my friends, that cows must be treated kindly, have good care, plenty of good food regularly, warm water, and then if you have good cows you will get good results. If they are not good ones, all the pains and care will come to naught.

DISCUSSION.

The Chairman—Does it ever occur that when a man stands up as Mr. Bartlett does and gives you in a little fifteen-minute paper the concentrated essence of years and years of hard

study and thinking and labor, does it ever occur to you that when you go back over that man's study on his farm and on his cows, that when you find a three hundred pound cow she is an evolution? She has evoluted in his hands. A great many men come into a convention like this and they hear men talk as they have talked here, and they go away and they say, "Well, that is a plumb lie, and I know it." I have heard them say it. "I don't believe in that cow, I ain't got no cows that's that way." It is so hard to run against this spirit of skepticism. Let these men stand up and show what men may do and have done.

Question—I understood you to say that you feed seven pounds of grain, five of bran and two of ground oats, on the average to each cow.

Mr. Bartlett—It is two parts of ground oats to five of bran. We are feeding from six to fourteen pounds a day according to the cows. Perhaps eight or nine pounds on the average.

Question—Your grain is costing you only five cents, with oats worth half a cent a pound. It seems to me there is a big profit there.

Mr. Bartlett—If we didn't think there was profit, we would not follow it. Perhaps I should have mentioned that our ensilage is corn with ears and all cut up together.

Mr. Faville—How much does your ration cost you per day?

Mr. Bartlett—I haven't figured it exactly. I should hardly think it would cost over twelve cents a day at present prices.

Mr. Faville—And butter is worth twenty.

Mr. Bartlett—We sell our butter at twenty-five cents the year around.

Mr. Faville—How much is your silage worth a ton after you get it into the silo?

Mr. Bartlett—Well, we figured it up, when we got through filling, my son and I, and I think it figured somewhere in the vicinity of a dollar fifty a ton.

Question—How many pounds a day of silage do you feed your cows?

Mr. Bartlett—From twenty to thirty-six.

Mr. Faville—I don't see where you get your cost in at twelve cents.

Mr. Bartlett—I don't think it will figure up ten cents. We give them some hay.

Question—I should think that if the gentleman took as good care of his cows as he seems to have done, that it was worth something for his work.

The Chairman—That is where his profit comes in.

Mr. Bartlett—The produce of our farm we keep on the farm.

Question—Do you think you would get any better results from mixing your grain ration with ensilage than to feed it alone dry?

Mr. Bartlett—Our ensilage is almost dry. I never saw as dry ensilage as ours is this year, and I don't know what the reason is. I am in hopes to learn something about ensilage while I am here.

The Chairman—It probably was pretty ripe.

A Member—Last winter in an argument in regard to feeding, a man who is said to be well posted, said that five pounds of grain feed would accomplish as good results mixed with silage so that the cow would get the grain mixed up with the coarser food as ten pounds fed alone; that if the grain ration was fed dry and alone that it would not go through all the processes in the different stomachs and become properly assimilated and digested. Can anybody tell us anything about that?

The Chairman—Who has ever been on the inside of a cow anyway?

Mr. Faville—I have lots of times, but they were dead.

The Chairman—It is a dark place.

The Member—This man claimed he had fed the cow and killed her inside of an hour.

Mr. Briggs—I think the trouble with the ensilage being too dry was that it was pretty ripe when it was cut.

Mr. Bartlett—That is what we thought. Some of it was glazed, some of it was Pride of the North and some Flint corn. It was so that persons could pick their seed corn out of it all right. The ensilage has kept very well though.

A Member—I wish, if the gentleman goes home tonight, he would bring some of that back tomorrow; I would like to see some of it.

Mr. Thomas—In feeding the grain ration alone, it would make quite a difference in which part of the feeding process he fed it, whether before or after the rough food. I think if you feed the rough food first and then the grain directly, they will remasticate the food all right, but if you feed the grain food first, it might go through all the stomachs without being remasticated.

Question—Are your cows doing better with ensilage than before you had it?

Mr. Bartlett—I don't know that they are making any more butter, but they are looking much better, they are in better flesh; sometimes I think there is too much corn in our ensilage.

The Chairman—Do you think you are making your butter at less expense than before?

Mr. Bartlett—Oh, yes, I think it is much less.

Question—What is the right stage of corn to go into the silo?

Mr. Goodrich—I think about the right stage with Flint corn is after it begins to glaze, with Dent corn after it begins to dent. It is just about the stage when I used to say to myself, before I had a silo, "Now is the time to commence cutting up my corn. It will shrink a little bit, but I want to save all the fodder I can, and it will be too ripe if I don't commence now." I think Mr. Bartlett's ensilage is all right, as long as it is not spoiled. I want it as ripe as I can get it and not have it spoil, for I think it has more nutriment in it then than at any other time, and if it has moisture enough in it so it won't spoil in the silo, I should say I had got it just right.

Mr. Bradley—Does your ensilage usually heat up pretty hot so as to color it considerably?

Mr. Goodrich—Sometimes it does, so it is a little brown and sometimes is it green. Dry ensilage gets hotter than that that has more moisture in it. It will be brown on top.

Question—Would you advise putting water into your pit?

Mr. Goodrich—I never have used water.

Mr. Bradley—Two years ago was a very dry season, and the corn had dried up, and as we put it into the silo, there were sixteen gallons of water to each load sprinkled on the silage

as we scattered it around in the pit. We put it on with a common water sprinkler, and all the silage came out as good as it went in.

A Member—We put four pails of water to an estimated ton of corn.

Mr. Linse—Fifteen years ago, when I first built a silo, we put the corn into the silo just about the time it began to tassle out. Of course, we found that was a mistake. We learned from our farm chemists that the most feeding value was in the corn after it was fully developed. Then I went to the other extreme and let my corn get too ripe. I have learned to take the middle path and we have good silage now. In such things we must take the opinion of the animal, as well as the chemist. When the corn is too ripe some of the fibre becomes indigestible. I commence when it has just about a good roasting ear. About the time I get through it is pretty near ripe anyhow.

Mr. Bates—Why is it necessary to feed hay while feeding ensilage?

Mr. Linse—They have got to have some kind of roughage, hay or straw, or some kind of fodder, and the variety is the principal thing; they won't do well on silage alone.

Gen. Burchard—Did you ever haul a load of dry, last year's or year before straw through a nice fresh pasture where the cows were and see them come up and appear to be hungry, fairly ravenous for it as though it was the very best fodder in the world? A cow likes change. In connection with silage she needs some dry fodder. I think clover hay is better than straw, if you have it, but if you haven't it, give her straw or a little timothy hay. If you haven't either, I would prefer to save a little of the corn outside and dry it and make stover and give it to her.

Mr. Faville—Or what is still better sow a few acres of oats and peas together and cut them for hay, save them just as you do hay. Do not thresh them. Cut when the oats are ripe without paying any attention to peas. Last year my nephew was milking sixty cows and the only feed they were getting was what they would eat once a day of this pea and oat hay, and once a day ensilage, and that herd of sixty cows averaged twenty-five pounds of milk a day.

Mr. Thomas—For filling the silo I think it is a good plan to plant some flint and some dent corn; in that way you can fill your silo and have it all about the same ripeness.

Mr. Baker—It seems to me that instead of advising the farmers here to grow oats and peas for hay, I would sooner save and get under cover the immense amount of corn stover I have seen standing out here in the fields. I don't see any good of advising men to grow what they have already got, if they will only take care of it. I have seen hundreds and hundreds of tons wasted in the fields in a way that we in the eastern states think we cannot afford to do.

The Chairman—In 1886, by the report of the station agents in Rock county, there was shipped into Rock county $460,000 worth of fodder, and there was an acre of corn fodder that year for every hoof that there was in Rock county. If there is a wasteful, wicked and unconscionable mortal on earth it is a farmer that wastes corn fodder.

Mr. Faville—He wants to save his corn fodder and have oats and peas besides, so that the cow can have a variety which is necessary according to the universal testimony of the best dairymen in Wisconsin.

The Chairman—One of our creamery patrons was complaining about the price of oats, twenty cents a bushel, and I said to him, "Why do you sell oats for twenty cents a bushel when you can get sixty?" and his eyes went wide open, and he says, "Where, in what market can I get sixty cents a bushel?" And I told him that there are three pounds of butter in every bushel of oats when fed to a good cow, and his butter was netting him twenty cents a pound. He says, "I don't believe a damned thing about it." If somebody could come and lift this terrible cloud of skepticism and unbelief from the minds of the average Wisconsin farmer, some son of David, it would be a most grand thing.

A Member—Don't you think with oats at twenty cents a bushel it would be a good trade to sell them and buy shorts at eight dollars a ton?

The Chairman—I guess the trade would be good enough, but it is a rare thing to find men that will feed either oats or bran.

A Member—Does it pay a dairyman to make butter and sell it at eighteen cents, shipping it to the market?

The Chairman—That depends upon the kind of cow that he makes that butter from. It takes one hundred and fifty pounds of butter at 25 cents a pound to keep a cow a year in Wisconsin, and the average of the state of Wisconsin is not a bit above a hundred and fifty pounds to the cow; now, whether it pays at the present prices, depends upon the sort of cow a man has. It takes a hundred and fifty pounds of butter at twenty cents a pound, which makes thirty dollars, to keep a cow. The question is, What is a man doing that is paying no attention whatever to increasing the producing power of his cows? He pays no attention to reducing the cost of production so that he may have some profit out of a low market. He is working along entirely without good brains, good thinking, good studying. He is trying to do a thousand dollars of business with fifteen cents worth of brains. Now, that won't do. These men are not here, they are not the kind that are asking questions here. There is a great population in this county today, and yet how few are present in this meeting. Today we are confronted with low prices, and the great question is, How can we make a profit even at the low prices? A cow that will give you three hundred pounds of butter a year at twenty cents a pound on the average, will give you sixty dollars' worth of butter; if she costs you thirty dollars to keep her, you have thirty dollars left. Now, how shall you reduce the cost of production? By increasing the production per cow and keeping less cows. We are today carrying in Wisconsin double the amount of cows that we should, and they are of a character that makes it simply brainless to carry them at all. Among the men who are here who have been successful in dairying, you will find universally that the first thing they have done is to endeavor to improve the producing power of their stock so that they will not have a single cow, which, even with low prices, will not give him some profit, and I submit to you, gentlemen, these principles are so simple and practical that any man ought to understand them. If a cow is a good one she leaves you on the right side of the market and not unless she is. The principle of reducing the cost of production is founded

on two things; first, the character of the cow, and second, the production of the food on the farm. The dairyman is in commercial relations with the cow in two places, first, as to the character of the cow, and second, as to the character of her feed. When we have a dairyman who is keen and intelligent enough to produce a sufficient amount of food on his farm, and of the proper kind, growing his own protein on the farm, peas and oats, and not buying food as too many do, then he will begin to see his way clear. In one year's time we unloaded from three stations in Jefferson county 460 carloads of bran. Now, we have been bringing in bran and buying feed to a large extent. Here was a chance for the intelligent farmer to use his brains, he must have protein food for the cow. He found that he could grow peas and it would be very profitable. In Nova Scotia and Prince Edward Island, I saw men who are making money on land that you and I today wouldn't swap for an acre in Chippewa county, looking at its natural fertility. They were putting a large amount of intelligence on poor land and they were getting good pay for it. We reverse the operation here.

Mr. Goodrich—I would like to have some of these dairymen who have kept accounts tell us what it costs them to make a pound of butter.

The Chairman—Prof. Haecker, give us the proposition between Dora and Dido.

Prof. Haecker—Dido made 261 pounds of butter during the winter when we took account of the cows, and the butter cost us 17 1-2 cents a pound for her food, and Dora made us during the year 446 pounds of butter, and the cost was 11 cents. The food cost for the year was 8 cents, but the food cost for the winter was 11 cents. With Dido for the year it was 12 and for the winter it was 17 and a fraction.

The Chairman—We are all the time bothered with this question of the cost, and doesn't that show us the key to unlock the door? If the cost of a pound of butter with Dora was 8 cents for the year, and with Dido was 12, there is a profit of four cents a pound between the two cows.

Mr. Goodrich—What did it cost you, Mr. Bartlett, to feed your cows a year?

Mr. Bartlett—I think somewhere about $35, perhaps a trifle over, but it will not cost us that this year, because we are keeping our cows cheaper than ever before on account of the ensilage. I don't believe it will cost us over thirty dollars.

Mr. Goodrich—You have 300 pounds of butter and there is something else you get from the cow?

Mr. Bartlett—Yes, we get the increase and the by-products, and then we have the fertilization kept on the land.

Mr. Goodrich—And you have sold your grain to the cow at the highest market price at that.

A Member—Wouldn't you lay some of the difference in cost between these two years to the mildness of the weather this winter?

Mr. Bartlett—It has made but very little difference with our cows, for we have a warm barn, and we keep them in the barn all winter except to turn them out to water. I would like to ask some of these gentlemen whether they practice cutting their corn into the silo with all the corn on, or whether they pick it off mostly.

The Chairman—According to the show of hands, they do not pick it off.

Question—How many pounds is it necessary for a cow to give you to make a profit on her?

Mr. Bartlett—It depends on what you sell your butter for. The market price in Chippewa Falls is from fifteen to eighteen cents.

The Chairman—The market price at Elgin and Chicago was twenty cents or a little over, on the average.

Mr. Bartlett—Counting thirty dollars for keeping the cow, it would take a hundred and fifty pounds to pay for her keep at that price of butter.

Question—If you have a cow that was giving you 250 pounds would you keep her?

The Chairman—That would give you $20 profit.

A Member—I believe you can keep a cow for $22, as you figure it.

Mr. Bartlett—They eat some hay besides, and then there is pasture through the summer. We feed our cows every day in the year that they give us milk.

Question—What do your cows test?

Mr. Bartlett—I took a sample of milk from six of them up to Bloomer City this winter, and the lowest was 6 per cent. and the highest 8.2. They had been in milk from one to about three months.

Question—How did you take those samples?

Mr. Bartlett—We milked each cow by itself. We carried the milk into the milk room and strained it, poured it into another can, then took out some in a cup and carried it and put it in the test tubes.

Question—How much did the cows give that morning?

Mr. Bartlett—We weighed the milk, but I cannot remember it. They weighed from five to, I think, about eleven pounds per cow. There were three of those cows that were three-year old heifers.

Question—How much increase of butter did you get over the per cent. of butter fat?

Mr. Bartlett—I could not tell you. We have never kept each cow's milk separate to make our butter. Then we use milk and cream for two families out of it. We raise the cream in Cooley cans the year around, in ice water.

Mr. Linse—I want to say about watering the cows, I used to water once a day, but for the last several years I have watered twice a day, and now the cows have water before them all the time. I believe the total amount of butter fat is greater. I fed them just the same and gave them just the same care, but since they had more water to drink they have done far better. I have kept testing my milk off and on right along for years, and I find that cows which gave me five per cent. milk are still giving me five per cent. milk, and this way of watering will increase the butter fat in the milk.

Question—Don't you think that some credit should be given to the improving of a herd, and not give it all to the feeding?

The Chairman—Certainly.

Mr. Bartlett—There are many cows in this county that if a man drove them to my house I wouldn't winter them, but at the same time there are a great many cows that would stand better feeding.

Mr. Philips—I want to emphasize what these gentlemen

have said about better cows and better dairy breeding. I went to a man in an institute once, and I said, "Will you take Mr. Hoard's dairy paper?" He says, "Yes, I will take it, because he comes from the same county I did in New York." I went to another man, and he said, "I will take it, I am anxious to do better." Later on I tried to renew it with the first man, but he said he didn't learn anything from it, but the other man has taken it ever since. Now, I want to tell you what the creamery books show as to the results with these two men. The man that has taken that paper continually has carried his cows up from less than 150 a year to 400 pounds. He sold from 13 cows last December and got good money, $75 worth of cream at our creamery. He has done good reading and good thinking, and is making money. Now, the other man, that came from the same county that Bro. Hoard did and couldn't learn anything from his paper, he is a good feeder, but he has got those same old cows, and it is an actual fact that he got for the milk of twenty cows during the month of December $23. You can see the difference between these two men—one reads and puts it in practice and the other doesn't. I know of another man who reads the dairy papers and puts into practice, and has got some good cows, and he got from 18 cows last month $117, and he ain't thirty years old.

The Chairman—We have got to recognize that God Almighty has got an almighty sight to do with our work. The Chair don't want to be pitching in too much, but you are the most stimulating sort of fellows that I ever got before. We recognize the value of breed everywhere, but are so slow in recognizing it in our cows. There isn't a boy today in Chippewa county that you could persuade for any money to go out and hunt a fox with a bulldog, but his daddy will hunt butter, year in and year out, with a beef cow. There isn't a farmer that comes to the county fair that you could fool one single minute into betting on a Clydesdale horse in a trotting match, not much; but that man will bank his money and his labor and his time and bank eternity on trying to get a profit out of a cow that was bred for—heaven knows what. It is a question of the fitness of the animal for its work, this everlasting great big principle that comes down and sweeps money

out of men's pockets and into other men's pockets; it seems to be so hard to get into the comprehension of men, and though an angel came down from heaven yet they would not be converted. Right around me, among our 800 patrons, there is such an enormous variation. One man we paid last year about $60 per cow, another man about $30; there was twice the difference. There are some men that it is wholly impossible to make dairymen of, they are not fitted for it by nature. He must be close, intelligent, active-minded, a student of facts and principles, a statesman on the farm.

Convention adjourned to 7:30 p. m.

Convention met pursuant to adjournment at 7:30. Gen. Burchard in the chair.

Music, Glee Club, "Dashing on Before the Gale."

THE DAIRY COW VERSUS THE BEEF COW.

T. L. Haecker, Professor of Dairy Husbandry, Agricultural College, St. Anthony Park, Minn.

It certainly affords me great pleasure to meet a Wisconsin audience, especially when we are considering topics that bear upon dairy husbandry. It is only a few years since I left this state, being called to the Minnesota Experiment Station. When I first entered upon the discharge of my duties there, it was simply as an instructor in butter-making, but circumstances soon placed me in charge of the dairy division, including the care and management of the stock belonging to that division, as well as the manufacturing of dairy products. My first work was to make an experiment in regard to the cost of butter production in that state. I wanted to show to the farmers of Minnesota what it would cost to produce a pound of butter. I had at my disposal a herd of dairy cows, and also some odds and ends of a beef herd which had been turned over to me for the time being, and when they came in my

care I put them with the dairy cows, treated them just the same, and commenced making a record of their work.

Our general plan of work is to charge each cow with the foods she takes and credit her with the milk and butter fat that she produces. This experiment was conducted through an entire year, also including the four months following, for the reason that I wanted, in addition to making the yearly herd record, to ascertain the cost of butter production during the winter months when the cows were under our control and when we could keep an exact record of all the food they consumed. In that herd of dairy cows were Holsteins, Jerseys, Guernseys,—a few grades of these breeds, some shorthorns, some grade shorthorns and a few Polled Angus. The feed given during the winter was bran, barley, corn and oil meal, making a balanced ration so far as it relates to the protein and carb-hydrates in the feed. After the year's record was closed and we began making calculations as to the cost, we found there was a great variation, especially in the cost of the dairy products during the winter months where the cows were charged with all the food they consumed; the variation being from 10.8 cents per pound to 18.2 cents. It appeared to me rather strange that there should be this difference in a herd wherein each cow had exactly the same care and was under the same conditions, and it occurred to me that there must be some reason for this. After the tables were all prepared, I went to the yard and divided the cows into two lots. I put the cow that charged the most for her butter on one side, the cow that charged the least on the other side, and so continued through the herd. After I had the cows divided in two lots, I commenced to study the reason why the one lot produced butter so much cheaper than the other. In the first place I was considerably puzzled because there were different types of cows in the lot that charged, we will say, a relatively high price for their dairy products, while on the other side there were some cows whose product cost more than one would naturally suppose, judging from the group and the general formation. I could not draw any definite conclusion with these two divisions, but when I divided the herd into four groups the reason became very plain. I found that all the

cows having a surplus of flesh charged the most for the dairy products. There was in this group the two cows which charged 18.1 cents and 18.2 per pound of butter fat; another cow, a shorthorn, by the name of Sully, charged 16 cents and a fraction, but she deviated from this type in the proportion of the cost of butter production; that is, she carried the least amount of flesh. I, therefore, saw that every pound of flesh that a cow carried would increase the cost of the butter. Now, the second group was comprised of a lot of cows that were of the dairy type in certain respects, but they had a tendency to lay on flesh. They were medium in plumpness, but not quite so much so as the others which I mentioned. This group charged 15.1 cents per pound. Then the other two groups were all spare cows, but a certain class of these spare cows charged 14.6 cents, while another class, on an average, charged us only 12.1.

Now, the question was, Why this difference in the cost of production of these cows that were apparently of the same type? Upon closer inspection we found that one group belonging to the spare cows lacked depth through the middle. The cows that produced butter fat the cheapest were the spare cows having depth of body. The average cost of butter from the first group, of which Dido and Fancy are specimens, cost 17.5 cents per pound of butter fat. The cows carrying the least amount of flesh, having a tendency to lay on flesh, charged us 15.1; the spare cows 14.1, and the spare cows having great depth of body 12.1. Now, it seems there is a reason why the cows having the dairy type are the cows which do the best work in the dairy, while those lacking depth do not produce butter as cheaply as those having great depth of body. A dairy cow can do only two things with her food—she can either lay on flesh or produce milk. Now, a cow that eats over and above her own individual needs, the amount required for the food of support, will produce butter fat the cheapest. Let me illustrate this. Houston, a cross-bred Jersey-Guernsey, is a cow that will consume 18 pounds of digestible nutrients per day. The spare cows lacking depth would take from 12 to 13 pounds. Now, we have found by actual experiment at the Minnesota Station that it requires .8 of a

pound of protein, 8.7 carb-hydrates, and .15 digestible fat for food support, or, in other words, it requires a pound of digestible nutrients per 100 pounds of cow. Now, if a cow that requires 8 pounds of digestible nutrients, and consumes 12, uses 8 pounds for herself and 4 pounds for her master, he has only a one-third interest in all the food that she eats. Take the cow Houston, her weight being 900 pounds, requires 9 pounds of digestible nutrients as food support, but she takes 18 pounds per day, consequently we are practically equal partners in the business. She uses 8 for herself and converts 8 into dairy products. This illustrates the reason why cows that have the dairy type, yet lack depth, are not as desirable in the dairy as spare cows with deep bodies. Now, on the other hand, the cow Dido and Fancy, a Polled Angus, weighing 1,300 pounds, will require about 13 pounds of digestible nutrients per day. If they can dispose of only 16 pounds during the day, you see we have only 3 pounds left for the dairy products over and above the food of support.

There is another class to which I wish to call your attention, and that is those that have the dairy form, but have what we call a leggy appearance. This class of cows requires also a larger amount of food than the quiet, docile cow, because one of that conformation is generally restless,—if she can't move about she worries, and in that way uses energy which ought to be converted into dairy products.

After this experiment was concluded I entered upon another in feeding wheat to dairy cows, the object being to ascertain whether it would be profitable to feed it at prevailing prices instead of selling it. I had in this experiment ten cows; giving them from 11 to 16 pounds of ground wheat per day, and as much prairie hay as they would eat. We found, in carrying on this experiment about four weeks, that we could realize 95 cents per bushel for wheat, crediting the cows 20 cents per pound for butter, and charging 60 cents for a bushel of wheat and $6 per ton for the hay. They returned 95 cents per bushel for the wheat consumed, and $8.50 per ton for the hay. Now, while this experiment may not be of vital interest in connection with this topic, yet there were in that experiment, four cows under exactly similar conditions as to period of lac-

tation, condition, feed, care, and all other things. The first one in that lot was a Swiss cow, Lydia. The Swiss cattle are very heavy in bone, having heavy thighs and quarters, ribs well sprung, and generally good depth of body. Looking at these animals, an unskilled person might take them to be good dairy cows, but Lydia returned us only 83 cents per bushel for wheat consumed, and $8.26 per ton for hay. The next cow in the experiment was Topsy, a grade Holstein. This cow is in every respect of the dairy type. She weighs about 1,200 pounds, and returns $1.26 for every bushel of wheat taken, and $12.54 per ton for hay consumed. The Guernsey cow, illustrated here, returned $1.31 a bushel for the wheat and $13.08 per ton for the hay. Lou, a grade Holstein, returned $1.57 per bushel for the wheat, and $15.73 for the hay. Now, these four cows are simply different in type, the first being heavy-boned, carrying considerable flesh, but in every way showing that she requires a great deal of food to support this superfluous flesh, and to maintain the body. The cows, Topsy and Houston, are typical dairy cows. The performance of the cow Lou was rather peculiar. She is not a typical dairy cow, she carries too much flesh, goes dry quite a time and lays on flesh very rapidly while she is dry. When this trial commenced Lou was fresh and she apparently gave a larger return for the nutrients in the food warranted; deducting the food of support, it would therefore appear that cows that are carrying a considerable amount of flesh tissues all heavily charged with fat, will sometimes give in the milk either more fat than there is in the food, or else that they supply the milk with fat from the body. Whether it is done in that way, or whether they live on the surplus fat in the tissues and convert all or nearly all of the nutrients into milk, I cannot say.

After these two trials, for the year 1895, we concluded to enter upon another experiment during the year 1896, and I have in my hand a little memorandum of the performance of a few of the cows during the first three weeks of January. I will give only the totals. The first cow on the record is Countess, a large, full-blood Holstein. She gives from 25 to 30 1-2 pounds per milking. She gave during the first week of January 384 pounds of milk, making 10 1-2 pounds of butter. The

food for the week cost 78 cents. The cost of a pound of butter was 7.4 cents. The second week she gave 376 pounds of milk, making 10 pounds of butter, costing 7.8 cents. The average cost for the three weeks per pound of butter was 7.6. She is a large cow, weighing probably 1,200 pounds. The next was Topsy, a grade Holstein of about the same weight. She gave, the first week, 296 pounds of milk, making 13.3 pounds of butter. The cost of the food for the week was 85 cents, the cost of a pound of butter 6.3. The second week she gave 322 pounds, the food costing 85 cents, and the butter costing 6 cents, the average cost of the three weeks being 6.3. The next one is a grade shorthorn, a cow fresh in milk when this trial began, or nearly so. She is not only of the beef type, but she also lacks in depth, consequently she is a poor feeder, and as a rule makes poor use of the food, not converting it all into dairy products. She gave 153.9 pounds of milk the first week, making 6.79 pounds of butter. The cost of food for the week was 55 cents, the cost of a pound of butter was 8 cents, the average cost for the three weeks was 8.6 per pound. The next cow is a native having a little trace of shorthorn blood in her veins. I selected her as a fair average native cow, as we find them among the dairy herds of the state. She gave 170 1-2 pounds of milk, making 7.4 pounds of butter. The food for the week cost 55 cents, the cost of a pound of butter was 7.4. The second week she gave 154 pounds of milk, making 6.69 pounds of butter, the food costing 55 cents, and the butter 8.3. The average cost during the three weeks was 7.8. Next comes Lydia, the Swiss cow mentioned. She gave, the first week, 274 pounds of milk; you see she is a 20 quart cow, which made 9.9 pounds of butter. The cost of food for the week was 56 cents, the cost of a pound of butter 5.7, the average cost for the three weeks was 6.1. Ethel, a shorthorn of the Fancy type, a cow that carries very full quarters, but lacks a little in depth of body, was very fat when she came in, and was fleshy at the time that this trial began. She gave 236 pounds of milk, making 11.5 pounds of butter, the food costing 50 cents. The cost of the butter was 4.3. The next week the cost was 4.7. The third week it was 4.9, the average during the three weeks 4.6. You will notice how rapidly the cost of production increased

each week, being .2 cents per week. The next is a grade Guernsey, a fair type of a dairy cow, only lacking a little in depth of body. The yield of milk for the first week was 201; butter, 8.9 pounds; the cost of the food for the week 44 cents. You will notice that the other cows charged us about 55 cents. The cost of a pound of butter was 5 cents, the average cost for the three weeks was 5.1 cents. The next example I have is a large grade shorthorn cow, the admiration of the general purpose people who are connected with the Station, or interested in the work, and they thought they had me on this cow. She has had the best of care; she has had an equal chance with the rest, and she gave the first week 190 pounds of milk which made 7.4 pounds of butter, the food cost 56 cents and the butter 7.6. The average cost of butter for the three weeks was 8 cents. Last June, when I was attending the dairy convention at Glenwood, old Dora, the cow that you have heard mentioned, had an attack of milk fever, and about the time that I got home, she was nearly dead, and we lost her. I asked permission of the Board of Regents to select another cow as a substitute for old Dora. They were very reluctant to grant the request, but I was so persistent that they finally gave their consent. I went to Madison and looked over a small herd of cows, and asked the proprietor what he would charge for a certain one. He gave me the price. "And what will you take for that one?" and so on through. I didn't want to let him know which cow I wanted; he knew I would be very apt to select his best cow. So I beat around the bush a good deal, but simply glanced at the one I wanted, and when I asked how much he would take for her, he said, "You can have that one for $50." She was a registered Jersey. Says I, "I will take that cow." He says, "If it is all right you can have a little commission on that." I said, "No, I don't want any." So I took her home and the first week she gave 271.5 pounds of milk, making 14 pounds of butter. The first week's food cost 53 cents, and the cost of food for a pound of butter was 3.7. The second week she gave 277.6 pounds, making 14.12 pounds of butter, the cost being 56 cents, 4 cents a pound. The third week she gave 280 pounds of milk, and she made 14.73 pounds of butter, the food costing 59 cents, the cost of a pound of

butter 4 cents. The average cost of a pound of butter during the three weeks was 3.9 cents.

Now, see the difference in the cost of production. I knew nothing about what this cow had done; I never asked the owner what she had done, or what she could do, in fact I don't think that he knew. I simply selected her from her general conformation, I did not even touch her. As you remember, Dora and Houston were about equally matched as to the cost of production. The first week Houston gave us 239 pounds of milk, making 13 pounds of butter; the food cost 52 cents, and the cost of a pound of butter was 3.9 cents. The second week she gave 211.9 pounds, making 11.8 pounds of butter, the cost of food 48 cents, cost of a pound of butter 4 cents. You will notice there is a shrinkage in the yield of butter, the cow being a little out of condition. The next week she gave us 217 pounds of milk, making 12.2 pounds of butter, the food cost 51 cents, and the butter 4 cents; the average cost of the butter for the three weeks was 4.06 cents.

Now, this is an illustration of the difference in the cost of production, simply from the difference in type, the cows having a dairy type producing it for nearly half the amount charged by the other cows, not especially adapted to the dairy. To further show the productive capacity of a dairy cow I have here a little memorandum of the value of the dairy products produced by these cows. Countess, the cow first noted, for 78 cents worth of feed gives $2.00 worth of butter, counting the value of the butter at 20 cents and taking no account of skim milk. Topsy, with 85 cents worth of feed, gives $2.67 worth of butter. Ida, with 55 cents worth of food, gives us $1.56 worth of butter. Fairy, with 55 cents worth of food, gives us $1.50 worth of butter. Lydia, with 56 cents worth of food, gives us $2.00 worth; Olive, with 44 cents worth, gives $1.80; Liggetta, with 56 cents worth of food, $1.48; Fortune, with 53 cents worth of food, gives us $2.80 worth of butter; Houston, with 52 cents worth of food, gives us $2.60 worth of butter, being a net gain over and above the cost of food of $2.08; the net gains of Fortune over and above the cost of food was $2.29; Liggetta, the nice shorthorn cow, gave a net return over and above the cost of food of only 92 cents.

DISCUSSION.

Question—On what do you base your price of food?

Prof. Haecker—We charge the cows just what we pay for it, we buy everything. We pay $6.50 for bran; 16 cents for barley; 14 cents for oats; $14 per ton for oil meal; $3 per ton for hay. We use prairie hay.

Gen. Burchard—How does it compare with our marsh hay in appearance and so on?

Prof. Haecker—It is nothing like it at all. It has a three-cornered stem, and a broad leaf, single, as broad as your finger, very coarse, and rustles when you handle it; the cows are very fond of it. During the last week of January we got out of this wild prairie hay, or bottom hay, perhaps we had better call it, and we fed the finest kind of timothy hay that we could get. It was very fine, nice color, and first class in every respect, but our cows lost from one to 15 pounds of milk during the week, and when the new supply of wild hay came, they nearly recovered the former flow. We have been conducting experiments for three winters in comparing prairie or bottom land hay with good timothy, and in every instance we have found it at least equal to our best timothy. The first winter we used upland prairie hay, this is a fine short hay, and it gave a little better results than timothy. The second winter we used the second bench, which is a little better; it has a sort of round stem, and that was about equal to timothy. Our dairy cows like this wild hay. Now, in regard to the food given these cows; we make this formula: 600 pounds of bran, 400 pounds of barley, 300 pounds of oats, and 100 pounds of oil meal and mix it, and give each cow all that she will eat. The ration costs us 7.5 cents per day, and from this our cows are making from 7 to 14 pounds per week, according to the type of the cow. You will notice on these pictures the rear outline of the thigh is a little concave. I find that is a fair indication of the value of a cow for the dairy, the shape of the rear line of the thigh. A thigh that runs down straight is not so well adapted to the dairy as one incurving, and she is a good dairy cow according to the degree of the concave line. Sitting

in a car and looking out at a herd of cows, you can at a glance tell what the disposition of each cow is. If you find a cow whose thigh is incurving, she will not lay on flesh. Next examine her depth, that simply tells me how much feed she will grind up per day. Those two points tell the whole story. Then she will have a long neck.

The Chairman—You want a good udder too, don't you?

Prof. Haecker—The Lord always provides, I have never known it to fail. If the conformation of the cow indicates that she doesn't put it on her back, she will turn her feed into milk. The capacity of the cow is indicated by the depth of the middle.

The Chairman—And nothing at all by the udder?

Prof. Haecker—No; if the cow is all right in the other points that will be all right.

The Chairman—I can't agree with you. I have seen cows that failed in none of these points that were deficient in the milk glands.

Prof. Haecker—There may be cases, of course, where a cow is injured in some way, but I have never seen a cow that had that conformation but what was a good dairy cow.

The Chairman—Yes, but suppose you have a cow that is giving you 20 pounds. Here are two Holsteins that give you 30 pounds a day. A cow can't give you 90 pounds of milk in a thirty-pound udder.

Prof. Haecker—No, but she will give me 30 pounds of milk with 6 per cent. of fat. According to my experience the udder part is always provided for. It is a notion held by a great many that the udder must run well up behind. It does not with Houston, and yet she is a first class cow.

The Chairman—She is more distinguished for the per cent. of fat than for the quantity of milk.

Prof. Haecker—Yes, I pay no attention to that point of the udder extending up in the rear.

A Member—Suppose the cow only gave 4 per cent., you would want that udder larger or longer.

Prof. Haecker—That is correct. If a cow only gives 4 per cent. milk, there will be provision made for a place to put it.

Gen. Burchard—What kind of a thing is the udder of a cow? Is it a hollow sac where she carries milk?

Prof. Haecker—Yes, in one sense of the word it is. It is a sac filled with glands and little cells through which the serum passes as the cow is being milked.

Gen. Burchard—And is tranformed?

Prof. Haecker—Probably transformed into milk at the time of being milked, so she don't have to have an udder to carry the whole amount of her milk.

Mr. Faville—Do you gentlemen get a large quantity of milk from a cow that does not show a large-sized udder?

Prof. Haecker—No, sir; the udder is a fair indication, as a rule, of the quantity of milk that a cow gives. Now, here is another point, the concave form here.

Mr. Hoard—She is bow-legged in the thigh

Prof. Haecker—Yes. The whole philosophy of milk production seems to depend upon the type of the cow. Now what does type mean? It appears that type is simply the indication of development. You know the shape of a grey hound,—very small through the middle, long and lanky, and high up in the flank. He is made for speed; his muscular system seems to dominate. He would rather run than eat, simply because his muscular system is constantly wanting something to do. Now motion requires digestible nutrients to supply the waste tissue in movement, consequently a grey hound or a trotting horse draws upon the nutrients in the blood. Now, if the nutrients are taken up by the muscular system, they cannot be taken up by the vital system, or the system that deposits flesh on the animal. We have three temperaments that have a bearing upon the dairy cow. First, the vital temperament, the temperament that draws upon the nutrients in the food and the blood to convert it into flesh. With that sort of an animal, the circulation is larger, and distributes up over the back and along the thighs under the skin, between the frame and the skin, a large network of small veins and capillaries; the nutrients are deposited in the blood and carried on and distributed all over the body; and that is why an animal, where the vital temperament predominates, will convert food into flesh. On the other hand, in a dairy cow, the circulation instead of being distributed evenly over the body is more directed towards the udder, carrying the nutrients through the mammary glands

and converting it into milk. You will always notice that a good dairy cow is very susceptible to cold. Why? Simply because the circulation is not spread over the outer surface of the cow, but it is in the internal part, running down to the udder; consequently she cannot stand the cold near as well as a beef cow. In a trotting horse, or an animal that spends its energy in muscular activity, the nutrients go to the muscular system; an animal in which the vital temperament predominates draws upon the nutrients in the food and spreads them over the body. The animal having a large nervous temperament, the blood circulates towards the mammary glands and deposits the nutrients in the udder. This principle was clearly illustrated in two cows, one Jenny in lot 3, see Bulletin 35. She was an exceedingly restless cow, was hardly ever quiet when she was in the pasture; she had a leggy appearance, always restless, and consequently the nutrients in her feed went into the muscular system and were exhausted in that way, and the cost of her production in the winter was 17 cents for a pound of butter fat. The cow Ida is one of a similar disposition; her butter fat cost 8.6 cents.

Mr. Hoard in the chair.

The Chairman—You were carrying out some experiments at the time I was in Minnesota in consonance with a hint which I gave you in regard to the construction of the udder as indicative of whether the cow gave rich milk or light milk.

Prof. Haecker—We got no further than observation and testing the cow, but that gave me a pretty good idea as to whether there is anything in the theory or not. The Countess has a very large udder when in milk, giving 30 1-2 pounds at a milking, and the per cent. of fat in her milk runs about 2.1. After being milked, her udder is entirely collapsed, a mere sac. Topsy has an udder fully as large, but she only gives 18 quarts, and the average per cent. of fat is 4. The udder only milks about half down. Lydia, the Swiss cow, carries a very large udder for that breed, giving 20 quarts of milk, and milking down close; she runs from 2.2 to 3 per cent. of fat in the milk. Olive has a large udder; her milk averages 3.5, and she milks down nearly empty. The indications so far are that the more tissue there is in the udder, the richer the milk is, or, in other words,

the more tissue, the larger the udder when it is empty, the greater the number of little glands through which the milk passes and the smaller the glands. Now, the smaller the gland, the larger percentage of the serum comes in contact with the wall of the gland. It will, therefore, follow that a cow having the smaller glands and having consequently the larger udder, the milk would contain a larger per cent. of fat than one having large glands in an udder which milks down.

The Chairman—Gentlemen, this has been a very painstaking report; it has followed guesswork out to "I-know-something," a careful and intelligent analysis. This is what the Experiment Station is for; not one farmer in ten thousand has the opportunity, or could spend the money and the time to do it. We are under obligations to Prof. Haecker.

Prof. Henry—I would like to ask Prof. Haecker when these cows were producing butter at a cost of from 4 to 8 cents, were they nearly fresh?

Prof. Haecker—Yes, our aim is to have them fresh about the same time.

Prof. Henry—I would not like our farmers to go away with the impression that butter could be produced at 4 cents a pound at all times. I am quite certain it would cost more as the period of lactation goes on.

Gen. Burchard—I am impressed with the cheapness of the food, as the professor gives the prices to us. I happen to have in my pocket something that will show the relative prices between the foods that he is using and those that I have used; for instance, down about our place, I should judge that we would have to estimate our feed at about double the price he has had to pay. He is right at the head center for bran and all that sort of thing, and oil meal. They grow wheat up there, and they hardly know what to do with it, and they will practically give it to you.

Prof. Haecker—I spend the most of my time among the farmers of Minnesota. I want to impress upon them that they can make a great deal better use of their feed there than by selling it in the market, and their receipts will be better by putting the grain through the udder of a cow instead of through an elevator.

Prof. Henry—Prof. Haecker has made the great point for us to remember, that no matter what it costs to produce butter in different sections of the country, here are cows showing that proportion, one requires twice as much cost as the other.

Mr. Briggs—How much do you consider your skim milk worth at the Station?

Prof. Haecker—About 15 to 20 cents a hundred, according to the age of the pigs that it is fed to and the price of pork.

Mr. Bradley—You say you are getting sixty pounds a day from some of the Holsteins and thirty pounds from the Jerseys, the latter being of double the value. Will not the solids in the milk, not butter fat, be in the same proportion in the Jersey milk; in other words, won't the Jersey milk be worth more for the skim milk than the Holstein?

Prof. Haecker—Pound for pound, yes. It would be worth a little more per hundred, but not much.

Mr. Goodrich—It seems to me in trying to determine the cost of a pound of butter, you have got to keep the cow a year and see what we can get out of her, and it really amounts to but very little what we can do with her the first three weeks of giving milk.

The Chairman—It amounts to a comparison between the cows.

Mr. Goodrich—I have a cow that 300 days after she was fresh was making just as much butter as at first. It was a pound of butter a day, and she was a two-year-old heifer.

Music, Glee Club, "In the Lonely Woods."

Convention adjourned to meet at 9 o'clock a. m., next day.

Convention met at 9 o'clock, February 13, 1896.

Gen. Burchard in the chair.

OUR AGRICULTURAL COLLEGE AND ITS WORK.

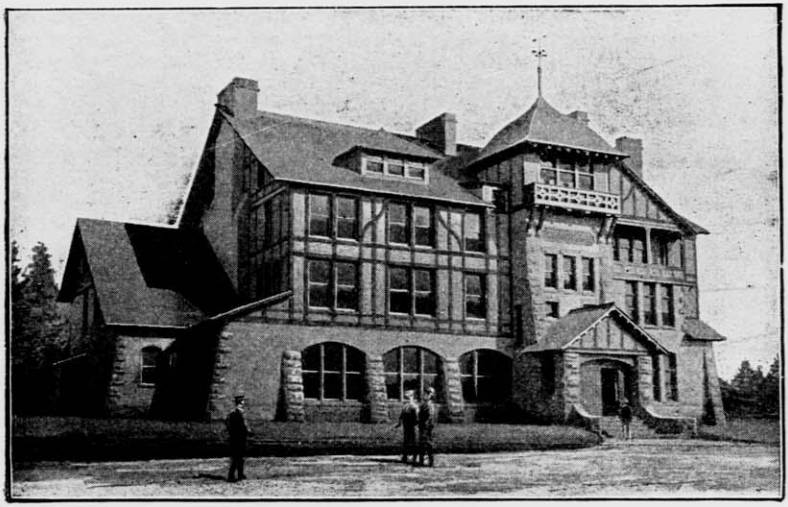
Prof. W. A. Henry, Madison, Wis.

The making of butter and cheese ranks among those finer agricultural arts which are only comprehended and successfully followed by the more intelligent and liberal minded class of farmers; this being true, it is most natural that I should

come before the dairymen of our state to report something concerning our Agricultural College and its work.

The lines of instruction at the College are three:

First, comes investigation, carried on through the Experiment Station. The funds for this branch come largely from the general government, a small portion only being given by our own state. The annual reports and frequent bulletins of the Station have acquainted our farmers with this class of work. Be it known that all Wisconsin farmers who wish the reports and bulletins can have the same by sending us their request on a postal card.



Hiram Smith Hall, the Dairy School Building.

In the second place, our effort is to educate those young men who may come to the university for instruction in agricultural science and practice.

The third line of effort is that of the Farmers' Institutes, which is not placed last because of least value, for no branch of university effort is of higher importance. All in this audience know of the hundred or more Institute meetings held each year under the management of Superintendent McKerrow, and of the fifty thousand copies of the annual institute bulletins given gratis to those attending the meetings. Wisconsin farmers are justly proud of their institute system and they can not guard it too jealously.

I could spend the time allotted me by the president in telling of the Experiment Station and its work, or in reciting the beneficial effects and great helpfulness of the institutes, but my purpose is to call attention at this time to our educational work among the young men who come to us for study in the Short Course in Agriculture and the Dairy Course.

In no place in the whole educational field is it more easy to idealize and plan imaginary courses of instruction than in agriculture, to which course eager young men are supposed to willingly flock by hundreds and thousands. Like many other things, practical experience shows the very opposite to be the

View of Separator Room; Hiram Smith Hall.

case. Experience shows that our young farmers are not anxious as a class to gain instruction in agriculture, and that when they leave home to gain an education, as many of them do, they go either to the normal schools to become teachers or to other departments in the university to prepare for professional life or teachers of the more advanced courses, and that not one in a hundred carries with him from the old farm an ambition to own a tract of land and become a *bona fide* farmer, after having obtained a good agricultural education. It has cost us much time and energy to interest our young men in agricultural education. Our agricultural schools are yet in their elementary stage, and not only have we difficulty in

drawing students to us, but must give much time in preparatory work for instruction, many of our branches never having been worked out from an educational standpoint.

At the university at Madison we are building up two agricultural courses, which are attracting much attention from thoughtful educators, and in which I wish to interest every progressive farmer in this state. Let me first say something of our Short Course in Agriculture.

In this we aim to give the most practical, helpful instruction possible to young men who are ambitious to own farms and become first class farmers. As first planned, our instruc-

View in creamery; students printing butter.

tion was given for one term of twelve weeks, beginning the first of January each year; now two terms of twelve weeks are required. When we began this course ten years ago there were three instructors; now it requires a dozen. Originally we occupied two or three rooms in one of the university buildings; now we have three buildings wholly given up to agricultural investigation and instruction. In the beginning the books of our agricultural library could have all been moved at once in a wheel barrow; now we have nearly four thousand bound volumes with hundreds of pamphlets additional. Our laboratory facilities and equipment generally have grown in like proportion.

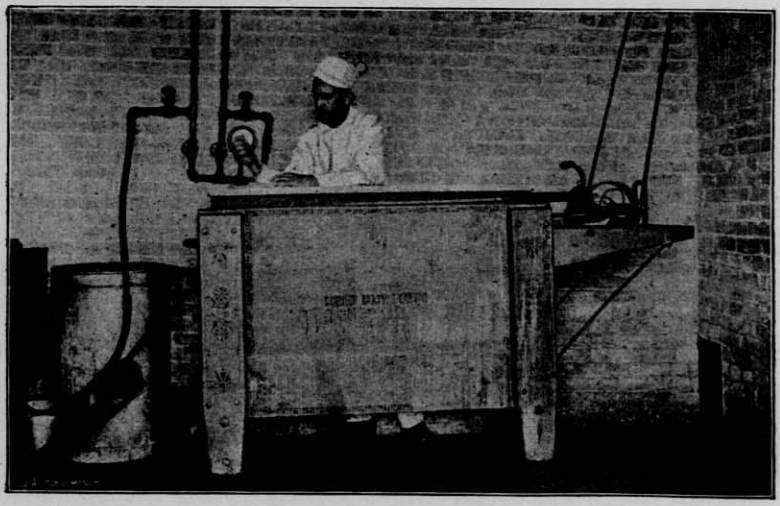
Our class of young farmers begins work promptly at eight o'clock each week day morning, going to the lecture rooms, laboratories, etc., for instruction. From the beginning we have deemed it wise to employ no cheap instructors, but only those of the very best grade for the leading lines of effort. Our agricultural students have the benefit of such trained minds as Dr. Babcock in agricultural chemistry, Prof. King in farm mechanics and physics, Prof. Goff in horticulture, Dr. Russell in bacteriology, Prof. Farrington in dairying, etc. Our effort in this work is to drill the mind and at the same time impart the most useful and helpful knowledge in farm matters. In

View in Hiram Smith Hall; students testing milk.

live stock instruction our work does not end with theoretical lectures about breeds and pedigrees, but the students visit the stables and stock barns and there study living specimens of animals, taking long and careful drills in judging and scoring stock.

To give you some idea of how practical this work is, let me say that last fall our former Short Course students acted as live stock judges for fourteen Wisconsin fairs, and the managers of these fairs are so well pleased with this new line of work that we have promises of larger calls for our students the coming season.

Good citizens have shown a lively interest in this work by offering medals for the best live stock judges. There is the Ogilvie gold medal, worth seventy-five dollars, which goes to the best judge of live stock, being practically a sweepstakes medal. The Hoven gold medal goes to the best judge of fat cattle. The Noyes silver medal is awarded to the best judge of beef cattle, while the Briggs silver medal is won by the most expert student in judging horses. Dairying is represented by the Hoard's Dairyman silver medal, awarded to the best judge of dairy cattle. The McKerrow silver medal goes to the best judge of sheep, and the Jones silver medal to the



View of pasteurizing vat, Hiram Smith Hall.

best judge of swine. I need not tell you that the competition for these medals is keen and awakens the most lively interest in our young men in their efforts in training and competition for these most worthy prizes. The good which will grow out of this thoughtful kindness of some of our leading citizens cannot be measured in its results in the future uplifting of Wisconsin's live stock interests.

Lack of time only prevents a description of many of the other lines of instruction, only a few of which can even be mentioned here. Agricultural chemistry is carefully taught under the skilled guidance of Dr. Babcock, the inventor of the

milk test. In horticulture, for which we have a whole building with greenhouses attached, students are taught grafting, budding, seed testing, seed sowing, etc. So carefully done is the work in grafting that thousands of roots grafts made by the students for instructional purposes are sold to nursery firms when students are done with them.

Veterinary instruction is given to the students by Dr. Laws, a local veterinarian, who trains the young men in a thousand helpful things in the care and management of our farm animals.

Dr. Russell gives the students an elementary knowledge of

View in garden green house; students budding trees.

bacteriology in its relations to agriculture. Prof. Scott of the School of Economics, a man of wide reputation and a delight to all his classes in the university, gives our young farmers twelve carefully prepared lectures on agricultural economics.

My audience being composed of those interested actively in dairying, it is natural that I should take up dairy instruction a little more in detail. Hiram Smith Hall is the name of our dairy building. I need not enter into any explanation of the name nor have I the time to describe at any length our finely equipped building, which represents, with its apparatus, an outlay of $40,000. In what is known as the Farm Dairy room in this building can be found a dozen hand separators of the

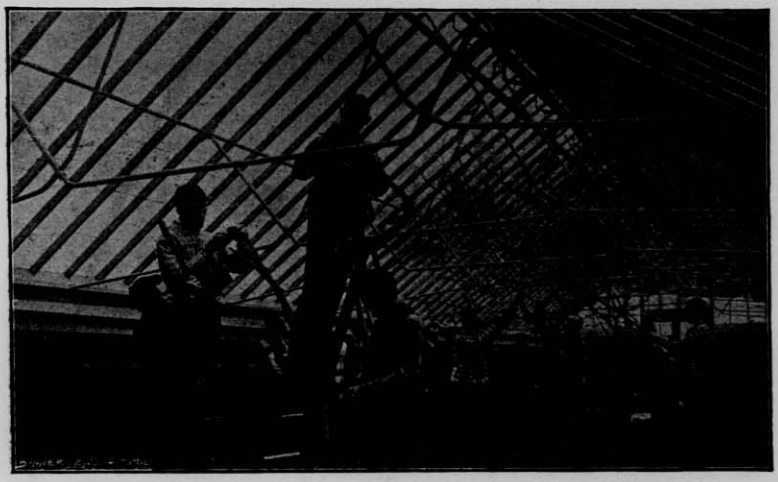
latest pattern, numerous small churns, butter workers and other equipment necessary to modern farm dairying. Two instructors guide the students in their elementary lessons in butter making. They are first taught how cream is raised by deep setting with a most inexpensive equipment; later they take up the hand separators and more improved and modern methods of butter making. All of the butter making operations are performed by the students themselves under close guidance and supervision by their instructors. This is a costly method of instruction to us, but the only one which we believe to be entirely practical. The first butter these young farmers make

Agricultural students judging swine, university farm.

is generally "off" in several ways; often it lacks color, generally it is overworked and either too highly salted or lacking in salt. These faults are natural enough, and just what we must expect from the inexperienced operator. Usually we sell this butter for ten to twelve cents a pound, and that is all it is worth too. After a few weeks' experience these same young men without help of instructors are able to make butter which commands the full market price and is worthy of the table of any person in this audience. So successful have been our farm dairy students that they have been winners of prizes in fine butter at state and county fairs. We have sent a number of these young men to dairy and stock farms where they

are getting from fair to good wages besides getting much experience which will be helpful to them in after years.

I have not time here to speak of our regular dairy course, carried on for the instruction of young men which are to operate creameries and cheese factories. The instruction in these lines requires many teachers and calls for all the space of the dairy building not occupied by the students in the Short Course in Agriculture. Each year about one hundred students come to us for the Dairy Course proper, and scores of these return in the spring to work in creameries and cheese factories.



View in garden green house; students pruning and top grafting trees.

Our Short Course in Agriculture now brings nearly or quite one hundred students to us each winter. Some of these are young men who have never been off the farm, and whose whole education has been gained in the district school. A few are young men from the cities who are ambitious to become first class farmers. Often we have married men as students and each year sees a number in attendance who have reached middle life. As to this world's goods, they represent all degrees; some come on borrowed money, while quite a number pay their way from money which they have earned as month hands on farms. Every winter we have the sons of wealthy farmers or residents of cities who are filled with an ambition

to become good farmers. It is interesting to watch the commingling of those with means and those with the most limited resources, for all are on a perfect equality with us; knowledge and ambition recognize neither wealth nor poverty.

This winter we have at Madison young farmers who because of their limited means are getting through on a surprisingly small sum of money. They are cooking their own meals and their rooms are furnished only in the plainest manner. Knowing the necessity of economy they are gaining experience with it by actual practice.

The young men who leave us usually return to the homes of their parents, but not all of them by any means. One young man who studied with us is now the manager of a large farm in Minnesota, getting $450 a year besides room, board and other advantages. This is fully equal to $1,000 of wages earned in our large cities. This young man had worked on the same farm for the same owner before coming to study with us. At that time he received $225 per year. He writes that his employer tells him that the higher wages he is now paying is because of what this young man learned at our school. In another instance a German boy, who had worked for several years as a farm hand at $20 per month, was offered $25 per month after studying with us.

We have each year quite a number of calls from our own and other states from persons who wish to employ our students as workers on their farms. Students who take the Short Course should be at least sixteen years of age, and we would rather have them twenty-five years old, for the older ones make the better students and learn the most with us. Fathers should not send their sons to take the Short Course until they have given them some drill in the cares and responsibilities of farm management. A boy whose father has always done his thinking for him and who has each day only done what is told him by his parent, makes a poor student with us, while those young men who have helped manage the farm, and cared for the crops, whose fathers have trusted them in buying and selling stock, and who are capable of running a farm alone, are usually delighted with our lines of instruction and make the

most eager, ready students. It is a pleasure to note that those young men who are the best farmers at home and know the most about farming utilize and get the most out of our Short Course in Agriculture.

As I said in the beginning, we are developing this line of instruction, and much remains yet to be learned. Prof. King has had to write his own book on instruction in agricultural physics, as has Prof. Goff in horticulture. Prof. Craig's work in training students in stock judging has grown out of his own studies of the requirements and opportunities in this direction.

The course above described, known as our Short Course in Agriculture, is for young men who wish to become first class farmers.

Our Dairy Course proper is designed to meet the wants of young men who propose to operate a creamery or cheese factory. No one is admitted to this course who has not had at least four months' experience in a creamery or cheese factory before joining us. Usually we have about one hundred students in attendance in this course. The success of this School has been such as to bring much credit to our state and to our University, and as the child of this Dairymen's Association we are all proud of it. The traveling instructors employed by the State Dairymen's Association are now usually graduates of our Dairy School. This winter Wisconsin was looked to for dairy instructors from three other states. Minnesota wished a cheese instructor for her Dairy School, Ohio called for an instructor at her State University, Columbus, and the state of Washington needed a helper for her Dairy School just being established. The Wisconsin Dairy School recommended three of its former graduates for these positions, and they were all acceptably filled.

Wisconsin dairymen have been the best patrons of both our Dairy School and our Short Course in Agriculture, and we look to them in the future for patronage and support. I sincerely hope that every person in this audience, and all who read the report of this Dairy Association, will not fail to visit the University and our Agricultural College and study the efforts at educaton being made there. I sincerely hope and

fully believe that what I have said concerning our Agricultural College and its work will awaken interest among some of my listeners and also among the readers of the Annual Report of the Dairymen's Association. We have a good school for young farmers and they should take a lively interest in it. To any who wish further information concerning the Short Course in Agriculture or the Dairy Course I will gladly send illustrated circulars giving full descriptions of the work. Our educational work is yet in its infancy, but we have made some progress of which we are naturally proud. This Dairymen's Association, our Agricultural Society and Horticultural Society, the Farmers' Institutes, the Experiment Station and our agricultural instruction at the University are all efforts for the advancement of our agriculture, which are working harmoniously together and all for the best interest of this commonwealth. Let us stand by them and advance them by every means within our power.

DISCUSSION

Mr. Aderhold—Will the professor tell these people what the charges are for attending that short course?

Prof. Henry—The charges for the short course in agriculture are $5 for the dairy school and $11 for the university; the expenses are about $2.50 a week for table board and about 75 cents to $1.00 for rooms. The room is lighted and heated, and for 12 weeks it makes $42 for board and room, $5 for the university, makes $47. To the above add $6 and you have the cost for the dairy course. Of course, there is washing, a few dollars for books and some traveling. Most of the boys get through the short course for $55 and the dairy course for $75; some get through for $50, and one boy got through for $40.

Mr. Baker—I am sending an only son to Cornell University course in agriculture. For two years I tried to get him to take the two-year course in agriculture, but I couldn't get him to take it. Prof. Roberts talked to him and he tried to induce him to take that course, but it didn't seem to strike him favorably. Well, years passed on. We decided that the best thing to do was to start a short course in agriculture. I spoke to

my son and I said they are going to have a short course in agriculture in the university this winter, and I explained to him as near as I could what the benefits would be, and he turned right around and sent in an application, the first one that was sent. He went through the course. They were not equipped as well as they are at the present time, and he came home in the spring and got on his overalls and jumper and was ready to go to work again. "Well," I said, "about how much expense have you been to?" When he went I had told him to keep track of everything, I didn't want him to go hungry or cold, but he found another young man from the eastern part of the state and they roomed together. He had spent just about $75, and he said he had lived comfortably, and had used all the money he thought was necessary. Well, he came home, and it certainly has been worth ten times the amount it cost me, on the farm, and he takes a very great interest in everything; he has learned a great many things about the dairy and about feeding and other things. I only wish I could have done as well when I was a young man. I know some parents are doubtful about the associations; they say the boys get together and get into trouble. If the boy is rightly raised on the farm and you have his confidence, he is not going to get into trouble; don't be afraid of him, and don't be afraid to let him have a little money to use. If you will let him go to the university you may be sure he will come home feeling that his own home is a little better than what he thought it was, and he will stay on the farm.

Mr. Kissack—One of my neighbors said that his boy graduated there and he didn't know as he could make a better trade for his farm than to give his boy that chance. He was well worth $20 a month through the summer when he was home and that carried him through the winter. He went through the long course, and had plenty for pocket money and for his clothes. The teaching he had there in dairying and judging stock and all of that has been invaluable to him. He intends to follow the profession of a farmer, and he has told me that he would not, for a hundred times the money, be without the information he received there. Perhaps some of you older

fellows cannot expect to get all this information, but if you can't, let your sons get it.

Mr. Philips—I have for years been interested in getting our boys to take advantage in the instruction in our short course at Madison, and it has been a theory with me lately just how this matter is going to come out, if we all send our boys as Prof. Henry wants. Last winter nine boys went from our small county. Prof. Babcock came in and he said to Prof. Henry, "If they come in from other counties like this what are we going to do with them?" But they didn't come from other counties in the same way; there are 20 boys from Columbia county and La Crosse county. I don't know what we would do if the other sixty or seventy counties in the state did as well.

Prof. Henry—The state would take care of them.

Mr. Philips—I hope so. I was very glad last fall to have a chance to visit and form the acquaintance of Mr. Moore. I like to go down there and talk to the boys, it is an interesting audience to talk to. They are fortunate in being so situated that they can attend the meetings that are held in Madison. I believe there is nothing more useful to the boys than to attend meetings like our agricultural and horticultural meetings. Prof. Moore is teaching them a good many good things, among others, to get up and talk in public assemblages. He is helping them to organize creamery companies. They have elected a clerk and directors and treasurer and they make their reports; they are getting practical knowledge that will help them in running creameries and farms in the future. I have four boys there; I don't know whether I will have money enough to send them all through or not, but I am going to try it; I don't care whether they are preachers, or doctors, or lawyers, or what they are, I think it is good for them to have an acquaintance with other young men of the state, they will be better citizens. I have been talking to Mr. Briggs about my boys, and he says, "I wish I had some boys, but I haven't." And I have been thinking that if I wasn't able to send my boys through, I think after awhile Briggs will help me.

Mr. Goodrich—I think a great deal of the short course in the dairy school. One of my boys attended the dairy school, and I don't know how much it has paid him, but I know it has paid

him a great deal. One of my sons was an instructor in the short course. I was there one winter and I got pretty well acquainted. They got all their milk from Waterloo at that time, a certain amount of milk was weighed out for this boy and that boy, all alike. The temperature of the room where the work was done was alike; the instructors told them all what to do, just the same thing, of course. Now, I happened to be there when the butter was made and was asked to score that butter. Now, you would naturally suppose it would be all alike, but it wasn't—there were six different kinds of butter, six different colors, six different kinds of textures and six different kinds of smells. Some was fairly good and some miserably poor. Then it happened that I was there very near the close of that term, and these same six boys were making butter at that time, and I was called upon to score it, and it was all good, first class butter, enough alike so that it could all be packed in one tub, and nobody would know but that it was all churned alike, a first class article.

Mr. McKinstry—Some of the people from Minnesota have been jumping on me because I have said I thought they were better equipped at Madison than at Minnesota. One of my boys had been in a creamery for some time, but I recommended him to take this short course in agriculture to fit himself for a position offered him at Spokane, at $75 and board. They very kindly allowed him to take time for this course, and held the position, which he has since taken, and he wrote me the other day that he was getting $80 a month for the next year, and that Prof. Stone wished to appoint him state commissioner for the eastern part of Washington. He says they have got your Mr. Schoenman out in the state of Washington.

The Chairman—That is one of the great troubles we have. No sooner do we get a fellow trained to serve us here in Wisconsin than somebody in Washington or Ohio or Minnesota or Illinois or Pennsylvania pops up and says, "We want that fellow."

HOW TO MAKE DAIRYING A SUCCESS.

A. D. Baker, Ex-President Dairymen's Association, Aurelius, New York.

It gives me pleasure to be able to meet with the Dairymen of the state of Wisconsin, and yet, I can but fail to cope with such men as your state furnishes. What I have to offer must seem tame to you, and I ask your favorable consideration and trust you will be charitable with me, for I am not a professional speaker and have not the ability to follow such men as you have to listen to. I almost feel it presumptuous on my part to come here and attempt to offer a word of advice on dairying or any of its branches.

My subject, "How to Make Dairying a Success," I chose, because the larger portion of our farming community hang their heads in doubt about this problem. The young and rising generation are looking after wealth faster than it can be procured in this direction and are not satisfied to go into the minor details of dairy work.

I come to you not as a scientist or expert, but as a practical farmer and a small dairyman. Starting in life as a grain farmer under the instructions of my father, a successful agriculturist but with no interest in dairying except to supply the want of his family, I had never received any instructions in dairying, but kept climbing up the ladder of fortune until a round broke, and I found I was at a standstill. Having been severely disciplined on industry, I found I must move on and began to look earnestly about for a round to put in the place of the broken one.

Having had one or two customers that drove from the city, four miles distant, to "Baker Homestead" for their butter, I held a conference with my partner—Mrs. Baker—and it was decided to make dairying one of the branches of farming.

Reasoning that the grain grown upon the farm could be fed to the cows and a finished product sold from the farm, detracting very slightly from its fertility, while the grain farming was exhausting the soil so fast and leaving very small returns,

and following along this line, I have by persistent effort replaced the broken round and have slowly climbed high enough to satisfy a reasonable ambition and to feel a reasonable degree of confidence in the words I speak.

The world is full of men whose utterances and imaginations exceed their judgment, whose theories, while looking plausible upon the surface, serve little or no purpose when brought to practical work. They may serve some purpose to those who are dairying for fun, but for those who expect storms as well as sunshine, theories amount to but very little. We are living in the most remarkable age the world ever knew, and in the past thirty-five years we have passed over one of the most extravagant periods of history, and we are now where actual facts must take the place of theories. See the great strides that have been made in actual scientific and mechanical dairy work during the past twenty-five years. It has no parallel in man's existence. The contemplation of these wonderful achievements furnish a tale stranger than fiction—a fiction which would tax the imagination of man to produce.

Within the memory of men present, see the wonderful progress that has been made; taking cows, which would produce a little over one hundred pounds of butter per year, to such amounts that it seems almost incredible, and yet the end is not reached. Scientific and practical knowledge must still go on hand in hand and bring forth achievements that will still excite the wonder and admiration of the world.

Do you wonder that those quiet, non-progressive dairymen are disturbed and say to you it is not possible? Yet it is possible; with such men as Hoard, Babcock, Henry, Van Slyke, and many others, dairying must progress.

It is high time for dairymen to adopt an intelligent system of dairy work, which will produce a direct profit as well as prepare the ground-work for progression from year to year. Everything should be figured out so as to obtain the cheapest article in the market, laid down on the farm, and transform this article by skill and industry into the highest market value at the least actual cost; or, in other words, with a minimum of cost, produce a maximum of value. It is not possible for me to enter into the details of such a plan, nor even, should I take

the time, would I presume to say how I could give you the details of the best plan for you in this section of the country, but to show you how I have succeeded from the beginning until the present time.

First, how can the individual dairyman become successful? I will give you a leaf of personal history from my own experience in the all year around dairying on my farm.

At the time the round broke before alluded to, in the conference with my partner, she said if you will buy me a Jersey cow, I will see what I can do. The purchasing of that cow was the first lesson in dairying. Fortunately the first lesson was a success, the cow being an extra good one, just what every man must have to succeed with. It would be only a repetition to say that the same time is taken to care for two cows, one producing twice as much as the other and often more. But the doubters say, every man cannot have a cow that will produce two pounds of butter per day on grass alone. True, but he can take the best cow he has and with the scientific knowledge of the men before referred to, he can make her do her best, and then if she is not profitable, dispose of her.

Taking the cow before referred to for my standard, I thought to improve upon her, as well as her progeny, but soon had a failure to record, as I killed her as well as another with kindness, or in other words, for the lack of knowledge.

Here another round in the ladder began to crack and another conference was held, and it was decided what we wanted was more knowledge, and we have been to work on that line ever since and find we are yet in the same predicament, although we have succeeded in making our small herd produce 300 pounds of butter per head, aside from the other adjuncts of the dairy.

Now perhaps, how we have advanced thus far may be of interest to my hearers. No cow is kept that will not produce one pound of butter per day while upon a liberal feed, say one pound of grain to one hundred weight of cow. Sometimes more can be fed with profit, and sometimes a fairly profitable cow can be had with less, always giving her the care a mother should have, especially a bovine one. We do not wish to have her know what fear is and do not confine her head for 280 days

between two rigid pieces of wood, but give her a stall with a tie, that when neglected by her attendant, she can do her own grooming. Every day when it is suitable for the lady of the house to be out, she gets an airing, and during the summer months, when she cannot get a full feed on pasture, it is supplemented with something else. Often we now use what we had not to begin with. The Babcock test, the scales and pencil, we have used since the purchase of the first Jersey cow, and upon every cow upon the farm, especially every young one that is put to work.

Every man, if possible, should rear the cows he wants, to supply the ones worn out or deficient from any cause, for if we purchase improved stock we simply exchange our money for another's brains, and that we cannot at all times afford to do.

Dairying is a good business and is rewarded according to the knowledge put into it. It calls for labor and intelligence, and after our daily bread, this is one of our richest inheritances. It calls for industry, one of the great blessings that has had so much to do in making our country what it is and giving to its people those characteristics which have made them so important a factor in disseminating energy and enterprise through our broad land, and then follows prosperity. What that means, I have not the room to explain.

To make a success of dairying, it must be taken hold of as a business and conducted in a business-like manner. The greatest factor is the cow. To show you how the cow is the greatest factor, I must tell you how we commence with the calf to make a cow. The calf is taken from its dam when about three days old and taught to drink, using the milk from its dam, diluted with warm separator milk, until the calf is about ten days old, when separator milk with an addition of flaxseed or linseed meal jelly, about one tablespoonful, increasing in quantity as the calf utilizes it; also a little hay or silage. Keep the calf growing, but not to a beef tendency. They are bred to come in with profit from twenty months to two years old. As soon as they can be got upon a full feed, they are tested, to see if they are worth keeping.

Here are the tests of two that dropped their calves about January 1st; one about twenty months old, she gave in 7 days

134 pounds of 4 4-10 per cent. milk, which according to the Babcock test, should make 6 6-100 pounds of butter. The other, 158, of 4 4-10 per cent. milk, which should make 7 79-100 pounds of butter.

The feed of the first one was 60 pounds of corn fodder, 120 of potatoes, oats and peas ground 56 pounds, and 7 pounds of linseed meal, at a cost of $1.09. The feed for the other was corn silage, 20 pounds, meal 28 pounds, same kind as the other, and 7 pounds of linseed meal, at a cost of 41 cents. Note the difference in the cost of a pound of butter. One for less than 6 cents per pound, the other at over 17 cents per pound. No one was more surprised at the result than I was, and wishing to know what should make the difference, I took from the first one the corn fodder and potatoes, substituting corn silage, and reducing the meal one-half, the results were thus: She gave 116 pounds of 4 4-10 per cent. milk, making 5 72-100 pounds of butter. The other gave 150 of 4 4-10 per cent. of milk, making 7 39-100 pounds of butter, the former costing 41 cents and the latter the same. Note how much cheaper butter can be made by adding a silage ration and taking out the potatoes. The two heifers are still under tests.

I also have a few records that are taken from my own herd and a few from other dairymen, that I can give should my hearers desire, showing that it requires skill and knowledge to be a successful dairyman. No guess-work, but actual facts. There is, let me say, in my experience, no royal road to success, but there is no branch of industry on the farm that one can apply knowledge to with more pleasure and profit than the dairy.

First, the cow; second, the feed. The last named I will not speak of, for the prices vary so much in different localities, but where corn, oats and peas can be grown profitably it solves the feed problem, and where the feed has to be purchased it is a rule of successful business to buy where it can be procured at the lowest cost.

Scientific investigators are at work on new and unknown problems; that is their business, but it will never do for the dairyman to give himself over to their lead. The farmer and dairyman themselves must experiment.

There is individuality in every farm as well as every cow, and personality in every owner. Practiced methods and conditions must fit surroundings. It is well in our efforts for more knowledge to do as the surveyor sometimes does in running a line; take a back sight to test the accuracy of our bearings.

Science has demonstrated the fact, that the production of a pound of milk fat costs less in rich milk than in poor, and hence the future aim must be to produce a good quantity of rich milk. The cows that can accomplish this result must be obtained by a nice combination of breeding, feeding and care.

I desire to say a few words about feeding. We have learned that three or more classes of food are essential to the growth of animals, and the better we are able to combine those classes the better we are able to control our production. The cow that has to endure the most cold, can endure the most heat-forming foods, and one must be controlled by his environments.

Science teaches then that the feeding of animals is not a simple, but a complicated, subject, and we must supply the proper food according to the animal's wants if we would secure the most profitable results.

A word about the care of the product of the cows and I am through. I have been from the old fashioned pan to the separator and I find absolute cleanliness essential, beginning at the cow and so on through until the butter is marketed. If you are taking your milk to a creamery and are getting your pay on the amounts of the butter fats, then produce the largest amount of clean, rich milk you can. If selling milk, make cleanliness your motto and keep up to the state standard. If you are making your own butter, aim to have it as near as possible alike every time. No set rules can be given for the manufacture of butter.

In conclusion, aim for the best possible results at every point. If a mistake is made, do not rest until it is rectified. One cent per day saved on each cow means 365 cents. Multiply that by the number of cows you have and the result will be worth looking after. The same will apply all through the catalogue of dairying.

My friends, there is a great chasm before us in the years to come, and it must be filled by human thought and deed. I believe the way is clear if we but use the power given us. To make dairying a success, more depends upon the man than upon the industry. He must be up and doing and not go cringing about, thinking he is the mudsill of society. He must not be frightened when clad in the panoply of labor if he chances to meet the pomp and glitter of aristocracy, but consider he is an honor to his calling, and that his calling is just as noble as any other. The sentiment is too common among farmers and dairymen that any fool can milk cows and plow. To my mind, anyone that entertains such thoughts can give no better evidence of his own imbecility than by proclaiming that idea. One of the greatest elements of success is faith in your business, backed up by good business principles, honesty, frugality and industry.

After going to work testing these two heifers and becoming much interested in it, I had some friends who I knew were working intelligently, and I wanted to know what they were doing. One has been in the business a long time. His feed ration costs him $1.13 3-4. For the month of December he fed 500 pounds of silage at $1.25, 31 1-4 cents; 100 pounds of clover hay, 40 cents; 50 pounds of wheat bran at $13, 32 1-2 cents; 10 pounds of oil meal, costing $0.10; he got 115 quarts of milk, making a cost per quart of .989 of a cent. Some of these cows were fresh in milk and others were nearly dry. Now, another man has recently commenced. He was feeding 22 cows, 350 pounds of meal, costing him $2.62, 220 pounds of shredded stalks, costing $1.10; he got 178 quarts of milk, at a cost per quart of .02089 per quart.

A neighbor of mine by the name of Baker, no relation of mine, but a capital, fine man, took two cows to see what he could do with them. One of them he bred on purpose to see what he could get out of her for 365 days. The first cow he gave grain for 260 days, and the rest of the time she was in pasture. The grain cost $18.18; the silage, $6.55; clover hay, $4.58; the pasture, 15 weeks—he took the price of pasture at the Cornell University, that figured up $4.50; field corn through

September, 75 cents, making the total cost $34.56. This cow gave him 8,997.08 pounds of milk, testing 6 per cent., making 539.82 pounds of butter. The second cow shows a test from September 7, 1893, to September 7, 1894. I want to say that at one time he offered to sell me that cow for $100, and I want to show you where I made the mistake. The feed was pasture, $7.80; clover hay, $3.56; silage, $4.05; grain, $16.35; making $31.86. She gave him 9,000 pounds of 5 1-2 per cent. milk, making 531 pounds of butter. You understand this is all the Babcock test butter fat.

Now, we have another gentleman who is a banker that dairies for fun, you might say, and yet he is bound to have some profit out of it. He hires a place to keep these cows and a man to take care of them and his milk is sent to the factory. There are six head of these cows and a bull, that is kept for use. The total amount of milk per year was 38,494 pounds. The average per cow was 6,416 pounds milk. The total butter returns were 2,015 pounds, the average butter per cow was 335 pounds, 8 ounces; pounds of milk for one pound of butter, 19.11. The cows' keep was 9,830 pounds of bran, 5,672 pounds corn meal; 500 pounds oil meal and 500 pounds cotton seed meal. The cost of meal was $168.11; hay, $41.71; corn stalks, $61.65; straw, $18, making a total of $289.47; rent of land, $44; interest, $36, making $369.47. He has credited $202.60 for butter sold; milk and cream sold, $140.64; calves, $73.95; service fees, $56; two heifers on hand, $50; 37 loads of manure, $18.50; 10,000 pounds skim milk at 10 cents, $10; making a total of $551.69, less cost of keep, $333.47, making $218.22 he has left after paying all expenses. He has not put in anything for labor. He tells me that what he gets in labor for his own family use, horse, etc., pays for that.

DISCUSSION.

The Chairman—It is worth noting in that connection that it would not require the labor of one man all the time to take care of seven head of animals.

Mr. Baker—He has a garden and carriage that this man takes care of. He figured that the butter that he used in his own family would recompense him for the labor; he has a wife and three children and domestics in the house.

The Chairman—On that question of labor I think I saw a pretty fair way of estimating the labor necessary to take care of a cow. Take it the year through, of course, a man would be competent to take care of twenty cows, doing all the labor necessary to raise the crops.

I want to ask Mr. Baker why he condemns the rigid stanchion so *ex cathedra*.

Mr. Baker—For the very reason that I would not want my own head confined between two rigid pieces for that length of time. In order to produce the best results, we must do everything for the comfort of the cow. I had some cows once that I left for several days without my own care, and they were in rigid stanchions, and when I returned I discovered they had got some lice on them, a thing we hadn't had for ten years and they were in perfect misery. I just let them loose out of the stanchions and prepared something to wash them with, and soon made them more comfortable. Our cows in our stables are confined in a way that they can reach any part of their body, and yet have a separate stall, and they seem to be very comfortable.

Mr. Faville—Do you know, as a matter of dollars and cents, that your cows will give you more butter and milk than when they were in the rigid stanchions? We want something besides theory in this matter.

Mr. Baker—I don't call that a theory, I look at it from the humanitarian standpoint. I have a new style of my own of fastening my cattle; the whole thing was in Hoard's Dairyman three or four years ago. We build our floor the same as we would for the rigid stanchion, in fact I drew a line across the rigid stanchions and sawed them right down, about three and a half feet high. Then I have two pieces of boards going right across down here, reverse one, and set them up like this. Then, on the inside we put up two iron rods, you can run a bolt through and put an old burr or something under it, so that the ring will slip up and down on this iron rod. Then

there is a light piece of wood on this opening, this piece across the bottom is about eight inches high. The cow is tied here with a rope or chain, or with a swivel attachment, and this rope plays up and down. You can use wood, it makes less noise, but they will wear out much quicker. When she drops her head down to feed, it drops down; when she raises it up, it comes up.

Question—Is it necessary to have a division between them?

Mr. Baker—Well, we do; we think it is better, it saves danger of accident to the cow's teats. We run a partition back like a horse stall. Of course we have to make our drops according to the length of the cow.

Mr. Briggs—How wide are the stalls?

Mr. Baker—We vary them. If I was building a new barn I would have nothing less than three and a half feet wide.

Question—Can you keep them as clean that way as with stanchions?

Mr. Baker—Yes; we have cows that have been standing in there now since about the first of November, and I don't think there is any manure on any of them.

Mr. Monrad—I am astounded to hear our old friend, Uncle Faville, get up and challenge an effort to treat the cows humanely. My little experience with cows was in a country where they lived on pastures all the year around, and the only time I used the stanchion was during the milking time, and we used the fixed stanchion. I think it is an outrage that this proposition should be questioned one minute in an association formed by ex-Gov. Hoard, who has done more to promote humane treatment of the cow than any other man in the world. He has reminded us many, many times, that even from the standpoint of dollars and cents, we must remember that this is a mother we are keeping, and in handling her and her baby we ought not to question a moment doing everything for her comfort.

Mr. Faville—I doubt whether Mr. Monrad understood me entirely. I said I wanted to know whether there was any dollars and cents in it, and I supposed he was going to tell us that by more humane treatment and better care and so on, he could get a little more money out of it. I am ready to grant

that theoretically the rigid stanchion is a bad thing and I don't believe in them myself, but I wanted to know how it affected the matter of making money.

Mr. Monrad—Have you observed when a cow lies down in a pasture in the summer time? If you have, you would say it is impossible for a cow to take that natural position with her head in a rigid stanchion. I can't prove by figures that there are any dollars and cents in it, but I believe firmly that there will be more dollars and cents if you give up the rigid stanchion. The only reason anybody advocates the rigid stanchion is because they think the cows will need a little less work to keep them clean.

A Member—We have used stanchions at our place for fifteen or twenty years, and our cows lie down in the stable three-quarters of the time, and they seem to be enjoying themselves. I don't see where they suffer any particular pain about it, and we can take care of them better, they can be kept perfectly clean.

Mr. Philips—I went into Mr. Houston's barn where he has the stanchions, and I asked him to show me his best cow. He went down to a cow that had been in the stanchions for years and she had to try three times before she could get up; it held her so rigidly, and he kicked her before he could get her up. A cow trying to get up when she is in the stanchions don't look happy. I believe friend Monrad is right. I like to have my cows tied up in a way that they are at liberty, and I find that there is dollars and cents in giving them liberty. I visited Charlie Hill last winter and when I went away, I said, "Charlie, I never want to come and visit you again with these nice cows in the stanchions." Last year the institute men went over there and they had their fur coats on and they frightened the cows, they jerked away from them, and that night they fell back about three pounds of butter fat. Charlie says, "I am going to have in something better. I know that my neighbors' cows are doing better, where they are in the stables without the rigid stanchion."

Mr. Goodrich—If a cow is suffering and is uncomfortable and unhappy, she does not produce near so well as when she is comfortable and happy, so that it seems to me that the

amount of product that you get out of a cow for a certain amount of food is a better indication of her comfort than any mere theory. Now, I started in dairying without any stanchions, with my cows tied up, and it was hard work to keep them clean. Now, the first record that I had of the product of my cows not fastened in stanchions, and taken care of as well as I knew how, was 150 pounds of butter, and the last record I have, while they stand in stanchions, 20 hours out of 24, was 353 pounds to the cow, heifers and all.

Mr. Baker—You allow nothing for the breed and feed, improvements in that way?

Mr. Goodrich—I am just telling you facts. I haven't got up here to advocate stanchions and to say that they are the best thing any man has ever heard of, but when it comes to be condemned in such violent terms and with intimations that a man who uses it ought to spend the rest of his days in state's prison, I tell you I get a little waked up. I wouldn't like even a rope around my neck, but they have to be restrained of their liberty in some manner, and as for exercise they have just as much liberty in the stanchion as in any other way. It is true they cannot lick themselves and I don't like it on that account, but they have been brought up to it from calfhood and as to getting up, they can get up just as well where they have been brought up to it, and I don't know but a little better. I have seen cows not in stanchions that couldn't get up very easily, while the stanchions sometimes help them to pull themselves up.

Mr. Monrad—Mr. Goodrich proves his case, and we have to knock under. He proves that he has increased the butter fat from 150 to 350. Now, there is a place in France where they have a shop for what they call stuffing turkeys, they have a machine, and they stuff them whether they want it or not. There is more money in that thing, consequently, those turkeys must feel very comfortable while they are being stuffed. Another illustration: in Germany, they had a place where they were handling geese and some of the breeders had a way of handling them so as to develop the liver. They found they developed the liver by placing those geese in a hot place, so the

livers swelled and the income swelled, but I doubt very much about the comfort of the geese.

A Member—I think I have indisputable evidence of my cows' happiness and comfort in the stanchions because when we open the door of the stable at night they all run in of their own accord to their places, and are ready to be milked or fed.

Mr. Thorpe—I want to say a word condemning those stanchions. I have been using them for ten years, but when I see them try to get up and lie down, they cannot do it easily or comfortably. I am going to put in another kind of stanchion. I don't wonder that this gentleman's cows are anxious to get in at night after being out all day in the cold, but I don't believe it is because they come in to the rigid stanchion.

Mr. Goodrich—I am not advocating the rigid stanchions nor advising anybody to put them in. I have looked over my barn several times, thinking of taking them out, but when I hear such wholesale condemnation, I must say that I think they are not so horribly cruel, because if they were a cow couldn't give any milk or butter.

Mr. Faville—I have been acquainted with these rigid stanchions for a good while. If I were going to build a new barn today, I would build it large enough so that I could put in something that is a little better. If I had an old barn with rigid stanchions in, and it wasn't large enough so that I could make any different arrangements, I would use the rigid stanchions just as they are, because I don't believe that they are such a terrible thing as some of these fellows say they are.

The Chairman—Evidently rigid stanchions are good things to stir up a convention with. I did not advocate or defend the stanchion, though I could clear it from all charges of inhumanity or anything of that kind. The testimony against it is to a certain amount hearsay. It is sentiment that is good to have, but it is not sufficient to justify the outrageous language that some people use when talking about it. I think there is a great deal that we don't know yet, at least there is a great deal that I don't know, and I have learned that it isn't always safe to bank on what other people think they know. I agree with Mr. Faville's conclusions. I have a few

cows down on my farm that have been standing in rigid stanchions for years, and they never by look or act or deed of any kind seem to reproach me; they are clean and sweet and happy, and if any man came up there and said that I was guilty of cruelty to animals, I think they would hook him.

The Chair appointed the following committees:

On Nominations: Stephen Faville, Mayor C. A. Stanley, J. W. Thomas.

On Resolutions: W. D. Hoard, Prof. W. A. Henry, George McKerrow.

On Dairy Utensils: C. P. Goodrich, W. C. Bradley, E. L. Aderhold.

To Judge Cheese: G. D. Mansfield, E. D. Aderhold, W. F. Jones.

On Butter: W. F. Jones, C. M. Trigg, J. G. Daily.

Convention adjourned to meet at 2 p. m.

Convention met pursuant to adjournment.

WHAT SHALL BE DONE TO MAKE DAIRYING A SUCCESS IN NORTHERN WISCONSIN?

Ex-Gov. W. D. Hoard, Ft. Atkinson.

It is very hard for me to bring my comprehension up to the size and character of this question. We have here in Northern Wisconsin a territory which is going through a transition. It had no other significance to the state of Wisconsin for a great many years than simply lumber; the great harvest was the pine tree. Succeeding that has come the harvest of the deciduous tree, the hardwood lumber, and succeeding that must come another harvest. It is now passing through the period of turning this country over and adapting it to the uses of agriculture. A great many people have very erroneous ideas concerning the character of the soil in this Northern Wisconsin; they have an idea that it is a great, sandy desert,

that it has never produced anything but pine trees. This is untrue. There are some very interesting particulars concerning the character of this soil. Throughout the state there are alternate ridges running southwest and northeast as a rule, and these alternate with ridges of land that are covered with the same sort of timber that used to cover New York,—maple, basswood, elm and birch, and on certain portions near the lake will be found the beech.

Now, then, these ridges of land are universally of a clay loam in character. Between those ridges of land may be found land approaching a more sandy character, but everywhere, in every spot, whether it be sand or clay, grass seems to be indigenous to it. Go down here to Camp Douglas, in the most sandy of all sandy places, where we purchased a military reservation of 440 acres for $200, and they have purchased 150 acres for one or two hundred dollars since. You who have passed through that country know that it has been created by erosion, bold bluffs stand up there, and what was the original level of this country has all been washed out to make that great delta of the Mississippi, you know. Now, then, that land there is so sandy that it is covered with a little, small scrub growth of oak, and it is built upon yellow sand rock. Yet, running through those scrub barrens will be found old roads, and every road is a solid mass of white clover. While I was in the executive office I was up there quite often, studying the camp as it was being laid out. General Burchard and General Griffin had the principal work to do in laying out the camp, but I was constantly looking at this phenomenon. There was clover, clover, clover, everywhere. Go south into Illinois and you will find it difficult in many places to secure a growth of clover, but here there seems to be a natural adaptation to it. Go on up all through this timber section, from the Mississippi river through to the lakes, and we are in an unknown empire which very few except timber crews and hunters and fishers know much about. Now, then, the lines of railroads are going across it in every direction. What can we do with that land? Quite large tracts of it have been devastated by fire; indeed, I believe the fire has been as destructive as the ax in this northern country. Following the

fire come up the deciduous trees, like the poplar and others and the grass comes in with wonderful fertility. Now, the question is: What shall we do with that country, how shall we get practically right to work, and with the closest intelligence which must be used, or you never can conquer that country? I believe you never can conquer it so quickly and so thoroughly as by the agency of the cow. Why? The whole of this land once shaded by forests, as soon as it comes into the sunlight, will spring into grass and the cow will get food for six months in the year. A man can put a herd upon one of those farms, he has got plenty of timber for his practical use; no man needs to put up a big, costly barn in this country —I built a barn in 1878, 36 feet long and about 14 feet high, and put in straw between the wall and the stakes. I covered it with poles and brush and straw on top, and a warmer, nicer barn I never have seen in Wisconsin and it cost very little. There is plenty of timber to build stables and shelter here for cows. Then they have a chance to secure at once a paying crop that is worth gold today in the markets of the world, and that is clover seed. I am trying to talk practically to you men who live in this country, and I want you to think what you can do. I am engaged in some experiments on the eastern side of the state with the Oconto Lumber Company. We propose to go out on a piece of land, cut the timber that is standing, even with the ground, sow on clover seed, hitch a pair of horses to the top of a young tree and brush in that clover seed. Do not plow the soil, not a minute, don't break the top mold, commence at once to grow clover and make clover farms. You have a larger rainfall than we have in the southern part of the state. Now produce clover seed, get it in as early as possible in order to ripen the seed. Put in your cows, grow clover seed and milk. Reseed your land in the same way, turn the cows to pasture and put up winter food in the form of clover hay and save your seed. I have seen on sand land in Adams county, that I wouldn't give ten dollars an acre for—I have seen seven bushels of clover seed raised to the acre. In this northern land there is evidently a very large admixture of phosphates, a phosphoric acid sort of quality in the land, and potash, which is needed for clover,

plenty of nitrogen. It is very easy to advise a man who has got money, but the question today is, What shall a man do that is out here on this land who is poor and wants to get started? I say let him start right today to the shaping of his mind. He cannot reach it today, he may not reach it tomorrow or next year, but he can begin to begin. Let him start right out in that line, to grow just those two things; let him grow roots or oats, or whatever he chooses, as he best can in this country, but make his main crop clover, and have cows to consume the clover hay. I know of a few instances of men who started in this way, plain, simple-hearted Germans, practical people who don't fool away very much on theories, and those men are making a distinguished success in the production of milk and clover seed. It is so simple that nine out of ten farmers can't see it. Men have a way of saying, "Suppose we go into the dairy business. Everybody is going into the dairy business, prices are low, and it will be overdone." Well, don't raise any children, because if you do, you will overdo the business. Don't let us marry any more, or establish any more homes, because it is already overdone. Don't let us have any more cows. My friends, this overdoing the dairy business is not a very easy job.

Now, there are two propositions that ought to sharply govern the man that is in the dairy business. First, how can I accrue profit out of the present prices? We had an instructive lesson here last night which led right up to that proposition of reducing the cost of production by the use of intelligence in the selection of a cow, and the great proposition today is, how to make as much money with butter at twenty cents a pound as the ordinary farmer in his loose, careless methods of doing things has made heretofore at thirty cents. It can be done. The ordinary farmer with his ordinary poor cow, and his wasteful methods, finds that his butter costs him on the average fully twenty cents a pound. Now, then, a man puts brains into it and good thought and he finds he can make butter at from eight to ten cents a pound, and that gives him a good, fair margin. Now, then, another thing. It takes two years to make a cow. You are thinking, say, of going into the dairy business, or sending your milk to a cheese factory

or creamery. Well, if they should build creameries on every cross road in Wisconsin it wouldn't do any good unless there were cows to supply them. It takes cows to make butter and it takes two years to make a cow, and only a small fraction of the female calves that are born ever become cows. The annual increase in Wisconsin from 1870 to 1890 was only about five per cent., taking twenty years to double the number of cows. Then, again, but very few among them are profit producing, therefore, I say, do not be discouraged on this cow question, because it will be slow, but turn your attention towards reducing the cost of production so that there is a margin of profit even at low prices. I myself do not want to see high prices prevail for butter, there are a good many reasons why they should not. These high prices, you have observed, are a constant temptation for the substitution of the imitation. The low prices ranging around 20 and 25 cents, as a rule, cut off the oleomargarine profit, and are more effective than legislation. Another thing, the difficulty with the butter market is not so much the production of good butter as poor butter; that is where the over-production comes in. Good butter today is in demand; it is the poor butter that lays on the stomach of the market, undigested. Now, one of the first things to do is to get the farmer out of his individual butter-making. Here are ten farmers round about here, each having ten cows, and each of those ten farmers makes up the milk of those ten cows into poor butter. Ten different amounts, and varieties, and smells, are dumped upon the grease market of the country, and the country suffers, the state suffers, the community suffers, everybody suffers. There is no revenue coming back, and the farmer suffers. Now, put a creamery right in that neighborhood, every one of those ten farmers' milk goes into a first class product, and every dollar that is got from the butter goes into his pocket, the butter goes into a good market and brings the best price that is going, not the worst price, and there is quite a margin between the worst and the best. There are thousands of pounds of that miserable stuff sold in Chicago at from three to five cents a pound, and it is made with hard labor by the farmers, and their wives. The farmers' wives brought it to the village

merchants and swapped it for calico and codfish, and the average merchant didn't want to lose the trade, and he put the devil behind him and sent it down to the great intra-market, Chicago, and there it is. Now, then, Northern Wisconsin has an adaptability, which, if it were taken hold by the intelligent, practical thought of the farmers in it, could be made to blossom in a short time under the application of dairying. Animal husbandry is to make this country what it is to be. We are confronted, it is true, with a lot of men up in Wisconsin, owning immense tracts of land, big monopolies, which stand not only in the way of the people, but in their own way. Those men today stand in the way of the development of this country more than they have any idea of. They are taking oleomargarine into the lumber camps, and they are discouraging every farmer around here from entering into dairying and they are standing in their own light. I have studied it a good deal, I have become convinced that if these great lumber companies that own thousands of acres of land would unite in a broad, intelligent policy, and say, "We will do everything we can to transform this country over into agriculture, and everything we can to encourage every man coming in here to embark in intelligent agriculture fitted to this section," that those men in a short time would see the transformation of those lands into good values for themselves. Now, for instance, there is the Oconto Lumber Company. They have thirty or forty thousand acres of land. I have prevailed on my good friend, Mr. Brooks, to look at that question in that light. I have said to him, "Turn these lands over into clover farms. The moment you get those lands so they are producing, you need not worry for a purchaser, your purchaser will come right away." The difficulty is that these men who come here cannot see how they are going to get a living on those lands. Turn them over into great clover producing farms. Don't worry about corn; clover seed will buy corn or anything else.

DISCUSSION.

Prof. Henry—Which of the dairy branches do you recommend for Northern Wisconsin, as a whole, cheese or butter?

Mr. Hoard—Cheese.

Mr. Faville—Before you go on I would like to ask this audience if this land will raise clover.

A Member—It will raise clover all right.

Another Member—I guess the governor is all right.

Mr. Hoard—There is something peculiar about this question of locality for cheese. I can go down in Missouri and make fine butter with the aid of a separator; I can go into Georgia, Alabama, or any southern state and make fine butter; but there is no living man can make fine cheese down there except upon the range of those high mountains in North Carolina, and why? Because it has got to have certain salubrity of atmosphere. Cheese is a hard product to make. It takes twice as much gumption to make cheese as it does butter. You are up here in the influence of the lake air. Go up in Door county, between Green Bay and Lake Michigan, and the finest cheese is made there today. There is a certain salubrity of atmosphere, a more even temperature during the summer, and also good water and sweet, nutritious grasses; there are conditions which are perfect for making good cheese.

Another thing; for several reasons there has been a good deal of turning from cheese making to butter making, which, to a certain extent, will raise the cheese market. We ought, if we can, to keep a balance between the two, and if we do, we shall never produce milk enough to be a burden on the market. There are coming into this milk production new lines of consumption all the time. Chicago is reaching up into Wisconsin today and pulling milk from as far up as Sheboygan and Fond du Lac; the shipping of cream into our great cities is becoming very rapidly an important interest. A friend of mine in New Jersey, by the name of Cook, a young man of only about thirty-five years of age, sold out his interests in Trenton for three-quarters of a million, and has bought 1,500 acres in New Jersey for an average of $40, and has turned them all over into dairy farming. Everybody in that country told him he would go to the wall, but he put fine, intelligent skill into it; he bought 300 cows and he started in making cream for the New York market, using the skim milk for making nice pork. He writes me that he cleared during the first year $16,000 on the investment, and he simply stood there

and guided the work. Cheese making is today the natural proposition throughout this northern Wisconsin. While you can make fine butter, I think in the cheese market you have the best prospect, and that we are going to get back some of our lost ground. Canada is not going to absorb the English market. We are going to make this everlasting money-making Yankee a little more honest than he is. He has destroyed our cheese market by dishonesty.

Prof. Henry—That Mr. Cook that you spoke of has sent a young man to study with us who has now been at the university about five months. He has picked up a bright young man in New Jersey and is educating him along these lines. Why couldn't some of these lumbermen pick up some young man and do the same with him? There has got to be something to take the place of the sawlogs in this country, or your country is gone and your money is gone. This is a live question, the State Dairymen's Association has come to help you solve it.

Mr. Grandine—Do you raise only one crop in a season and cut that crop?

Mr. Hoard—I want you to get a hold of your money just as soon as possible; if you want to get the best result you cut the second crop for seed; reseed your ground, seeding it in the same way you did before, and go over it, calculate to turn it right over and over, reseeding the clover sod, keeping your land as much as possible in clover, and let me say to you the finest old pastures in the country are those that never have been broken. There are some around Dixon, Ill., on the Rock river, the finest grass I ever saw. It was cleared from its original timber forty years ago and never a plow been in it. Of course, it would be more difficult to work with the stumps in, but a man can manage it partly with the scythe and partly with the mower.

Question—Would you recommend land plaster?

Mr. Hoard—Land plaster is always in order, like a motion to adjourn. I think it applies to these northern lands first rate, but particularly is it useful in the stable.

Mr. Kissack—Why do you object to the rotation?

Mr. Hoard—I want you to get hold of your money just as quick as you can.

Question—If you turn the sod under, wouldn't it raise good grain or corn?

Mr. Hoard—It would raise fair corn, you will have no risk at all with corn as far as the silo is concerned. If you use the silo, if the corn is frosted, it don't hurt, but I am talking about this man out here who is trying to get some money into his pocket as quick as he can. I am taking it just as though you should tie my legs and throw me out into one of those stump regions and say, "Now, scratch for your living, if you don't, you will die." Now, I say that is pretty nearly the proposition as it presents itself to hundreds of these farmers, "What can I do to be saved at this hour?"

Prof. Henry—I was partly instrumental in getting the Dairymen's Association to Chippewa. During the past season I have been passing over Northern Wisconsin constantly throughout the summer, and I have had from one to four other men doing the same thing; I have traveled with a photographer and we have taken hundreds of pictures in this Northern Wisconsin. We found, when we reached this Chippewa country, off here to the north of you, that it was a rich country, but there are no evidences of prosperity, such as there should be in view of the natural advantages. We find those regions suffering more than you are. The farmers have been depending upon the logging camps in two ways, for the winter, with their teams, and then they would come back in the summer and sell their crops to the logging camps again. That was all right until there was a little over-production and then disaster came. Prices went down and the farmers went down before that state of things; they had no connection with the outside market and there was nothing to carry off their surplus. This condition was aggravated because the woods were further away, there was more difficulty in getting work. I can show you in St. Croix and other counties, farmers who are worse off than you are, whose farms have lost half their value. The trouble about this thing is that you have no outlet for your crops. I remember when we took this Dairymen's Association up to Arcadia in Trempealeau county, we found one little scrubby creamery. They said, "Give us encouragement, we want a little backing." There is a creamery here

today that just represents the condition in Trempealeau. Three or four years after we had been up there, some of our workers were in that neighborhood, and the farmers came to us and shook us by the hand and said to us, "Do you know what you did for us at that meeting?" And let me tell you their land is poorer than yours, they were worse off than you are. They came to us and thanked us, because through the teachings they had received then, their mortgages had been paid off, their dairies are built up, the wife and children have better homes, they were encouraged to try once more. I lately talked to a transportation man, and he told me that they would carry your freight for 65 cents in refrigerator cars to Chicago. Think of it, a little over half a cent to Chicago. Do you realize that you are within a half a cent a pound of New York city? You have an opportunity here of putting your produce in competition with Massachusetts and New York and Illinois with only a half cent's difference between you. I heard of a man the other day who was going to Virginia to buy land. I wrote to him, a perfect stranger, and urged him to go up north and see the land there. He went up there and put $12,000 into farm products.

It is a fact that you all know that the creameries here have failed. Now, let the farmers turn in and patronize that creamery, stand by it. People go into other businesses, make investments in banks, etc., and they don't expect to receive dividends the first year, nor the second year. It takes time to build up these things. You want to back up your creamery man, then back up some cheese factories starting out, and pretty soon you ought to have thirty or forty cheese factories putting in four or five or ten thousand pounds a day and you putting deposits into the bank. Gov. Hoard has told you that in his own county of Jefferson the farmers have received for their milk $1,300,000 besides the pig product and the other by-products. Now, you have got just as good land around in this county in some parts of it as any in Jefferson. I believe, if you people will work here as you ought to, that this dairy convention will have been worth a million dollars to Chippewa county. You must start with the business men. I met nearly fifty business men in this town this morning, and I believe

they have got started. You must expect to lose some money at first, but must stand by your creameries and factory men. At the University creameries, which we are running at Madison, we are paying the farmers a hundred dollars a day for their milk. Last month we paid one farmer over ninety dollars; we paid six farmers over seventy-five dollars each, and about a dozen over sixty dollars. So on down to as low as thirty dollars. You must remember that every time you get a cheese factory started here, it means about 300 cows, and that means money coming into your bank, to be paid out again to the farmers and to the business men. The business men ought to be back of the farmers in this thing. This Chippewa Falls ought to be the center of a great dairy country, shipping out thousands of pounds of cheese and bringing back money every day to the farmers.

Gov. Hoard—In our factories we made about a million pounds of butter last year, and we paid out about $300,000 in cash to the farmers.

Prof. Henry—Gentlemen, that enterprise started in 1887 with one creamery, and last year it paid out $300,000. Green county pays about $2,000,000 yearly for cheese, and the town that has got the most money in the bank was one of the poorest towns in Southern Wisconsin, rocky, poor soil, but the men there have worked it up to a point where they have more money in the banks than any other part of the country.

Gov. Hoard—It is hard to make men see the growth of wealth that comes from the silent working of this cow, out in the pasture fields, quietly manufacturing milk; while you are attending to your business, the cow is putting in her time. The banks of Jefferson county carry about one and a quarter million dollars on deposit there by the dairy. We have hardly known what hard times were in that section of the country, because that money comes in every thirty days, the check goes to the bank and they draw the money. These things operate to the promotion of the increment of wealth. The improvements in barns in Jefferson county since Uncle Stephen and I first commenced in 1870 to drive through that country, is astonishing. I have thought a thousand times that I was willing to lie down and go to my grave perfectly contented

to see the change since we commenced that agitation in 1857. Uncle Stephen and I were the first to turn in. It has been a little hard, the farmers were a little cross and grumpy, it was hard to make them see it in the light that we did, but after all, their hearts are all right. In 1870 sixty per cent. of the farm valuation of the farms in Jefferson county was under mortgage. You know that means only forty per cent. of the farms in Jefferson county were out of debt. Today only seven per cent. is represented by indebtedness. The average production of wheat, per acre, had gone down, with the destruction of fertility, and was only about eight bushels per acre. Now it is about nineteen. Suppose we stop milking cows today, we have got some farms under our feet, and fertility that are worth having.

Mr. Grandine—When would you sow the clover seed? Before the frost comes out of the ground in the spring?

Gov. Hoard—Sow it as early as you possibly can to get it into the soil.

Mr. Faville—I met a gentleman two or three weeks ago in Madison, who told me he lived at Whitehall, in Trempealeau county. I asked him, "In what condition are your farms?" I said, "In some sections there have been complaints of hard times." "Well," he says, "just now we are doing first rate; we are a little under the clouds with our potatoes, but the thing that helps us out is our dairy business." He didn't know that I was at that meeting way back there, or that I was a dairyman. I says, "When did you commence dairying?" "Well," he says, "we date our salvation as farmers in Trempealeau county from the visit of the Dairymen's Association at Arcadia eight or nine years ago. Our people just got their eyes opened then, they came to understand the possibilities there were in our soil, and what a cow, practically handled, would do for us, and from that time we commenced to pick up, and we have picked up until our farmers are really independent." Another thing I want to say; don't be afraid of overdoing the cheese making. I have been hearing that cry for the last sixty-five years since my father commenced to make cheese on a farm in Herkimer county, when I was eight years old. I have been hearing ever since that

this business is going to be overdone so there wouldn't be any profit in it, but I have seen no occasion to be alarmed yet. There are not as many cows per capita in the United States today as there were twenty-five years ago. The eaters of cheese will increase faster than the cows will. Go into it, take pattern of these gentlemen. Begin scratching for clover, take good care of the cow you have got, make her do her very level best, and when you get another, do the same with her. Poor pecple have to start small; creep, if you must, but go ahead; do something, don't lie down and die.

Gov. Hoard in the chair.

The Chairman—"How to Breed a Herd of Dairy Cows" is the subject of an address to be given to us by Major G. W. Burchard, late adjutant general of the state of Wisconsin, and the principal spoke in the wheel as associate editor of Hoard's Dairyman.

Mr. Monrad—Has Gen. Burchard got any cows, governor, or is he a theoretical dairyman?

The Chairman—He is a patron of Hoard's creameries. He has a herd of thoroughbred Jersey cows that produced in 1894 the largest amount of milk per cow, an average of nineteen cows, among 104 patrons in that creamery, to whom was paid the sum of $65 per cow, nine of them two-year-old heifers. He will tell you some of the steps he has taken to arrive at this result. He got the skim milk back and we ought to add that. The figures I give you are after deducting the price of making, 4 cents a pound for the butter.

Mr. McKerrow—He is a competent witness, let him go ahead.

Before proceeding with the topic assigned him, Gen. Burchard presented to the convention the memorial, which had been prepared by him under the direction of the Convention, and which, after reading, was unanimously adopted, with directions that it be forwarded at once to the Wisconsin representatives in congress. The memorial is as follows:

MEMORIAL TO CONGRESS.

To the Honorable the Congress of the United States:

The memorial of the Wisconsin State Dairymen's Association respectfully represents to the Senate and House of Representatives of the United States, that it is assembled in its twenty-fourth annual convention in the city of Chippewa Falls, with dairymen and farmers in attendance, literally from all parts of the state; that it is now and for many years past has been the accredited representative and exponent of the dairymen and dairy interests of the State of Wisconsin, and receives from the state treasury by annual appropriation a considerable sum of money to assist it in promoting the objects which are committed to its supervision.

Your memorialist therefore prays that the statements and the petition contained in this appeal may be accepted as though signed in person by the owners of the nearly one million cows in the state and an equally large number of persons who are desirous of securing pure dairy products for use on their own tables and at the tables of the hotels, eating houses and restaurants where they are obliged to eat when away from home.

Wisconsin has an annual cheese product of over 50,000,000 pounds, all manufactured under the most efficient laws to prevent its adulteration or sophistication, but in the markets of the world, both foreign and domestic, this cheese has to come in competition with an adulterated article made from skim milk and lard and other cheap and unwholesome fats, and so shaped, colored, trimmed and even marked as not to be distinguished from the genuine product. The result is, not only that every pound of this "filled cheese" displaces a pound of pure cheese, but its unsavory and unsatisfying quality disgusts the would-be consumer and he forbears thereafter to purchase cheese of any kind. It results further, that, the demand for cheese being thus lessened, more and more milk is turned to the production of butter and the production of this article is thereby abnormally increased.

State legislation has proven itself inadequate to reach and correct these evils, and your memorialist would represent that Congress can at once and with great propriety provide additional revenue and at the same time subserve the cause of good morals and afford a measure of much needed protection to the producing dairymen of the country by laying a moderate tax upon filled cheese and placing its manufacture and sale under the supervision of the Treasury Department of the United States.

Your memorialist therefore respectfully urges early and favorable consideration for Bill No. 3010 H. R., known as the Cook Bill.

HOW TO BREED A HERD OF DAIRY COWS.

Gen. G. W. Burchard, Associate Editor Hoard's Dairyman, Fort Atkinson, Wis.

Chippewa Falls and the whole region round about was once, and that not so many years ago, a great and flourishing pine lumber center, and practically nothing else. Every man, woman and child,—scarcely excepting the nursing babies, if the stories I have listened to were entitled to full credence,—not only knew the difference between a pine tree and every other tree, but they could talk learnedly and accurately about the different kinds of pine trees, "estimate" the amount and quality of lumber any given tree would make, or for that matter all the pine on a "forty," and figure out its value to the fraction of a dollar.

This is yet a great lumbering center, but the glory, the influence and the power of the pine tree has greatly declined. It is no longer an absolute monarch. Other industries have grown up here, and in the orderly sequence of development, from the humbler to the nobler, it has come about that dairying has so challenged consideration that the Wisconsin State Dairymen's Association was invited to hold its annual convention even in this city of Chippewa Falls. 'Tis well!

Now, as regards dairying, it must be confessed that there are any number of recipes, and patents, too, for making artificial milk and imitation butter, but the resulting products bear about the same relation to the genuine goods that artificial flowers do to those grown in the garden or the conservatory or those that spring up in the woods—very fine to look at, and that's all. It therefore needs no argument of mine to establish the proposition that, in the present state of our knowledge, dairying is dependent on the cow, and that "How to Breed a Herd of Dairy Cows" is a primary and most important branch of the general subject and as indispensable to success as is "catching the rabbit" in the famous recipe for making a rabbit pie.

As it is not always possible to catch the rabbit, so it has to be admitted that breeding is not an exact science. Do the best we can, there will be disappointments and discouragements; but there are a few propositions that seem to be pretty well established.

One is that cows are very much like sawlogs, in that each one is best adapted for some specific purpose, and that the breeder and the dairyman should look at their cows with as keen an eye and as discriminating a judgment as the head sawyer looks at the log when it is rolled on to the carriage.

Another proposition, not wholly unlike the first, is that cows are really very peculiar animals,—not originally so, perhaps, but by reason of centuries of special training and environment. Originally the milk-giving function of the cow was strictly limited to supplying her own young with necessary nourishment until such time as it could rustle for itself. This did not require very much milk at any time—a fact that calf-feeders too frequently forget—and lasted but for a few months at most. In those days a cow was a cow, just as for the purposes of a fire in the woods or even the building of a log cabin, a log was a log. As civilization advanced and the milk of the cow became more and more a necessary article of human food and luxury, it came about that by feeding, training and selection, some cows began to do better than others, and—to make a long story short—in this way man has developed dairy ability in cows, just as he has developed improved

grains, fruits, vegetables and flowers from unpropitious beginnings, and different breeds of dogs and sheep and horses, each with special traits, but all the different breeds from a common ancestry.

Strange, isn't it, that there should be such a difference in cows? But not so very strange after all, for there is a somewhat similar difference in sawlogs, or, at least, in the trees from which sawlogs are cut.

It is quite possible, I think, to go into any forest in northern Wisconsin, where pine trees grow, and there find three trees not far apart, which have grown in and been nourished by the same soil and have had in every way equal advantages, and one of them shall be a nice soft pine, another a nice hard pine, and the third a kind of a general purpose pine—not first rate for anything, and very disappointing when you come to make it into lumber of any kind.

If it be suggested, in explanation of this phenomenon, that these trees had a different origin, that they grew from different seed, or that one or the other was burned, warped, twisted, or stunted in its infancy, and that this accounts for the differences seen at maturity, I have only to answer that a similar law and the same reasoning applies to cows, and hence that until one recognizes this law and obeys it in its spirit as well as its letter, he cannot hope for success in breeding a herd of dairy cows.

If I was compelled to sum up, in the fewest possible words, the rules and directions for success in breeding a herd of dairy cows, I should say, Get good seed. The trouble in following this rule is to distinguish good from poor. To this end I submit for your consideration what might be called, not inaptly, perhaps,

THE COW-BREEDER'S SHORTER CATECHISM.

Q. How many kinds of cows are there?

A. Three.

Q. What are they?

A. Dairy cows, beef cows, and combination cows.

Q. What is a dairy cow?

A. One that has the ability to turn all the food she may

eat and digest, over and above that required for maintenance, towards the udder, there to be transformed into milk.

Q. What is a beef cow?

A. One that turns her surplus food into flesh and fat.

Q. What is the combination cow?

A. One that tries to take both forks of the road and never gets anywhere.

Q. What causes this difference in cows?

A. Heredity.

Q. What is heredity?

A. "The biological law by which living beings tend to repeat themselves in their descendants."

This catechism comprehends all the principles involved in breeding a herd of dairy cows. It is not my fault that they are neither new nor peculiar. Every farmer who raises oats or hay, or wheat, or corn, practices them with more or less attention and confidence. Let it be known in any township that John Smith has a variety of oats that for years has yielded 10 bushels more per acre than any other oats in that vicinity and straightway dozens of other men will want some of John Smith's oats for seed.

Is this wisdom or foolishness? Wisdom, most certainly. Why not, then, apply the same kind of wisdom to the breeding of dairy cows? Why not get good seed? If any man here present knows or thinks he knows of any reason why one should not be as particular and use the same sort of discrimination in selecting animals for breeding purposes as he should in selecting seed oats, let him make the same known now or forever hereafter keep silence.

Hearing no objection I will proceed to indicate as best I can how such animals may be selected.

In the first place, one needs some sort of a weighing machine. A set of hay-scales, with a platform 9 feet wide and 12 to 14 feet long, will answer the purpose; but a little spring balance costing $2.50 to $5.00 will be cheaper as well as more convenient and trustworthy—something that can hang up in the stable where milking is done. I say stable because one will never become a successful breeder of dairy

cows if he milks out in the road, or even in a yard, because if he does he will be sure to sell or kill his very best cows.

Having provided yourself with some sort of a weighing machine and arranged to hang it up in the milking stable, the next important item is to provide yourself with a good lead pencil, even if you have to send to Chicago, or Milwaukee, or St. Paul to get it. This is not so trifling a matter as it may appear to you at first sight. Nothing more surely indicates a cheap man than a poor, cheap pencil; and the man who tries to economize in pencils will be too stingy to succeed in breeding good dairy cows. Get a good pencil and a good supply of cheap paper—paper that you will feel free to use freely.

The next important item is to get a Babcock tester and learn how to use it. A very small one will answer to begin with. The only trouble with them is that they cost so little they are not half appreciated.

With these three implements in hand, a spring balance, a lead pencil and a Babcock tester, you will be prepared to begin business, provided you have, as is more than probable, one or two cows. If not, go out and buy as many as you want, and don't be afraid to pay a good price for a good cow.

In selecting cows for purchase I wish it were better understood than it is that a cow gives milk out of the udder. Most men when they are judging milch cows seem to overlook this fact. Hence I caution you, when selecting your breeding stock to see to it, whatever else may be to your liking, that the cow you buy has a place for an udder. This will necessitate thin thighs—thighs that will not furnish great cartwheels of round steak,—and a high, arching flank. Broad hips are also essential, in order that there may be a wide space between the thighs. Next, look for depth from the back bone to the navel, for this is where the cow carries her digestive machinery. Milk comes from food, but food must be digested before it can be made into milk, and the good dairy cow must have large digestive capacity and apparatus that will dispose of large quantities of food. The more a cow eats and turns to good account the more profitable she will be. You can't run a 40 horse power engine with a 10 horse power boiler; neither can you run a big udder with a small belly.

There are a good many other points and parts that go to make up the model dairy cow, but if one is a novice he can't expect to learn everything in one lesson. Look well to the points I have indicated and you will win more than half the games.

Having now in your possession such a number of cows as you purpose to start in business with, take your milk pail at the proper time, and after weighing it proceed to milk cow No. 1. When that is done weigh that milk and set the amount down, using for that purpose the pencil and paper previously mentioned. When this is done, milk cow No. 2, weigh her milk, and make the proper record. Proceed in this manner until all the cows are milked, and follow up this practice right along, night and morning, always in the same order, milking, weighing the milk, and making the record for every cow. When this routine is well established—it is never wise to commence too many new things at one and the same time—so I say, when this routine is well established, set the Babcock tester at work and find out just how much fat each cow gives. It won't take half as long, and will be just a thousand and one times more profitable than exercising a trotting horse. Fat is the true measure of a cow's dairy ability, and it is impossible to guess as to the amount of fat a cow yields with any degree of accuracy. Weigh, test and record. From time to time compare each cow's record with her general build and make-up, and it will not be long before you can tell a dairy cow from a beef cow or a combination cow, with just as much certainty and just as readily as these old-time lumbermen can tell a white pine from a Norway or a hemlock.

So much for the cow. The most perplexing and difficult thing in breeding a herd of dairy cows, is the choice of the male half of the herd, and that remains to be considered. A mistake here is fatal all along the line, and difficult as it may be to select out the best dairy cow, it is doubly difficult to select a dairy bull. The most I can do is to give you a few pointers.

The first is this: Always bear in mind that the future cow will take half or more of her dairy qualities from her sire. If you never forget this you will be most likely to see to it that this sire has the dairy form. By dairy form, I mean that the

bull shall resemble the cow just as nearly as possible—even to the horns and rudimentary teats. You remember what I said about the udder of the cow and a place for it. The rudimentary teats on the bull indicate, more than anything else, perhaps, whether he is descended from a dairy ancestry and can transmit dairy ability to his posterity. You will almost always find these rudimentaries, if well developed, associated with a general cowy form. Some of these old-fashioned dairymen here do not fully agree with me, and if they can get you aside will advise to disregard my teachings and buy a large, strong, robust, masculine looking animal to head the herd. I beseech you to pay no attention to such advice. If any man who listens to me thinks differently let him come out in the open and give the reasons for the faith that is in him. I have heard others try to do this but they always make a failure of it. The sum and substance of what they say is that masculinity denotes vigor and strong constitution. But it don't. It simply indicates strength to lift, or draw, or push, but has no relation to vital energy, constitutional vigor and nervous power.

If like produces like, if heredity is that law or influence which tends to make the offspring resemble the ancestor, then we want a cowy looking bull as a sire for dairy cows. I don't care anything, or, at least, next to nothing, for size, or mere brute strength of the Sullivan-Corbett-Jackson, prize-fighting type, but I do want a bull that had a dairy cow for his dam and resembles her, and two dairy cows for his grandams, and if he has dairy cows for his sisters, his cousins and his aunts, so much the better. This is what we mean when we say get a full-blooded, pedigreed animal from some one of the acknowledged dairy breeds and don't waste time in trying to develop a new and better breed. Leave that to the wealthy, professional breeders, like Havemeyer, who is crossing Jerseys with Simmenthalers.

Don't experiment over much by going from one breed to another. Mark out your course and stick to it. Keep the scales and the Babcock test going, but don't be too impatient. Remember the fable of the mud turtle and the rabbit—sometimes called the fable of the tortoise and the hare. As the

turtle won the long distance race from the rabbit, so many a little cow, that never yields to exceed 25 pounds of milk in a day, even when at her best, will bring you in more clean money in twelve months, than some other cow that astonishes you for a few days with a yield of fifty pounds. The winners among cows as among men are those who keep everlastingly at it, who "fight it out on this line if it takes all summer." Grant was not a particularly brilliant soldier. There's no two or three events in his career which can be referred to in proof of his military genius. Indeed, take him day by day, and he is not satisfying. It is only when you sum up a whole campaign that you begin to get the measure of the man.

So I say, keep a record of what each cow does, and particularly of the heifers when they come in milk, and when the ten or twelve months' campaign is ended foot up the entries and form your judgments. That is the best cow, irrespective of breed, color, cost or previous ownership, which will give you the largest net profit in a year—not for seven days or six months, but for a full year.

If you have ten cows to start with, the chances are that not more than five of them will be worth keeping a second year or their calves be worth raising. Don't fool away your time with poor cows or their calves. There are men who like that kind of cows, especially if they are large and red and handsome. Court such customers, invite them to dinner, tell no lies, but when they offer you a good price, think of some place where you can use the money to good advantage as an excuse for selling.

All the time, you see, I am insisting on good seed. Better three good stalks of corn in a hill than six medium or poor ones,—and this more especially when you are selecting seed for the next crop. As with corn, so with cows and calves.

Do not think I have set up an impossible standard. In fact, I fix no arbitrary limits. I say, commence with what you have, and can get, and then begin right away to weed out and dispose of the poorer ones. Get a good bull. Good bulls are very cheap now. The best ones, if bought as calves, can be had usually for $50, or less; not the fancy ones, perhaps, from the most noted families, but others that are just as good, if

you are not a professional breeder raising pedigreed stock for sale. And one bull will answer for more than one herd if they are not too large. Ten heifer calves from merely ordinary cows will more than pay the cost of such an animal. And if his heifers prove to be fairly good breed them back to their sire. Don't be afraid of inbreeding. Until you are reasonably sure of getting a better animal, continue to use the one you have.

I am sorely tempted to enlarge the subject of breeding as applied to dairy cows, by making it cover the same ground as when applied to men and women, so as to include the nurture, care and development which follows birth. Shakespeare makes one of his characters say: "I am a gentleman born and bred." And it is a matter of daily observation among clear-sighted dairymen, that many a phenomenal cow owes quite as much to her bringing up as to her pedigree. Or perhaps the reverse of the proposition is more frequently seen in the cases of well born cows spoiled by improper feeding and care in calfhood and as young heifers approaching maternity. It is as true of calves as of children, and as true of children as of saplings, that just as the twig is bent the tree will incline. Encourage the calf in the habit of living and covering its ribs with fat and evermore it will incline to turn its food in that direction. A good veal calf never made a good cow or a good dairy sire.

DISCUSSION.

Mr. Briggs—How would you raise your dairy calves?

Gen. Burchard—By hand. I do not know whether it is better to take the calf away from the mother at once, or to let it suck for two or three days. We practice the latter and no harm resulted, but I know there are people who think they have found harm resulting. As soon as we think it is at all consistent to do so we put those calves on skim milk, skimming the milk gradually, more and more. This winter the boys have put in the small sized separator, especially to get the milk for the calves. They separate night and morning, and while the milk is yet warm, it goes directly to the calf,

so they are getting nothing but separator milk and hay, no grain, and the boys think we never had better calves.

We used to use a little oil meal or flax seed made into a jelly, and we supposed it was really necessary, but we have not found it so this winter. Whether it is that the extra milk sugar in our milk takes the place of the fat, or what it is I don't know. We don't want our calves to get fat. We like to see them look thrifty and take their meals with a little gusto, and that is about all. They have what hay they want, and the sooner they can develop a good big place for digesting their food, the better we like it. They don't look half as nice as fat, sleek, beef calves, but they make better cows.

Mr. Goodrich—How long do you feed them skim milk?

Gen. Burchard—We are feeding it all the time; we have it the year around. We really don't let them go out of the barn very much until they are pretty nearly a year old. A last fall calf will be turned to pasture in the spring, of course. Our calves that are kept in the barn are fed all winter and also some in the summer; none are deprived of milk before they are six or eight months old.

The Chairman—Do you understand it is an easy thing for a man to instill the dairy quality into a heifer?

Gen. Burchard—Yes.

The Chairman—Won't you state what you mean by that?

Gen. Burchard—I will tell you about that. The governor got the Guernsey fever three or four years ago, and he was called away from home, and he had a couple of nice Guernsey calves, and he left them with an old-time farmer to take care of. They were beauties and he took excellent care of them. Then the governor came back and saw them and he came to me with tears in his eyes and said, "Can't you take those Guernseys up to the farm?" I said, "Yes, I can." Now, I am sorry to say that those Guernsey calves never have done so well as they ought to do. I think they were very seriously hurt by the kind attentions of old Mr. Metcalf.

Mr. Goodrich—Do you think that the heifer calves of these cows that have been injured will be as good as if their mothers had been reared right?

Gen. Burchard—That is refining pure gold; I don't know. I can't help but think but those two Guernsey cows have got the root of the matter in them, they are well bred, and that they will transmit that to their progeny.

Question—What do you feed yearlings?

Gen. Burchard—Just as I would a cow, only not so much.

Question—Corn meal?

Gen. Burchard—No, we don't have any particular ration with heifers; we give them a little silage, they get a little corn stover, we have quite a bit of straw and they get some of that and they get some clover hay. There is generally a little bran in the barn, and they get a little of that; if we have some ground oats, we don't object to their having some ground oats; we object to nothing which goes to the making of muscle rather than fat. Let me say right here that in one sense my system of breeding and rearing cattle is not a success. People come from some distance,—and my near neighbors—and want to buy an animal; they look at it and they don't like to say very much about it, but, "Well, it isn't as large as I expected. What is the matter? The calf don't look quite thrifty, does it? It is very nice, the hair lays down all right, but what's the matter with it?" "Nothing, only I am raising it for a dairy animal, and I insist upon the same regimen with the male as with the heifers." Quite often they go off and don't buy and say that thing is not a success, but once in a while a man comes, and before I know it, he takes up with the very best one I have got.

Mr. Hopkins—Is the same quality of milk desirable for cheese as for butter?

Gen. Burchard—I should say no. I do not think it is profitable as a rule when the markets are in their normal condition to attempt to make anything above 4 per cent. milk into cheese. It will pay better to make it into butter, and I have never heard of any too rich for making butter, but when it comes to the manufacture of cheese, unless a man has a special market, such as a certain Iowa man has, what he calls a cream cheese market, he not only uses very rich milk, but he skims the cream from other milk, and puts in with it. There is no general market that pays to do that.

Mr. Faville—Do you think there is much danger of finding many herds will average more than 4 per cent. in a community?

Gen. Burchard—Oh, no, I don't think there is much probability of that. In ten or fifteen or a hundred herds you will hardly find one that will reach over four per cent.

The Chairman—The average in our home creamery of butter fat was 4.37.

Prof. Henry—The average fat of the University creamery for January was 4.36.

Gen. Burchard—You have a large infusion of Guernsey and Jersey blood there.

Mr. McKerrow—At what age do you consider your calves need water in addition to the skim milk?

Gen. Burchard—Oh, I don't know. If they have plenty of skim milk, they don't need any water. If we think our calves need a little water any time, they get it, and when we commence giving it to them, we give it to them regularly. I think calves are like ourselves, we can get into the habit of drinking a great deal of water and it seems impossible to get along without it. Now, I know that we can get along with a very little water, and be equally healthy perhaps, but I don't know which is the better way with men or with calves.

Mr. Baker— Every farmer hasn't got a separator. We haven't got a separator, and I want to give some of my experience. I think the serious trouble in feeding calves is to get the milk warm to the proper degree. I have lost fine calves on account of that trouble. We are now using a forty cent thermometer and five cents worth of asbestos paper. We set the milk on the stove to heat with the asbestos paper, and we never burn the milk on the bottom of the vessel; then we never let it get above 85 or 90 degrees by the thermometer. You can never be sure if you test it with your finger. I would add that I would have a little salt where the calves can get at it.

THE VALUE OF THE SILO TO THE WISCONSIN MILK-PRODUCER.

C. P. Goodrich, Fort Atkinson, Wis.

That is a question that hundreds, and I don't know but thousands, of dairymen in Wisconsin are asking, Is there any value to me in the silo? Then the next question that follows naturally is: "Can I produce more butter from a given amount of food?" and "Can I produce more butter with a given amount of labor?" I have written out a little and will try to read it, though I hardly ever can read my own writing.

The value of the silo lies, first, in the fact that by its use we can have, for our cows, succulent food during our long winters, which will keep up the flow of milk better than any food that has had its succulence dried out. This will be admitted by every one who has given it a fair trial. There is more profit in producing milk in winter than in summer if a good flow of milk can be kept up through the entire winter. Cows that are fresh in the fall will give more milk during the year if they have good silage for a part of their ration and are otherwise properly fed, than they could be made to produce if they were fresh in the spring.

Second: There is less loss of food value, with corn especially—and corn will produce more cow-food per acre than any other forage plant in Wisconsin—when preserved in the silo than when field-cured even when the field-curing is done in the most careful manner and under the most favorable circumstances. It is true that at some experiment stations, when the utmost care was taken and the conditions were the best possible, and the corn was of the small or flint varieties, the loss in field-curing was but little more than when siloed. But such results are not practicable or even possible under ordinary conditions on the farm. The most profitable corn to raise for forage is the largest variety that will be reasonably certain of sufficiently maturing in the latitude where it is raised. With these varieties of corn the large stalks compose a large percentage of the whole weight and they are as

nutritious as any part of the plant (except the ear) as long as they are in a succulent and juicy state. But when these large stalks are dried out in the field they become utterly indigestible and worthless as feeds, as every farmer knows.

Third: A crop of corn can be secured and fitted for feeding in the most convenient form at much less cost of time and labor by putting it into the silo than by the ordinary methods in use. Some persons doubt this, but it is only necessary to do a little thinking and figuring to show that it is so. Now let us make a comparison of the two methods. The cost of raising an acre of corn is the same up to the time of cutting, whether it is designed for the silo or not. We will assume that the acre will produce 50 bushels of shelled corn or 12 tons of silage.

I will repeat what I wrote some years ago, describing the method I once practiced and which I know, by the evidence of my own eyes this winter, is still practiced now by a majority of all farmers who do not have silos.

It took one day to cut and shock the acre, two days to husk and throw the corn on the ground and bind and shock the stalks (I very seldom hired men who would do it as quick as that). Then there were two loads of corn to pick up and haul to the crib and three loads of stalks to haul and stack, which would certainly represent three-fourths of a day, as it would take two men to haul and stack the stalks. Then it used to take two of us a day to shell 100 bushels, so I ought to count one day for shelling, but to be sure and not to get it too much, I will call it three-fourths of a day. Then two trips to mill or wait while it was being ground used up another half a day more, paying for grinding at four cents a bushel was $2. Now, if we call a day's work a dollar, we have seven dollars as the cost of getting an acre of good corn in shape to feed cows after it has been grown, and I am certain that doing it that old way, which many are practicing now, it cannot be done for less.

After you have done all that, what have you got? The grain part is all right, but how about the fodder? According to the best information I can get, the stalk of corn has nearly as much feeding value as the ear, if it can all be saved and preserved in a digestible state, but when it is treated in the

way I have described the cows never get more than half the value.

First the shocks are weather-beaten and wasted on the outside. Then they are thrown down and husked and, if the weather is dry, much of the leaves and finer parts are crumbled up and wasted. They are bound and shocked again and another portion is exposed to the weather and storms. Then they are stacked and in doing that still more is broken up and wasted, after that they are still more damaged by rain and snow. At last they are dug out of the snow in winter and thrown into the yard where the cows chase each other around over them till, if it is cold weather, much more is broken up and wasted. If the weather is mild, it is just as bad, for they get dirtied up so the cows will not eat near all. In any event the large stalks are hard and indigestible and cows cannot eat them. I do not believe that in this way we ever get more than half the value of the corn fodder we could get if it was made into silage, so we lose 25 per cent. more of the value of the whole crop—corn and fodder—than we would if siloed, besides, much of the time, the cows are suffering from cold and inclement weather out in the yard, when they ought to be in the stable. It may be said that stalks can be fed in the stable, but we know that this is seldom done. I used to do it sometimes when the weather was stormy, but it was so much work to lug the stalks in and put them in the mangers and still more work to carry out the stalks that were left uneaten, that I never did it if my conscience would allow me to do otherwise.

One year I kept accurate account of the time taken to get good corn, estimated at 50 bushels per acre, into the silo. It took 45 days' work to get in 15 acres or three days or dollars, to an acre instead of 7 the old way. That settled the work question in my mind forever, and it is much quicker and more pleasant to feed in the barn from the silo than to dig and pry frozen corn stalks out of a stack half buried with snow when there is a blizzard and the thermometer below zero.

It is possible that more horse work would be used when we put the corn in the silo, though not much if the distance to mill was considerable, but as all farmers must keep a suffi-

cient number of horses on the farm to do the other work, and they have to be fed whether they work or are idle, this cannot be counted much.

It is true that the cost of the silo, and the cost and wear of the machinery to fill it, must be taken into account but when due allowance is made for all that, the silo is a long way ahead when we consider all the benefits arising from its use that I have enumerated.

DISCUSSION.

Question—What corn do you use for the silo?

Mr. Goodrich—We use at least two different varieties that will ripen at different times, so that when the earlier variety is just at the right stage, the later variety isn't ready yet until we get through with the other.

Mr. Briggs—How did you gather your corn and cut it in to the silo so cheaply, $3 an acre?

Mr. Goodrich—Three days' work, three men to the acre, then there is the machinery. We have tried a good many different ways, but we have settled on an old way. In the first place we have our field of corn as near as we can practically to the silo. Now, we have two wagons with racks from 18 to 20 feet long that are low down. Two men go out and cut four rows, or two rows of corn apiece, next to the silo; about the time they get to the end, a man drives down with the wagon and rack, the horses have become used to this work, and will walk right along, need no driving, three men throw it on, the horse walks along slowly and by the time they get up to this side of the field, next the silo, they drive right up, and there is one man there to unload it and one to feed it. Then the man with the wagon drives back, and by the time he gets back to the back side of the field, these two men are back there and are ready to help load. When we have a full crew, with two men cutting in the field, one man driving in the field and two men putting it into the silo. Six men can put in two acres of corn a day and not work very hard at that, that will be 15 to 18 tons to the acre.

Mr. McKerrow—What has been the effect of feeding ensilage on the quantity and quality of your butter product?

The Chairman—Mr. Goodrich makes butter for a special market in Chicago.

Mr. Goodrich—We have been gradually increasing in the quantity per year, per cow. We have made more since we put in the silo and we have been gradually increasing ever since. Just how much the silo has added, of course, will be hard to tell. Now, as to the quality, that was a question that worried me a good deal. I should have put in the silo long before I did, but I was afraid that it would affect the quality of the butter. I wrote to the commission man that I sent to in Chicago, and asked him if he knew whether ensilage injured the butter product or not. He wrote back like this, he says, "We have some good butter and a good deal of butter that is a bad flavor. We know nothing about feeding cows or making butter, only we can judge the butter. The nearest that I can come to giving you any information is this, a certain man had been in the habit of sending butter of excellent quality to us. All at once in November there was a peculiar flavor, that was disagreeable about his butter." He says, "I understand that he is feeding ensilage." Well, that kept me from building a silo for two years. Finally I at last built one about eight years ago, and I felt a little anxiety about it. I was very careful not to feed any damaged ensilage to the cows, and I couldn't see but what the milk was all right. After we had made two shipments of butter from ensilage fed cows, I got a letter from the commission man. I felt a little anxious about opening that letter, but when I opened it and read it, it was like this:—it came voluntarily remember, he didn't know anything about what my cows had been eating. It said, "Mr. Goodrich, the flavor of your butter is excellent, never so good before at this time of the year." Well, you can believe I was happy then, I felt easy.

Mr. Grandine—What kind of a silo have you?

Mr. Goodrich—Mine is a rectangular silo, 16 feet wide, 32 long by 17 deep. I don't think that is the best style to build. If I were building again I would build a round silo and I would want it 25 or 30 feet deep.

Question—Would you build it in the barn or outside?

Mr. Goodrich—I would build it outside the barn under ordinary circumstances. I think it is well to dig into the ground, if the ground won't let in water.

Mr. McKerrow—Would you build it of stone or brick or of wood?

Mr. Goodrich—I want to describe a silo that fills my eye the best of any I have seen. It is on the farm of Mr. Harry King, brother of Professor King, down at Whitewater. He had a basement barn, the basement wall eight feet high. He built his silo just outside the barn. He dug down that eight feet and six feet further, so that the bottom of his silo is six feet below the floor of his basement. The silo is 20 feet in diameter. He put in a stone wall to come up to the top of the ground, that is fourteen feet. The stone wall is made of such stone as he had, but it is laid very nicely, it is a perfect circle and cemented up very smooth and true on the inside. The outside of the wall, the top of it is sloping, so that the water won't run in. Now, there is twenty foot of a wooden silo on top of this. The studs are set even with the inside of the wall. Then it is lined on the inside with one thickness of half-inch stuff. The studs are 2x4, and I think about nine inches broad. The inside lining is covered with galvanized iron and that is coated with what they call asphalt paint, and I understand that makes it last a long time.

The Chairman—What are the bottom of these studs set on, the lower end?

Mr. Goodrich—When the wall was laid there was little pieces of wood put in there, 2x4's, and they are toenailed into that. The boards are put on the inside. The silo is 32 feet deep, and he has a dormer on top where the ensilage goes in and falls into the middle. He has three or four doors and he put on the outside two thicknesses of inch stuff. I don't think he put any paper in between, though I am not certain of it.

Mr. McKerrow—If he had boulders on his farm, why not continue that stone wall clear to the top instead of putting wood on?

Mr. Goodrich—I don't know that there is any objection to

that. There is a silo down here that was built up of those boulders clear to the top. It is more expensive to build a stone silo than a wood silo. Mr. King told me that when he counted everything, the board of the help and the drawing of the lumber, and all that, that the cost was about $400 for a 200-ton silo.

Mr. Kissack—Why do you prefer a round silo to a rectangular one?

Mr. Goodrich—Because there are no corners in which the ensilage can spoil. It is very hard to prevent spoiling in the corners. Another thing, it will take really less lumber for a round silo.

Prof. Henry—If any of the farmers are interested in silo building, if they will write to the Agricultural Experiment Station at Madison, they will get a bulletin on that subject that has been issued by the department at Washington, called "Silos and Silo Building." Senator Vilas has sent us a number of copies, and they will be sent to any of you who will send to us for them.

Mr. Goodrich—We do know that some men build a silo and have a good deal of ensilage damaged on the outside. Another man will fill one and it is not damaged to any extent. Now, it depends a great deal on how that ensilage is put up. It wants to be thoroughly mixed up, the leaves and the stalks, and spread over and the outside next to the wall kept highest, a good deal the highest. When I first commenced I was told that it was best to keep it highest in the middle, but the consequence was that when it settled, there was a space between the silage and the wall. I couldn't understand it at first, but I saw by the papers that others have had the same difficulty. My philosophy of this thing is this: I presume that a good many of you have seen a hay stacking machine that lifts the hay up and drops it down onto the stack. When a stack is built that way the middle of the stack is packed solid, and the outside is a good deal looser. The men that are building the stack, don't walk on the outside. When that stack comes to settle it is narrower than it was when it was put up, a good deal sharper. I presume a good many of you have threshed grain and stacked up the straw, and you have

got four or five men on the straw stack, and you have found out that it must be well tramped down. When you have got it built it ought to act like a wedge on the bottom part of the stack, and your stack keep growing wider. Now, it works just that way in a silo.

Question—What length do you cut your silage?

Mr. Goodrich—We have cut it an inch. We have put it in at two inches.

Mr. Linse—I have been putting up ensilage for a good many years. I think the great cause of damaged ensilage is by not mixing the heavier and the lighter parts thoroughly together. When we have a silo 20 or 25 feet deep, the ensilage drops to the bottom. The heavy parts will go straight down perpendicularly, and the lighter parts will go towards the wall, and will never become so solid as the heavy parts. Now, I overcome this by a little scheme. I have what you might call a stovepipe made out of tin in sections, about 6 feet long, and we start below, and while it is a direct drop of twenty or thirty feet down, I have this long pipe extending within six feet of the bottom, and it swings around and this silage comes down, the lighter and the heavier parts, just where you want them, and it is very easy to mix thoroughly. As the silo fills up I take off the sections, always have it about six or eight feet from the silage. There are two silos, or a partition wall, and I used to move my carrier from one to the other, but now I have it right in the center so as to face the partition wall, and it is so arranged that these pipes that we can feed first one side and then the other. The silage drops into a big box first, then there is a chute out of that box and there is the mouth of the stovepipe. That is square and it comes to rounding. The upper piece is solid. It is hung on hinges so I can swing it and reach around in the silo. There are hooks to these different lengths which I can tie or fasten in one corner or the other corner, and keep it where I want it, swing it from one to the other place.

Mr. Baker—I should think a farmer could take a sack with a wide mouth and use it in that way.

Prof. Henry—There are two samples of silage brought here

by farmers. I would like to know the opinion of some of the gentlemen here of the quality of this silage.

Mr. Goodrich—This sample, judging from the appearance, was cut soon after the roasting stage, not quite as mature as I would like to have it, but it is good ensilage. It has more acid, and not so much nutriment as if it had been a little riper. The other sample is a little bit the other way. It is not bad ensilage; it is good, in fact, I would prefer it to the other. Its color is darkened a little, and that shows that it has been pretty hot. If it had been put in a little later and less moisture in it, it would have made the kernels almost black. I call them both good ensilage.

The Chairman—Is it practical to build a round silo inside of a barn?

Mr. Goodrich—It wastes a good deal of room. I would rather have the silo outside of the barn anyway.

The Chairman—You have been talking about silage for winter feed. What about summer feed?

Mr. Goodrich—I believe it is the best way to provide green food to tide over the drought in the summer. I have got some boys out in western Iowa, and one of them built a large silo that held 400 tons to keep his stock through in the winter, and it did so splendidly that he said, "I am going to build one for the summer." He had a hundred head of cattle, milked sixty cows. He did so. He had some colts running in the pasture—a pasture of over sixty acres—and they allowed that grass to grow up in the pasture, so that there were several tons of hay cut there, because they liked the ensilage so well. At four o'clock in the afternoon they would come around to get their ensilage and he had better flavored butter than ever before, for the reason that out in that country there are a good many weeds and wild onions in the pasture. A year ago last summer they had a terrible drought in that country, and that dairy of cows was the only one that I found in that part of the country that produced any milk in August. They were all dried up, but that herd was producing the usual quantity of milk, because they had ensilage to eat.

Mr. Briggs—When do you feed ensilage?

Mr. Goodrich—Usually after milking.

Mr. Briggs—What grain ration do you feed in connection with the silage in winter?

Mr. Goodrich—We are feeding this winter a ration half bran and half gluten meal, equal parts by weight, an average of ten pounds a day to each cow. Then there is a little corn in the ensilage and they have a little clover hay and some dry corn fodder and some straw.

Mr. Briggs—That is a cost of how much per day per cow?

Mr. Goodrich—Well, about five cents, half a cent a pound; the bran is $9 and the gluten meal is $13.

Mr. Thomas—What is gluten meal?

Mr. Goodrich—We buy it by the carload and it is called Buffalo Gluten meal.

Mr. Bradley—What percentage of men who have built silos in that country have abandoned them?

Mr. Goodrich—There are some men that have empty silos, there are some men that have got empty barns, and there are some men that have got empty houses. That does not argue that houses are no good, or barns no good.

Mr. Faville—Some men have got empty heads, too.

Mr. Goodrich—There are very few empty silos. I know of just one in Jefferson county. In the first place it was very poorly constructed, and in the next place a million rats dug down under the ensilage, and spoiled it and gnawed the boards.

Mr. Bradley—In St. Croix county I think three-quarters of the silos built are empty today, and there are practically no new ones being built. The trouble there was that they did not build them right in the first place. I know of five silos that were filled once or twice and have never been filled since. I think the trouble was that they were not built right in the first place, they were built too cheaply.

The Chairman—There are over 800 patrons in Hoard's creameries, and there are a hundred silos and more constantly being built.

Mr. Bartlett—How many cubic feet is considered a ton of silage?

Mr. Goodrich—About fifty, on the average. At the top, of

course, it is not packed so solid, a cubic foot would weigh about 40 pounds probably.

Gen. Burchard—I want to explain about gluten meal. Gluten feed is the by-product from the manufacture of glucose or starch from corn. They grind the corn and they run it through water, soak out the starch and the sugar, and it goes off. There is left then the fine meal and the corn bran, and the corn heart. When this is all mixed together and dried to put up, it makes what they call Buffalo Gluten feed, because it was first put up by the American Glucose company at Buffalo. The gluten meal is the same, with the exception of the corn bran. One is a very concentrated food, more expensive than the gluten feed probably. Gluten meal is very concentrated, the gluten feed is less concentrated. The difference in the composition is that the gluten meal carries about 25 to 30 per cent. protein. The gluten feed 18 per cent. digestible protein.

The Chairman—Prof. Henry suggests that there are large amounts of potatoes raised in this country and no starch factory, and it may be well for a few minutes to discuss the idea as to what can be done with potatoes as feed for dairy cattle. I noticed in the state of New York that they raise potatoes very extensively for cattle food; they raise an old-fashioned potato, called the Merino, which they use for nothing else than for feeding hogs and cattle. Mr. McKerrow, tell us what you think about this?

Mr. McKerrow—I didn't expect to talk about feeding potatoes, but as potatoes are very plenty, so plenty up in this country that I am informed the people cannot shut their cellar doors, there ought to be some way devised so that you can shut them, some of these cold nights. Now, potatoes can be fed and fed at a profit, but they must be fed very carefully, especially in commencing. When I was a boy, my stepfather, who was an Englishman, raised upon an English stock farm, claimed that he couldn't raise stock in Wisconsin, without roots or succulent feed of some kind in the winter time. Turnips were his favorites, but the rutabaga didn't do as well as he thought it ought to, and at that time we were growing potatoes; we had a large variety called the Pearl, he thought we could raise them more cheaply that the rutabaga. We found

that when we had large stocks we would sometimes get to feeding them in too large quantities or would increase the amount too rapidly. In fattening steers we could feed up to in the neighborhood of twenty pounds. We fed just before feeding meal generally. We were feeding hay, corn and other dry feeds, and we did very well with a ration of potatoes of five or six pounds. Of course, we watched the steers and we found that some could consume as much as twenty pounds, while others if they got fifteen or sixteen pounds seemed to have all they could manage without injury. Of course, potatoes are heavily loaded with raw starch, and we know that that is hard to digest, and therefore they must be fed carefully, but with dry feed, where you have no other succulents, potatoes are the next thing I think to turnips, rutabagas and mangolds. It has been shown by experiments that potatoes as a food are worth just about one-quarter as much as corn, so that if corn is worth forty cents a bushel, your potatoes would be worth ten, but if you had no other succulent food, I think they would be valuable in moderate quantities.

Question—What effect have they upon cows as far as producing goes?

Mr. McKerrow—We found very good results as far as quantity was concerned, and as long as we did not feed too large a quantity, we found the quality was all right, but when we began to feed large quantities, the quality began to be affected, the same as if you feed a large amount of green clover.

Prof. Henry—Potatoes were so cheap last fall that Mr. McKerrow told me that he knew of men that would draw wagon loads out into the field and dump them. There their cows ate them, and they began to scour and then the farmers concluded they were miserable food. Now, if he had known how to use his potatoes, he would have got good benefit from them.

Gen. Burchard—We received a letter from Mr. Gurler the other day, telling us of an experiment he had made to find out the effects of potatoes on the quality of milk. As everybody knows Mr. Gurler is one of the leading dairy and creamery men in northern Illinois, and about as good an authority on dairying as we have in this country. He is very careful not to say what he don't know. He tells us that at one of his

creameries the quality of the butter got a little off and he went to examine the milk and he spotted the man that brought the milk. The man was feeding silage, and he was sure the silage was hurting the milk, but he went out to see the man and his silage was all right, so he looked around there and he found that the meal bin was built all tight, matched lumber, and the breath from the cows in the stable had condensed on the sides of the meal bin, had stuck there, and had tainted the whole bin of meal and there was the cause of the poor milk. I have no doubt that many of the objections that we hear to silos come quite as frequently from other causes, in the meal bin, or somewhere else, as from the silage.

Convention adjourned to banquet to meet at 9 o'clock a. m., the next day.

The banquet was held at the Opera House, and was attended by about 350. Elegant music was furnished by the Mandolin Club of Chippewa Falls. The supper was furnished by J. H. Ward of the "New Stanley." The following is the program of the evening:

T. J. Connor, Toastmaster.

1.—Overture ..... Mandolin Club
2.—Our Guests ..... Mayor Stanley
3.—Our Hosts ..... Major G. W. Burchard
4.—Song ..... Glee Club
5.—Wisconsin ..... Gov. W. H. Upham
6.—Dairying in the East and in the West..... A. D. Baker
7.—Patriotism ..... Walter L. Houser
8.—The Judiciary ..... Judge J. A. Anderson
9.—Music ..... Mandolin Club
10.—The University in Its Relation to the Dairying Interests ..... W. P. Bartlett
11.—The Press ..... Byron J. Price
12.—The Dairymen of Wisconsin..... C. P. Goodrich
13.—Men..... T. C. Pound
14.—Women ..... Ex.-Gov. Hoard
15.—Music—Good Night ..... Glee Club

Convention met pursuant to adjournment at 9 o'clock, a. m., February 14th, 1896.

Gov. Hoard in the chair.

The Chairman—We want to spend a little while in a little close practical talk about what to do here. There is a creamery in this city, that is, there is a creamery building with machinery. Some one has asked me, "What would you do with it?" It is to the northward of the city. It is true in the most economical work of a creamery, it would be where it can have a patronage in all directions, so that the milk can be got to the creamery at the least possible expense. This creamery is situated on the north edge of the town. There is a territory of no account to the creamery, no farms to the south of it. Now, to carry milk in the summer to a creamery or cheese factory it is not economical to take it over three or four miles in very hot weather. Now, if I was to take this proposition here and try to work it out with these farmers, I should say the first thing, get rid of your suspicion, get rid of this kind of suspicion of one another which makes it so that you cannot work with anybody. A creamery or a cheese factory is a co-operative piece of work, and that farmer that can't work with his neighbor, and lay aside his suspicion and his disgruntled ideas, he is the off-ox, all the time off, opposed to a blamed sight more than he is in favor of. Such farmers are found all the time. We started new creameries in our country, we had to work about six months to get the farmers to understand how to co-operate with each other. In the old dairy districts they had no difficulty. There is more friction in a creamery that is taking in 4,000 pounds of milk in a day in lots of places than there is in some of our places where we are taking in from 20,000 to 25,000 pounds. Now, that will all have to be eliminated, they will have to come together and to agree. The farmer isn't to blame so much; if any set of men had had his experience they would be just the same.

That is the first thought I want to give you; the spirit of co-operation is the first thing that is necessary. Then, how to operate that creamery; the best way I know to get that milk is that the farthest man from the creamery provide a couple of springs and put under the body of a wagon. Take a light

wagon, if you have a little milk; if you are going to carry a ton you will have to have a heavy wagon for it. The farthest patron on the road, let him start in the morning and gather the milk all along towards the creamery, each patron setting out his milk after he has cooled and cared for it. This man comes along, takes it up as he goes towards the creamery in the morning. Then he delivers the milk of each patron and it is credited to his account, and he starts back practically with every man's share of skim milk, and as he goes back he sets out each man's share of skim milk at about 10 o'clock every day. He does that every day, and each patron pays him so much a cow for carrying the milk. Where each patron hitches up and takes his own milk, don't you see there may be ten or fifteen of them and it costs too much. Now, off on another road it works the same way and so on. The milk of 250 cows can be gathered within an area of three to four miles, and a creamery can be economically started, but not profitably conducted. It must have more patronage, more milk. Two hundred and fifty cows will give us about 15 to 20 pounds a day, that makes 4,000 pounds. The creamery can't very well get along with less than that. You have to have the expense of the butter maker and the expense of running, and all that, and of course every pound, forty pounds of butter to a thousand pounds of milk, 160 pounds of butter a day at 4 cents a pound, would be $6.40, for the expense of the creamery and of the butter maker, and of shipping, and all those expenses which have to come in, and you can easily see that would be down pretty near bed rock. Now, all these things will come out by experience. What you want is to get a cow population within an area of three to four miles of your creamery of 200 or 250 cows. You can commence it then with a fair prospect of an increase of the cow population and your milk production. The same will apply to a cheese factory. Where you have a sparse population and but few cows you can run a gathered cream creamery within an area of six or eight miles. The farmers can get shot gun cans and set them in cold water and raise their cream, and the cream gatherer comes around and takes a test of his cream and the number of pounds, and credits him on his book. At present there may

be 200 or 250 farmers, each has got about 200 styles of raising his cream, and the wife don't know much about it, and the cream comes out a good deal as babies come out that are raised on a generally confused plan. Now, ask some questions.

Mr. Richardson—I have a friend in this county who owns a piece of land up near the Sioux road; he has 160 acres and he can command about a thousand dollars in money. His land is very desirable, well watered, abundance of grass on it and he wants to know whether it is practical for him on a thousand dollars' capital to go up there and manufacture butter or cheese, doing it simply on his own responsibility. There are not cows or people enough in that country to co-operate.

The Chairman—He can do it, yes, as well there as he could in paradise.

Mr. Richardson—I don't know anything about how they do it in paradise.

The Chairman—He can do it just as well as he can in the most paradisical state of dairy farming. Now, I have made cheese in an eighteen-cow dairy and in a forty-cow dairy forty years ago, and a man that can make fine farm cheese can get good nice money for it, but it is quite a little trick to make fine cheese, more so than it is to make butter, but that man can start right there with twenty or thirty cows. Individually it would be safer for this man to manufacture butter than cheese; he can make that butter and pack it and ship it on commission to Minneapolis or St. Paul, or the other way.

Mr. Richardson—He wants to know also whether it would be practical for him at a distance, say, of a hundred miles, if he found that he could not manufacture butter to advantage, would it be practical for him to ship milk for individual consumption at that distance?

The Chairman—Yes, milk is shipped three hundred miles to New York, but it is shipped with good appliances.

Mr. Richardson—Another question, as to what class of cows it would be best for him to start in with. Remember, he is a poor fellow.

The Chairman—If it was my case I would go right out and pick up the best native cows I could buy of a man who don't

know a good cow when he sees it. I can buy cows that will give me 4,000 pounds of milk a year and over, among the natives, that is, individual cows. If he is going to establish his herd, let him put a thoroughbred sire at the head of it, any breed that he likes, that is a dairy breed. Today cheese made on the farm commands from two to three cents above the market, for private consumption.

Question—Does that apply to dairy butter?

The Chairman—Not so much. The creamery is ahead of the private dairy as a rule.

Mr. Monrad—Would you recommend any man to make cheese on a farm from less than fifty cows?

The Chairman—I would make a small farm cheese, oh, yes. My mother and I used to make cheese when we had only ten cows, and we doubled the curd, put two days' curd together, and made a very nice farm cheese. Ten cows would give about 200 pounds of milk a day, and 200 pounds of milk will make 20 pounds of cheese.

Mr. Monrad—I made cheese from 12 cows, and I won't do it again; it is too much work, I had rather make butter.

Mr. Faville—My opinion would be that butter manufacture would meet the requirements of your friend better than that of cheese, for the reason that you can raise stock so much better with skim milk than you can with whey, and then you can make just as good butter with one cow as you can with a hundred, only you cannot make it so profitably. You must have enough milk to make a cheese of fair size, if you make any. The appliances for making butter or cheese need not be very expensive, and I would advise your friend to buy native stock. He couldn't go out and buy much blooded stock for a thousand dollars. If I was a young man and had 160 acres I could get a living off of it, I wouldn't be scared, and I would do it with the dairy.

Mr. Richardson—How is a man going to take care of his cows on that land, simply wild land?

The Chairman—It is good pasture.

Mr. Richardson—Oh, it is excellent, no better ever lay out doors, but how is a fellow going to house his stock in the winter?

Prof. Henry—Can he get hay with the scythe among those stumps?

Mr. Richardson—Yes, but I want to find out how many cows it is going to be safe for such a man to start in with. He has got to support those cows off that new land.

The Chairman—Of course, when winter comes he has got to provide for it; that would necessitate getting sufficient of that ground into either hay shape or corn shape or grain shape in some way, so as to put up food for them in the coming winter. He could grow peas and oats, but that necessitates, of course, plowing and stump pulling, but labor will do these things. A man can grow in one season a splendid crop, take peas and oats he can plow a piece of ground the best he can. That land would grow peas grandly. He can start in. He says to himself, "Next winter I have got to have plenty of fodder for these cows, and he would plow as best he could among those stumps, and then he could put in a crop of peas and sow them right down on the ground and plow them under four inches deep. Then on the back of that sow oats and harrow them in and get a crop of pea and oat hay. He could grow them in one season, and with timothy and clover he has got food for two seasons.

Mr. Richardson—There is a good deal of talk in this section of country looking towards immigration that is going to be settled all over this country. There is good land in great profusion, and of course, these men are going to be poor men coming in here to settle. The question is as to what will be the better way for those men to start in life.

The Chairman—They have got to go down to bottom principles, clear down.

Mr. Grandine—I made a few figures this morning on the cost of apparatus for making butter on the deep setting process with 12 cows, and it foots up $21.40; that covers all the apparatus, including the churn.

Mr. Curtis—That is all the gentleman who scored 96 at the convention last winter spent for his apparatus.

Prof. Henry—There are a number of farmers from about this immediate vicinity who are solicitous about the proposition of joining a creamery enterprise for Chippewa Falls.

How many men are here living within six miles of Chippewa Falls? Only seven. I wish there were more, because I think you ought at once start up a creamery again, and this time make it go.

Mr. Baker—I would like to advise these men if they think of starting creameries not to do as they did when I tried to start one in New York. If you have got some man that is willing to do some work for nothing, let him go ahead, don't bother him with objections and criticisms. We tried to get a creamery in our place because I was enthusiastic over it, and they thought I was going to get all there was out of it, and the bottom dropped out. If you can get such a man, don't stop him, give him a chance. They are run successfully in many places, everywhere where a man is allowed to take hold and run it right along. In regard to summer food in our climate, we make a great deal of this Hungarian millet to help out in the winter.

Mr. Hopkins—I think this friend of Mr. Richardson would need probably all the first year in getting settled on his farm. He has got to build his cabin and in the meantime, with a little energy, he can get a good crop of hay without any difficulty. Then he will have good timothy the next year or clover, so it will take him one year but he will not want it the first year.

Prof. Henry—Mr. Taylor, how far do you draw cream to your creamery at Barron?

Mr. Taylor—We haven't yet commenced to work with our gathered cream plant. I have been very much interested in listening to all that has been said here. I came from the city of Barron for the purpose of learning all I could in this convention, and I feel doubly and trebly and quadruply paid for my coming, and I want to emphasize all that has been said concerning what I believe to be the future prospects of these northern counties. The question that Chippewa Falls and Chippewa county has had to meet, is one which we have had to meet. I may say I was the prime mover in the project in which we are started. I took a great deal of time in investigating the matter, went to the southern part of the state and looked over several creameries, notably Bro. Hoard's, and got

all the best points I could. Then we sat down together with the shippers, we drew plans and got what we believed to be a model creamery for the money we put in, and we got it for $2,500, a creamery that we could not have got built on the contract plan for $4,000. We have got an excellent creamery built upon honor. We put in from $50 to $250 apiece, without any expectation of getting our money back this year or next year or perhaps for several years, but it was built as a pioneer project to induce the farmers to plant cattle. Our farmers had been selling their butter for from ten to fifteen cents in the store trade, and we knew what that meant, we wanted something better. We have as good a county for dairy purposes as Sheboygan or Green, and we wanted our farmers to have a little of the advantage which those counties have. We started our creamery, run about two and a half months, as well as we expected, got more milk than we expected, but we did not get enough to pay expenses, and didn't expect to. Now, consulting with Prof. Henry before we established this, he told us that he believed that the best thing in northern Wisconsin was ultimately the cheese industry, but I laid before him our situation and he agreed with me that he thought the pioneer product would be the creamery for several reasons. We put in first a gathered cream and separator plant; we all understand that the separator is the best in the end; upon consultation with Prof. Henry we decided to put in both. We would want the separator ultimately and we would want to get the farmers in the habit of patronizing the separator, but we thought it best to put in the gathered cream apparatus, so as to have the two, so that year we got some farmers that couldn't be reached with the separator plan in the habit of selling their milk, and interested in raising more cattle. We went on with the separator plan and we bought a gathered cream outfit. This spring we propose to run both, and we shall run at least two routes. Chippewa Falls is situated just exactly as we were, only we were worse, because Chippewa Falls is a town of several thousand inhabitants, and there is a good market here to start with. Now, these gathered cream routes extend out ten, fifteen and twenty miles. The farmers on those routes get in the habit of selling their milk for money paid

once a month, and they are going to breed cows, and in that way build up the industry. That is our hope in Barron county and I have not any doubt we shall ultimately reach it. Now, I want to ask a question: Is it necessary under the gathered cream system that every farmer, even if he has one, two or three cows, must have ice? There isn't one farmer in a dozen that puts up ice. I have been told that it is not practical to try it without.

The Chairman—If he has ice he will get more butter fat out of the milk. If he has cold well water, he will get some.

Mr. Taylor—Must we be scared out because we can't get the ice?

The Chairman—No, not if he will change his water often enough, so that it is kept as cold as possible around the milk. He will get the principal portion of the butter fat, the ice simply gets it all.

Mr. Thorpe—And the sooner you get the milk into the cold water after milking, the better it will be.

Mr. Taylor—I shall carry all these points to our farmers.

Prof. Henry—In starting our creamery at the University the expense was very great, and after a few years we gave it up. Then we started what we call a Home Creamery, taking milk from the farmers just as any creamery would. We started with 800 pounds of milk a day. The day I left home we had over 8,000 and that is the growth of two years. We have one wagon that starts from our creamery and carries milk nine miles. It is what we call a double decker, one lot of cans above another. We always send the sour milk home. We can't afford to spoil our whole lot of milk for the sake of one lot. If a man takes proper care of his milk it won't sour. You must scald your cans. We test a man's milk very frequently, and we know whether it is apt to sour. Your climate is cooler up here, and I believe that if you farmers take care of your milk, you can produce better milk than we do. I believe it is possible to start a wagon nine or ten miles from this city and work its way back here and the milk be all right.

A Member—We have one wagon that brings in milk between five and six miles, and I don't believe we had to send back five cans of milk last year. That is at Honey Creek, the

southern part of the state. We find that in almost every case where there is trouble they have failed to put cold water on the cans, or else they put the cover on and left it on tight. You are two hundred miles north of us and ought to be able to do still better.

Prof. Henry—We encourage our patrons to use aerators as much as they can, but it can be aired very well with a dipper or a pail, if done thoroughly and carefully, for at least ten minutes at a time, and then set into water. Do not mix night and morning's milk, the warm milk put in with that that has been standing will go off quicker than the night's milk. We don't know much about this aeration yet, except in its effects, but it is very important.

PRACTICAL BUTTER MAKING ON THE FARM.

F. C. Curtis, Rocky Run, Wis.

I do not know that I can better fill up the short time allowed me than by telling you how I make butter and why I do so, as far as I can. I have been in this line of business some twenty-five years. My first point was to pick up the best utensils possible to bring them to bear upon the means that I had at hand. I soon got upon the deep setting process of setting milk. I found that it required cold water and continuous cold for at least six hours, and I found that if the bulk of water was large, it kept cold, that putting more milk into it did not affect it; hence I adopted the system of setting my cans into a cistern of cold water. The windmill brought the cold water into the cistern from a hundred feet away. I applied a windlass. I had about four cans of milk at a time, and I let them down at once, and the large amount of water that surrounded them kept them sufficiently cool for all purposes and the results were good. Ice would have been better. I improved upon that simply by putting a sort of refrigerator house over the cistern, and in that way I kept my water cold all summer, as cold as the well water. For the last four years I have used the separator, but I shall confine myself to the other process, because many who have but few cows, think

they cannot afford to get a separator. The milk is drawn from the cow at 98 degrees. The milk is set immediately into water at 48 or 50 degrees. The advantage of this process is the sudden cooling from 98 to 50 because it shrinks and continues to shrink down to 39 degrees, which is the temperature made by ice. After that it begins to expand. It is very important to get it into the cold water as soon as possible and let it be at rest with the continuous cold. If you have to depend on a windmill to change the water, it sometimes will fail you. If you follow my suggestion the cream will rise between milkings very well. It may be a little more satisfactory to take out the cans and let them set in some cool place another twelve hours, then the cream is very easily taken off, and if you have to add the different creams together you had better keep it in a cool place until you have a sufficient quantity so as to keep the cream sweet. If you have enough at one or two milkings, put it in a warmer place, where it will get this acid or ripened character ready for the churn. I think the best way to describe that is to say when the cream begins to thicken, then it is properly ripened for churning. That may not be a very nice point to make, but I think it will be easily understood. You want a revolving churn, without inside machinery, and a temperature of 62 degrees is the nearest one temperature that I can tell you. Some will tell you a colder temperature, and some a warmer, but I do very well at 62 degrees, a little colder in summer if possible, or a little warmer in winter will do very well. The next important point, and a point where many people make failures in making butter, is the point of stopping. I churn till the granules appear about the size of wheat kernels or a little finer, stop at that point. If you have followed the directions I have given you the butter and the buttermilk are distinct and it will come right apart if you pull out the cork and let it run. Now, pour cold well water into it until you look into it and see that it percolates the whole mass. Make a few revolutions of the churn, draw it out and put in another lot of water and it will come out almost clear. By this process you will see that the buttermilk has all come out. On the other hand, if you had churned it into a mass before trying to get it out, and then

washed it out, you might as well pour water on a duck's back as to try to get the buttermilk out of the butter. Then comes in the nice point and that is to get the butter out without destroying the grain. Many people, if they even do fairly well, they injure the grain and make a dry butter which does not sell well on the market. Now, when our granular butter has been washed and drained, if you turn the churn you will see that butter fall around in there loose, almost like dry wheat, and there is no reason why the salt won't mix in all through. Some say an ounce to the pound of salt. That is no rule at all. People have an idea that butter absorbs salt, but it does not, it stays in the butter in the form of brine. That butter is 12 per cent. water, that 12 per cent. of water absorbs the salt, and there will be a great deal more water in it, it will be more spongy if it is coarse. If you have churned it too warm, the granules run together, and make a mass and an ounce of salt to a pound will be sufficient in that case, but don't be afraid of putting in the salt and mixing it in thoroughly. You put on the cover and revolve the churn and work it into a mass, if your granules are fine, you will hear your brine swashing. If you have twenty pounds of butter, your butter will be entitled to about one quart of brine to make that 12 per cent. Now you draw out two or three quarts of brine, which is just exactly as salt as the quart of brine that remains in; hence you have to put in three or four times too much in order to have enough stay in. Now, when you have worked your butter into a mass it is ready to pack, it is of the right temperature and of the right consistency, and pack it solidly in the tub, pack it in level and nice. The difficulty in a small churning is that it will not fill a package, and it is hard to get two different churnings exactly alike. Now, your butter is churned and packed. I don't want to instruct you to make butter so well that you won't patronize the creamery. I tell you it is for your advantage to patronize the creamery, but the more perfect you can make butter at home, the better patron you will be to the creamery, and the better you will take care of your milk.

DISCUSSION.

Mr. Allen—What causes the cream to swell in the churn so that sometimes some of it has to be taken out?

The Chairman—The admixture of air, it is the same as whipped cream; the air is beaten into the cream by churning.

Mr. Allen—What is the remedy?

The Chairman—A larger churn. Pull out the cork and let the air escape. The remedy is not to fill the churn too full. The expanding of the cream in the churn does it no harm, if you don't have too much in it.

Prof. Henry—The condition is one which comes in the fall of the year, when the cows are nearly dry. The milk at that time becomes sticky and you can almost fill your churn with a very few quarts of cream. The difficulty can be avoided by having different cows fresh at all times of the year, and the milk of two or three fresh cows will overcome that difficulty with the milk of twenty cows. Another probability is that the farmer sets his milk in a place where it takes a long time for the cream to rise and the cream becomes bitter in some instances and sticky in others, and sometimes both. This sticky condition enables the cream to hold the globules, and it becomes an emulsion. It is due to old milk or to long delayed ripening of the cream. If you ripen that cream up to a warmer temperature, and get a sharp, sour acid, that cuts the stickiness, and thus overcomes it, or you can put water in the churn, that will help cut that stickiness.

Mr. Grandine—After you put the salt in your churn, don't you move the churn slowly, so as to work the salt into the mass before you pack it?

Mr. Curtis—Some salt dissolves much quicker than others. The action of salt has a scouring effect, injuring the grain. It should be revolved and mixed, and allowed to stand a few minutes. Take hold of the corners of the churn and revolve it very slowly.

HOW TO START AND OPERATE A CO-OPERATIVE CREAMERY.

George L. Prout, Honey Creek, Wis.

The first point to determine in considering the advisability of starting a creamery in any locality is, whether cows enough can be secured within a radius of four or five miles to insure success. If less than 300 are pledged, we would consider it rather risky. From 300 to 500 cows would furnish milk enough to give very satisfactory results. As soon as cows enough are pledged, proceed to organize by calling a meeting and electing a president or business manager, secretary, treasurer and several directors, well distributed in their respective localities, and the best and most influential men that can be obtained. The company so formed must be incorporated and adopt a constitution and by-laws. Before proceeding much further it will be necessary to provide the funds to build and equip the plant. The old way was for each patron to take one or more shares of stock and pay for it in cash; but a better way is to empower the officers to borrow the money and make each patron responsible. He may do this by signing articles of agreement in which he places his name and the number of cows from which he will furnish milk until the indebtedness is cancelled, except in cases of a renter leaving the neighborhood or in the sale of a farm, or by consent of a majority of the directors. These articles of agreement must provide a sinking fund of say 4 cents on each cwt. of milk delivered at the creamery, which shall be used to pay off the money borrowed, and for no other purpose. This charge of 4 cents will not be noticed by the patrons, and if it were, it goes into their own property, and will clear a debt much faster than one would suppose without consideration. Five hundred good cows should average 8,000 lbs of milk per day, at 4 cents per cwt. is $3.20, or a trifle over $1,000 per year without running Sundays. Many creameries allow a larger sinking fund and of course get out of debt so much sooner. Where it can be readily agreed upon, a larger rate than 4 cents for this pur-

pose is desirable, as debts and outstanding accounts are particularly dangerous to co-operate institutions. After selecting officers and providing for the necessary capital, appoint a committee to visit several successful creameries; get a list of the necessary machinery, and place a competitive order with several reliable firms. The cost of other plants of a similar outfit must be considered and from foundation up should be paid for in cash. As to cost: much depends upon the kind and quality. but be sure to get the latest and best outfit. The usual cost of a factory complete, ranges from about $2,500 to $3,000. When the creamery is ready for operation, secure a first class buttermaker; never, never employ a man simply because he will work cheap, such a man is dear at any price; just figure a moment, 8,000 lbs of milk per day will produce, at least, 10,000 lbs of butter per month and one cent a pound discount means a loss of $100 per month, besides further losses in the mismanagement of the machinery. Not only must he understand milk, cream and butter making, but should be machinist enough to make ordinary repairs, and to prevent its getting needlessly out of repair. He further needs a large amount of tact in dealing with the patrons for it is an undeniable fact that men take offense more readily and pull out, or kick for slighter cause than in individual creameries. Use the very best in supplies, such as salt, tubs, color, etc., and aim to produce the finest goods at all times. Be careful how you trust your shipments to bogus or unreliable firms, and when you are fully satisfied as to the honesty and reliability of some commission man, consign all your goods to him, and do not change except for good cause. It never pays in the long run to ship to those houses that quote extraordinary big prices; but stay with your firm as long as you receive fair prices, good weight and quick returns.

As to the officers, the president must be a good business man, and command the respect and confidence of the company. The office of secretary and treasurer is frequently best combined in one, and the treasurer should give bonds. The secretary of many co-operative creameries is careless in keeping the books and records of the company; sometimes simply issuing the dividends on loose slips of paper, and at the close

of the year knows but little as to exact details. He should keep a complete account of all milk received, butter made and cash received; also the items of expense, with receipts for every one, and all dividends paid, so that every dollar may be easily and satisfactorily accounted for. Also the Dr. and Cr. of each patron must be kept in detail. In making out the dividends for the month, the secretary will find how much butter was sold, and what the net cash received amounts to; then after deducting actual expenses and sinking fund will divide the balance pro rata among the patrons. The duties of the directors will be to have an oversight of the business and property, and audit all accounts as often as may seem best. It is preferable that every officer be a farmer, and a patron of the creamery, and no one need receive any salary except the secretary; if he performs his duties properly and carefully it will occupy considerable time and attention, for which he should and must be paid. But the patrons have their duties as well, and to you as patrons a very important one is to get posted in your business. Read good live dairy papers and books. Learn how to feed and care for cows that the best results may be secured. A few years ago anything in any quantity was good enough to feed a cow, but now, every up-to-date farmer believes in and practices to a certain extent the feeding of a balanced ration. Sometimes an old open shed drifted half full of snow with the boss of the herd keeping everything else out in the storm was considered—"well, not exactly the thing, but it 'll have to do, daryin' don't pay very well anyhow." No! of course it does not unless properly managed. Some men seem to expect fancy butter from dirty, tainted or unwholesome milk; an utter impossibility. Learn also how to best improve your stock; it is folly to expect a herd of scrubs to equal high grade stock, and a majority of the average herds have one or more cows that are dead-heads, kept at expense. You will pay by test of course. Pooling milk simply places dishonesty at a premium, and offers but little inducement to improve stock. Co-operation is the ideal method of doing business but cannot succeed except in united effort. It has proven a great success in many places, and is rapidly driving out individual factories. The individual system of running creameries may

relieve the patrons and officers of some care and responsibility; at the same time when one man has full control, makes no return of sales, shows no books nor results except the price per cwt. he has unlimited opportunity to help himself and no one be the wiser. As a co-operative man you must guard well the interests of your company; endeavor to promote harmony, never say they, always we. Strive to excel in all points and success is sure.

DISCUSSION.

Prof. Henry—About how much overrun do you have at your creamery?

Mr. Prout—That has been something of a problem with us. It has varied a good deal. On one occasion the overrun was only about five or six per cent., and somebody had the kindness to suggest a nigger in the fence, but it didn't last very long. I wrote Prof. Babcock and got some encouragement from him and found out I was fairly honest after all. It runs from about 11 to 16 per cent.

The Chairman—Explain what you mean by overrun.

Mr. Prout—I mean this—In the month of November the average test throughout our creamery, was an even four per cent. butter fat. The yield was 4.6, making an overrun of 15 per cent. In December our average butter fat in the creamery was 3.97 and our yield was 4.51, making an overrun of about 12 3-4 per cent.

The Chairman—That simply means that so much butter fat, four per cent. of butter fat made four and six-tenths of butter. A hundred pounds of butter fat would make about 115 pounds of butter. Have you trouble in your neighborhood with the patrons of different creameries saying that the overrun at other creameries is 20 and you only have an overrun of 15, and that you are trying to cheat them out of five pounds of butter?

Mr. Prout—We have had some trouble in that way, but I find that the more rapidly our farmers get education, they perceive that they get the benefit of it just the same.

Prof. Henry—I know of one creamery that is advertising

an overrun of as high as 27 per cent., and the farmers are being lured to that creamery.

The Chairman—They are making a dishonest reading of the test, or else putting too much water in the butter. About 15 per cent. is a legitimate overrun.

Mr. Grandine—What does that overrun consist of?

The Chairman—When butter is made it is not all butter fat, there is salt and water and foreign substances, and a little caseine.

Question—Are your statements made out to the patrons for so much per pound of butter fat, or per pound of butter?

Mr. Prout—We put in practically the butter fat, but we issue it by the one hundred. A man's credit reads in this way, 4,000 pounds of milk at so many cents per hundred, but it is practically on butter fat.

Question—But a patron does not really know how much butter his milk made?

Mr. Prout—Yes, we tell everything. Our statements show the total amount of milk received, so many thousand pounds, the total amount of butter made, so many thousand pounds, so much net cash received. Then, in addition to that we give him his individual report. I make the general report, and below that, I put total amount of your milk so many pounds, your test so much, your rate so much.

A Member—There are many farmers who do not understand all these ways of making out a statement, and they get mixed on these questions. For instance, a man will say he got 16 or 18 or 20 cents last month and may be that is higher than is paid by the creamery that the other man is patronizing, and he really don't know whether that was so many cents per pound of butter fat, or per pound of butter, and they often mislead each other in that way and make trouble for the creamery man.

The Chairman—I want to thank Brother Prout for the very excellent statement of the question that he has given us.

MAKING BUTTER ON THE FARM FOR A BUTTER MARKET.

J. D. Grandine, Sherwood, Wis.

Farm butter making, must of course, commence with the cow. Take the cows you have, and get a registered bull, of one of the dairy breeds. Look closely into his breeding; see to it that he is of a family of profitable butter cows. The bull is half the herd; without good cows butter making will be a failure. Feed your cows a generous grain ration. The right kind of cows will pay 100 per cent. Be neat and quick in milking, and always milk each cow in the same rotation.

Don't invest much money in a separator, power, etc., until you have tried making and selling butter for at least one year, and don't be too quick to lay your, perhaps, partial success to lack of all the machinery that is advertised as necessary; more depends on the person handling the cream than the process by which the butter is made. All the latest machinery is a good thing but will not of itself make fancy butter. There are two things that are as necessary as good cows: First, a thermometer; second, a starter for ripening the cream. I use as a starter butermilk from the previous churning; using one pint to ten gallons of cream; warm cream to seventy degrees and churn at sixty-eight. I raise my cream in cans set in spring water; the cream is kept in same spring until 24 hours before churning, then it is taken to the house and placed by the kitchen stove; the starter is then added and the cream is stirred thoroughly to mix cream and starter as evenly as possible; the cream is not touched again until next morning. The churn is stopped when the butter is in small grains; the butter is washed as little as is necessary to remove the buttermilk; we sometimes warm the water used to wash the butter the last time to 62 degrees. The butter is salted in the churn; it is then taken from the churn and packed ready for market. I sell my butter through commission merchants. It is a good plan to visit your commission man, get their opinion of your butter, ask them to show you a tub of the best butter they get,

and compare with yours. It pays big for any one to try that if he is determined to succeed. Use a package that the market wants and that will return you best net weight; I think the shrinkage sometimes takes place in the office after the butter is sold. It is a good plan to use a package that will not permit of shrinkage. I am using now ten pound pails and parchment paper. I put ten pounds and one ounce of butter in each pail, and the account sales return me 10 pounds. A package of this kind with its handle and neat appearance, assist in selling the butter. I believe that proper ripening and temperature control the flavor in butter. Ship the same day each week, it is important to not disappoint a buyer, who, has perhaps, had a few pails of your butter, and has been told by the salesman that there will be more here on such a day and at a certain hour. Brand every package of butter you sell with a single name or number; there isn't any use of going to the expense and trouble of putting on your name and address, as most commission men erase anything that will lead to private correspondence between buyer and seller. If your commission man doesn't sell your butter for what you think it is worth, write him at once and tell him so. He will probably do as mine did four years ago. I asked him why he did not get top price for my butter? He wrote back: If you were here you would see why your butter did not top the market. Well, I suppose I got a little mad; anyway I wrote him that he was my agent and paid by me to handle my produce, and if he would not tell me what was the matter, so that I could improve my product, I would find someone that would. We have tried to benefit by hints received from that source with the result that our butter has sold at Elgin prices all winter.

A uniform output is a necessity; good butter today, not quite so good tomorrow, and poor next day, will not do. It must be good every day.

DISCUSSION.

Mr. Bartlett—Mr. Curtis told us to churn at 62, Mr. Grandine says 68, why this difference?

Prof. Henry—What kind of cows have you got?

Mr. Grandine—Jersey grades.

Prof. Henry—Have you ever tested your thermometer?

Mr. Grandine—No, sir, but that doesn't matter, I have got the right churning temperature for that thermometer.

Prof. Henry—It makes a difference in instructing others.

Mr. Faville—I had a Jersey cow of quite high grade, and I could not churn her cream until I got it to 70.

Mr. Bartlett—I had to churn my cream at from 68 to 70.

Mr. Goodrich—I have spent a great deal of time in trying to solve this churning problem, and so have my sons. It is the most difficult problem in the whole business. You have got to churn at as low a temperature as you can. At the World's Fair there was a good deal of Guernsey butter that was churned at 43. I have had cream that had to be warmed up to 70, and we have on my place churned down to 56. I I know of butter being churned at 36. It is part with the cow, partly the condition of the cream itself, etc. Sweet cream very thick can be churned at a very low temperature, while a ripened, thin cream must be churned a good deal higher.

Mr. Grandine—Will you exprain about the gradual raising of the temperature in the fall? In the summer you can churn at a great deal lower temperature than as the season advances?

Mr. Goodrich—It is partly owing to the more viscous condition of the milk when our cows are old in milk. When the cows go out on the fresh grass in the spring, after having been kept on dry feed through the winter, you can churn at a good deal lower temperature.

The Chairman—I believe in the fall, if they have got some kind of succulent feed, it will help in some way.

Gen. Burchard—There is another very important item, and that is the temperature of the room at the time the churning is done.

Mr. Goodrich—If the temperature of the room is the same as the temperature of the cream, it will rise while you are churning. When we first got the Babcock tester we were churning at 65 and supposed it was necessary to have it about that. When we came to test the buttermilk we found there

was too much fat in it, and there was a difference in temperature of two degrees. We found we got more exhaustive churning the next time at a degree or two lower. The next time we got down to sixty, the next time to 59, and then to 58, and it took an hour to churn. The next time it was down to 57, we churned five hours and didn't get any butter, so that showed it was the limit.

Question—What length of time should we churn?

Mr. Goodrich—Until you get the butter. The consistency of the cream has a good deal to do with the time. We want to churn between half an hour and three-quarters of an hour.

The Chairman—This question of the length of time is determined by the temperature, and the temperature is determined by the gumption of the man and the cream. If the butter comes too quick, you are apt to leave some of it in the churn.

Prof. Henry—I wish to warn farmers against agents who come around and try to convince you that they have machines that can make butter in two minutes. I recollect that they got the best of one of Wisconsin's governors not now present. He stood by and saw it done in two minutes, and they got his signature to a statement but they didn't analyze the buttermilk. We sent down town and got one of those churns, and it took as long as any other churn, by putting in the usual amount. They fooled the governor by putting in a little bit of cream and running it very rapidly, and they did make some kind of butter in two minutes. Don't try to have anything to do with them; even if you get the butter so quickly, you lose too much in the buttermilk.

Mr. White—Do you use warm water for the second washing?

Mr. Grandine—Yes, it won't pack good without the water being warm.

A Member—We had some trouble at one time with our churning. We lost three churnings in one week. We concluded that the trouble was that the milk was too cool when it was set in water, that is, from cows long in lactation. By adding one quart of hot water to ten quarts of milk, it made it more like new cow's milk. We did that before we set it in the ice water. Our mothers had a little good gumption; when

the milk in the winter was stubborn to churn, they set the cans on the stove and partly sterilized it, heated it up to 150 or thereabouts, and they would then churn all right.

Mr. Monrad—I want to say just a word to the farmers. There is a tendency among individual farmers to despise their own calling At the Iowa convention I went up to a man that I got interested in, and I asked him "Are you a creamery man?" He said, " No, I am only a farmer." Now, that riled me, because I can assure you that I took just as much pride in milking my twelve cows on my farm in New Zealand as I do now in trying to gather a little information about the dairy industry in Wisconsin. The farmer is really the pivot of this whole enormous industry, the patron of the creamery is the most important man. If you will give me good milk, I will guarantee to make good butter and cheese, most anybody can do that. You want to understand that if you go into a creamery here you individuals are just as much interested in the final disposition of the butter as the creamery man, even if he pays you cash for the milk. You continue to be in co-operation with him until that butter or cheese is sold and eaten, because, as sure as the sun rises every morning, the result of your neglect will be felt, when the cheese is sold and eaten by the miner in England, or anybody else. Now, one thought more. We have had a great many good things said and good advice as to how to start dairies, but I notice that most of the dairymen who have spoken here, have said, "and I bought a Jersey cow," not always by name, but we found out it was a Jersey cow or a Jersey bull. Now there are some undoubtedly who do not have the money to buy anything, and I want to say to them they need not be discouraged. You can get the cows you want simply by selection. Out of the few cows you have, take the best ones and raise the heifer calves. In that way you can build up a herd. I have done it; in five years, without money to go and buy a new cow, I have raised the yield of my herd of twelve cows from an average of 2,500 pounds up to a little over 5,000. After I had done that, I had money enough to go and buy, not a full -flooded Jersey bull, but I did go and buy a little calf. I could get that cheaper, and I thought I would wait another year. You can co-operate in

getting a pure bred bull. In Denmark they have what they call a bull association; they join together and buy a bull. There are lots of ways of getting around things, so don't be discouraged because you haven't got money. Mr. President, the dignity of the dairy farmer is getting to be more and more acknowledged. It was acknowledged a few years ago by the creating of a special department of agriculture, and now the dairy interest has been specially recognized within a few months by the creation of the dairy division in Washington. The chief of this division is Major Alvord; he regrets very much that he could not attend this meeting, and I have been appointed, for a short time, as a special agent to collect certain information about the dairy industry, and if there are any creamery men or cheese factory men here who have not received a certain blank form with a lot of impertinent questions on it, I want them to come to me and ask me for one of them and do the best they can to give the information I am seeking. This department is not in a position to do anything practical as yet. It wishes first to gather the information about the present conditions of the dairy industry.

At our present prices of butter, 18 cents for creamery butter, I want to ask you, Mr. President, if you don't think it is time that steps were taken to promote the export of fine butter, in such a way as to let Europe know that we have some good butter. As it is now we are exporting ladle packed goods, imitation creamery, sour creamery goods, all kinds of butter brought together and dumped into a grocery store and exposed to all kinds of smells. These goods are sold at a loss by the man who buys them. They are bought up by some fellow in Chicago and he gets a man with a fairly good nose and he goes through that butter, throws one lot into one heap and another on another heap, grades it, then they go to work and repack it, and that is the knd of stuff that the English think is American creamery butter. It seems to me it is time attention was given to this matter and I don't know but this association might profitably take it up.

The Chairman—Mr. Monrad's suggestions are all most eminently practical.

Secretary Curtis read the score on butter and cheese, as follows:

Class 1.—Dairy Butter, Prize $50.00.

Chas. Thorpe, Burnett Junction.....95 ⅓
M. T. Allen, Waupaca.....94 ⅓
J. W. Thomas, Anson.....93 ⅓
J. D. Grandine, Sherwood.....93
Byron Snyder, Clinton.....92 ⅓
A. L. Stone, Fox Lake.....91 ⅔
Wm. Sweeney, Fox Lake.....91 ⅓
F. C. Curtis, Rocky Run.....91
W. H. Carpenter, Aniwa.....90 ⅔
Chas. Meyer, Kewaunee.....90
Thos. Emmerton, Cooks Valley.....88 ⅓
W. B. Bartlett, Eagle Point.....86 ⅔
W. Kissack, Middle Ridge.....85 ⅔
Chas. Linse, La Crosse.....85
Peter Stoffel, Jr., Vale.....70 ⅓

Class 2.—Creamery Butter, Prize $50.00.

Rutland Factory, Edgerton.....99
W. H. Chapman, Oakfield.....97
Wm. Everson, Lake Mills.....96
Prairie Farm Creamery, Prairie Farm.....96
McFarland Creamery, Edgerton.....95
Albion Creamery, Edgerton.....93 ⅔
Geo. Tarrant & Son, Durand.....92 ⅓
Joseph Williams, Stearns.....90
V. W. Dorwin, Durand.....89

Class 3.—Print Butter. First, $5.00; Second, $3.00; Third, $1.50.

Chas. Linse, La Crosse.....First
A. Chisler, Mix Corners.....Second
J. D. Grandine, Sherwood.....Third

Class 4.—Cheese.

H. J. Noyes, Richland City.
S. J. Kelly, Eagle Point.

Class 5.—Special Silver Cup, Valued at $100.
A. Schoenman, Plain.

The previous winners of the silver cup are: A. H. Wheaton, Auroraville, 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; Angus & Humphrey, Oshkosh, 1892; W. A. Nelson, Weyauwega, 1893; C. B. Cornalius, Winchester, 1894; H. J. Noyes, Richland City, 1895; A. Schoenman, Plain, 1896.

The report of the judges on both butter and cheese were adopted.

Prof. Henry—Mr. Curtis, how was this product judged? What sort of judges, some of the business men of this city?

Mr. Curtis—They are pretty good judges, George D. Mansfield of Edgerton, one of the judges on butter at the world's fair; E. L. Aderhold, Neenah; W. F. Jones, Burnett Junction, for the cheese. On the butter we had Charles M. Trigg, Charles E. Taylor, of Madison, and W. F. Jones. In judging this product each judge makes a score of how he thinks the cheese or butter ought to stand. The points are, flavor, 45; grain, 25; color, 15; salt, 10, and package 5, making a total of 100. Now the three judges, each one judges the article as he thinks it ought to stand, then the three are added together, and the total product divided by three, which gets, what we call the average judgment. So if one judge had a friend who had some butter in there, and he wanted to give him a premium, he couldn't exactly do it, if the butter wasn't what it ought to be. The packages are all marked with numbers and the judges do not know the names.

Mr. Monrad—In the butter room I was asked by a few of my friends to give my individual opinion upon some of the butter. I found several packages that lacked flavor, and I advised them to ripen their cream a little more. Mr. Bart-

lett, who read a paper the other day, had two samples and was in a position to give a very valuable object lesson, and it was this: One sample was a good deal higher in flavor than the other; the other was a clean-flavored butter, but it lacked that high flavor that scores it up, and he told me then and there that the one without flavor, the cream had not been ripened properly.

Mr. Taylor—I want to say that the creamery butter that took the first prize was entirely a new one, in a new country like this and the butter scored 95 1-3, the best in the state.

Mr. Bartlett—I want to say as to those two samples of my butter, they were both made from the same cream in different conditions, colored a little differently and salted a little differently, and I did it, because I wanted to get information, not expecting it to take a premium.

The Chairman—These products should always be scored by the market judgment. I have felt much annoyed to see how this thing was done at county fairs. A woman would say, "Well, that butter suits me." A man would say, "Well, my wife makes butter to suit me;" the fact is that nobody makes butter to suit themselves, they make butter to suit the pockets that the money comes out of, the market judgment, and all judging at fairs should be according to this specific market judgment.

Convention adjourned to meet at 1:30 p. m.

Convention met pursuant to adjournment at 1:30 p. m.
Mr. Goodrich in the chair.

REPORT OF COMMITTEE ON DAIRY UTENSILS.

Your committee beg leave to say that

F. B. Fargo & Co., Lake Mills, Wis., exhibited 1 combined churn and worker, 1 Larkey heater; 1 Fargo's milk weigher; Fargo's improved butter color.

Cornish, Curtis & Greene Manufacturing Co., Ft. Atkinson, Wis., 1 Empire Mikado hand separator.

P. M. Sharples, West Chester, Pa., 1 Russian hand separator.

L. J. Petit & Co., Milwaukee, Wis., Diamond crystal salt.

Respectfully submitted,

C. P. Goodrich,
E. L. Aderhold,
Jas. G. Dailey,
Committee.

The report of the committee on resolutions was called for and read by Gen. Burchard.

Resolved, That the most cordial thanks of the members of this association be and they are hereby extended to the active, warm-hearted and hospitable people of Chippewa Falls for the kindly and appreciative reception extended to us during our three days' residence among them. We congratulate them upon the promising outlook for the development of the dairy industry in their county and confidently predict, if wise counsels prevail, that the day is not far distant when Chippewa valley dairy products will command as much attention and bring into the country as much money as was ever given to or received from lumber. We shall recall with liveliest satisfaction the annual banquet and its post-prandial supplement as being quite equal to the best ever experienced by the association.

Resolved, That this association takes great pleasure in once more making public acknowledgment of the courteous co-operation of the several railway corporations whose lines reach Chippewa Falls in making its annual conventions successful gatherings. While we believe that they show in this, wise business sagacity, it is none the less true that the individual members of the association, the community in which the convention is held and the state at large is benefited thereby, and hence we tender our thanks to these railroad companies for the reduced rates accorded for this meeting.

Resolved, That this association expresses its lively satisfaction in the establishment of a Dairy Division in one of the Bureaus of the United States Agricultural Department. It is but a just recognition of the national and, indeed, the inter-

national importance of the dairy industry of the country, and we respectfully urge upon congress the necessity of providing liberally for the development and extension of the functions of this division of the public service.

Resolved, That this association desires to place upon its permanent records its grateful recognition of the practically unanimous passage by the legislature of Wisconsin of efficient laws for the rescue and protection of the dairymen of the state from the unjust competition at home of the manufacturers of spurious and imitation products. We are already reaping some of the promised benefits from this legislation as well in the closing of Wisconsin markets to the free sale of the fraudulent compounds as in a more active inquiry and a readier sale for Wisconsin dairy products in the markets of the world, when shipped directly from Wisconsin dairy districts.

Resolved, That this association, as the accredited representative and exponent of the 100,000 dairymen of the state of Wisconsin, respectfully appeals to the congress of the United States for protection from the unscrupulous and fraudulent practices of manufacturers and dealers in other states whereby the good name and fame of Wisconsin dairy products, manufactured under laws which insure their absolute purity and wholesomeness, are made to serve as a device or cloak for palming off upon unsuspicious purchasers, adulterated and imitation products. It is well known that filled cheese made in other states is found in our domestic markets and has been shipped to foreign markets, labeled and branded as Wisconsin Full Cream Cheese; it is also known that the very poorest kinds of butter are reworked, colored and fixed up into passable imitations and sold as Wisconsin Creamery Butter. It is impossible to ascertain or even estimate with any approach to satisfaction the amount of this forgery and counterfeiting. We know that it exists and that it is a serious menace to Wisconsin dairymen.

Believing it to be within the constitutional purview of congress to purge our foreign and interstate commerce from such practices, whereby the good name and fame of the products of our state are brought under suspicion and contempt, we

urge the enactment of a law whereby each state may have a public trade mark for use by its citizens, under such restrictions as it may impose. There has been submitted to us a copy of the Bill (No. 4349) introduced in the house of representatives by Mr. Sauerherring, and, disclaiming all attempt to pass upon its technical details, we most heartily commend its general scope and tenor, and we urge upon congress in general and upon the senators and representatives from Wisconsin in particular, their early attention to this important and vital subject.

Resolved, That this association urges upon dairymen the importance of good roads. They should be among the leaders in this reform in every community.

Adopted on motion of Mr. Faville.

On motion of Prof. Henry the secretary was instructed to send the following telegram:

Chippewa Falls, Wis., February 13, 1896.

Hon. Thomas B. Reed,
Speaker House of Representatives,
Washington, D. C.

The Dairymen's Association of Wisconsin in convention assembled has this day adopted a strong memorial urging the taxation and regulation of filled cheese, and directs me to ask you to use all honorable means to advance the consideration of bill H. R. 3010, known as the Cook bill.

D. W. Curtis,
Secretary.

The report of the committee on nominations being called for, was presented by Mr. Faville as follows:

Mr. President—The committee named by the Chair to present names to this convention for the officers of the association for the ensuing year, beg leave to suggest the following names:

For president, Gen. G. W. Burchard, of Ft. Atkinson.

For treasurer, H. K. Loomis, of Sheboygan Falls.

For secretary, D. W. Curtis, of Ft. Atkinson.

I desire to say a word in regard to the first name. The other two are our present incumbents in office, and have been for a good many years, and we know what they are and what

to expect of them, but in regard to Gen. Burchard, it is not so well known by all of us. Those of us who have known the gentleman for years past, have known that he has been an active, earnest member of this association for a great many years, ready at all times and under all circumstances to do all that he could to further the interests of the association and the dairy interests of the state of Wisconsin, and yet he has never been honored with any official position in the association. For my part I think it is a great honor for any man to stand at the head of that association, and I think the association ought to honor Gen. Burchard by giving him this election, and that we shall at the same time conserve our own interests. We may be upon troublesome times before we get through with all this legislation that we want, and the opposition that we are going to meet from all these bogus concerns around the country, and we want stalwart, capable men, and for that reason we have suggested these names upon which the committee is in accord.

On motion of Mr. Bartlett, duly seconded, the report of the committee was adopted, and the officers named therein declared the duly elected officers of the association.

THE FACTORY AND THE PATRONS—THE DUTY OF EACH TO THE OTHER.

E. L. Aderhold, Neenah, Wis.

The degree of success with which a cheese or butter factory is operated should not be based on the results of a few weeks or months. Not until a factory has been operated for years in a manner profitable to both the patrons and the operator, and with losses reduced to the minimum, can it be said to have attained the high degree of success that characterizes a well managed business enterprise.

To successfully operate a factory is a problem ten times more difficult to solve than it was five or ten years ago. Since

the prices for dairy products are less remunerative than of former years, the production of milk and the management of factories must be attended with fewer mistakes; in other words, it requires a more strict adherence to the duties the factory and the patron owe each other, some of which I will endeavor to enumerate.

A maker should be painstaking, neat and stylish in his work. He should be exacting with himself, and thorough in all he does, and thereby set a good example to his patrons, and win their confidence and respect. He should be business-like and see that rules are enforced, even at the expense of losing a patron occasionally. He should be a judge of his finished product, and understand how to market the same that there may be no unexpected kicks from dealers. He may be well trained and skillful in the factory, yet, if he lacks the faculty of educating and controlling his patrons, he is a flat failure in the long run.

The patron also has his responsibilities. Each patron contributes to the success or failure of the factory according to the amount of intelligence he practices on the farm. His first duty, perhaps, is to be teachable. He should carefully study how to breed and rear dairy cattle, and provide an abundance of food for them. He should know the importance of keeping his stable sweet by employing absorbents and good ventilation. Cobwebs should not be allowed to accumulate.

Before milking a cow the dust should be carefully brushed from her under side, and the milker's hands should be clean. When he is through with a cow he should remove her milk from the stable immediately. Milk should be kept away from barnyard or swillbarrel flavors, also from all decaying substances. If a patron is in doubt as to the health of a cow, her milk should be excluded from the factory, also such milk as he may deem unfit for table use. In all communities there are people who are careless, and to guard against the evil effects of such work, the patron should insist that the maker visit all patrons at regular intervals, and point out to them their mistakes, and they should back him up in his efforts to reform unruly ones. If makers and patrons will attend dairy conventions and read and study dairy papers, they will find

it less difficult and more agreeable to perform their respective duties.

I would like to speak about a few more things that have occurred to me during the discussions which have not been touched upon. One is the importance of having your dairy utensils made so that they will be clean when you have washed them. Some one has spoken of aerating with the dipper. I think that is dangerous advice, because there are no dippers on the market that are fit to put into the milk. You cannot keep them clean, because there are seams and corners and crevices that will always be filthy. If any of you are going to start into the cheese business, it will pay to study out this point carefully and begin right, and it won't cost much more than to begin wrong and is much cheaper in the long run. I want also to suggest to some of these older dairymen who are getting such good results from their cows on the question of ventilation. Last summer I put in what they called sub-earth duct ventilation in my cheese factory, drawing the air down into the ground four feet deep, and for a distance of over 400 feet to cool it off, and then let it pass up into the curing room, and the results are highly gratifying, and I have thought it would be a great improvement in many dairy stables, particularly in cold weather to have abundance of fresh air admitted and to carry off the impure air. It is true also that in hot weather it will cool a stable and keep it cooler.

DISCUSSION.

Mr. Thorpe—How is that ventilation put in?

Mr. Aderhold—My factory stands above ground, and there is no wall put under it, and I started under one side of the curing room and dug a ditch four feet deep, and about 420 feet long, in a straight line, and put in a wooden box, made of a plank a foot wide, and at the further end from the factory that box extends up in the air thirty feet, with a galvanized iron hood on the top that is open on one side and it swings so that it is always open to the wind. That goes up and opens into the curing room floor; it comes up on one side of the room, and on the other side of the room there is a ventilator going out of

the same side as this box in the ground. It begins at the floor and goes up through the roof, with a galvanized iron head that carries the air upward when there is any breeze. This ventilator is so arranged that I can draw the air out of the bottom of the room, or out of the top of the room, as I choose. I have got double doors and double windows, everything as tight as possible. When I first put that up it worked very well when there was a breeze, but when there was no breeze there was nothing to make it work, so to overcome that I had a box made of sheathing iron about 14 inches square at the bottom, which tapered up to the size of a stove pipe and that was large enough to put a lamp in, and that stove leads into the ventilator, and the box was shut at the bottom excepting the pipe where the air is drawn in. That lamp heats the air in there and makes it lighter and sends it out and it creates quite a strong draft. Of course the air that is sent out must be replaced by that which comes through the ground. The lamp is one of these oil burners with two wicks. I sometimes fill my hand with slips of paper and hold it under that pipe and it will draw them all up. When we got this finished in the latter part of last spring we had about two weeks of pretty hot weather and the thermometer on the outside registered 75. I put it over the hole where the air came in and it went down to 52, and by keeping the floor moist all the time we had quite a desirable curing room, and I know we saved lots of money on cheese. The patrons paid for that improvement. The factory men around that part of the country cannot afford to invest a dollar, they are so poor, and I made that proposition to my patrons in the spring, if they would pay one-eighth of a cent more for making cheese until that eighth of a cent paid for the improvement, I would put it in. Last summer the milk was off flavor, pretty much all over the state, and the cheese were, what some called, a "leafy" flavor, and if they ever got heated up it brought that flavor out a great deal stronger, but by keeping our factory down so the cheese never got heated we managed to prevent the development of that flavor so that our losses did not amount to anything, and I know that my patrons got paid twice over for that improvement the first season.

Prof. Henry—How much difference was there between the temperature that came in in that duct and the air outside along in August and September?

Mr. Aderhold—There wasn't so much difference, but we never got rain to settle the ground around the box and it warmed up considerable. After it had been in use a month it would cool it down to 56 instead of 52, and later on in September, when we had those hot winds, it would cool it to 64.

The Chairman—Suppose that sub-earth duct was down ten feet into the ground?

Mr. Aderhold—That would be a great deal cooler or if it had a larger diameter. If I had to do the thing again I could do it a great deal better and cheaper, I wouldn't have it so long, but I would have a larger diameter and have more cooling surface. Tile would be the best for it, but it is expensive. It was an experiment, and I didn't want to invest very much in it. I want to speak about another thing. Mr. Burchard said yesterday that 4 per cent. milk was perhaps the point beyond which it would not be profitable to make cheese. I do not believe any such thing. I have seen milk in as many cheese vats, I believe, as any one man in the state of Wisconsin, except perhaps one, and I never have seen milk so rich that there was any loss of fat in the whey caused thereby, providing it was skillfully manufactured. I think that the per cent. of fat or the richness of the milk has nothing to do with that question at all. It simply depends on the relative prices of butter and cheese.

Gen. Burchard—I did not have in mind at all the loss of fat in the whey. The point I made was that that extra fat going into the cheese you cannot get paid for in the market at so good a rate as to make it into butter.

Mr. Aderhold—There is no extra fat going into the cheese. There is extra casein going in as well.

Gen. Burchard—No, not in that proportion.

Mr. Goodrich—The question would be: Does milk make cheese just in proportion to the amount of butter fat that it contains?

Mr. Aderhold—The data that we have got thus far from the dairy school students will prove that it does.

Mr. Goodrich—Will six per cent. milk make twice as much cheese to the hundred pounds as three per cent.?

Mr. Aderhold—I don't know, I never saw 6 per cent. milk in a cheese vat, or 5 per cent.; 4.6 is the richest I have seen, and I have only got that, I think, twice in my own factory some years ago.

Gen. Burchard—How much cheese would that make in 100 pounds of milk?

Mr. Aderhold—About 11 1-2 I think, but there was some old milk in that, remember; it was milk that was two days old. It was late in the fall and that does not secure us so good a coagulation; it won't work out as much cheese per hundred, but it loses casein as well as fat.

Prof. Henry—What would it cost in your neighborhood with lumber and the conditions as they are in your neighborhood, to put up a good cheese factory without any ducts, or anything of that kind, but with the necessary vats, heating apparaus, etc., to make up a maximum of 10,000 pounds of milk per day, the outside cost of a good factory with a good curing room?

Mr. Aderhold—A good curing room, that means a cellar. I never had occasion to make figures on that sized factory, but it don't cost much more at that capacity than for 5,000. It wouldn't cost over from $1,100 to $1,400.

Prof. Henry—Would $1,500 put up a first class cheese factory and equip it?

Mr. Aderhold—Yes, sir.

Prof. Henry—And that factory would be about as good as a $3,000 creamery, or something like that.

Mr. Grandine—You asked me the other day what I thought the cheese factories in my part of the state were coming to. What do you think they are coming to?

Mr. Aderhold—I am tickled to death to tell you. If any of your folks are going into the cheese business, be careful and start right. As I said, you dare not make as many mistakes as they used to, because prices are not so great. Where Mr. Grandine lives they started wrong, the makers have guaranteed to make more cheese than the milk will make, and to make better cheese than they can make. I can illustrate

that position by a little story. A Jew was looking through the window of a store into the street and he saw his little son about six or seven years old standing in the street, and a Yankee boy about two or three times his size was thumping him, and he stood there and didn't defend himself or try to get away. His father opened the window, and said, "Isaac, what for you stand there and let that Yankee boy pound you like that? Why don't you run away?" The boy says, "Father, I can't run away, I am standing on a nickel." Now, that is the position of those cheese makers, they are standing on a nickel, and they are getting it in the neck from both sides. They guarantee to make more cheese and better cheese than they can make, and they also guarantee the highest market price for their cheese.

Prof. Henry—How many pounds of cheese do you get from a hundred pounds of milk?

Mr. Aderhold—Last season it took about eleven pounds, some more and some less; in my factory it took ten and three-quarters, but it has been the poorest season for milk for cheese purposes that we have ever had on account of the drought. The cows were eating everything except grass and we had as many kinds of flavors as they were eating weeds.

Mr. Monrad—You recommend the farmers to brush off the dirt from the under side of the cow, wouldn't it be a good plan to brush it off from the upper side too, and all around?

Mr. Aderhold—Yes, and that reminds me, I went to see a farmer last summer, who was milking and he told me that if he had the say he wouldn't allow anybody to use strainers because the milk oughtn't to get dirty in the first place, and if the milk came to the factory without being strained they could see just how cleanly they were in their habits of milking. He says, "When I milk there ain't a speck of dust gets into the milk." He says, "I use the strainer, but there is nothing in the strainer." Now, while I do not believe in putting away your strainer, there is a great deal of truth in what he said, and I would rather drink that man's milk without being strained than a good many other of the patrons, if it was strained ten times over.

Prof. Henry—We have a cheese maker who is making cheese within a few miles of here. I wish we might hear from Mr. Bates. How much milk did you take in last year, Mr. Bates?

Mr. Bates—I couldn't tell you, I rent my factory. The man that is running it was here this morning. Mr. Cass is here, he worked in one of the factories. Mr. Cass, how much milk did it take for cheese with you?

Mr. Cass—About 10 3-4 pounds.

Prof. Henry—How much would the maximum of milk received in one day be?

Mr. Cass—I think 3,400 pounds was the highest.

Question—How many months was your factory opened?

Mr. Cass—Seven months.

Question—Where did you sell your cheese?

Mr. Cass—In Chippewa, most of it, Chippewa and Eau Claire, and other points up the line.

Prof. Henry—They get just enough milk at such a factory as to make it not profitable. This is one of those small factories that is struggling, and if the maker gets the pay that is due from his staying in such a factory all the time and being ready to make more cheese, they have arrived at a point where they ought to move along as quick as they can. In Canada they take in 40,000 pounds of milk in one cheese factory, and we can see why our Canadian friends take in millions of dollars of money every year for cheese, because they can afford to have the very best facilities, but you cannot make enough to pay. I suppose you think if you had more you would lose in proportion.

Mr. Aderhold—I would like to say that if any of you are going into curing cheese, put in a cellar curing room with good ventilation. You want an even temperature and you want moisture, but you want ventilation when the weather is muggy, and lots of it. Another thing about marketing, the patrons want just a little more than the market, just an eighth of a cent more and that costs an awful lot of trouble every year. If you insist upon getting that extra eighth of a cent, the man that pays it to you will probably make some crooked

work to get it out of you later, and the factory will be the loser in the end.

Mr. Monrad—Just a word about this brushing and carding cows. The farmers are always willing to keep their horses clean and spend quite a little elbow grease on that. If you are going into dairying, if you keep a cow shut up in a stable, she is not in a natural state, and in order to keep her healthy, you must keep her clean, and you want to spend a little elbow grease on that cow every day, just as you do on the horses.

The Chairman—I want to emphasize what Mr. Aderhold has said with reference to the duty of the patron to the factory-man. There isn't one factory in a hundred where either one does his duty. I have seen many a patron feeling good, chuckling to himself, because he has taken some milk to the factory that really wasn't fit to be taken. The trouble is they don't think and don't know that they are cheating themselves. Then, again, I don't believe there is one factory man out of fifty that goes around and visits his patrons and talks to them and sees what they feed and what water they have and how their stables are kept, and he ought to do that.

Mr. Aderhold—I meant to bring out that point myself. A good factory man should be on such terms with his patrons that he can go out and visit them and talk with the women who often have a good share of the dairy work to do and taking care of the milk. I found a very ugly woman in a house at one place, and her husband wasn't at home. I found her pails were very dirty, and I took one and started for the house with it. My cheese maker was with me, and he says, "You had better drop that pail or she will smash it over your head." I said, "She won't do any such thing." When she saw me coming with the pail she suspected what was up, and she said right away, "Never mind, I'll wash them." I says, "That pail has been washed all right, but the man that made it didn't know how to make a pail; you can wash it all day and it will be dirty." So I jawed the man that made the pail and showed her how the dirt had collected in the corners, all the time laying the blame on the man that made the pail, and she didn't get mad at me at all. But she saw that dirt just the

same. I tell you even the tidiest and nicest of women don't know how much dirt there is in those pails and dippers until you show them.

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.

Amount in hands of treasurer as per last report		$408 18
1895.		
Feb. 16.	Memberships	295 00
May 17.	From State Treasurer	300 00
Oct. 8.	From State Treasurer	700 00
Nov. 16.	From State Treasurer	1,000 00
		$2,703 18

DISBURSEMENTS.

1895.		
Feb. 15.	Hotel bills for following named persons who were in attendance as speakers and officers of the association at the annual meeting held at New London: C. H. Everett, D. W. Curtis, H. C. Taylor, C. P. Goodrich, R. Crossfield, C. L. Hill, E. L. Aderhold, H. J. Noyes, H. K. Loomis, T. L. Haecker, W. H. Phillips, F. C. Curtis, M. T. Allen, A. G. Cate, C. S. Arnold, Chester Hazen, A. D. DeLand, H. C. Adams, G. W. Burchard, Mrs. Howard Kelly, D. S. Crosby, W. T. Stiles, T. J. Van Mater	$65 88
Feb. 25.	C. P. Goodrich, expenses attending New London meeting	4 75
Feb. 25.	C. S. Arnold, expenses attending New London meeting	7 35
Feb. 25.	A. Sell, expenses attending New London meeting	9 90

Feb. 25.	Prof. H. L. Russell, expenses attending New London meeting	$6 00
Feb. 25.	H. K. Loomis. expenses attending New London meeting	9 26
Feb. 25.	T. L. Haecker, expenses attending New London meeting	18 50
Feb. 25	W. F. Stiles, expenses attending New London meeting	2 75
Feb. 25.	J. E. Patton, money refunded.	1 00
Feb. 25.	H. J. Noyes, expenses attending New London meeting	3 75
Feb. 25.	Stepen Faville, expenses attending Ex. Com. meeting at Fort Atkinson	2 71
Feb. 27.	D. W. Curtis, expenses attending New London meeting	6 49
Feb. 27.	D. W. Curtis, expenses Secretary's office	25 00
Feb. 27.	N. Simon, premium	6 24
Feb. 27.	R. Crossfield, premium	15 00
Feb. 27.	R. Crossfield, expenses attending New London meeting	7 24
Feb. 27.	F. C. Curtis, premium	4 55
Feb. 27.	W. H. Chapman, premium	15 00
Feb. 27.	J. D. Grandine, premium	15 00
Feb. 27.	J. D. Grandine, premium	5 00
Feb. 27.	Geo. Lindsay, premium	3 00
Feb. 27.	Chas. Paul, premium	6 24
Feb. 27.	A. Cuff, premium	3 12
Feb. 27.	Wm. Jinsky, premium	15 00
Feb. 27.	Mrs. N. E. Allen, premium	1 50
Mar. 6.	Chas. Meyer, expenses attending New London meeting	7 65
Mar. 18.	M. T. Allen, expenses attending New London meeting	1 89
Apr. 12.	C. R. Beach, expenses attending Ex. Com. meeting at Madison, Nov. 30th, 1894	5 00
Apr. 12.	Mrs. R. Howard Kelly, reporting New London meeting	112 25
Apr. 12.	W. D. Hoard, printing	39 00
May 6.	S. Faville, expenses attending Ex. Com. meeting April 26th	2 71
May 13.	F. C. Curtis, expenses attending New London meeting	8 70
May 13.	J. M. Olin, drawing Dairy Laws for 1895	100 00
May 17.	W. D. Hoard, printing	11 75
May 18.	Express on stationery	25

May 22.	Wilmanns Bros., printing letter heads	$16 00
May 22.	F. C. Curtis, expenses attending Waupaca meeting	8 50
May 19.	A. D. DeLand, expenses attending New London meeting	4 27
June 3.	G. W. Brasure, instructor	56 00
June 6.	E. L. Aderhold, instructor	38 00
June 26.	C. H. Everett, expenses attending Ex. Com. meetings	11 28
July 5.	E. L. Aderhold, instructor	71 00
Aug. 8.	G. W. Brasure, instructor	35 00
Aug. 19.	E. L. Aderhold, instructor	59 00
Aug. 28.	W. A. Henry, expenses attending Ex. Com. meeting.	3 90
Sept. 9.	G. W. Brasure, instructor	59 00
Sept. 18.	E. L. Aderhold, instructor	83 00
Oct. 4.	G. W. Brasure, instructor	68 00
Oct. 9.	E. L. Aderhold, instructor	65 00
Nov. 2.	W. D. Hoard, printing	8 00
Nov. 2.	H. J. Noyes, cheese instructing	100 00
Nov. 14.	D. W. Curtis, expenses Secretary's office	50 00
Nov. 18.	D. W. Curtis, services as Secretary	250 00
Nov. 18.	D. W. Curtis, expenses Secretary's office	25 00
Nov. 18.	C. H. Everett, expenses attending Ex. Com. meeting	3 50
Nov. 18.	H. K. Loomis, expenses attending Ex. Com. meeting.	9 43
Nov. 29.	S. Faville, expenses attending Ex. Com. meeting Nov. 15th	3 06
Dec. 26.	E. L. Aderhold, instructor	63 00
1896.		
Jan. 8.	D. W. Curtis, sending circulars, etc	50 00
Jan. 8.	H. K. Loomis, R. R. fair, postage	9 46
Jan. 20.	H. K. Loomis, expenses to Chippewa Falls	19 73
Feb. 18.	W. D. Hoard, printing	25 50
Feb. 18.	H. K. Loomis, postage and expenses on drafts	5 41
Feb. 18.	Balance in hands of treasurer	953 71
		$2,703 18

The above accounts were submitted to the executive committee of the association, examined and approved.

Respectfully submitted,

H. K. Loomis,

Treasurer.

SECRETARY'S REPORT.

Mr. President—In submitting my report this year I beg to call your attention to the work done in the Richland county district in the manufacure of cheese.

The factorymen when assembled at the Board of Trade resolved that they would attempt to make a uniform grade of cheese throughout that district in style, shape and quality.

They very much desired a cheese instructor sent to them but as the instructors were engaged in other parts of the state they concluded to do their own instructing.

H. J. Noyes, G. E. Miles and A. Schoenman performed this work in a very satisfactory manner a greater part of the season.

There seems to be a uniformity of sentiment in that section that in order to bring their cheese up to the highest market price there should be a uniformity in the make. This work cannot be too highly recommended. If other parts of the state would follow this example they would be benefited in every way.

The early part of last season was in some respects the worst that has been for years for the making of good cheese. The cheese instructors employed were very busy throughout the season and in fact could not fill the wants as they were asked to.

I can only repeat what has been said many times before, that our appropriation should be larger so that the state could be divided into districts and a cheese instructor employed for each district. Better results would be obtained if this could be done.

Cheese as a rule bore a very low price throughout the season and was quite discouraging to the makers in many respects. Had not the law gone into effect to stop the manufacture of filled cheese, the cheese industry in this state would have been almost entirely ruined.

Our laws in regard to branding cheese seem to be in many respects faulty and something should be done to remedy it.

The Dairy School at Madison is doing a great work in the way of instructing cheese and butter makers, especially old makers who can find the time to attend the Dairy School are much pleased with the results.

Too many of our cheese makers are not educated up to the standard of making good cheese, they hardly know what it is when they see it, and hardly have a conception of how to handle milk in the different stages to produce a good article.

The following report from Instructor Aderhold regarding work may be read with interest:

REPORT OF INSTRUCTOR E. L. ADERHOLD.

Neenah, Wis., Dec. 11th, 1895.

D. W. Curtis, Secretary:

The following is the report of my work for the season just ended:

Number of days worked.....	140
Number of factories visited	46
Number of factories visited second time.....	12
Amt. of money received from Association...	$379.00
Amt. of money received from factories.....	185.00

Cheese makers have been so much embarrassed financially that I have experienced considerable difficulty in collecting fees. Nine factories have failed to pay.

I worked in the following counties: Shawano, Door, Kewaunee, Manitowoc, Outagamie, Waupaca, Calumet, Winnebago, Fond du Lac, and I visited one factory just across the line in Sheboygan county, but I was unaware that it was across the line until I had put in a day's work there.

I spent considerable time in the northern part of Manitowoc county and in Kewaunee and Door counties where factories were operated under very unbusiness-like principles. The great majority of those makers are far behind the times, some of them admitting that they have learned nothing since the first week they made cheese. They also practice the pound for ten system. As long as they manage to squeeze through there will be no change. The only thing that will convert

those makers is continual losses, and the past season has been prominent in that feature, and the chances are good for a change in factory management next season.

I had calls from sixty factories all told. In many of the factories an instructor was something new, in which cases I generally stayed three days, as I found I could do more good in that way. Frequently I would make flying trips to the factories I had been to, and would see from five to twelve makers in a day, inspect their cheese and put them on their guard against mistakes that were apparent in their cheese.

Take it all around it has been a trying season to makers. During the summer months a vat full of good milk was something very unusual. Milk was gassy and tainted in general and without lactic ferment starters and cool curing rooms, it was difficult to prevent the flavor of the cheese from becoming "loud."

Yours truly,
E. L. Aderhold.

Below will be found a summary of the number of days worked by each instructor, and the money received from the factories and the money paid by the association:

	No. days work.	First visits.	Second visits.	Received from. factories.	Paid by the association.
E. L. Aderhold	140	46	12	$185 00	$379 00
G. W. Brasure	72	14	12	70 00	218 00
H. J. Noyes	24	.....	.....	.....	45 00
G. E. Miles	24	.....	.....	.....	45 00
A. Schoenman	5	.....	.....	.....	10 00
	265	60	24	$255 00	$697 00

The expense of the secretary's office for the past year has been $194.19. The account was submitted in detail to the executive committee and by them examined and approved.

Respectfully submitted,
D. W. Curtis,
Secretary.

SHOULD THE FARMERS OF CHIPPEWA COUNTY GIVE MORE ATTENTION TO DAIRYING?

Jesse R. Sharp, Sec'y Chippewa Co. Agricultural Society, Chippewa Falls, Wis.

When I received word from Mr. Curtis that he had placed my name on the program for a paper to be read here today, it struck me as being a bit of humor on his part born of the knowledge that I was an officer in the County Agricultural Society, and of course ought to be well informed on the subject of dairying. I did not, therefore, give it much thought until the printed page was before me and I saw that the jest had become earnest, and I must at the least pretend to know something of the subject under discussion.

Should the farmers of Chippewa county give more attention to dairying? The question having been asked, it seems that the simple, emphatic answer, *Yes*, should clinch the matter, and if absolutely necessary to support by argument, a plain comparison of the situation of our farmers with that of those in the southern part of the state would be sufficient to convince the most skeptical. The farther south you travel the more cattle you will see and of course the creameries are more numerous. We hear of a creamery being built in another part of the state, to cost over $10,000, and it is needless to say that butter making has been highly successful in that section or they would not invest so large a sum in an enterprise that can be conducted with one-third the amount. It does not appear either that these creameries are far apart; in some sections they may be found at intervals of three and four miles, being another proof that there is room for all comers. Our northern counties, and Chippewa in particular, has been given over to grain raising. From the best information obtainable I am of the opinion that not only the farmers but the land itself has become weary of this repetition of oats and small grain year after year. The soil has become impoverished and when with an exceptionally good year the crop is large, it is found that there is such a glut of the market

that no price can be realized from the sale of the grain, as was the case here this last season. Now, if the farmers had had plenty of stock to feed their grain to, they would have reaped a benefit not to be obtained in any other way.

Good butter can always be sold at a good price. Poor butter cannot be disposed of at a profit. There are butter makers in this section who get 25 cents a pound for their product the year round and could sell more. Such sales, of course, are to private families, but a groceryman told me lately that he paid out monthly $50 for butter which he shipped in from other points. He was but one of a dozen dealers, so it can be readily ascertained the amount of trade the farmers let get away each year in that one product, butter. Incidentally, I might add, that the dealer informed me that it was the same way with eggs. Chippewa county farmers must turn their attention to this more profitable branch of farming. It is well enough to raise some grain, and some potatoes, but it is folly to put in nothing but the one or the other. A farmer said to me one day, "You told me that we ought to raise potatoes, and last year I did raise them with a vengeance and look at the price." It had to be admitted that such advice was given, but if the farmer had looked around him and observed that every farmer in the north of the state had also planted potatoes he would have changed his plans and put in a crop different from the others. What would the farmers say of the merchants of a city if they all changed their stocks to dry goods? Or, what would be the result if the groceryman kept nothing but sugar? It would certainly show considerable lack of good management on the part of the dealers. It is just so with farming. There should be as great a variety of products as possible so that in case of a failure of one crop the other will meet the expenses, or if the price of one part of the season's product is exceptionally low, there will be something else from the sale of which the returns will be better.

The main attraction in butter making lies in the fact that there is always room for improvement. There may be found cleaner methods of churning, or it may be possible to use a color that will increase the worth of the product. A cream-

ery in another state was supplying several large city club houses with butter and it became known to the managers that representatives of the clubs were planning a visit to the butter factory. They immediately began improvements in their building among which was the addition of a large bath room for their employees, and it is recorded that this evidence of cleanliness did a great deal towards securing a renewal of their contracts for another year at advanced prices.

Now, I want to say a few words in regard to the relation of our Northwestern Fair to the dairy interests. We are doing our utmost to induce the farmers to make exhibitions of dairy products and succeeded fairly well last year excepting in the cattle department. This year we have undertaken a larger contract in that we are to embrace several of the northern counties and it ought to be an incentive to greater effort on the part of our local farmers. Among the attractions that will especially interest farmers at the coming fair will be a creamery in full operation. The managers believe that this will be an object lesson that will be appreciated, and will go to considerable expense to conduct it successfully. Liberal premiums will be offered for all breeds of cattle and those who make entries may depend upon it that their exhibits will be adjudged fairly. I hope the audience will pardon this digression from the topic given me, but as the county fair is one of the means whereby the interests of the agriculturists are advanced and as it was through the agency of our Agricultural Society that this convention was secured for Chippewa county, I think that this is a good time to remind the farmers that we have a good organization in the county and that it is now time to prepare for the fall display. You will need to be up and doing if you intend to capture the trophies, for we have information that the northern counties will be here with all kinds of farm products in car load lots. With a slight effort on the part of each one of us, we can have the best fair in Wisconsin.

I would like to ask permission to call on one of our county board who takes a great interest in this subject, Mr. Hopkins.

Mr. Hopkins—It appears to me a little peculiar that I should be called upon to come out here to speak on this question after having been called out at the beginning of this association and having expressed myself somewhat against the prospect of dairying in Chippewa county. But after having listened to what has been said here, and the advice which has been given to the farmers and not only that but the advice which has been given to the business men here in Chippewa Falls, I am inclined to think that there is a little prospect for the farmers to enter into dairying. Now, then, let us look to the condition of things as they exist. It has been demonstrated to us, what we ourselves already knew, the condition in which we are, changing from one market to seek another. I came to this country in an early day when we had a home market that made us perfectly independent of those outside, and when we raised a crop upon the farm we were sure to get a good return therefor. We looked to this home market and we thought of and desired no other, but the day has come when this market is failing us. In that day they had to come to us for their supplies, now they can get their supplies where they please, and the buyers sometimes take advantage of it to our detriment, and there is a good deal of feeling between those who buy and those who want to sell the products of the farm. Now, then, these gentlemen have told us that we must seek a market for our products where we can sell them to the best advantage; if we sell them off the farm, as we have in the past, our farms are going to destruction. We are forced to sell them in such a manner as to leave the manurial products on the farm; in other words, we must sell them in some manner to stock on the farm, and perhaps there is nothing better than to sell them to the cow. If we can sell the products to the cow, concentrate it and thereby sell the products of our farm, why so much the better for us, and there certainly is encouragement to enter into dairying. I am not going into the details at this time, I am not going to show you the difficulties you have to encounter, all these things have been shown here; it is for us to take advantage of what we have heard here. I believe the business men in Chippewa Falls are ready to unite with us and to encourage us in bringing about this

market outside, instead of crowding it onto the local market and having the grocers put it down, as we sometimes feel that they do, at their own figures. It makes a feeling between the grocers and the farmers which ought not to exist, but if we can concentrate our business to such an extent, that we can reach out into the general markets, it seems to me that we should take hold and consider and after having listened to the instruction that we have received here, we should go home carrying the thoughts and ideas in our minds and talk with our neighbors, call meetings together, have general gatherings and agree upon some form of action. If you will do that I believe the possibilites are just as good for you as they are in any part of the state. I know there is energy among those who till the soil in Chippewa county to carry out whatever they endeavor to do. I wish to thank these gentlemen who have come here, who have demonstrated to us the condition we are in, and who have pointed out to us a way out, and while I do not say to them—for a man should not make up his mind in a moment—that this is our only way out, or even that it is the better way out, still if we can see no better way out, then let us take hold of it like men and give it a thorough trial, and I wish to say to this association that you have come here and have started up a feeling which I hope has a fair prospect of being carried out. If it is possible for you to come here next year or the year after, I hope that you will see that progress has been made, and if you will come up and stimulate us in our efforts to carry out your ideas, we shall welcome you with thrice the welcome that we have welcomed you this time.

MY EXPERIENCE IN FEEDING AND HANDLING COMMON COWS FOR WINTER DAIRYING.

J. W. Thomas, Anson, Wis.

Dairying is one of the great, if not greatest, agricultural industries in the state of Wisconsin, and is also the most profitable when properly conducted. The success of the business

depends very largely on the care and attention the dairyman gives his cows.

Many of our best farmers claim there is no profit in it, particularly winter dairying; and judging from my own early experience this is no doubt true with them, simply because they have not given it a sufficient study or attention so as to properly feed and care for their cows, which is absolutely necessary to make the business successful; and to illustrate this I will give my own experience.

Some nine years ago I found that in order to keep up the fertility of my farm, there must be more stock kept on it and concluded to try dairying, and in the year 1887 I milked seven cows that were descendants from cows shipped into the county from Missouri, which must have been very closely related to the Texas steer from their appearance and actions; but having used a grade Durham sire for several years these seven cows would probably class among the average.

My barn was single boarded and battened, and to make it a little warmer it was sealed with ship lap inside, but would freeze quite hard every cold night. Cows were fed a manger full of clover hay or corn stalks, with four quarts of feed (consisting of shorts, bran, corn and oatmeal; equal parts twice a day, and turned out of barn between 8 and 9 o'clock in the morning to feed at a straw stack until 4 p. m.; were watered at a small lake near by from a hole cut in the ice. In the spring as soon as wild grass started, they were turned out on the commons, and after a few days all other feed was taken away. They were driven into the barnyard in the evening and kept there until after milking time next morning. After crops were harvested, they were changed from commons to meadow and stubble field in day time. I kept no account of the amount or cost of feed consumed, and estimate the amount of butter at 130 pounds per cow. By knowing how much was sold and guessing at what was consumed in family this was barely an average record.

Having subscribed for "Hoard's Dairyman" that year, I was soon convinced that for winter dairying it was very important my cows should have two summer conditions in winter: First, that of warmth by being kept in a warm, comfortable, well

ventilated stable, so arranged as to control the temperature of both cold and heat; second, by warming the water to nearly or quite the temperature of the barn; then feed such a ration of both grain and fodder as to contain the nutriment necessary for a good production of milk, and in quantities sufficient to keep the flow of milk at a normal state, and the cows in a good, thrifty condition; and with this idea always in view, I have found winter dairying fairly profitable. My herd for 1895 consisted of twenty cows, six of which were only two years old; they were kept in a warm barn all the time during freezing weather, except long enough to drink at noon; the water was warmed to about 50 or 60 degrees. They were fed 30 pounds of corn ensilage, 10 pounds of ground feed, consisting of six parts bran and shorts, three parts oats, one part corn, in two feeds night and morning before milking. After milking in the morning their manger was filled with oat straw, and what remained at drinking time was cleaned out and put in the gutter, and each matured cow was given 7 pounds of hay. For the last two months of the year price of grain having changed, I fed 3 pounds each oats and barley, and 2 pounds corn, with 1 pound oil meal and 10 pounds of potatoes. About the 1st of May cows were allowed to run on a field of rye two hours each day for ten days, when they were given full run of pasture; and turned into night pasture after milking each night, both having good living water, and when fairly on grass all other feeding was stopped. In May. four acres of winter rye was sown near the barn, and when the cows began to shrink in milk, they were turned into rye field for an hour after milking each evening, for ten days, after which it was open to night pasture, and late in July they were allowed to run on meadow in day time, and when necessary this was supplemented by a feed of green corn once a day.

Early in August. 13 acres of winter rye was sown, and used for day pasture in October. By this constant care and attention, we have been able to make 3,738 pounds of butter, and sent to cheese factory our surplus milk in May, June, and July, amounting to 17,341 pounds, which would have made, reckoned on the same basis of that manufactured into butter during the same period, 867 pounds of butter or a total of 4,605

pounds. And calling the six heifers equal to three cows, it would be an average of 270 15-17 pounds of butter per cow.

The average price received for butter sold during the year was 22 cents, and for milk sent to cheese factory was equal to 12 cents per pound for butter, or $54.50 per cow, at an expense of $32.75 per cow, leaving a net profit of $21.75 per cow. Most of the cows are now grade Jerseys, but with the ordinary care of stock in this county they would be classed as a common average cow. Winter dairying to be highly successful requires constant care and attention, and the dairyman should have a good knowledge of the feeding value of the different feed products raised on his farm. But this can be very largely remedied by the dairyman writing to his experiment station or the editor of his dairy paper, stating what kind of feed he has on hand, and the price of all feed products in his vicinity, and either will quickly tell him the kind and quantity that will be the cheapest for him to feed. Consider the cows as boarders, keep a strict account of all expenses for board, weigh and test each cow's milk often enough to know that she is not cheating you, but paying enough for her board to allow a good, fair profit. And when one is found that is not paying such a profit the second year send her to the shambles, and there will be a profit in winter dairying with common cows.

DISCUSSION.

Prof. Henry—Did you find any trouble with the rye tainting the milk or the butter?

Mr. Thomas—I did not, because it was not an exclusive ration. It was simply to help out the other food.

Prof. Henry—How is your barn built?

Mr. Thomas—It is a basement barn with a solid stone wall on the north side and on the other side it is about two and a half feet high; then it has a studding, two by six, and double boarded on each side. The ordinary ventilation in real cold weather is through the silo. The door of my silo is right opposite another door, and over the other door there is ventilation by the warm air of the silo, causing a draft through

there. In extremely warm weather I ventilate with a trap door and allow the heat to go up out of the barn.

Question—Where is your butter sold?

Mr. Thomas—Some here in town and some in Superior.

Question—What is the best way to ventilate barns?

Mr. Hoard—There was published in the Dairyman about a year ago a plan sent us by Mr. Devereaux of New York. We had that engraved. It was a very ingenious way of securing ventilation in a barn. It was a long barn and he had two cupolas upon it, and on each side there were large windows in the cupola, and a stick run across from one window to the other, that was six inches longer than the cupola was wide. This stick fastened onto these windows. Now, when the south wind was blowing hard, it shut that south window and fastened out the one on the north side, and when the north wind was blowing hard, it shut the north window and pushed open the window on the south side six inches, and in that way formed a certain amount of ventilation in the top of the barn. From the stables I think there ran ventilating flues that opened out near the roof. It was a very ingenious way of securing automatic action by the wind, and he claimed it worked perfectly. He has thought out a great many very important problems. I saw this winter in Mr. Bowditch's barn, in Massachusetts, a good way of ventilating a stable. In the feeding alley, between the two rows of cows, the posts are hollow tubes, and down near the bottom they are bored full of holes and they communicate with the external air. The upper portion of this stable is about ten feet, and that is an excellent thing. Cows should have at least nine hundred to a thousand feet of cubic space to the cow, and in order to get it cheaply we must build our foundation walls higher instead of having them crowd down onto the heads of the cows. The warmth in this stable was sufficient to produce a constant flow of air through these holes in the posts, up through the hollow post and then out in conduits running horizontally and the air was let into the room by little adjustments of windows. He kept that stable so that it did not freeze, and yet there was a constant motion of air, but the thing that struck me the most

about that stable, and also Mr. Shaw's, was the wonderful provision for sunlight. With nine out of ten dairymen their stables are dark and damp, but these stables were as light as this room, and on the south side of the building it was built exclusively of windows, a succession of double windows, and at some portion of the day every cow was touched with sunlight. It is well understood in scientific circles that there is no disinfectant that can beat sunlight, and it acts on many of the organisms, the microbes that form in our stables.

Mr. Kissack—When I took charge of our farm a year ago there was no ventilation whatever. All the ventilation was through the chutes, and I think the carbonic acid gas got into our hay. The odors in the stable are in my opinion a little too strong. I talked with Mr. Tourtelotte, and we came to the conclusion something had to be done. Our barn has a three feet stone wall a hundred feet long. We took flooring boards, ceiling, and built a chute on the outside about two feet from the ground, running it up the whole length of the wall on the outside; we run it up to the top and under the floor between the joists. Then on the inside we built a chute of the same size right behind the cattle, one on each side, brought one down one-third the way on one side and one-third up on the other side, and run that up through the floor on top of the barn and out under the eaves. I don't know anything about the science of it, but I know that the odors are certainly much less disagreeable, and it is a very cheap way to do it. It would probably be a good plan to have a sliding chamber so it could be regulated.

The Chairman—It is a question how to properly ventilate a barn when the thermometer is 20 degrees below zero and not have it too cold. I have never seen but one or two barns artificially heated that I thought were perfectly ventilated and warm.

Mr. Linse—I have two shafts running right through the barn, the whole length of the height of the barn, and I never have seen it freeze in that barn, and there is a continuous stream of foul air passing out.

Question—Do you find any bad results in feeding ensilage before milking?

The Chairman—No, I haven't.

Question—Can you get as much milk from a cow that is fresh in the fall as one that is fresh in the spring?

Mr. Thomas—I consider I can get more milk, because she will keep up the flow of milk fairly well all winter and then when she is put on early grass it increases again.

Question—How much more does it cost to keep a cow if she is fresh in the fall than if she is fresh in the spring?

Mr. Thomas—I never kept any account of it when my cows were fresh in the spring. It cost me last year $32, and feed was very high up here and we had to buy most everything.

Prof. Henry—Mr. Thomas' experience is that of many dairymen. He has told you what he did years ago and he tells you what he does now. At our University creamery we have farmers who will get twice as much out of their cows as others because they are careful dairymen, they are educated, the second class are blundering. They are doing about this way: their neighbors keep cows, therefore they have cows. If their neighbors kept camels, they would keep camels; as long as the cows give milk, they milk them; when they go dry, they don't milk them, they don't seem to think twice on any question. We have patrons who do not send hardly any milk in winter, while the milk is bringing a good price; their cows all came in in the spring and when they are fresh they give fifteen or twenty pounds for a little time, but they don't give enough to make up and they are dry again when the fall comes, and so they are dry nearly six months in the year. What is needed up in this country is that some of you shall be good farmers and let the others catch the disease. You can help yourselves catch this disease. I have been delighted with Mr. Thomas' experience. He tells you that he is doing well now and that once he did not. When you start into this business don't expect to make $50 a month as some of our patrons are doing; if you don't make thirty dollars, don't be discouraged. You have got to learn and it takes years, but by taking the experience of others you can cut the years short. Now, why not have an income every month in the year? Don't worry about your grocers, don't bother with them. Begin right now to get ready. This winter, if you are going to patronize the cheese

factory next summer, don't let your cows stand around the straw stacks, but take care of them, feed them up and get them ready, get them in fine condition.

Gov. Hoard—Mr. Thomas spoke of the cows that are turned out at nine o'clock in the morning and kept there till four in the afternoon in cold winter weather. A man who does that forgets that it takes a lot of expensive food to warm up a cow against such weather.

Mr. Bates—I have been reminded by something that has been said here what one of our grocerymen said to me personally about two years ago. It showed me that they are not placed in a pleasant position. They often do not want the butter at all that is brought into them, but they don't want to offend any one, as they would do if they made any difference in the price that they paid for butter.

Question (from the Question Box)—I have a neighbor who has a particular cow he likes very much, but her milk curdles when they undertake to make milk gravy, no matter what time of year it is.

Mr. Bradley—Perhaps the cow is a little gargetty. I heard about a man reporting about his cow that was giving lumps of butter.

A Lady—I should say when the milk curdles, the milk isn't good.

Gov. Hoard—I guess that is right.

Prof. Henry—I can't tell what is the matter. You must remember that this case is perhaps one in a million, and there are some things in this world that it is impossible to account for. You know that Dr. Babcock originally worked out his test in experimenting with milk that would not analyze in the ordinary way.

Question—Would you prefer to feed bran, dry or wet?

The Chairman—I feed it dry.

Prof. Henry—And that reminds me of the great advantages you have in this country from being close to the great flour mills up at Superior and at Minneapolis. The city of Superior grinds over 3,000,000 barrels of flour a year, and the bran is very cheap and handy to feed to your cows at large profit, and a great part of the fertility remains in the manure

upon your farm. You can bring this land up here to a value of fifty, sixty and seventy dollars an acre. That is what it is selling for down in Jefferson county, because they have put the fertility back again onto the land. It makes no difference whether it is fed wet or dry, it goes into a cow's paunch and ten minutes after she has got it it is all moist. I would rather feed her the bran dry and let her drink all the water she wanted.

Gov. Hoard—How much water will a cow drink a day?

Prof. Henry—About 70 to 100 pounds, it depends upon the temperature of the barn and the amount of milk she gives.

Mr. Bartlett—Can the farmers here afford to pay for bran to feed to their dairy cows when oats are worth 13 to 14 cents a bushel, and corn 20?

Prof. Henry—Mr. Woll puts oats at about ten per cent. better than bran; when oats are 14 cents, they are about $9 a ton. We can buy bran for between eight and nine dollars. If you ground your oats there would be something to be added. It is my opinion that we are going to put one hundred million dollars' worth of Dakota and Manitoba fertility into this state through feeding bran and leave the fertility on our land. In Vermont they have to pay fifteen or sixteen dollars for bran.

Question—If you got bran and shorts and some oats, would you feed all bran or some shorts?

Prof. Henry—I would discriminate between bran and middlings. What we call shorts up north here is a sort of ground-up bran. We call now either for light bran or we call for middlings with the hull and everything left in it. I would buy either the very flaky bran and then use middlings, or perhaps use oats or corn meal.

Gov. Hoard—Have you ever fed unground oats to a cow?

Prof. Henry—No, unless the cow is very hard worked, I should think she would do fairly well; she can raise and chew over again the unground oats.

Mr. Goodrich—They are not very well masticated, I have tried them.

Prof. Henry—A cow that is making a pound of butter a day is working hard. She is like a horse; he can get through the coarse food very well, but if he is working hard, he can-

not get through with the unground food. When a cow is making a pound of butter fat a day, she is working harder than a steer that is getting fat, she is working like your horse working in the woods.

Gen. Burchard—As there are no two bushels of oats grown on different farms that are precisely alike in nutrient qualities, so there are no two tons of bran which may be brought from different mills, or from the mill at different times that will be precisely alike in their nutritive qualities. Now I know of two comparative experiments with bran and oats. One is the one that Prof. Henry referred to where they found that their oats, as compared with bran, gave about ten per cent. the better result. Prof. Cook, out in Colorado, tried a similar experiment with oats and bran and there he found, with the bran that he had and the oats that he had, that the bran gave a slightly better result than the oats. I am inclined to emphasize what Prof. Henry has said in regard to this matter of being particular as to where you get your feed. The cow likes a little variety and often you can well afford to sell oats for ten dollars a ton and buy bran at ten dollars a ton for the sake of making a little variety. The lighter the bran the better it is; remember, however, when you are feeding bran that you must feed by weight and not simply by measure. A pound of lead will weigh just as much as a pound of feathers, but it don't make so much bulk; so when you dip into the bran bin with a two pint measure, don't think you are feeding as much as when you dipped into the corn meal bin.

Gov. Hoard—In Jefferson county bran is used in enormous quantities. To that is largely attributable the increase in fertility to the farms in Jefferson county. Our lands there are inclined to be sandy and gravelly and pretty thin.

Question—What does land sell for?

Gov. Hoard—The average price of land in Jefferson county last year by the report of the register of deeds, which is published every week, I think is $61 per acre, but, as near as I can get at it, our land has been selling too high. We have got a class of Germans there that will pay more for land than any set of men I ever saw. They are thrifty men; those men

will run in debt $8,000 for their farms and pay down $1,000, and pay it out, too. The wife works and the children work and the husband works and everybody works until they work it out. In 1889 the average price of land in Dane county was $29.50 an acre, whereas in Jefferson county it was $41 an acre. Dane county was not a dairy county, but Dane county land will average fully as well as Jefferson, some of it much better. The effect of the dairy husbandry on the farms has been very marked. Of course, there are a great many cows and a great deal of manure, and the skim milk is saved for the pigs and the calves and we get back what fertility there is in the skim milk. Oil meal has been used to some extent, cotton seed meal and all those things have been experimented with. There have been a good many peas raised, all these things help to balance the food of the cow. I have been advocating for years the growing of peas and I am sure you can raise them in this country very easily. Has anybody here in this part of the country grown peas? Two. How have you found them?

A Member—We sowed them with oats. They were kind of spindling and we fed them out green.

Gov. Hoard—The most profitable way to grow peas that I know of is to turn the peas about four inches under. You go down in Nova Scotia and they are growing wonderful crops of peas. Turn them four inches under and then in about six or eight days sow the oats on top and harrow them in. Then they come up very nearly together and you get splendid peas which abound in protein and the other feed you have contains starchy matter and in this way a man can produce his own feed. Up near Manitoba, at Grand Forks, I found them growing peas with splendid results. Over here on the west shore and all this woody country wherever I have been they grow peas better than they do out on the prairie. It needs rather a light soil. In Canada they have a pea harvester and they raise all the way from twenty to forty bushels per acre. They sow there the little yellow Canada pea about two and a half bushels to the acre, if they sow them alone. If they sow them with oats they sow about a bushel and a half to two bushels, and then about a bushel and a half of oats. I plant my gar-

den peas six inches deep and they will be ten days coming up, but I will have peas there for a long time, because they don't dry out. The pea is a very deep rooter and it should be covered sufficiently deep so as not to dry out and should be sowed just as early in the spring as possible. Early frosts won't affect them. You can sow them for hay with oats and make splendid hay. You can sow them for straw, and if it is cut pretty early before the peas are too ripe there is a good deal of value in the pea straw.

Mr. Monrad—Mr. Daly, what are the beneficial results you noticed from this linseed meal?

Mr. Daly—We are shipping cream. A neighbor came to me and said his cream did not seem to have the body to it that ours had, and he would either have to make better cream or quit shipping it. He took some linseed meal and tried it, and said that it made a much thicker cream.

Prof. Henry—I find that farmers that grow grain are prejudiced against buying bran to feed to dairy cows. I know that twelve or thirteen years ago on the St. Croix prairie I stood up and pleaded with the farmers to cease wheat growing and take care of their cows, and I incidentally spoke about feeding bran and some of those men rose and said to me, "What do the Minneapolis millers pay you to come here to try to sell their bran?" Now, I haven't exactly seen them suffer for that, and yet I pretty nearly have. There is no richer region in the state naturally today than that St. Croix district and yet there is no region where there are so many farmers handicapped with mortgages perhaps as on that prairie. Some of them have been blind leaders of the blind. When we talked to the farmers in Trempealeau county they were so much more sick that they took the medicine we gave them and got well, the St. Croix people were not quite sick enough to be willing to resort to serious measures, and so they have been sick ever since. I hope your farmers are not as sick as they are in some places, but I do hope that you will not have to go through six or eight years of pinching penury in order to learn a lesson which they have learned in other places. Get out of the rut quickly, make a product that can be shipped to Chicago, and

if it can't be sold in Chicago it can go clear to the Liverpool market.

Mr. Bartlett—I have fed bran for a number of years to my cows. I have fed other things and I cannot get my cows to give good results without bran, with all the other grains I give them. I have thought sometimes it would pay better to drop the bran, but I always have come back to it.

Mr. Burchard—A man must not feed too heavy of bran ration. There is a good deal of indigestible matter in bran, and if you feed all bran, you will be calling on those cows to work a little bit too hard.

Prof. Henry—There should be corn meal or oil meal fed with it.

Mr. Bradley—I understand this gentleman feeds corn stalks right with the bran.

Mr. Daly—We feed ensilage, but we also feed corn on the stalk and a grain ration besides.

Question—Will Prof. Henry tell us some of the trouble arising from grain that is troubled with smut?

Prof. Henry—I have advised farmers to go ahead and feed their grain having some smut; clean the smut as much as you can, but don't throw away your grain. I have written to men that way, and asked them to be sure to write me back if they have any trouble. In some cases they have written back, and I never yet have found a case where I think the animal was seriously injured by eating smut in small quantities. I wouldn't go and gather up smut, but I wouldn't throw away my grain. They have complained of this fungus or ergot in Canada, but I don't know of any cases in Wisconsin, except once in awhile where the circulation has been affected a little. Ergot also grows on June grass, and there is an ergot that grows on rye. If the cows get enough of it, it will probably affect them, but they don't get a great deal of it. If it is forced on the cows, it will slow up the circulation of the blood, the blood won't go to the extremities.

Mr. Linse—I was cutting ensilage corn once, putting it into my silo and there was considerable smut. I thought it wouldn't do, and I kept taking these big pieces covered with smut and throwing them one side. I had the place fenced

off, and a couple of heifers managed to get in that yard and ate up the whole pile, and I was dreadfully afraid that I would find those heifers dead during that day, but they kept perfectly happy and healthy. I think, however, that I have lost cattle in the winter when the smut is dry, but as long as it is moist it doesn't seem to hurt them. I had an animal killed in the same way by feeding dry malt sprouts. The stock was in the barn and a cow got loose and ate it. I didn't know what was the matter, so as quick as she died I opened her and found the malt sprouts in her stomach.

The Chairman—The time has arrived that we shall close this very interesting three days' meeting, and the Chairman will call upon Gov. Hoard to give a farewell address and pronounce the benediction.

Gov. Hoard—Mr. Chairman, I feel somehow a firm and solid conviction that I am going to meet these people again, and I have no thoughts of farewell. We have come here a band of workers, crossing the narrow isthmus of life and for a moment or two or three days have met you as another band of workers and said, "Let us tarry together for two or three days." This is not significant of the fact that we shall bid each other farewell, but rather that we shall say not "good night" but "good morning." We are, I think, all of the one kind. My observation of men is this, that the man who cannot put his purpose above himself, to that man shall be given no free, brave stroke; to that man there shall be no power or position with his fellow men. In all this work in the Wisconsin Dairymen's Association we have been actuated for so many years by the inspired spirit of the gospel according to the cow, carrying light where ignorance and darkness existed to illuminate the dark corners of our state, to add to the sum of human knowledge and human comfort and human prosperity. So strong has been that thought that there has been no room among this band of workers for any selfish or narrow or individual hope of gain. Mr. Robert Kirkland, who had charge of the World's Fair work, was invited up before the Dairymen's Association at Oshkosh, and he came before the association. He listened to us for a day as we fought and wrangled and talked and appealed to those people trying to

get them to do something that was right and just and true, and he made us a little talk at the end of the day. He said, "I want to say to you, gentlemen, that I came here with a totally different idea concerning this association than I shall carry away with me. I supposed it was a ring, a sort of mutual admiration society, and that the fellows who came together were handling this association for the notoriety there was in it. But," he says, "that is entirely over. I find you are a set of men who are like students in a great school, that you are filled with the desire to add to the greatness and prosperity of this, your state, and I beg your pardon, gentlemen, for the idea I had concerning you." Now, we go into these different places in this way, and we find farmers coming with their big overcoats on, fastening them up tight, and at first through the first day it is a struggle to get those fellows warmed up, to get them to feel that they have a share in the thing, but after awhile they begin to get warm, and get into a working mood together. I want to say to you that I am as encouraged about this convention as any I have ever known to be held in the history of our association, and I have attended every single session that this society has ever held, except the one last winter when I was ill. It was organized in 1872; there is only one man present besides myself that helped organize it, and that is Mr. Faville. Some of the rest are dead, many are old, all of us are traveling the road to the last final reward, but I do believe that no set of men that ever put their hands to a work looking toward the hope and encouragement of their fellow citizens have ever done better or more harmonious work than the men who have stood by the Wisconsin Dairymen's Association. I feel proud myself, and I hope that when at the last I lay down my bundle and go to my rest—and I have been a soldier long enough to know that when the time comes for a man to die that he wants to die as happy as he was born, and indeed most men do more so, for, as the poet says,

"When birth comes there is a cry of pain,
When death comes there is a smile of joy."

So I say that when we lie down at the last, we shall have but done a little common duty of citizenship. That is all; we

shall have done the common duty of patriotism, that is all. It is a man's public, patriotic duty to serve his state as devotedly in civil life as it is with the musket in his hand out on the battle field, and the man whose patriotism can only be fired when shot and shell are in operation and are singing their murderous song over his head, the man who is only patriotic then, and is narrow and selfish and unwilling to help his fellows at any other time, is fit only for treasons, strategems and spoils.

Now let us understand that this work of the Wisconsin Dairymen's Association is a patriotic work, a work which means the enlargement and the upbuilding of our state and our people. In many parts of this state, undoubtedly, there has been a misunderstanding as to the work of this association. If there is any such distrust among the people of Chippewa county let it be forever dissipated, for this is a band of missionaries. No set of men has ever, as I say to you, in the history of our state, striven more faithfully or more unselfishly to carry the gospel of good tidings to the citizens of the state for the encouragement of its material interests; and if we say "good bye," let us remember that it will be only for a season, for we live not in what we do today but in the hope we give for the morrow.

On motion of Mr. Bartlett, a vote of thanks was tendered to the association for coming to Chippewa Falls.

The convention adjourned *sine die*.