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## **Twenty-ninth annual report of the Wisconsin Dairymen's Association : held at Mondovi, Wis., February 13, 14 and 15, 1901. Report of the proceedings, annual address of the president, and interesting es...**

Wisconsin Dairymen's Association

Madison, Wis.: Democrat Printing Company, State Printer, 1901

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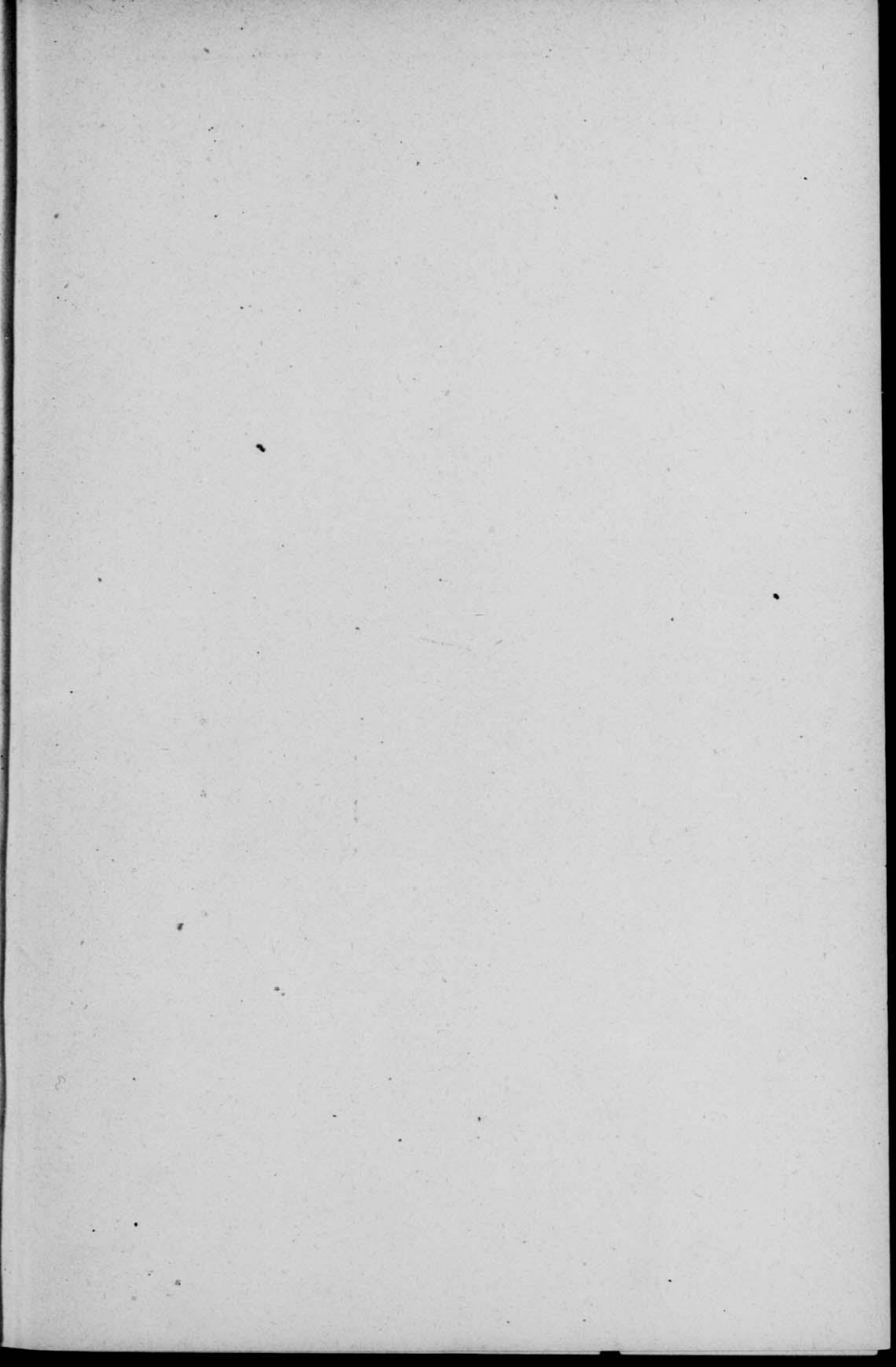
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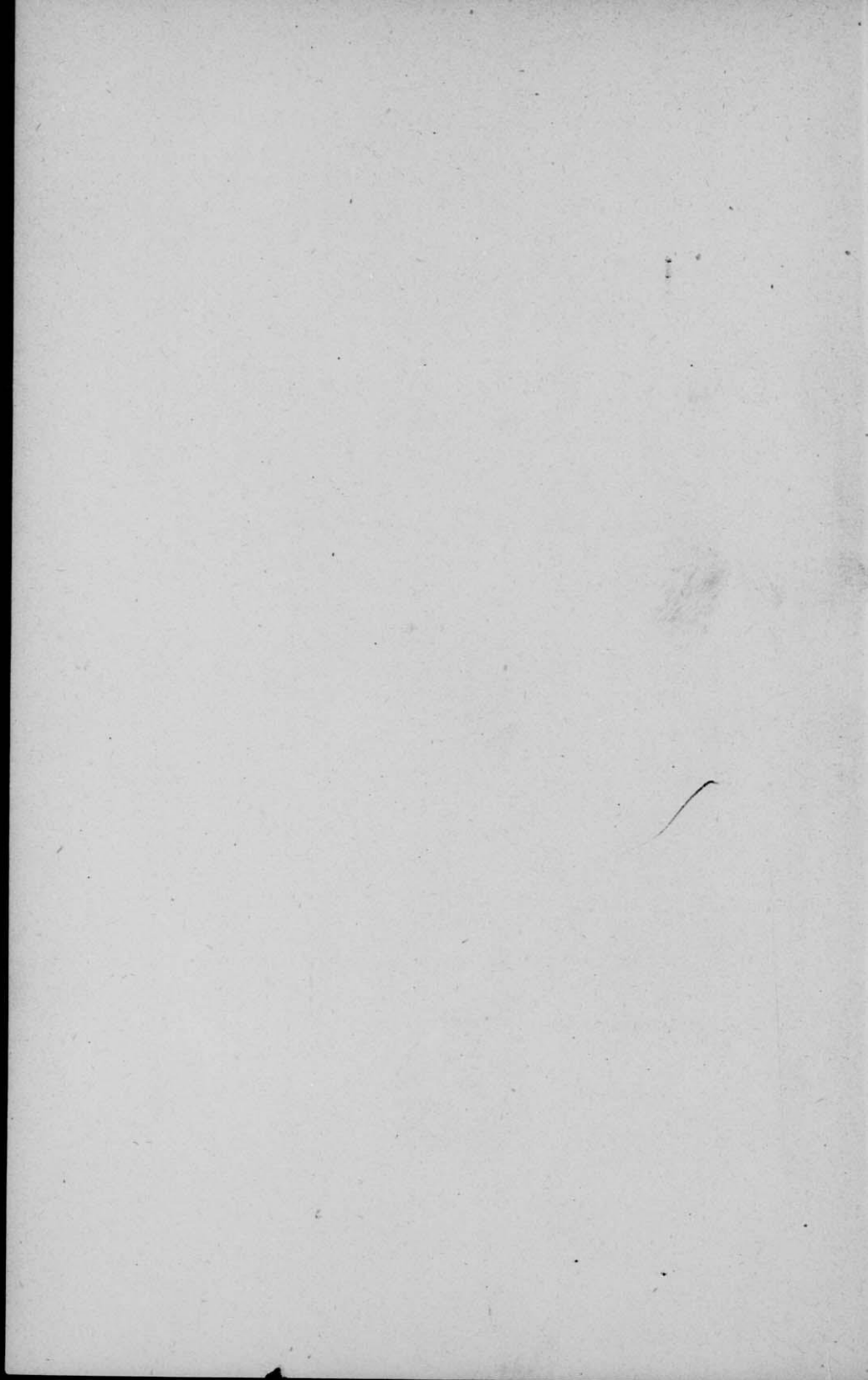
CLASS

BOOK

61928







TWENTY-NINTH ANNUAL REPORT

OF THE

WISCONSIN

Dairymen's Association

HELD AT

Mondovi, Wis., February 13, 14 and 15, 1901.

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

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COMPILED BY

*GEO. W. BURCHARD, Secretary.*

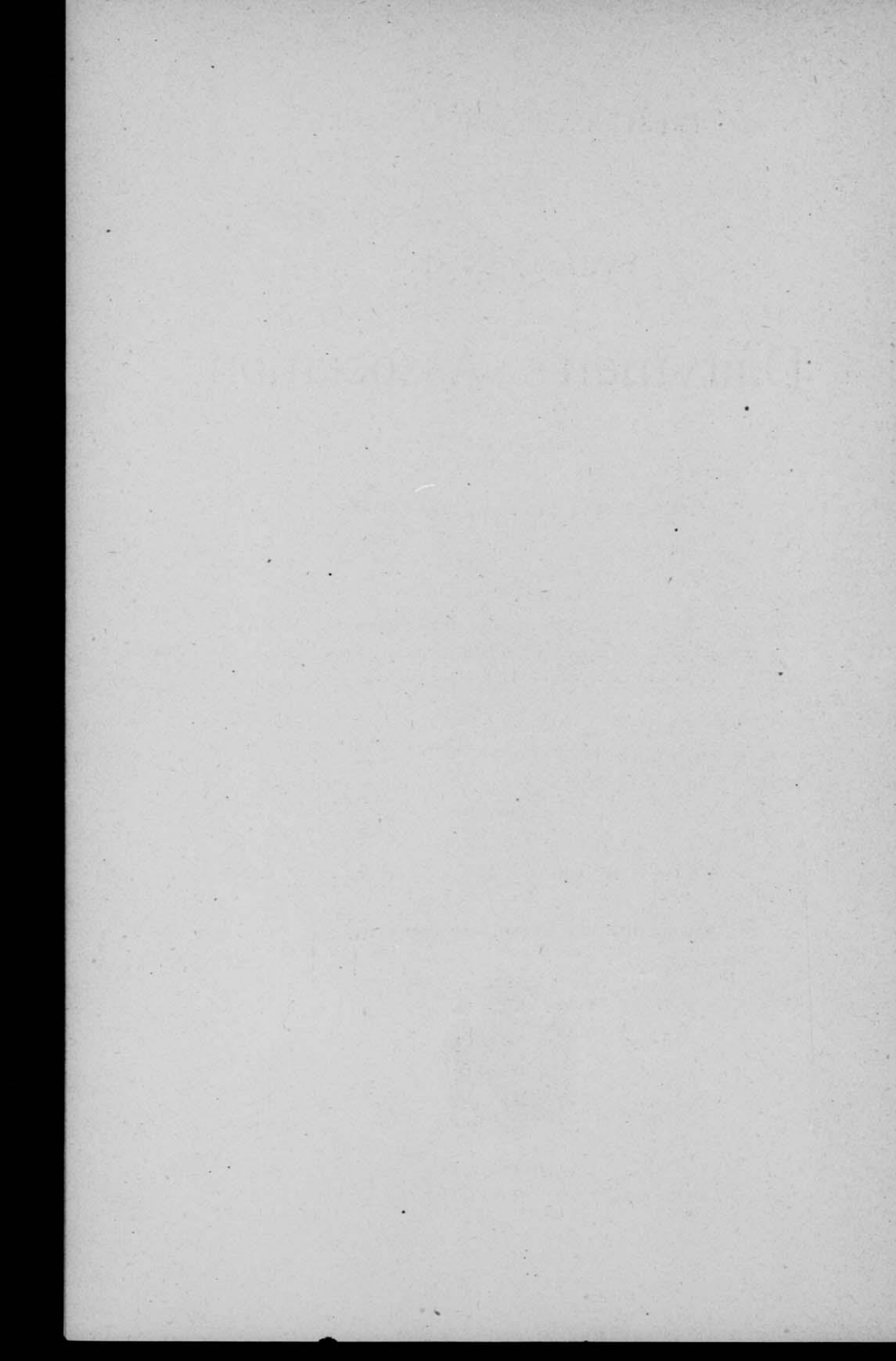
**MRS. R. HOWARD KELLY, Stenographic Reporter.**



MADISON, WIS.

DEMOCRAT PRINTING COMPANY, STATE PRINTER

1901



61928  
FEB 19 1902

## LETTER OF TRANSMITTAL.

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WISCONSIN DAIRYMEN'S ASSOCIATION,

*Secretary's Office,*

FORT ATKINSON, May 20, 1901.

To His Excellency, ROBERT M. LaFOLLETTE,

*Governor of the State of Wisconsin.*

I have the honor to submit for publication, as provided by law, the twenty-ninth Annual Report of the Wisconsin Dairymen's Association showing the Receipts and Disbursements the past year, also papers relating to the dairy interests read, and discussions had at the Annual Convention held at Mondovi.

Very respectfully,

GEO. W. BURCHARD,

*Secretary.*

## OFFICERS, 1901.

PRESIDENT,  
C. P. GOODRICH,  
FORT ATKINSON, JEFFERSON COUNTY.

VICE PRESIDENTS,  
HON. A. D. DELAND, SHEBOYGAN, SHEBOYGAN COUNTY,  
President 1877.

HON. STEPHEN FAVILL, MADISON, DANE COUNTY,  
President 1880.

HON. H. C. ADAMS, MADISON, DANE COUNTY,  
President 1887-9.

PROF. W. A. HENRY, MADISON, DANE COUNTY,  
President 1890.

HON. W. D. HOARD, FORT ATKINSON, JEFFERSON COUNTY,  
President 1891-93.

HON. C. H. EVERETT, BELOIT, ROCK COUNTY,  
President 1894-95.

HON. H. C. TAYLOR, ORFORDVILLE, ROCK COUNTY,  
President 1898-99.

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

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

HON. CHESTER HAZEN, RIPON, FOND DU LAC COUNTY,  
President 1872-74. Died 1900.

HON. HIRAM SMITH, SHEBOYGAN COUNTY,  
President 1875-76. Died May 15, 1890.

HON. H. F. DOUSMAN, WAUKESHA COUNTY,  
President 1878.

HON. Z. G. SIMMONS, KENOSHA COUNTY,  
President 1879.

HON. C. R. BEACH, WALWORTH COUNTY,  
President 1881-82. Died September 15, 1896.

HON. W. H. MORRISON, WALWORTH COUNTY,  
President 1883-86. Died December 15, 1893.

## ARTICLES OF ASSOCIATION.

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(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 offices 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 place 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.



## MEMBERSHIP, 1901.

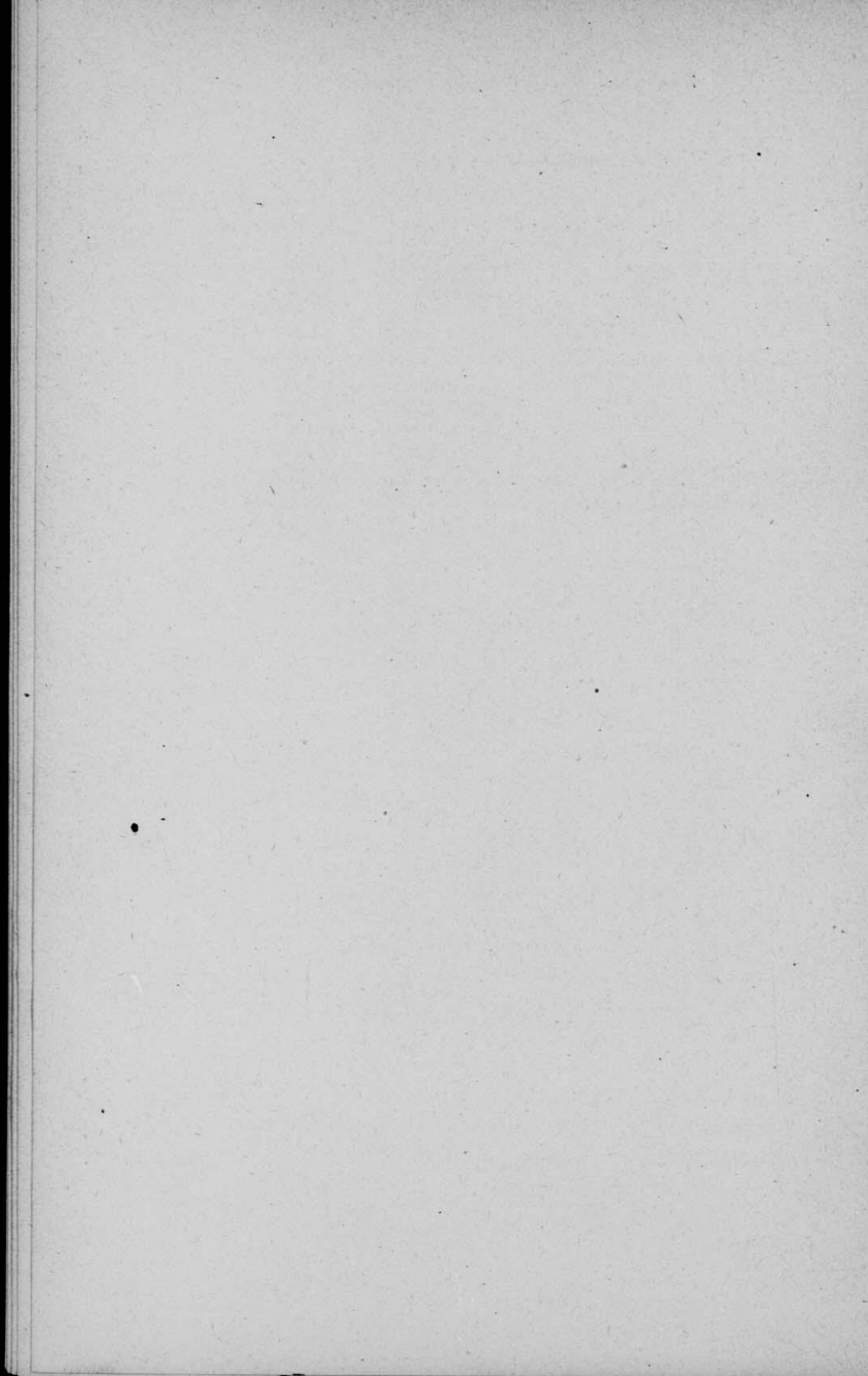
Names.	Post Office Address	Names.	Post Office Address.
Ahrens, Fred .....	North Freedom.	Goodrich, C. P. ....	Fort Atkinson.
Adams, M. J. ....	Milw'kee. Diamond Cryst. Salt Co.	Goodrich, DeWitt. ....	Fort Atkinson.
Adams, H. C. ....	Madison.	Gibbons, T. H. ....	Elgin, Ill.
Amidson, H. M. ....	Mondovi.	Gibson, J. O. ....	Gilmanton.
Alexander, C. B. ....	Chicago, Ill., Star Union Line.	Howie, (Mrs.) Adda F	Elm Grove.
Alison, James .....	Durand.	Henry, W. A. ....	Madison.
Allen, Daniel .....	Mondovi.	Heald, A. O. ....	Sheboygan Falls.
Adams, C. H. ....	Mondovi.	Hoard, W. D. ....	Fort Atkinson.
Armor, W., Jr. ....	Mondovi.	Holmes, Geo. H. ....	Baraboo.
Aderhold, E. L. ....	Neenah.	Hyslop, Andrew .....	Mondovi.
Black, C. O. ....	Marshall.	Hermanson, Hans ...	Scandinavia.
Boettcher, John E. ....	Guthrie.	Hyne, W. H. ....	Evansville.
Bush, Chas. E. ....	Black Earth.	Hoiberg, H. B. ....	Floyd.
Bussard, R. M. ....	Poynette.	Houglund, A. C. ....	Chicago.
Blood, F. J. ....	8810 Wentworth Ave, Chicago, Ill.	Howard, Geo. L. ....	Tarrant.
Brumer, J. A. ....	Tarrant.	House, W. T. ....	Mondovi.
Bracy, E. L. ....	Minneapolis, Minn.	Howard, F. H. ....	Mondovi.
Bates, E. R. ....	Madison.	Hatch, Fred. ....	Caryville.
Bast, Joseph. ....	Stockbridge.	Houser, W. L. ....	Mondovi.
Bradley, Chas. ....	Hudson.	Jennings, A. A. ....	Chicago, Star U. Line.
Bradley, W. C. ....	Hudson.	Jacobs, E. C. ....	Owatonna, Minn.
Brownell, J. T. ....	Mondovi.	Joos, Alfred. ....	Mondovi.
Burchard, G. W. ....	Fort Atkinson.	Jackson, M., & Bros..	Mondovi.
Corneliusson, C. ....	Cooksville.	Kate, C. M. ....	Custer.
Conrad, R. ....	Sheboygan.	Kelly, Mrs. R. ....	Chicago, Ill., (815 Chamber Com- merce Bldg.).
Carter, E. W. ....	Osseo.	Lees, Alex. ....	Mondovi.
Coolidge, S. E. ....	Angusta.	Larson, Henry. ....	Dodgeville.
Curtis, F. C. ....	Rocky Run.	Loomis, H. K. ....	Sheboygan Falls.
Chatwood, Wm. ....	Mondovi.	Madison, J. F. ....	Mazomanie.
Cornish, O. B. ....	Fort Atkinson.	McIntyre, Geo. G. ....	Whitewater.
Cook, C. H. ....	Lookout.	Manser, Geo. ....	North Bend.
Crane, J. W. ....	Owatonna.	Milius, H. A. ....	Almond.
Dillon, James .....	Mondovi.	McDonald, J. H. ....	North Bend.
Dabereiner, J. F. ....	Jefferson.	Myer, J. B. ....	Modena.
Dally, B. H. ....	Milwaukeee.	McDonald, J. R. ....	North Bend.
DeLand, A. D. ....	Sheboygan.	McKerrow, Geo. ....	Madison.
Ernst, P. H. ....	Mondovi.	Michels, M. ....	Garnet.
Erickson, Albert ....	Volga.	Moore, James G. ....	Albion.
Esker, Ole. ....	Bloomer.	Nesbit, J. W. ....	Mondovi.
Emery, J. Q. ....	Albion.	Nelsonville Cream & Cheese Assn. ....	Nelsonville.
Everett, C. H. ....	Beloit.	Noll, Wm. ....	Marshfield.
Farrington, E. H. ....	Madison.	Ostrich, B. A. ....	Tunnel City.
Favill, Stephen. ....	Madison.	Pace, H. B. ....	Mondovi.
Farr, M. M. ....	Lookout.	Phillips, A. J. ....	West Salem.
Foster, D. B. ....	Fairchild.	Payzant, I. V. ....	Mondovi.
Noster, Mrs. D. B. ....	Fairchild.	Pabst, Mrs. Joseph. ...	Mondovi.
Grenline, A. S. ....	Alban.		
Gibson, David .....	Nelson.		
Grissold, H. D. ....	West Salem.		



Wisconsin Dairymen's Association.

MEMBERSHIP — Continued.

Names.	Post Office Address.	Names.	Post Office Address.
Pabst, Dan.....	Mondovi.	Thorp, Chas.....	Burnett Junction.
Passmore, C. L.....	Iola.	Turner, Mrs. R.....	Mondovi.
Ryall, E. C.....	Augusta.	Trager, C. T.....	Osseo.
Riley, J. T.....	Milwaukee. Star Union Line.	Taylor, H. C.....	Orfordville.
Stratton, J. R.....	Meridian.	Uehling, F. O.....	Hanover.
Smith, Albert D.....	Springfield.	Van Liese, Wm.....	Woodworth.
Shaffner, John.....	Omro.	Wigginton, J. N.....	Mauston.
Schreiner, Aug.....	Mondovi.	Wigginton, W. R.....	Warren.
Smith, Vane.....	Mondovi.	Wethrich, Fred.....	Mayville.
Shumway, C. P.....	Milwaukee.	Witting, Thomas.....	Rusk.
Seyforth, J. W.....	Griffin.	Ward, C. J.....	Fort Atkinson.
Stringer, W. H.....	Mondovi.	Whelan, J. W.....	Mondovi.
Sweeting, C. W.....	Manitowoc.	Whiffler, Fred.....	Arcadia.
Southworth, R.....	Mondovi.	West Bend Cream Co.	West Bend.



# TRANSACTIONS

WITH

ACCOMPANYING PAPERS AND DISCUSSIONS

OF THE

## Wisconsin Dairymen's Association

AT THEIR

TWENTY-NINTH ANNUAL CONVENTION

Held at Mondovi, Wis., February 13th, 14th, 15th, 1901.

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The twenty-ninth annual meeting of the Wisconsin Dairymen's Association was called to order at the City Hall, Mondovi, Wisconsin, at 9:30 A. M., February 13th, 1901, by the president, C. P. Goodrich, of Fort Atkinson.

The Chairman: More than one man down in the southern part of the state has asked me, "Why do you hold your convention way off at the end of the road?" The reason is, we are trying to do all the good we can in this world, during the little time that we stay here, and we have found that we have done lots of good when we have gone into a new country, away off from the big cities. As it has turned out, we find we did a lot of good down here at Arcadia a few years ago; nobody can estimate the good that was done by having the annual convention of this Association held there, because we stirred up a dairy interest, and the dairy business has been progressing ever since very rapidly, and we hope that we may do good in this country which can also be a fine dairy country.

The Secretary has prepared the following program (which I will not take the time to read, as copies have been freely distributed) and it will be adhered to as closely as practicable:

WEDNESDAY, FEBRUARY 13, 1901.

Morning Session, 9:00 A. M.

Address of Welcome.

Response, H. C. Taylor, Orfordville.

President's Address, C. P. Goodrich, Fort Atkinson.

Afternoon Session, 2:00 P. M.

*Housing and Feeding the Cow and Her Value to a Community.*

The Round Dairy Barn, F. C. Curtis, Rocky Run.

Economy in the Cow's Ration, Hon. Geo. McKerrow.

Butter and Cheese as Factors in Sheboygan County, A. O. Heald, Sheboygan Falls.

Evening Session, 7:30 P. M.

Music, Orchestra.

Reading, H. B. Pace.

Music, Mandolin Club.

Address, W. D. Hoard.

Song, Miss Ball.

Music.

Paper, Prof. J. W. Nesbit.

Music, Glee Club.

Five Minute Talks.

Music, Mandolin Club.

Paper—Turning the Sod, R. Southworth.

Orchestra.

THURSDAY, FEBRUARY 14, 1901.

Morning Session, 9:00 A. M.

*All Sides of an Important Dairy Problem.*

A Dual-Purpose Herd—How I Manage It, Hon. J. W. Whelan.

A Jersey Herd—How I Manage It, W. L. Houser.

Combined Dairying and Beef Production, Chas. Thorp, Burnett Junction.

The Story of a Cow Census, Hon. W. D. Hoard, Fort Atkinson.

Afternoon Session, 1:30 P. M.

Some Dairy Observations in Great Britain and on the Continent, Prof. W. A. Henry.

[After twenty-one years' experience among Wisconsin dairymen, Prof. Henry's recital of observations abroad cannot fail to be intensely interesting.]

The Dairy Machine from Birth to Maturity, Mrs. Adda F. Howie, Elm Grove.

[No person can discuss this topic as well as a woman, and no woman can do it better than Mrs. Howie.]

Experience in Building up a Herd of Profitable Dairy Cows, H. D. Griswold, West Salem.

[Mr. Griswold is a successful dairymen and his experience will benefit others.]

FRIDAY, FEBRUARY 15, 1901.

Morning Session, 9 A. M.

*Practical Points from Practical People.\**

Report of Cheese Instructor, with Suggestions for the Future, E. L. Aderhold.

Experience of a Creamery Instructor among Wisconsin Creameries, DeWitt Goodrich.

Dairy Exhibits, Prof. E. H. Farrington.

Afternoon Session, 1:30 P. M.

*Important Topics Reserved for the Last Words.*

Facts From a Gathered Cream Creamery, A. J. Philips.

Why I am a Dairyman, W. C. Bradley, Hudson.

Wisconsin and the Pan American Exposition, H. K. Loomis.



## ADDRESS OF WELCOME.

By P. H. Ernst.

Ladies and Gentlemen, Friends and Strangers: An address of welcome is absolutely necessary,—so I was informed last evening by the chairman of the committee having in charge this convention for our city,—and that all the honorables of the state were at Madison, with no prospect of their return. I suggested that it would be well to get some brainy man of the city to deliver an address, and was told that they had already vainly solicited all the brainy men that were in the city, and wanted to know if I wouldn't do it myself. So here I am.

This convention is primarily held for the benefit of the farmers of this community; that being true, it is certainly held for the benefit of the city of Mondovi which depends entirely upon the farmers for its prosperity, and on that account I consented to speak. There is another reason why it is appropriate that I should deliver this address. I am chairman of the committee on public property, and as such I have made a personal inspection of the city jail, and I cordially invite you all to spend your time within its limits, for several reasons. In the first place, you will find it perfectly safe from pickpockets; it is convenient to the hall; it is comfortably warm; and you have your meals delivered.

I asked a young friend of mine if he was coming to this convention and he said he did not think he would. He said, "You won't find anything but an aggregation of old farmers there." That is true, and I say, "God bless the old farmers, and the young farmers, too." A city like this, that is dependent entirely upon the farmers for its prosperity, should open its doors and show these farmers all the hospitality and all the cheer that they can. If it were not for the farmers our places of business would be for rent and as it is today you cannot find a single business place in our little city but what is occupied, and you cannot find a residence in our city that is for rent. This young man, of whom I spoke, carried the idea that farmers cannot

learn anything from an interchange of thought. Now it seems to me that the experimenter is a big benefactor because he takes advantage of such surroundings as are about him and he makes experiments which other individuals cannot make, which are oftentimes of great public benefit, adding to the happiness and prosperity of the community.

I think the farmers of our community as a body welcome you, and I believe they will appreciate your efforts and will show that appreciation by constant attendance and good attention. In that way only can they derive any benefit from a convention of this kind. The President tells you the reason why they came up here. I think there is another reason and that is that this community has become one of the greatest dairying districts of the state of Wisconsin, and for that reason the conductors might be able to learn something practical.

As a city we welcome you most heartily. If you add anything that will make our farmers more prosperous and happy, you will add a big benefit to this city, because everybody will be benefited as well as the farmer. He will enjoy more luxuries, he will come to town oftener and he will spend more money, and not only that, but he will be more cheerful when he does spend his money.

We welcome you, because we expect to gain a great deal from you socially. We know you have a lot of good story-tellers with you and we are counting on much pleasure in a social way.

We open our homes and our city to you, and we intend to do everything we can so that you will not regret that you came. On behalf of the city of Mondovi I again cordially welcome you to this convention.

## RESPONSE.

H. C. Taylor, Orfordville.

Mr. Chairman, Ladies and Gentlemen: On behalf of the Dairymen's Association, I want to say that we accept this hearty welcome with much pleasure. We expected nothing else but that we would be welcomed with an unusual cordiality. In arranging for this convention our Association stepped aside from the usual custom and fixed the meeting here at Mondovi a year ago, at our last annual convention, which we have never done before in the history of the Association. During the twenty-eight years that we have held conventions, the date was always fixed just previous to the time of holding the convention, but in view of the very hearty invitation and the pledges given, that we would receive just this welcome; that we would have a good hall, well heated and lighted; and that the farmers, dairymen and business men would flock into this convention,—in view of all this, we decided to come to Mondovi, and now we are here.

We are glad to see so many of you at this first session; we like you all, every one of you, whether we are well or slightly acquainted with you; we have the kindest feeling of sympathy for every one of you, and especially do our hearts and our hands go out to the man that owns a cow. The central propositions of this convention are the man that owns a cow and the cow herself. These are the cardinal principles upon which our Association was founded and has prospered, and if there is any class of people that like to get together and talk over their business in every department and extend to each other heart-felt sympathy, it is the dairymen of the state of Wisconsin; and it takes a dairyman to enter into those things with his whole heart. In the dairy business we come together in sympathy, one with another, to consider upon the questions relative to our business. There is engaged in the dairy business in Wisconsin today more capital than is invested in any other four enterprises in the state. There are more men interested in the dairy cow and the



products of the dairy cow than in any other business. It is a business that can engage every faculty of the brightest mind and the most sympathetic nature. It teaches you business principles; it teaches you the issues of life; it teaches you things that interest and lead men on from one subject to another, to a higher plane of thought, and a brighter intelligence, and a truer and better citizenship.

Now, we are glad to be here. We have been through this section of the state, we have noticed your splendid climate for the dairy business, we have noticed the splendid water that you have here, we have noticed the great growth of grass upon your fields, and seen that it is the very best place in the world for the dairy cow,—if true dairy methods are used by intelligent dairymen. By adopting the better methods, providing succulent food,—such as we shall talk about in this convention,—the winter, which is of several months duration, is practically obliterated in the dairy business. For the up-to-date dairyman provides warm barns, well lighted, plenty of succulent food, and thus nearly approximates nature's best conditions for producing milk.

The gentleman who gave us the address of welcome told us about inviting in the business men to our convention, and I felt like saying to him and to others, go right on with that good work; also go right out upon the streets and if you see a man that owns a cow and is in your city on other errands, tell him to dispatch them as quickly as he can and get over here. We have a big hall here and we want them all to come to the convention and bring their families and neighbors. Come in and we will do you good; come and hear about the blessings and benefits that come to a community by working on dairy lines. Come in, farmers and storekeepers and everybody, and get acquainted with this grand business. You are all interested, because even if a man stands behind a counter dealing out goods, in his heart he knows that he wants to get out on a farm, and will some day if he can, as so many men, who are perhaps most successful in business, do as they grow older. A man in the city of New York, who had been in business twenty-five years, failed, and a sympathizing friend said to him, "What are you going to do now?" "I am going home to get acquainted with

my family, that is what I am going to do. I have been away before they were up in the morning and returned in the evening from my business after they retired. Now, I am glad I failed, because I can go home and get acquainted with my family." Now, if these men living in the cities want to become acquainted with one of the most profitable, one of the most permanent, one of the most progressive businesses on the face of the earth, get them interested in the dairy business in Wisconsin adjacent to Mondovi, and they will bless the day when the dairy convention came to your city.

We thank you for this hearty welcome; we will do our very best to do you good, and remember that the dairyman has a most peculiar faculty of taking in the music of the world. Now, we are going to have a good time while we are here, and we are going to listen to the music of Mondovi and have a right good "hoe-down" and at the same time do our full duty by this convention. I thank you.

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Mr. Taylor called to the chair.

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#### PRESIDENT'S ADDRESS.

C. P. Goodrich.

Ladies and Gentlemen: This Association has been in existence twenty-nine years. Its founders, some of whom are with us today, and many of its members have worked all these years to advance the dairy interests of this state. Much has been accomplished. But there is plenty of work ahead.

There comes a time to every man and every combination of men when they should cease looking back on their past career and stop praising themselves for what they have done; when they should devote all their energies toward pushing ahead.

This is an age of progress, and whoever slackens his pace in the race toward the front will soon be left behind. There is

danger of Wisconsin falling back from the front rank as to the quality of her dairy products. In fact I fear she has already fallen back, or rather she has gone slow enough so that other states have gone ahead of her in this respect. I *fear* this, I say; possibly it may not be true. When one gets to thinking he knows all there is to know on any subject he has already started on the downhill grade.

Fifty years ago New York state was way ahead of all competitors in the dairy business, especially in the quality of her products. She never at that time dreamed that any western state could compete with her in quality of butter and cheese. She had got onto that dangerous ground where she thought she knew it all, and in less than thirty years Wisconsin was taking prizes away from her at the Centennial. Other western states were crowding her hard, but Wisconsin was ahead.

But now how is it? New York has awakened to her shortcomings and is ahead again in quality. Cheese dealers tell me that though some Wisconsin cheese is equal to any made, yet it lacks the uniformity that New York cheese has, and that it is safest to buy New York cheese.

I had put upon me the duty of scoring the butter exhibited at the New York state dairy convention in December last. Their creamery butter was splendid, and I should be delighted, indeed, if Wisconsin should make as good a showing. Last year at the National Butter convention Wisconsin butter scored lower than Illinois, Iowa, Nebraska, Kansas, Minnesota, and I think some other states. Two years ago Wisconsin scored lower than several other states.

Why is this state of things coming about? It is because we are failing to educate our creamery patrons and buttermakers as well as these other states.

It is true that we have a dairy school that is equal, if not superior, to any other, that is turning out each year many of the most competent of butter and cheese makers. Our farmers' institutes are doing great good in educating the farmers in breeding, feeding and caring for dairy cows, and in caring for their milk.

Yet other states are doing this same kind of work and besides they have more instructors and inspectors in the field who travel

about, visiting and inspecting creameries and factories and holding meetings to educate the patrons and urge upon them the necessity of better care of milk.

New York had last year for its department of agriculture an appropriation of \$143,000 and for the farmers' institutes \$20,000 and kept constantly in the field eight butter and cheese instructors. Canada is way ahead of us. The province of Ontario had six cheese and butter instructors all the time.

Minnesota has five creamery inspectors and field workers under the dairy and food commission, and, in connection with the dairy school, neighborhood meetings are held in school houses and other convenient places to instruct the producers of milk and patrons of creameries. For this purpose \$15,000 is appropriated. Minnesota also appropriates \$18,000 for farmers' institutes; dairy and food, \$3,000; dairymen's association, \$2,000 and dairy department of the university, \$12,000, making in all \$50,000 for educating the farmers, and the most part of it is spent in dairy education.

We in Wisconsin have had but two cheese instructors in the field, and until last June no creamery instructor, and since then only one. Is it any wonder that Minnesota and other states are taking prizes away from us? They are *educating* more than we are and the state furnishes the money to do it with. We have but \$12,000 for the farmers' institutes and \$2,000 for the Dairymen's Association.

If we are ever to regain our lost ground in regard to quality of dairy products we must *educate* more thoroughly the producers of milk, as well as those who manufacture it into butter and cheese.

Besides, our instructors do not have the power they have in some other states and countries. Theirs are under the authority of the state and are paid entirely by the state, while our instructors are sent out by the Dairymen's Association, which has no power to enforce any regulations. They can only advise and counsel. They rarely go to any creamery or cheese factory except at the request of the owner, operator, or the patrons, and *they* are required to pay about one-half of the expense of the visit, because our appropriation is so small that without their help but very little instruction could be given.



The result of this is that those who need instruction the most do not, as a rule, get it. It is in this as in other vocations: Those who know the most are the most anxious to know more, while those who know the least are apt to think they know enough already.

Sheboygan county was at one time the banner cheese county in the state, and when the Dairymen's Association first sent out its instructors their cheesemakers and dairymen were asked if they did not need some instruction. Most of them replied, no, and in effect said, "We are at the head; we know enough now; no instructor can tell us anything." Soon Richland county started in the cheese industry. They were willing and anxious to have instruction and they got it. In a few years buyers said, "Richland county cheese is better than that of Sheboygan county."

Notwithstanding all that has been done there are many careless and slovenly butter and cheese makers in the state, and there are thousands of patrons who deliver milk so badly cared for and so filthy that the best butter and cheese maker in the world could not make a good article from it.

You may say that the operator should lecture the patron, or, if his milk is very bad, he should reject it and thus teach him a lesson. But the case is usually like this: The operator wants the milk because he wants the pay for making it up. There is another factory not far off and the patron must be handled very gently or he will go to the other factory. I have more than once heard a patron say, when spoken to about his milk not being in good condition: "That milk is good enough; if you don't want it I know who does." Of course that settled it; nothing more was said. The factory man dared not say anything again for fear of losing his patron.

If the factory men and creamery men of a district would mutually agree to refuse all milk from a patron who had had his milk rejected at another factory, until he reformed his methods by scrubbing up cans and keeping things cleaner, and by better cooling and aerating, that might be pressure enough to compel the careless patron to care for his milk better. This has been attempted in some places but it has rarely accomplished much,

for the agreement would be broken by some one of them and the combination fell to pieces.

What is needed is to have enough state dairy inspectors and instructors to visit all the creameries and cheese factories in the state at least once every season, and oftener if deemed necessary, whether they are asked to do so or not. And it should be made their duty to do so. They should have the power to take possession of the weigh can and examine all the milk offered and reject all that was not fit to go into the pool. They should also take samples of doubtful milk and apply the proper tests to determine its purity.

I do not think the factories ought to be required to pay any part of the expense of such inspection, but it should all be paid by the state.

This, of course, calls for the expenditure of much more money than the Dairymen's Association has been having in the past, but I believe that money so expended would be for the benefit of every class of citizens in the state. This matter should be pressed before the legislature at its present session.

I do not say that this money should be given to the Dairymen's Association for this purpose. I am inclined to think there is a better way, for this Association, as it now is, has not the power to enforce its regulations.

This work might be under the dairy and food commission as it is in several states, where it works well; or it might be under the control of the state board of agriculture. I am not advocating any particular plan, but I feel sure that some such system of inspection is absolutely necessary for the highest prosperity of the dairy interest, and through that, the prosperity of the whole state.

What I feel anxious about is to have Wisconsin ahead in the quality of her dairy products. I want to have it so that when the word "Wisconsin" is branded on a tub of butter or on a cheese, it will be such a guaranty of its quality that it will take it around the world, and into the best society wherever it goes.

I dislike to see Danish butter, Swedish butter, Irish butter or any other butter quoted in the English market higher than the price Wisconsin butter brings in that same market. I dislike to see Canada cheese taking the place of Wisconsin cheese

in any market. We can prevent this state of things if we will. All that is necessary is more education and the necessary power to *enforce* correct methods on the part of the milk producers and butter and cheese makers.

The battle with the fraudulent imitation of butter is still on. Dairymen, and many who are not dairymen, all over the country, are aroused. From our state ex-Gov. Hoard and Dairy and Food Commisisoner Adams have been doing the work of giants. Our members of congress and our senators have all been deluged with many thousand letters urging them to **work their best for** the passage of the Grout bill. They are all on the side of right and have been doing their duty. The enemies of the bill may prevent its passage at this session, but the time will surely come before long when oleo cannot masquerade in the color of yellow butter without paying ten cents a pound for the privilege of doing so.

On motion, duly seconded, the chairman appointed as a committee on the president's address, C. H. Everett, George McKerron, Prof. Farrington.

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DISCUSSION.

Ex-Gov. Hoard: Mr. Chairman, the President has gone over some lines of thought that I wish every man who owns a cow in Wisconsin would consider. I remember my father once repeating to me a little bit of a distich about a fiddler who had a cow, and

“He had nothing for to feed her  
He took his fiddle and played a tune  
Consider, good cow, Consider.”

Well, the cow considers a great deal better than the man who owns her in this country, for she does her work as perfectly as she can under the circumstances. But the man who owns her, does he do his work toward that cow as perfectly as he can? It is “cut and cover,” just the same as it is in plowing half the time, because, “It will do.”

Now, I want to call your attention to the fact that in 1876 Wisconsin swept the board over the whole world on the character of her cheese. At the Centennial in Philadelphia, we won the first prize; we were then in the early stage of our work and we were willing to learn and we had not grown conceited. In 1878, at the International Dairy Fair in New York, a little girl down here in Baraboo won the first prize over all the butter that was exhibited from the different nations of the earth, and Wisconsin took a large amount of profit and credit from this triumph. We were then learning and anxious to learn, but the president is right, we have grown conceited and filled up in various sections of the state. Go down into Monroe county, where the Swiss cheese makers would not have anything to do with this association. They were filled up with conceit about their product, but they have been confronted with the fact that something is the matter with their cheese; they couldn't sell it. "Pride goeth before a fall," and the result of it was that they had to send to the Wisconsin Dairymen's Association for an inspector to tell them what was the matter. And do you know what we found there? We found those Swiss cheese factories with every patron a barrel for his own whey, and many of those barrels had not been cleaned out for years; and they were taking that stinking whey home in cans that they brought the milk to the factory in, and the result of it was those people were throwing thousands upon thousands of dollars away,—for over ten million pounds of Swiss cheese are made in that county every year. Now, it may be very courageous to brave the world in this way, but I have got my opinion about that kind of courage.

Gentlemen, it makes me ashamed when I go down to Canada, go into Montreal, into their cheese warehouses there, and see with my own eyes Wisconsin cheese and New York cheese, particularly Wisconsin cheese, slipping over to England through Canadian channels.

President Goodrich: They won't let it go that way any more, they say.

Ex-Gov. Hoard: No, they say they won't; but they can't help themselves. But it is shipped over to England and sold as Canadian cheese. And why? Because we were so dishonest.



as to go to work and make filled cheese in this state and destroy our splendid reputation. Thank God, we have stopped it, but how did we stop it? I tell you that the average farmer wants to be taken and shaken over the bottomless pit until he squeals. I believe in the old-fashioned methods of preaching hell-fire to the class of men who would destroy their own business, foul their own nest, and break down a grand industry.

Now, how did the filled cheese men get these average farmers to go into this thing? That farmer, because he could get five or six cents or more per hundred for his skim milk, would allow a man to turn it into a rotten, filled cheese and destroy this great cheese interest, when that skim milk, if the farmer had had brains enough to use it properly, was worth fifteen or twenty cents to feed to his young stock. Now, what is wanted, my good friends, what is wanted? Intelligence, knowledge are wanted. Honesty is wanted. Brains are wanted. This address of the President touches upon this point.

He also touches on another point, the Grout bill now pending in Congress. It does seem sometimes as though it was almost impossible to get the average farmer to look at his own interest as he ought to. Here and there, scattered about, are representative men who see things, but the great average among our farmers do not see things. Now, let me tell you what we have been doing in Washington. The National Dairy Union, composed of a certain number of dairymen and men of the trade who handle dairy products, creamerymen and others, got together two years ago and started this fight on oleomargarine, and we have been fighting right along. We went to work and raised \$14,000, by contributions of fifty cents and a dollar apiece among creamery patrons, much of it, who had a clear idea that this was their fight. We spent almost every dollar of that \$14,000 in trying to arouse the farmers behind the congressmen, getting the farmers to write postal cards to the congressmen and to their senators, and it has taken every dollar of it, and there has been no money to pay expenses. I myself went down to Washington two months last year and two months this year, and in all I have spent over \$1,100, never receiving a penny back, and I am willing to spend \$1,100 more if I have to, because I believe this is a great, wicked fraud.

The testimony taken before the senate committee amounted to 982 pages, and, as Senator Dolliver said, it is the most stupendous complication of this age, this oleomargarine business. Men stood up there who manufactured it and claimed that their business was conducted honestly. I turned to the man who represented the firm of Braun & Fitts of Chicago, and said, "I have in my possession copies of affidavits which show that your firm paid in one instance \$20,000 to the United States government for their swindling operations," and that man had the gall to stand there and tell me they conducted their business honestly. The Oakdale Manufacturing Company of Rhode Island claimed that their products were all properly labeled. I had in my possession a ten-pound package manufactured by that company and showed it to that man, and said, "You say it is labeled?" "Yes, it is," he said. And this is the way it was labeled. It was a tin package with a loose top. On the loose top was the label; take off the loose cover and there is another cover underneath. Throw away the loose cover and a complete package remains, but there is no label. I tell you, men who start out to be frauds in the conduct of their business do not stop at anything. I almost fell into weeping over the honesty of these men as they came before the committee and claimed that they were doing God's service in stoning Stephen. Now, my friends, we are only a small part of this great country, but one thing is needed today everywhere, all over, to put the dairy product where it belongs and get the best profit out of it, and that is to arouse the man who owns the cow, and he must take hold and do something to instruct himself. The difficulty with the average farmer today is that he will not read; he will not study; he will not think. Eight hundred of them bring milk to the Hoard creameries and it takes a superintendent at \$1,200 a year to go around among them and keep them straight, to keep them from losing from one to three cents a pound deliberately out of the price of the butter made from their milk. It requires the utmost vigilance all the time to keep men in this dairy business from doing the thing that shall ruin their own profit. They won't think; they won't study; they won't compare their thought with others.

Running through the columns of Hoard's Dairyman for several months have been various cow censuses taken in different

states,—one in Jefferson county, Wisconsin; another in Iowa; just closing up with one in Ohio; one hundred herds taken, in each census every herd visited, and every dollar invested and every dollar earned noted. In the Hoard creamery, in our own town, one man received \$2.08 for every dollar he invested in feed, and another man received 96 cents, losing 4 cents on every dollar invested. The two men live side by side, taking their milk to the same creamery, and the butter selling for the same price. What is the matter with these men? The man who gets \$2.08 is a thinker, a reader, a student, and tries to be obedient to the law that governs in the case. The man who is losing 4 cents on every dollar he is investing in feed, is a man who is ignorant and stupid and unwilling to read and think, and God is punishing him every day and on every dollar with a loss of four cents. It is so all over the country.

Now, I have had the privilege of lecturing some in different states for many years. This past winter I have been in Canada, and I have studied the situation. In 1885 we were sending \$15,000,000 worth of cheese to England, and Canada was sending \$3,000,000. In 1900 we were sending \$3,000,000 to England and they were sending \$20,000,000. Now, what caused that? Intelligence in the one case and lack of it in the other. Our people need to be stirred up. I wanted to say something in support of the doctrine maintained by the President, and I assure you, good friends, that there is only one road out of the difficulty, and that is, that every man, every farmer, every one who owns a cow, every man who is operating a cheese factory or a creamery should come together and say, "Men and brethren, let us do the right thing by the cow and the cow shall maintain us."

Prof. Farrington: Mr. Chairman, two years ago I was invited to attend a dairymen's convention in Canada. Previous to my visit there the Canadians had always heard Gov. Hoard speak, and I, coming after Gov. Hoard, they were naturally much disappointed. I only want to say that these subjects referred to by the President I am very much interested in, especially the quality of the butter and cheese in this state, and from the record there evidently needs to be something done about it.

We have got to do something besides talk about it. Now, what shall it be?

A Member: Educate the young men.

Prof. Farrington: Let us go to work and do something about it. There are two things that I want to suggest that may help in improving the quality of the butter and cheese in this state. One of them is for the farmers to be a little less anxious to build a great number of small factories. Let the factories be large enough, receive sufficient milk so they can be run on a large enough scale to make sufficient money out of it so as to afford the best help and utensils. You cannot have operators who have been educated and are skilled in making butter and cheese without paying decent wages. In order to do this, you have got to have a good, large factory and stick to it, and hire good help. That is one way in which I think we can help the dairy products of the state.

Another way is to increase the number of butter and cheese inspectors that are under the supervision of some department of the state government, either the Dairymen's Association or some other association, so they may go around over the state and visit these factories, and bring about an improvement in the quality of their products, and make suggestions as to how they can better conditions in the future.

Mr. Jose: I would like to ask Prof. Farrington if you want to make larger factories, how many miles would you haul your milk?

Prof. Farrington: It depends on how many cows you have in a certain territory, and the fertility of the land. I think a factory should have at least 500 cows, and the more cows you have to supply milk to the factory from, the less it costs to equip and run the factory, and the more prosperous the factory will be, and, of course, the farmers. It will take as much expense to fit a factory for 5,000 pounds as for 10,000. A few years ago we took some statistics of the territories in this state, and the average distance which milk was hauled was four miles; some is drawn as far as fourteen miles, and I think it is quite common to draw it ten miles. In our factory, at Madison, we are supplied with milk from farmers and from three directions we receive it ten miles every day. We get 7,000 pounds of milk



every day through the winter to supply the dairy school. You could easily have a farmer at the end of the route start out with his team and bring the milk from all the farmers on that route.

A Member: I hold it is not wise to enlarge the creameries. Most of our creameries are large enough. At Fountain City we started a co-operative creamery; the milk was hauled fifteen and eighteen miles, and Galesville came up and got cream within three miles of Arcadia. This was because the business men were behind the creameries there. We have started a co-operative creamery at Fountain City, beginning with something like 500 cows last winter, and now we have 1,500 cows, and we can't haul further than ten miles; we haul gathered cream, separator cream mostly now. We have found this way of improving the quality of the product. Since we had that co-operative creamery, the farmers take an interest in it, and they are willing to learn, and so we are beginning to make progress now as we had not before, under the private system of creameries.

Ex-Gov. Hoard: Do your farmers deliver cream every day, or how often?

The Member: It is hauled three times a week and the cream is required to be cooled down right after separation and kept cool. Some of them haul twice a week.

Ex-Gov. Hoard: Do you think you can make as good butter where your cream is allowed to be kept in that way as if it were brought fresh to the creamery every day?

The Member: I think not; but we get a good price for our butter, the best in the market generally.

Mr. McDonald: Ladies and Gentlemen, Brother Farmers: It gives me great gratification to be present at this convention. The question has been asked here as to what would be considered the most practical distance to deliver milk or cream. I would answer that this way: that will depend largely on how many of the patrons surrounding the creamery are readers of Hoard's Dairyman. It has been said that to succeed you must study. When I began to read Hoard's Dairyman about twelve years ago I found that I was so far in the rear that I was afraid I would never catch up; I became discouraged. I took a son of mine and sent him to Madison, and he took the short course, and I turned everything over to him, and since that time he is do-

ing well and making some money for us. Previous to that I had a great deal of hard work and not very much satisfaction. I have been connected more or less with creameries, but the people have invariably been opposed to me serving upon the board because I tried too hard to enforce the principles set forth here, that is, to reject milk and cream that could not make good butter.

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Adjourned to 1:30 P. M.

Convention met at 1:30 P. M.

The President in the chair.

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## THE ROUND DAIRY BARN.

F. C. Curtis, Rocky Run.

The round dairy barn, in the meaning of the term used here, is an enclosure for the purpose of sheltering stock in inclement weather with ample room for their comfort and health, also storage room for their forage.

The question of space or room for these purposes then becomes paramount.

The square or rectangular form of barn has been in use mainly for the purposes in question; then why change to the round form? I answer, for the reason that more space can be enclosed in a round form of a barn than in a square one, with the same amount of material and that that space can be utilized for common use quite as well as in any other form. To illustrate the proposition we will suppose we build a round barn 60 feet in diameter, also one of the rectangular form 30 feet by 60 feet.

The round barn is 180 feet around it and encircles 2,700 feet of space.

The square barn is 180 feet around it and encloses an area of only 1,800 feet.

The round barn encloses fifty per cent. more space or half as much again as the square one, each having the same length of outside walls.

The basement of the square one can give space for only 36 head of cattle.

The basement of the round barn can give room for over 40 head of cattle and one or more silos—ample silo room at the most convenient points for filling and feeding to the 40 or more cows.

The silo is not a part of my question, but I claim that corn ensilage for a part ration for the main part of the year and to bridge over short pasturage is the best and most economical feed that can be grown or produced on land adapted to the growth of corn.

If this is true it becomes a part of my question and should be considered in this discussion.

The round barn is susceptible to many different plans, particularly the basement. The basement may be stone or part stone—one side in a bank or on level ground, or a bank bridge or grade can be built up so as to drive in above the basement.

Now we will purpose a similar structure on level ground without any driveway in floor. Although the round barn is supposed to have a round roof, it may have a ridge roof and the filling of the barn can be done on the outside with the horse-fork and hay carrier in the ridge. Much can be done in this way. Even the silos can go up to the purlin plates—have a floor around the top with the ensilage cutter along side—provided a belt or power can be got to it from below—possibly a gasoline engine may be on the same floor. The uncut corn can be elevated in slings by horse-power, or the filling of the silos can be done in the usual manner.

Ensilage is a heavy product to handle, hence should be as near the heads of the stock as possible.

Messrs. Kelly Bros. of Halcottsville, N. Y., built a round silo two years ago, 22 feet in diameter in the center of a round barn. It was of stone five feet in the ground and extended up to the third floor of his barn.

The barn is 70 feet in diameter and the driveway is in the gable on top of the silo.

The lower story, or stable basement, has a roomy feeding alley

around the silo—then a row of stalls encircling the alley heading to the center, with trench behind the cows and plenty of room to drive a horse and cart around behind the cows to clean out stable without disturbing the cows. The lowest or basement floor is cement and stone.

The silo, above the stone foundation, is made of two thicknesses of staves, each one inch thick, with paint and paper between the staves.

It is studded and hooped with lumber of two thicknesses that will bend to the circle; the hoops being made of two or more thicknesses of lumber.

At the bottom of the silo the hoops are three feet apart and farther apart higher up.

If a silo was outside of the barn made of inch staves, either one or two thicknesses, then studded and covered with ordinary siding it must make a structure sufficiently strong to withstand any pressure likely to be brought to bear on it.

I am of the opinion that wooden hoops, properly made on a stave silo will do away with the main objection to stave silos, to-wit, the contraction and expansion of the hoops. An iron hoop 60 to 70 feet long will contract and expand from one to two inches from extreme heat to extreme cold.

On the silo question, Prof. King gives the stone silo the preference when good flat building stone that will hammer dress are handy. That limestone six to eight inches thick are perfection for this kind of work.

The boulder or hard head will not do at all—they are not well bedded and will not hammer dress; hence unfit.

A monument in proof of Prof. King's remarks can be found in my stone barn made near fifty years ago.

The barn is 40x50—three stories—side walls 30 feet high—two feet thick at bottom and 20 inches at the top.

Some twenty years ago I turned the root cellar and granary above it into a silo. The walls were true, good work, but not smoothly plastered and some six inches of silage rotted next the walls. I gave the walls a good smooth coating of cement which remedied the difficulty.

A round stone silo ten feet in the ground and built up to the purlines of the center of a round barn on the plans here alluded



to would be a tower of strength to the barn, a perfect structure of its kind and for durability seemingly indestructible. I claim that the best part of a silo is that part which is six feet below the ground and eight feet above it; that this fourteen feet of the silo will store double the ensilage that the fourteen feet above it will store and is in a position where one hand in the silo can fill baskets with silage and hand them out to another who feeds it to his stock; all done at one pitching of the silage, while in large silos and the usual manner of handling the silage much re-pitching is done.

I claim that fully half of the labor of feeding ensilage can be saved on the plan of the silo being located centrally near the heads of the stock over any plan of re-pitching and trucking it to the stock.

One of the greatest annoyances of the cow in the heated season, is the fly and insect pest which becomes almost unbearable. I think a well ventilated stone basement stable can be darkened through the day and that the cows should have the benefit of its protection, in which case silage would play an important part not only for the fly season but to bridge over short pasturage; hence we see the necessity of plenty of silage room, in high and deep silos, with a small fresh top to feed from and in the most accessible place, to handle the heavy product.

A great saving of labor in filling the barn and silos can be made where the side wall and bridge will form a driveway into the gable of the barn or even into the side of the barn at any point above the basement stable.

Some may have only level ground to build upon and do not wish to drive into the barn, but do the filling from the outside, in which case the round barn with a ridge roof affords the best possible place for an elevator and hay carrier track. The silo coming up to any point can have a floor around its top for the ensilage cutter to stand upon; the uncut corn can be delivered in bundles of four hundred pounds, more or less, along side with the horse elevator. The corn in the field can be loaded on a rope with a loop in one end easily bound in large bundles as the corn is loaded.

The cut ensilage thrown from the cutter into a bottomless

bag mixes it well together and drops the silage in the center of the silo or any point desired.

A neighbor built a barn the last season 36x60. The frame was cut from his own land and measured nine thousand feet as lumber is measured.

The stone for the basement was also from his own land. He now states that he kept a strict account of what he paid out for the work and material and it amounted to \$895.00 which did not include board of workmen or his own work and team. Mr. George Hanson of Crofton, Oregon, wrote me last season for a plan of a round barn 52 feet in diameter with silo in center, giving a sketch of building site and wants.

He reports the completion of the barn, covering an area of 2,028 feet—30 feet to gable—ridge roof, driving into gable from bridge and graded bank and silo coming up to drive in floor. He was some distance from saw mill—his frame was mainly heavy hewed studding—placed on basement walls, four feet apart and sided up with ship lap lumber. He reports the cost of the barn at \$750.00, red paint and all, and as being greatly pleased with it. The editor of the Pacific Homestead came out from Salem to look this structure over and take views and sketches of it.

He says it should be seen to be appreciated and used for a still further appreciation. He predicts that the plan will be copied by many building the coming season.

The Messrs. Kelly Bros. state that several built barns last year patterned after theirs who are much pleased with them and that others are designing to build the coming season.

The plan here given is my ideal of a good one for about 50 head of stock. However there is a different plan that will furnish stalls for more stock but I do not think the silos can be placed so handily, to-wit:

Make two rows of stalls across the central 60 feet—mangers about 20 feet apart—the stock tailing together with feeding alley at the head of each row; this gives room for two rows more of stalls facing in the alley. On this plan the silos can be placed in the walls of the barn, or rather the walls of the barn may run through about the center of the silos. In this way room can be made for about 70 head of stock and all the silo room desired.

Each silo on this plan would furnish wall for the barn equal to its diameter.

Mr. Curtis (continuing): This chart represents a barn with a circular road around the outside of these sixteen-foot silos, with room for 41 head of cows and two more can be added, leaving a large amount of space for other purposes. The two silos would be much better than one large one.

The other chart represents a barn the same size around, and there you can drive a team through the center. There is room for thirty-eight head of cattle, but you cannot have your silos in the center; you can put them where you like, in the walls, if you choose, and they will count in the walls. You can increase the number of cattle in that barn to seventy head.

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DISCUSSION.

Ex-Gov. Hoard: What provision do you make for ventilation of the barn?

Mr. Curtis: That I do not make myself. Prof. King's directions are ample for that purpose. I suppose people usually understand those things. I am hardly posted well enough to explain them myself.

Ex-Gov. Hoard: The people do not understand them. Is the stable room ceiled and how high?

Mr. Curtis: As high as you please. This barn shows a stone basement and that is ceiled, and there is plenty of room to run the ventilation up here or up by your silos.

Ex-Gov. Hoard: A barn cannot be properly ventilated unless it is made as near air tight as you can make it, so that you can control the intake of the air and the output. May be I could best describe what I mean by speaking of a barn I built last summer. It is not a round barn, but that is not material. The stable room is eight and one-half feet high, ceiled overhead and at the sides, and it is ventilated by the King system. The air is taken in at the top of the ceiling. Let me say first that in this country we must warm our barns or our cows will not give milk

properly in winter. Every mother knows that fact; and the cow is a mother, subject to the laws of maternity, and must have warmth if she is going to secrete milk.

Now, we must warm the barn by the heating of the animals' bodies—we can hardly afford to artificially warm it. If we warm it by the heat of the animals' bodies, the usual methods of ventilation lose the heat, we have to cool the barn off to ventilate it. We must ventilate our barn and give our cows pure air, because if we do not, and shut up the cows together, they poison each other, and at once they begin to develop disease and to lose efficiency and vigor. Now, this system of Prof. King takes in the air at the outside down even with the sill through an open register there; there are thirteen of them in my barn, and the air comes up between the studding—the cold, pure air—to a register on the inside even with the ceiling.

Now, the warm air of the barn, by virtue of being warm, is lighter and it accumulates at the top of the room and the cold air coming in, the warm air cannot flow down and because it is light. It cannot sink, so that it is held in the room and the cold air comes in through this layer of warm air and is warmed and distributed about the room. Now, that is the intake of the air, the pure air. I had Professor King come down and draft me a plan of ventilation. My barn is in the form of an L, 64 feet the long way and 46 the other. There is a ventilating or outgo shaft at the center on the outside. On one side of the shaft even with the floor, is a 20 by 24-inch register, and on the other is another one, the same size, opening into the three-foot outgo shaft (lined with galvanized iron to make it perfectly tight) that rises higher than the ridge of the barn, and the top opening is covered with lattice work. Now, the foul air from the cows' breath being heavier, it sinks to the floor and it is drawn up that shaft all the time, and the pure air coming in even with the ceiling, the barn ceiled very tightly, all the hay chutes closed, except when in use, and the silo chute closed, the barn is kept perfectly tight so that you can control the intake and the output of the air. Now, in that barn of mine with forty cattle in there, the air is changed once every hour, and it never freezes. It is held steadily at about 50 and I never saw anything that seems to work so satisfactorily in a stable as that system of ventilation. You

step into that barn, gentlemen, any morning after it has been all night long closed, and I will defy you to detect a stable odor. You can smell the ensilage. I called an old German friend of mine in there the other day, and I says, "Chris, can you smell the stable smell in there?" Why, no," he says, "that ensilage got so strong a stink dot knock down all the other stinks."

Mr. Curtis: As I understand the Governor's system, it would apply to my barn without any trouble, though I don't quite understand how I would get the foul air out.

Prof. Henry: You have got a splendid place right in the center.

Mr. Curtis: Oh, yes, we have got the room all right.

Ex-Gov. Hoard: It needs a shaft that shall go clear above the roof and be absolutely tight, so that it shall have a strong suction like a chimney, and not spoil that suction by cracks along in the shaft, so that it will lose its suction power.

The Chairman: It is not necessary that this shaft shall be straight; it can go up on the side of the barn to the eaves and then straight to the roof. Mr. Cook of Denmark, Lewis county, New York, has that kind of thing in his barn. We could see the steam rising from the roof. Mr. Cook says it is carbonic acid gas. I don't know what that is.

Mr. Curtis: You may have one-third more room than the Governor has got in his barn, so there is plenty of room for a ventilating shaft. My neighbor built his barn 30 by 60, framed in the usual manner, and it took full 9,000 feet for the frame. Now, we have a stone foundation here, we will stud it with 2 by 8's, put the lower end of the studs into the foundation, or we will make a tenon 2 by 6 on the lower end, and as we place our studs on the wall, we will nail a board into that lower end.

Mr. Faville: Hold on, we are none of us mechanics. Can you build your barn and have one-third more room than he can have at the same cost?

Mr. Curtis: Yes, and I think I can save on a barn of that size two or three hundred dollars. These men see some little talk that I have in Hoard's Dairyman once in a while and they write to me, and I send them a plan and they will find the best carpenter they can and perhaps they will tell him and he can't quite make it plain and they write back for an explanation, and



they get up a barn and they are pleased with it and the editors come out and take pictures of it and they make a great commotion over it and it blows me quite a little.

Ex-Gov. Hoard: I want to say one word about a little thing in the framing of that barn.

Mr. Faville: Is it your barn or his barn you are talking about?

Ex-Gov. Hoard: I am not talking about his barn. I don't know anything about Bro. Curtis' barn, and I have been fooled too often talking about things I didn't know anything about. I want to tell you about making the frame of a barn, and making it cheap and quick and very strong. When I went to the carpenter in making out my bill for the lumber, I said, "I am going to make a new kind of a frame." He had never seen it, knew nothing about it, and of course was rather prejudiced against it. I said to him, "I want to make this frame of 2x8 hemlock plank. I can buy that cheaper than any other, and will have it sized to just an equal width, run through the planer. Now, I took those plank and I made every one of my beams and posts by spiking together with 40's and 20's, making a timber 8x8. We will suppose that at eight feet I want to stop and make a ceiling. I put up two eight-foot plank, then a sixteen-foot each side and run right on. I don't have an ordinary mortice or tenon anywhere in the barn. In the old barn the timbers were ten inches square with two-inch tenons, as was the way in all the barns built fifty years ago; you hoisted up ten-inch timbers with two-inch tenons and the frame was two inches strong, that is all. I have two plank outside and two inside, making a four-inch mortice, and so I run clear up through. The carpenter said that in building the barn, it would take him, with his force of hands, a week to frame the timber, but in a week's time we had the frame up, saving at least a week in putting up the frame; and figuring it up, I got my lumber at \$2.00 a thousand less than I would have had to pay for square timber, made a stronger frame, a quicker frame and a better frame for less money.

Mrs. Howie: Mr. Curtis, if you were to build a new barn would you prefer the round barn?

Mr. Curtis: Most assuredly I would.

Mr. Taylor: You wouldn't build one like Governor Hoard's?

Mr. Curtis: No, I don't want to throw away one-third of the space. My plan saves the large timbers, and I believe it would be cyclone proof. You get a barn in a circular form and I believe it is stronger than any other shape you can make it.

Mr. David Imri: If you put a silo in the center of the sixty-foot diameter, a silo sixteen feet in diameter, how would you support these rafters over here? It would be twenty-two feet from the silo to the edge and of course your rafters with the pitch would be longer. How would you support those rafters in the center so you would have the hay track in there?

Mr. Curtis: I had not made the plan on the round roof at all, although many do. There is plenty of space there and you can carry up the support as you choose. I don't understand the hay track at all. A rod carrier is very cheap, and I suppose you could put it anywhere in the barn.

Prof. Emery: I wish to say I believe that the suggestions along both of these lines are in the way of progress and improvement over the old style of barn. About four or five years ago I had to build two barns, and the mechanics employed never had had any experience to build such barns as Governor Hoard describes, and they persuaded me to build on the old plan, but most of the barns now being built in our neighborhood are that kind of frame described by the Governor, and there is a considerable lessening in the cost of the material, fully fifteen, and possibly twenty per cent.

The Chairman: We have had some good suggestions and material for good thinking on the question of barn building. We know that you can enclose more space in a circular frame, and if it can be planned so as to make it convenient, it is certainly more economical, and I think it will stand a hard wind better; but one thing we must remember, the smaller you build a round barn the more inconvenient it is to properly use the space. I have known some 92 feet in diameter where the space could be very economically and profitably used. The only drawback that I have seen in such a barn is that it is a long way from the windows into the middle and it is pretty dark.

## ECONOMY IN THE COW'S RATION.

Hon. George McKerrow, Madison.

Mr. President, Ladies and Gentlemen: We have had the round barn, the round silo and nobody asked friend Curtis whether he had round cows or not, but he seems to like the round barn and take it all around, it makes a pretty round subject.

But of necessity these cows have to be fed, and the question of the economy of feeding is a great one, and in one sense, the all-important one. We must admit that we have different ideas of economy along all lines, and I find that the cow feeders of Wisconsin have varying ideas of what economy in a cow's ration means.

After one of our dairymen had described his methods of feeding cows over in one of the northeastern counties of this state at a Farmers' Institute, and had been asked the question, what it cost him to feed his cows a year, and had given an estimate of about \$35 as the cost, one of those old pioneers who have helped to develop Wisconsin and other western states, rose in the audience,—I learned later that he was one of the solid farmers of that county who had made a competence by thrift and industry,—and he said, "This is all nonsense, \$35 to feed a cow a year. There is no profit in it, and I know by experience that kind of feeding is extravagant." He said, "I have very hard work to make any profit out of my cows, and I don't feed them like that." Some of his neighbors volunteered the question as to how he did feed them, and he said, "Why, in the wintertime they feed themselves around the straw stack, and in the summertime God Almighty feeds them on grass." And somebody asked him what results he got, and he said, "Why, I think my cash returns from the cheese factory last summer were about \$16 a head, but it was all profit." Now, this hard-headed old farmer, a man of good standing in the community, had one idea of economy in a cow's ration. Our institute worker had another idea of economy in a cow's ration, and some individual probably had still

another idea, and so it goes. In considering the economy in a cow's ration, we must consider several other things besides the cost of the ration. Economy in a cow's ration does not mean the cheapest ration that can be figured out, for if it did, our friend in northeastern Wisconsin would get the diploma. The foods fed, their cost and also their value in producing milk must be considered; the method of feeding, and the feeder must also be considered; the animal being fed must be considered, and her individuality also must be taken into consideration. I mean by this that what might be an economical ration for one cow, might not be an economical ration for another; cows have individuality just the same as men have.

I sometimes ask a question in a Farmers' Institute, in discussing this feeding problem, to bring out the idea of returns for food consumed, of this nature, "When you feed a poor tramp what do you get in return?" There is no answer here; but in central Wisconsin I got a very quick answer that fairly took my breath. A German farmer, back in the center of the audience, shouted out, "Why, we get lice." Well, it is too true; that is about all the poor tramp gives in return for the ration we give him; but you know we have cows with individuality, like the tramp,—tramp cows, if you please, some of them, born tramps, heredity for generations back has tended to the tramp idea; some of them have been made tramps by early environment, by the abuse of the digestive organs and in other ways. Now, we can get rid of these tramp animals a great deal easier than we can the human tramp. We must be charitable toward him, but the best kind of charity we can exercise toward that kind of a cow is to send her to the butcher, if we can get flesh enough on her to make a good canner of her; if not, let us give her a decent burial.

I have already intimated that all cows' rations cannot be made economical along the same line. To feed economically we must not only consider the cow's individuality, but her health and her usefulness. We begin to feed the calf and we must keep in mind that if we would not make this calf a tramp cow, we must consider it along the right lines, by developing its digestive organs, by developing its bone and muscle properly, by growing frame, adapted to the business of its future life, and should

adapt the ration from the very first to the purpose of growing bone and muscle so that when this calf is developed into a cow, we can go on with this class of food, muscle and bone-producing food, which is needed to make milk, which in turn is to become the food for the production of bone and muscle in other forms.

Now, our most experienced dairymen, our best feeders, appear to know something about the economy of a cow's ration as it is adapted to individual cows. Over in Canada at the Fat Stock show, they also have a dairy show. They offer prizes there for the cows that produce the best. Formerly they offered them simply for the largest producer; last year they offered them for the cheapest producers, allowing the owner to make up his own ration. The owners of certain cows there made up a ration largely of condensed, high-priced foods. Their cows apparently were adapted to that kind of ration, but it was so high priced that in the competition they were left behind. The owners of some of the larger classes of cows there went to the other extreme and made their ration up largely of roughage or a cheap ration, and for a few days produced milk a great deal cheaper, largely on account of this cheap ration. The results might have been different had these cows been kept right along, although I am inclined to think that these men knew something of the individuality of their cows, that they had a class of cows that would handle more cheap, coarse food in proportion than would the cows of the other class, but they went to the extreme for those few days simply to win out.

Down at our Experiment Station here at Madison they have been carrying on experiments in cow feeding that would tend to show the same results; that some cows produce very cheaply, because they are able to handle a large proportion of their food of a cheap, bulky class, and therefore produce more cheaply than cows that are so situated that they had to have more of the concentrated foods. These are some of the things that individual feeders should study very carefully, and study them in relation not only to their herd as a herd, but in relation to each individual animal in the herd. The cow feeder needs as much—yes, needs more skill, more education, in making up the ration for the cow, in sizing up the individuality of the cow as she is to be adapted to a certain ration he may make,



than does the feeder of any other class of live stock, because conditions with the cow are more varied than conditions with other classes of live stock; because the product in the dairy herd varies more in amount and value than the product in any other class of live stock, and therefore, the dairyman should be the best educated, the most skilled of the feeders of our live stock.

My friend Curtis here talked a good deal about ensilage. Now the dairyman who would have an economical ration must study all classes of food, he should know something at least in a general way about their make-up and what they will produce when fed. He should know that such feeds as clover and oats are of a class that in themselves are well balanced, to produce all the elements that his cow needs to put into her milk product; while, on the other hand, such foods as corn are of the other class, they are a little too wide, as we term it, for the ordinary dairy cow to make her product out of; that he has to balance these foods so that his cow may do the best with them. He may figure out that he can make a much cheaper ration, that the twenty-five pounds of dry matter that the cow ordinarily should have can be produced much cheaper in the form of corn on his farm than can the same twenty-five pounds of dry matter be produced in the form of clover and oats; but he must not stop there, and think that because he can produce the corn ration for that cow, in the number of pounds needed, a great deal cheaper than he can produce the same amount of dry matter in clover and oats, that therefore the ration is the cheapest. If he is to be truly economical, he should understand that his cow can no more make milk in paying quantities upon a corn ration alone than can he make bricks or tile out of sand alone. It is a question of balancing up the ration, and it is a question he should know something about. It is true that we have a great many good cow feeders that cannot figure out perfectly a balanced ration, but in a general way those good cow feeders know they must have different classes of food to get the best returns from particular cows; those cow feeders know that they have certain individual cows in their herd that they can feed upon a ration that is largely made up of corn, and will give very good results, while right in the same barn are other cows that if fed on this ration that is

largely corn, will soon dry up and grow fat; and therefore they regulate the feeding of these animals by giving one more of that cheaper class of food, of a corn nature, and the other more of the higher priced foods, such as oats and clover.

But, the best cow feeders today find it economical to go out and buy some of the by-products of the mills. For that reason we find our best cow feeders feeding bran and gluten meal, oil meal and things of that class.

Now, economical feeding must always be healthful feeding. We have had many cows in this country that have made wonderful tests for a month, a few months or a year, but in most cases those cows never have been heard of again, and why? Because they have been fed to the extreme; they have been fed into an unhealthy condition, and they never recover from it. Therefore, the cow feeder, if he feed economically, must feed healthfully, must feed so that he does not underfeed and lower the vitality of his cow and the power of digestion of his cow, and, on the other hand, must not overfeed so as to overtax that digestive system and the whole system, and this has to be very carefully considered. Of course, the great majority of Wisconsin cow feeders do not fail in over-feeding; they fail rather in under-feeding, and it is not necessary to charge them not to over-feed, though I have seen many a cow that has been injured by over-feeding not for a long period, but for a single day or a single week. Every man that feeds cows should learn this, that he must bring a cow up very, very gradually to the standard of her capacity, and every cow should be fed up to the standard of her capacity, or as near to it as you can feed her reasonably and safely. But you should start with a comparatively low ration and gradually work up.

Now, some cows are fitted to take two-thirds of their rations in coarse, bulky foods, and the other third in concentrated foods. Other cows should have nearly half of their foods in concentrated form; but there are very few of that kind, and if you have one of that kind, bring her up to her capacity by increasing this concentrated ration very, very slowly. If you should overstep the bounds for a single day, you run the risk of injuring the cow for months and possibly permanently.

You can all see that the feeder cuts as much of a figure as the

feed, yes, a little more than the feed. The skill of the feeder is the principle item in economy in a cow's food. The individuality of the cow is another very large item in the cost of feed.

Therefore, to get the principle of economy combined into a cow's ration, we must have a good feeder, a good cow, and then good foods for the feeder to manipulate and handle. I think I have talked enough along these lines.

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DISCUSSION.

Mr. Works: Have you got any theory to go by in regard to feeding a cow?

Mr. McKerrow: No, sir.

Mr. Works: What do you think of Professor Haecker's rule, to feed as many pounds of concentrated food a day as the cow will give pounds of butter during the week?

Mr. McKerrow: Or seven times as much concentrated food as the cow gives butter. Well, I don't know; as an iron clad rule, I don't believe that is the correct one, because I believe some cows would do better with less and some with more, although that may be a general rule. I have not figured it out. Professor Haecker ought to know more about it than I do, but many cows would be an exception to the rule. Have you tested that rule?

Mr. Works: No, not any great length of time, but I have worked at it a good deal, and I have come to the conclusion that if you lay down any rule, that is as good as any and you won't go very far astray. I think it will do as a starting point for a dairyman to figure out from, and then to use his own judgment of his cow's peculiarities.

The Chairman: Wouldn't it be a good way to make a rule something like this, feed the cow grain in proportion to what she produces?

Mr. Works: That is very near the other plan.

The Chairman: Yes, if she makes good use of it. If she

takes a part of even a good balanced ration, and shows that she cannot turn it all into milk, but proceeds to pile some of it on her back, then it is time to slow up on the grain ration.

Mr. McKerrow: A good deal depends upon the kind of coarse feeds that you are giving her.

Mr. Works: If I remember right, in the Seventeenth Annual Report of the Wisconsin Agricultural Station you will find that rule referred and recommended.

Ex-Gov. Hoard: There is an astonishing difference in horses as to what they will do, you know, on the same feed. There is also a great difference in cows. Now, I have got a Jersey cow that calved in November and she is making me today about seventeen pounds of butter a week, but she gets only ten pounds of grain a day.

Mr. Faville: What is her roughage?

Ex-Gov. Hoard. Her roughage is ordinary hay and oat hay.

Mr. Faville: What do you call ordinary hay?

Ex-Gov. Hoard: Hay I bought in the village. I couldn't get clover last year. There is some red top and some timothy,—just ordinary hay, mixed, common hay.

Mr. McKerrow: Grown by a common farmer.

Ex-Gov. Hoard: I guess so. She gets about six pounds of corn and oats and four pounds of bran a day. Now, that cow will take that ration and do large work on it, because of her individuality. The little horse, Jay-Eye-See, would take twelve quarts of oats a day and trot a mile in two minutes and ten seconds, but every one of us have got horses that wouldn't trot a mile in five minutes if you put ten tons of oats into them. The difference is in the animal itself. Then you enlarge that difference by this kind of feed and care, but first the animal must be right for its peculiar work.

Mr. McKerrow: You have got a wonderfully good cow that will make sixteen or seventeen pounds of butter a week on a grain ration of ten pounds a day, supplemented by a good ration of corn food.

Ex-Gov. Hoard: She is a phenomenal cow.

Mr. McKerrow: Would you feel safe in raising her ration up to sixteen or seventeen pounds of grain per day, that is, would



you feel safe in this sense, getting good results now, and having her good a year or two hence?

Ex-Gov. Hoard: No, sir; but that is a cow that I believe that I can make, by judicious care, produce twenty-five pounds of butter in a week.

Mr. Taylor: The last pound is hard to get.

Ex-Gov. Hoard: I believe she could be made to produce that amount, but I don't know what would happen to her afterwards. I am holding her steady at common treatment. She gave, as a two-year old heifer with her first calf, 396 pounds of butter, as judged by the Babcock test. She gave with her second calf 386 pounds, and you know it is a common thing for a heifer to drop back the second year. Now, this is the third year. She gave in the month of December, after calving in November, 74 pounds of butter, judged by the Babcock test. Her milk tests 5.2.

Mr. Faville: What did you pay for that cow?

Ex-Gov. Hoard: I raised her.

Mr. Faville: What do you ask for her?

Ex-Gov. Hoard: I don't want to sell her. She is a remarkable cow, but she shows to me so clearly that same thing that you see in Jay-Eye-See, the ability to take a limited amount and by large capacity do a great deal of work with it. I owned another cow once, a seven-eighths Jersey cow, that had so powerful a dairy temperament in her that you could not switch her away into flesh-making. I gave her fourteen pounds of corn meal a day to see if I could make her change and go to fattening, and she took it and poured it right into milk. She gave me 3,740 pounds of milk in ninety days. I kept pushing corn into her, I was trying to spoil her for the sake of the knowledge I might get out of her. I wanted to see what I could learn from that cow, and I learned, as I have from thousands of others, that a cow with a low dairy temperature can be fed only about so far when she commences to flesh up, while a cow with a high dairy temperament will take a large amount, and her dairy temperament will hold her, and she will turn that feed down the milk channel.

The Chairman: Suppose you had a cow that neither made milk nor flesh out of the food, what would you do with her?



Mr. Hoard: I would do the same as you would with tramp cows, turn her off. All she will give is lice.

Mr. Adams: Mr. McKerrow and the other gentlemen have touched on one very vital point in this whole cow business. I have trailed after a lot of cows for about fifteen years and obtained more or less intimate acquaintance with them, and when you talk about a rule as to the amount which you shall feed cows on the average, I don't believe you can get anything that is very valuable. It may be interesting to know that a large number of cows take an average of about seven times as much grain food in a day as they give butter, but if you undertake to apply that in your individual experience, you will not receive any particular benefit; a thing you have to follow in order to make this business profitable is constant, close study of the individual cow. There is just as great a difference in the digestive and productive capacity of cows as there is in the productive and digestive capacity of men. No one would think to look at the chairman of this convention that he probably eats more than any other man here.

Chairman Goodrich: Except Adams.

Mr. Adams: But he does not produce the same results on all occasions. I consider one of the greatest problems in this whole business is to get men who can keep busy and do things right. The natural thing for most men who are put in charge of, say, sixty cows, is to run along in front of these cows and give the whole outfit the same ration, and that is where you lose a lot of money. It don't pay to crowd twelve pounds of grain into some cows, and if you do it, you are losing money all the time, while there are other cows you can feed sixteen pounds, and make money out of it. That is a point you must keep right before you if you are going to make money in this dairy business, and I imagine that is what the ordinary man of common sense is after. You must make a study of the capacity of each individual cow, see how much you can put into her to advantage. Now, a good dairy cow is this kind of an animal, that she will put a whole lot of surplus food right into the milk pail. A good dairy cow ought to make three hundred pounds of butter a year, and a good dairyman ought to be smart enough to pick out that

kind of a cow and the kind of a man to feed that kind of a cow, or else feed her himself.

Mr. McKerrow: I would not want to reflect upon this rule of Prof. Haecker's at all; I believe it is all right for the average man with average cows, but I believe also that if the Wisconsin dairymen are going to keep their place among those in the front rank, they have got to be better than average feeders, and their cows must be improved, so that they will be better than average cows, and to do this and to meet the requirements of getting the most out of the feed, we must cut loose from any ironclad rule for any lot of cows, and make it an individual matter between the feeder and each cow in his herd; which means that we must skill ourselves as feeders. Now, I want to say here what may seem a little radical, that I never have been able to get the most economical results out of food consumed, unless I was feeding some one class of food in the ration that was what I am pleased to term a hygienic food, or a food that has more value than its analysis shows to you by the ton, in toning up the digestion, which will be shown not only in returns in the milk pail, but in the general thriftiness of the animal, in the outside covering, the skin, the hair, and the general aspect of the animal, and the classes of foods that I term hygienic are oil meal, (old process), made from old oil cake, roots or ensilage, and I believe that one of these three classes of foods should go into every cow's ration that is producing, to make that an economical ration. I am considering the health of the animal and those foods are a safeguard to a certain extent against mistakes that young feeders may make.

Question: How would potatoes do?

Mr. McKerrow: They will do as a root—now, understand, I do not mean that roots should take the place of grain. Of course oil meal takes the place of part of the grain ration. Ensilage takes the place of part of the roughage ration; if it is heavily loaded with the corn, then your judgment must figure out what part of the grain ration it will take, but with roots I would not figure on their taking a very large place of the grain ration. Potatoes fed in limited quantities are hygienic, but fed in large quantities are dangerous things.

Ex-Gov. Hoard: They will dry a cow right up.

Mr. Everett: If your animal is on grass in the summer of course that is hygienic.

Mr. Ryan: In feeding ensilage, what grain ration would you feed?

Mr. McKerrow: Feed the ensilage up to the best capacity, about 30 to 35 pounds, then the grain ration should be of an opposite nature to corn, of a class that goes to form bone and muscles, such as oats and bran. If you put in oil meal, then you might balance up with a small amount of cotton seed meal or gluten meal, or any of those which are highly nitrogenous.

Mr. Ryan: What would you think of one-third buckwheat shorts, one-third bran and one-third oats.

Mr. McKerrow: That is very well, with a little clover hay to put in along with it.

Prof. Emery: I agree with Mr. McKerrow that in successful feeding we cannot go by a general rule. A few weeks ago I visited a herd where each cow is producing for its owner about \$100 a year for cream, and among the other many excellent things that I learned there, was one that I have wondered about, and that is that the same milkers are required to feed the cows each time after milking. The owner of that herd is here this afternoon, and I would like to hear from Mrs. Howie something of her ideas on this individuality in cows.

Mrs. Howie: Ladies and gentlemen, my opinion of feeding a ration, a set ration, is about the same as it would be for some one to write to a dressmaker and say, "I have a wife who weighs a hundred and twenty pounds; she is twenty-five years old. Please make her a dress that is a perfect fit and send it."

Now, in this barn that Prof. Emery speaks of, we study each cow's characteristics, her likes and dislikes, as carefully as we do the members of our family. We have one little cow that turns up her nose at oil meal. She does not have to eat oil meal; she can have gluten, or whatever she likes, because when a cow likes a certain feed, I think she assimilates it better and she surely will eat it with a better relish. So we study the tastes of this one and that one, and as the cows are milked, each one, her grain ration is mixed in a little box, and it is given to her during the milking process for the reason that it keeps her very

quiet, she forgets all about the milking and gives down her milk quickly.

Prof. Emery: And why do you have each individual milker feed the cow he is milking?

Mrs. Howie: Because he knows the individual cow and when she begins to drop in her flow, we let up on the grain ration. We are very much afraid of milk fever.

Mr. Adams: Do you take much stock in that idea of the balanced ration?

Mrs. Howie: If you are going to set a table for fifteen people, and you did not know their appetites, you will put so much salt in the food and let it go at that, but if you had your own family and you knew that this one did not care for so much salt and another wanted a good deal, you would cut down here and put in more there, so that every one would be satisfied. In one sense we do balance, but I mean we do not have any set amount. Some cows, when they are in large flow of milk, will eat a much larger quantity of grain than when the flow becomes shorter.

Ex-Gov. Hoard: Do you carry in your idea of these several cows anything like an idea as to the protein or the carbo-hydrates that they consume?

Mrs. Howie: Oh, I should hope so. My head men are always graduates from the state university and are very particular on that point. Sometimes, of course, we do not balance them as carefully as we used to, because we know about what each cow will do on a certain ration, but a record is kept every time and if we put in too much of a certain element, I can tell you in two days whether that cow is going beyond what she should have, and I ask, "What are you feeding?" "We are feeding so and so much." "Cut it down one-half." The ration is cut down and in three days she will be back to where she was before. At present we have a little cow we are very proud of. She has gone up to forty-seven pounds of milk a day, which tests over 5 per cent., but a few days ago she ran down to forty-four. Our idea was to bring her up to fifty, and she was not supposed to be on full feed, but the boys were in a little bit of a hurry and pushed her too hard and we cut it down again, and got her up to forty-seven and we will get her to fifty, but we are going to keep her down until she is all quiet and easy, and we will just shake in an ounce



or two at a time, and the minute she goes down again we will stop even that.

Mr. Taylor: Every feeder of dairy cows should have a multiplication table handy, whereby he can work out all the problems connected with successful feeding in the barn. If Governor Hoard will pardon me I want to call your attention to one page in last week's issue of Hoard's Dairyman which shows the result of an immense amount of thought and experiment and calculation. It shows the component parts of all of the foods fed upon dairy farms, showing the analysis of each and showing how necessary it is to use the multiplication table. That page should be carefully studied and utilized by every feeder in making up his ration. I consider that one page is worth three hundred and fifty billion dollars to the dairymen of the world if they will take it as they ought to and apply it.

Now I want to call your attention to a little experience of my own. I had a very nice cow; she freshened while I was away at the fair. When I returned I milked that cow and I got twenty-three pounds of milk. I turned her out in the yard and looked at her, and I said, "I haven't seen such a cow as that since I have been away from home." I took that milk, strained it in an ordinary milk pan and set it in the cellar and with thirteen other milkings we put the cream together and got 20 pounds 8 ounces of butter. I began feeding her up; I gave her four quarts of corn and oats together at noon and at night. We got an increased quantity of milk and for six weeks this ration was increased. Then we had sickness in the family and I staid in the house and left my German man to feed this cow, and he wasn't satisfied; he said she was giving so much milk she ought to have some more food, and when I got out to the barn he was feeding her thirty pounds a day. That was about twelve or fourteen days after, and she was eating away just as dutifully as could be. I opened the stanchion to clean out the manger and I said, "Charlie, what have you been feeding her?" "Three pans full three times a day." The food I had been giving her was two pans full twice a day. Now, what saved that cow? Nothing but the splendid growth of grass she was running in. Her temperature was up to 101½ degrees, but in a few days it went down and I told Charlie not to feed her any more. Well,



I fed this cow afterwards for periods of two weeks at a time increasing her ration until I found she had wonderful capacity for producing, and I never would have found it out if it hadn't been for that German that got full of enthusiasm. So I have got this against Governor Hoard, that he doesn't feed that cow that is making seventeen pounds of butter a week more than ten pounds a day. She is entitled to more. Suppose you give her sixteen or seventeen or eighteen pounds, increasing it very gradually, I venture to say she will take care of it, and may be you will reach that limit you are after—of twenty-five pounds of butter a week—and if you can, you are a good one and she is a good one. That is the doctrine that we have been preaching all over this state in the farmers' institutes and in our dairy conventions—to take your cow and become acquainted with her as an individual producer, and feed her to her limit or very near it. Now, Governor Hoard don't know what the limit of that cow is. If she is giving seventeen pounds on ten pounds of grain, I should feed her more grain, and try to find out her capacity. My friends, we are in the dairy business to get all there is out of it, and the way to do that is to work these cows according to their individual capacities. We want to determine the cow power one with another. These things are matters of necessity in Wisconsin. Every dairyman with more than one cow must be to a certain limit a breeder of cows for himself; from his best cows must come the increase that will take the place of their mothers in the herd, so it is evidently for our financial interest that we determine for our own information the capacity and power of every cow in our herd, and the only way to do that is to make a study of each cow and of such literature as is found on that page in Hoard's Dairyman. Keep it and study it every evening and every morning and even then you will never know how much it is worth to you, or to this state. Why, that one page is worth more than all this convention for three days.

Mr. McKerrow: I had that page in my pocket all the time you were talking.

Mr. Favill: Mr. Taylor, would that cow of Governor Hoard's be worth anything as a breeder after he had crowded her up to twenty-five pounds of butter a week?

Mr. Taylor: Yes, sir. Accumulative capacity in an animal

will be transmitted to its offspring. Development in a dairy cow is transmitted to its offspring.

The Chairman: Down in Michigan they have got a cow they call Rosa Bonheur, a big one, weighs 2,060 pounds, and she had an udder that measured seven feet in circumference and she averaged 104 pounds of milk a day. Prof. Smith said, "Now, I want to see if a cow hasn't got some sense and can't balance her own ration." So he put her in a stall by herself and he put a box of cotton seed meal here and oil meal there and oats there and so on around. Now, he says, "Rosa, there is your food, balance your own ration, and do what you can." Now, he says, she did make a well balanced ration; she ate forty-seven pounds of grain feed a day and gave a hundred and four pounds of milk, but she hasn't accumulated any power to impart that to her offspring, because she hasn't had any offspring since; she hasn't given any milk since, and she isn't good for anything.

This discussion is ended.

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## BUTTER AND CHEESE AS FACTORS IN SHEBOYGAN COUNTY.

A. O. Heald, Sheboygan Falls, Wis.

(Read by C. H. Everett.)

In the preparation of this paper I have endeavored to cover as concisely as possible the proportions of the butter and cheese industry in the county of Sheboygan, the benefits to its farmers, the name it has given us and the bearing it has commercially.

Sheboygan county, through its climatic conditions, abundance of grasses and purity of water, early attracted the attention of the thoughtful to the possibilities of profitable dairying, the adoption of which was hastened by the richness, flavor—qualities of keeping produced in the experiments of home-made cheese. Undoubtedly the first cheese to be shipped from the county, numbered 58, which were manufactured by John J. Smith in the year 1858, from curd gathered from his neighbors. These

cheese were taken to Chicago and only after the most repeated efforts were they finally disposed of, the price paid being 8 cents per pound. In 1859, Hiram Smith, whose name is ever linked with dairying, strong in the belief of producing a superior cheese and its consequent benefits, started the first regular cheese factory, although previous attempts had been made at organization.

From this first factory, each year has witnessed the continual and rapid growth of our dairy interests. In 1872 the first dairy board of trade was established, holding regular meetings at Sheboygan Falls. In 1875 the factories numbered 45, the products of which amounted to over 2,000,000 pounds. At the present time the county boasts of three separate and distinct dairy boards, all on the call system, whose reports for the year 1900 show actual sales thereon of over 6,000,000 pounds of American cheese, the sum paid for which amounted to nearly \$750,000. It is safe to assume that at least 1,000,000 pounds found sale through private channels, thus swelling total cheese sales to at least \$850,000.

Possibly this paper should have read, "Cheese as a Factor in Sheboygan County," but as butter and cheese go hand in hand and as a matter of comparison, we can but note that creameries are exceedingly few and even most of such bear the inevitable cheese attachments, while nearly 100 simon-pure cheese factories prove its superiority of profits to the farmers and its demand for manufacture. Perhaps natural conditions have gained us a point by enforcing the highest prices for a cheese par excellence, or, perhaps through improved sanitary conditions lessening the radical disparity of value between skim milk and whey; perhaps both together create the advantage. Whatever it be, cheese reigns supreme and has made us pre-eminently a cheese county.

Being in the very heart of the dairy belt, where perfection in cheese can be and is most nearly reached, where the milk produces the highest and steadiest income, the farmer finds in the cow at once his salvation and his competency. We have no landed proprietors, none who excel in the keeping of highly pedigreed herds; only the farmer with his 80 to 160 acres of land, who keeps all the cows such land will support, and while not experimenting to too great an extent in superior productions or

new systems of feeding, has by intelligence and judicious care constantly raised the standard of his stock as milk producers, and has by proper housing and humane treatment, made disease in cattle practically unknown to us.

His cow is his idol, and why not? She furnishes our population with its milk, maintains the fertility of our lands and brings to its keepers the annual cash sum of \$1,000,000. A drive through any portion of our farming districts bespeaks success, and convinces us of a valuable land becoming not less valuable. It further impresses upon us, through the thrift everywhere apparent, that it is not the upbuilding of a year or two, of a possible 12-cent cheese, but of years of prosperity. We learn that dairying *has* and *does* pay, from the fact that our farmers are holders of numerous four per cent. mortgages, and claim over \$2,000,000 of our bank deposits. As special lines in farming, what other than dairying presents a better business basis? It prevents the failure of income, lessens the possibility of depreciation in lands, and in the ever present beef markets, can be turned as an investment.

Sheboygan county, ranking first in the counties of our state for the production of American cheese, acts as a standard by which Wisconsin cheese is judged, and no regrets have we for thus posing. In 1858, we were told that no Wisconsin cheese were wanted. In 1900 dealers tell us Wisconsin cheese are *demanded*, and from across the water comes the report, Wisconsin cheese took the gold medals. As a consequence of the cheese industry, we have ten wholesale houses whose annual purchases range from \$100,000 to \$600,000; whose sales find distribution principally throughout the south, and to some extent direct to the foreign markets. Not only has it brought to the farmer a vast income, but has created manufactories wherein the factoryman finds his supply of cheese boxes, ready made bandages, vats, hoops, and presses, and then as a fitting solution to all difficulties comes the veal shipper and the beef buyer.

What has been done for one locality can be done for others similarly situated. Knowing that the dairy interests have been worth hundreds of thousands of dollars to us, would it not be a wise idea in the development of the farm lands of our new north, whose climate, water and grasses are claimed as especially suit-



able, to introduce young blood from Sheboygan county, where it has become a sort of an inbred knowledge that farming means dairying, and make Wisconsin what it was evidently intended to be, the great center of the cheese industry?

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DISCUSSION.

Mr. Favill: Did I understand you to say that you connect beef making with your dairying?

Mr. Heald: Only as a last resort. The veal shipper and the beef buyer are with us.

Mr. Adams: Is cheese shipped to any extent to Cuba or South America.

Mr. Heald: I think very little.

Ex-Gov. Hoard: How was it that the original shipments of cheese from Sheboygan county to England ceased and it was turned south?

Mr. Heald: I don't know, unless the Canadian cheese has rather gotten the advantage of us.

Ex-Gov. Hoard: I think you are mistaken about the formation of the dairy board of trade in 1872. We formed the Wisconsin Dairymen's Association in 1872 and there was no dairy board of trade in existence when we met in February, 1872.

Mr. Heald: It might possibly have been later in that year.

Mr. Everett: From 1872 up to 1884, when the exposition was held in New Orleans, Sheboygan cheese found nearly its whole sale across the water, and had a great reputation. There were direct shipments to Glasgow, Liverpool and London from Sheboygan, but for some reason which I never knew Sheboygan county forsook the English demand, which was really the best demand, and left the making of the regular cheddar form of cheese and went to making flats and shipping them south. That was before the making of filled cheese or anything of that kind to have turned the English demand away from us. I think it came largely through the action of the buyers who sort of forced the Sheboygan people over into that channel. Was there ever much making of skim cheese in Sheboygan county, Mr. Heald?



Mr. Heald: I don't think there ever was; I am not positive.

Mr. Aderhold: Yes, there was.

Ex-Gov. Hoard: That may have turned the current, because a southern man will take a skim cheese when an Englishman will not.

Mr. Favill: I was in the cheese trade and I know that the skimmer was applied very freely, and as much so in Sheboygan county as anywhere else until you got considerable farther south, but I expect it ruined their reputation and they had to look up a different market.

The Chairman: They don't make skim cheese in Canada and they don't make filled cheese, and they shipped last year 115,000,000 pounds abroad, and the United States, with more than ten times the population of Canada, only shipped 38,000,000 pounds.

Mr. Adams: I have been watching you, Mr. President, for several years to have you make some blunder like that; and I have caught you now, and I am glad of it, partly because it is unusual to trip you up and partly because the statement of facts is rather consoling. Year before last our shipments had run down to the low water mark, and amounted, as I recollect, to thirty-five or thirty-eight millions, but the last report of the Secretary of Agriculture, issued within the last few weeks, shows that our shipments have increased and have reached fifty-three millions.

The Chairman: That is good, and you haven't tripped me up, either, because I was only stating what it was last year.

Mr. Aderhold: Isn't it a fact that because we have such a big population that that should constitute a reason why we should not ship out so much cheese? We have got to feed all our own people.

Mr. Heald: We think down in Sheboygan county that we are great on cheese; we think there is no county that can excel us.

Mr. Adams: I would like to have Mr. Aderhold state whether or not it is true that Sheboygan county today is making as good cheese or better than she ever did. Mr. Aderhold is one of the inspectors; I don't know that he will want to give it away, but I would like to know if it is not true that Sheboygan county during the last year has made as good a quality of cheese as it ever has, and if not, why not,

Mr. Aderhold: No, they couldn't last year, because milk everywhere was inferior.

Mr. Everett: What was the cause of that inferiority of the milk?

Mr. Aderhold: I don't know. I don't think they had as much trouble there as they did in some other parts of the state, but I started out in April, and from the very beginning the milk did not work normally anywhere, and it got worse as the season grew dryer and hotter right up to the end of the season, and I was out until the last of November.

Mr. Ryan: Wouldn't that apply to butter, too?

Mr. Aderhold: No, not so much to butter. There was considerable slimy milk that would not make a firm curd, no elasticity or firmness about it, and the milk was low in casein and yielded poorly; of course that would not affect the yield of butter.

Mr. Ryan: We found it very difficult to make the same class of butter as in years before up in Eau Claire county.

Adjourned to meet at 7:30 P. M.

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Convention met at 7:30 P. M.

President in the chair.

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Reading—H. B. Pace.

Music—Two violins.

## TURNING THE SOD.

R. Southworth.

Some weeks ago I was asked to take part in a gathering which was held in this city and was kindly told that it was not expected for me to furnish anything deep. I told the party asking my services that I was led to understand that while others would fill the part of Sampson and furnish the nerve power, entertainment and brains, I would only represent the instrument in his hands by which he slew the Philistines, not the jaw bone *alone*, but the whole creature. I earnestly hope, however, that I shall not be the cause of the death of any here tonight, and I only take a place on this evening's program with the thought that I shall only touch now and then on the surface.

The hills were just as high and the valleys as deep and winding forty years ago as they are now, but when we stop to note some of the changes which have come to their clothing in that time, and some of the other attendant changes, unless we touch occasionally the intervening scenes, we loose the connection the past has with the present.

While at this time we enjoy the gathering with us of the State Dairymen's Association, discussing the best means of attaining greater success in that one industry which alone called for the payment of one hundred thousand dollars from this place the past season; while we enjoy our comfortable homes, our broad acres, our religious, educational and social privileges, do not some of us forget the transition from nature's virgin soil to that of the present. I shall not attempt to give a history of that which has taken place since the breaking of the first sod but shall only touch upon a few events as they came into the life of a boy the neighbors thought wasn't worth the raising and since he has been partially raised the query by all has been why he was raised.

The spring of 1860 finds a puny little boy of five years watching a mother and others trying to make a comfortable home of a rough board shanty, some two and one-half miles from here,

which had been built by loving hands to be our home until a better shelter could be provided. The old shanty wasn't very large or commodious and had none of the modern improvements or conveniences, but it held a large and happy family.

Look out which ever way you might, the unbroken prospect of unsubdued nature, scrub oaks and grubs occupied the view. Then come the days of unremitting toil, in which all who are able take some part. Grubbing proves to be no pastime; the breaking team, five yoke of oxen strung out hitched to the breaking plow—the yelling to Buck and Bright, to Star and Daisy—the sudden halt in some unremoved grub bringing out the hidden qualities in the toilers; and all I have done so far to help is to carry the water pail,—not much of a service, but I am told that the little things well done are as important as the larger ones; that the cup of cold water in its place is as necessary as the ocean in its place. We have but few neighbors. Yet each has a kindly interest in the other. Our nearest trading points are Alma, Eau Claire and Durand. I remember it taking my father three days to go over to Durand and back with a yoke of oxen to do some necessary trading. People did not seem to want as much then as they do now—if they did they couldn't get it. Now, if my wife wants 5 cents worth of snuff or a bottle of soothing syrup, her wants can be easily satisfied; at that time the wants had to be anticipated months ahead and were very simple.

People were married and given in marriage just as they ever have been since the time that Adam walked in the garden alone, and the kind, loving Father saw it was not good for him to be alone and gave him a help mate. The same want was felt by some in the early history of Buffalo county, and as my father was a minister of the gospel some jobs of uniting two hearts and lives as one fell to him. I remember one long, lean specimen bringing a bushel of turnips to pay the preacher for tying the knot, but the simple ceremony in the old shanty was just as binding and sacred in the eyes of heaven as any of the grand ceremonies performed in cathedral or palace, and methinks many times brought more real happiness.

As time moves on new neighbors come in; more clearings are

made and humble homes started and each day marks a development in the country. A log school house is built some two miles from our home; we have a comfortable frame house built. A frame school house is built here in Mondovi which is also used as a house of worship by Baptists, Methodists and Congregationalists, each in turn presenting the right way.

You may not all be aware that at one time in our early history, I think in 1863, logs were cut and hauled and a fort built to protect those who then lived here from the Indians, who were said to be on their way over from Minnesota (where they had been doing bloody work) to scalp and burn us all up. My little heart was filled with terror on my way to and from the old log school house at that time, for I could imagine I saw Indians behind every tree ready to pounce on and scalp Riley.

Hunting cows at night was another pastime I cannot say I really enjoyed; the cows, turned out in that pasture, which was as large as the state of Wisconsin, and the only guide was the tinkle of that cow bell, which was intended to be a little different from the neighbors' bells, for they were all turned out, and the cows had to be got. Though it was tough on the barefooted boy, it was still more unpleasant for him to come home without the cows. It does not take a very great stretch of the imagination to stop tonight and seem to hear the tinkle of that distant cow bell which brings up a thousand attendant recollections.

The battle with nature goes on; each day we have noted some of her original possessions yielded to the earnest, persistent efforts of man; she is brought in a measure to yield her thirty, sixty and an hundred fold. But upon this changing panorama the echo of the shot and shell fired upon Sumter reverberate through these valleys and over these hills and I need not tell you tonight that those echoes did not fail to touch loyal hearts, for, though it seemed as though there was not one to be spared from the humble homes, the ax was dropped, the plow was left in the furrow. a hasty good-bye to loved ones, and Buffalo county was ready to do more than her part in preserving our Union. Some, alas! bid a farewell which shall last until that time when we shall all be called up to the grand review where we are told war and strife shall never come. To me, a little boy, those years seemed terri-



ble years; the suspense and anguish suffered by loving ones at home could not be surpassed by the suffering on the march, battlefield, or in the prison pen. Uncle Robert Nelson went on foot over to Durand and back each week to bring the mail, he being postmaster and letter carrier combined. How anxiously his return was awaited. I used to come down from home on foot for the mail for "our folks" and the neighbors, and I can never forget the scene of those expectant hearts who watched and waited to hear news from the front. Did the wife suffer any when she failed to get the long expected letter? Did mother or father worry any when the letter did not come from the son? And when the weeks ran into months and still no word from the absent one, did the heart ache any? When the wife's hair silvers over, not from age but from anxious, sleepless vigils, I think not many of us know what suffering is or the price paid for that which is ours tonight.

But when the sky finally clears and the dove comes bearing the olive branch of peace, though it has cost some of the best of our treasures, we rejoice in our tears together.

The first musical instrument I remember in the way of organ or piano was a piano owned by S. M. Newton who owned the grist mill at that time, and I remember the strange emotions it caused in me the first time I heard it played. The tears rolled down my cheeks and I asked my mother if they had such music in heaven. I thought nothing could equal it as Mrs. Newton played some simple air.

Many changes have taken place. The horse has taken the place of the ox team. We have a tri-weekly mail, stores at Mondovi, a doctor, and many new homes and settlers. The good road takes the place of the winding cow path, and fences begin to mark boundary lines. The cemetery is laid out and begins to fill up and I soon see them lower a kind father's body into the cold earth, not, though, until he has called his boys to his bedside and charged them to make the world better for having lived in it.

How small our individual lives, as compared with the great wide world, and yet how important to us each are the circumstances and surroundings, the conditions and training which go

to make our character and lives! The kaleidoscope of time presents to us a new picture each day, and the castle finished yesterday crumbles today and out of its ruins the artist makes the painting which adorns the palace wall.

Circumstances make it necessary that we leave the farm. My mother goes to visit her old New York state home and takes me with her. I am quite a lad by this time, though my looks, as at the present, are not flattering. Having at that time just got up from a long illness I appear with no hair to adorn my cranium, and the clothes which I wear do not appear to touch my person at any point; and I present a general hungry appearance. I was not fat and robust as you see me now. I well remember my uncle asking my mother, when he met her and myself, what that was she had with her; but poor man! he learned later that I was alive and had an appetite.

Now, I am not insinuating that I expect to be hung on a palace wall, or anywhere else, I hope. But I feel that I owe a great big debt of gratitude and love to the people of Mondovi and vicinity for the kind treatment that I have always received at their hands and I can assure you that they will always hold as large a place in my heart as the size of my body will permit.

How much kind words are worth! How much a little help is worth just when you need it! How much the lives of the noble men and women who early left the more comfortable homes elsewhere to mark the paths, to break the sod, to lay the foundations of today's blessings and enjoyments are worth to us, we cannot measure. The most of those pioneers we have laid away in their last resting place and marked it with marble, but the monuments they reared are the blessings we enjoy today, entrusted to us for right use. And for their right use we shall be held accountable.

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Song—Miss Ball.

OUR BOYS.

Prof. J. W. Nesbit.

(NOTE.—The statutory limitation as to the number of pages the printed report of the Association may contain renders it impracticable to insert Prof. Nesbit's lengthy paper in full and a condensed abstract would do it but scant justice.)

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Music—Glee Club.

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ADDRESS.

W. D. Hoard, Fort Atkinson.

Mr. Chairman, Ladies and Gentlemen: I was exceedingly interested in that charming retrospect of the early days of Mondovi. The gentleman gave it, in some particulars, an artistic touch. He spoke with much sentiment concerning the common things of our common human nature in the early and original days. He spoke of the breaking team—forty-three years ago I drove a breaking team to the extreme injury of my early religious education. I came west in 1857, hardly twenty-one years of age, and I was ushered at once into the strong and throbbing development of Wisconsin. Everything about me was strange. The streams teemed with fish and I was an enthusiastic fisher and hunter. The lakes abounded with ducks, the prairies with birds and the woods with deer, and I had extremely hard work to hold myself down to holding the breaking plow, but if there is anything on earth that impressed me with the matchless quality of his shrewd diplomatic intellect, it was an old breaking ox. I have started out in the early morning wet to the skin, hunting the breaking cattle, hunting for the old ox

that bore the bell, and passed within ten feet of him and he prone with his neck on the ground to keep the confounded bell from tinkling, never saying a word, absorbed in a quiet and wonderful contemplation of the beauties of nature. A smarter animal doesn't live than a well-trained, old breaking ox, and he could beat a raw yankee boy every day in the week.

I was deeply interested, and I think the people here hardly appreciated the strong, deep thoughts that lay in the Professor's essay. I saw the boys get restless. Fanny Fern says the most unaccountable thing on earth is a boy, from the time you quit kissing him as a baby until you commence kissing him as a lover.

I know what a boy is. I was one of them, and I raised three of them, and they used to say, "Father, what kind of a boy were you? You seem to know just what a boy is going to do."

I want to give you a little illustration along the line of the Professor's thought. He did not overdraw the character of the city population and the degrading character of the life the poor live in the city. A number of years ago it was my fortune to be elected mayor of our little city. The tramp nuisance was then at its height. I was bound, if I possibly could, to find from what source came this animal called the "tramp," what part of society reared him, what kind of people he came from, and I instituted a number of experiments. Three hundred and sixty-four tramps came before me. I made a special study of a hundred and sixty-two. I spent a lot of time studying tramps, and do you know what I found? Not one single tramp of that hundred and sixty-two was born on a farm; not one of the one hundred and sixty-two could do a sum in common fractions; not one of the one hundred and sixty-two could put two sentences together grammatically, although some of them were perfect artists in handwriting. I found out that none of them was born on the farm in this way: I would keep a tramp in the lock-up until he got hungry enough to be repentant, and if there is anything that will bring a man face to face with the judgments of heaven, it is an empty belly. My barn was right across the road from the lock-up, and I would say to the tramp, "You go into that barn and harness that horse and I will give you a dinner,"



and not one of the one hundred and sixty-two could harness my horse. So, whatever he might say, I knew he was not brought up on the farm, because the farm boy has a trade. He is accustomed to the environment of the farm and the duties of the farm, and I never yet knew a man that was brought up on a farm that could not harness a horse. And so by various experiments I tried to get at where these tramps came from, and I found they were recruited from the laboring classes in the city who work by the day on the street and have an untold number of children who have no education but from the street and the saloon, and they are turned out and float upon the world of mendicancy and small crimes.

What this country needs today is industrial education. We have universities and colleges and high schools galore, but we do not have a practical education.

The other day at Brockville, Canada, I was invited to be present at the opening of the manual training school in that city. Lord and Lady Minto, their Governor General and his wife, were present at the opening.

I have been present at many such occasions in Canada and I have always found the aristocracy of England and the people of rank to be peculiarly sympathetic toward two distinct useful objects in life—one is the industrial education of their people, and the other is agriculture. I want you to think a moment what this country owes to the wealth and the aristocracy of England. Out of that little island, having a population of only thirty millions, have come nearly all of the improved breeds of cattle, horses, sheep and swine that today you and I are doing business with,—the whole world doing business with. If England has any claim to be proud, to any distinction whatever, it is that the brain and the wealth and the aristocracy of England have wrought great miracles for agriculture. It is those men who have brought from the arcana of nature some of these marvelous running horses; the Polled Angus, the Shorthorn, the Devon, the Guernsey, the Jersey,—all of these improved breeds of cattle have come from English thought and capital and culture. America, today, with all our proud boasting, has never originated a breed of cattle except the scrub. We have



originated one or two breeds of hogs, but in doing so we had to use the English Berkshire as the basis; and we have originated really no breeds of sheep. We boast of our intellect but we have occasion to stop and think whether we have not been treading along the lines of unthinking life.

The professor told you the story of the building of the bridge. Let me tell you one. Stonewall Jackson, the celebrated confederate commander, came one evening to a stream; he desired to cross that stream with his whole command by four o'clock in the morning. He called up Jack Armstrong, his bridge-builder, and he said, "Jack, I must get over that stream by tomorrow morning at four o'clock; General —, the Chief of Engineers, will hand you the plan."

In due time General Jackson was awakened by the following words from old Jack, "General, your bridge is built. I presume the plans will be along about noon." There was a man who had been educated in the hard experience of life to do something, and he did it.

The problems of farm life call emphatically for the education of the brain and the hand, and the hand is the handmaiden to the brain. The thought must precede the act.

It is unfortunate today for the agriculture of Wisconsin that there are so many men who do not value the brain, who place their sole reliance on the hand,—unskillful work, wasteful work, hard work, God knows, as any on earth, but work that is wasted because of a lack of intelligent training and intelligent thinking.

It is time, my friends, in Mondovi and everywhere else in Wisconsin, that we began to consider that farming is a business that calls for the best trained intellect and the most faithful and skillful handiwork.

Callouses may form on the hand when there should be corresponding callouses in the brain. God said, "By the sweat of man's brow shall he earn his bread." He didn't say by the sweat of his hands; he put the sweating process right near the brain, and if a man does not sweat in the brain, he won't have much bread. Oh, there was wisdom in that thought. Read between the lines: Solomon said, "As a man *thinketh* so is he."

He doesn't say, "As he worketh." He was wise enough to put the first thing first,—the thinking, the studying of these things.

I have said repeatedly that it is no very great thing for a man to be a lawyer, yet there are thousands of farm boys tumbling over one another in this state to make third and fourth class lawyers. It is no great thing to be a merchant or a banker. What do those men do? They simply are the students and interpreters of man-made laws; laws made by other men just like themselves. There are only two men today who deal with first principles, and those two men are the farmer and the doctor. Now, what kind of laws does a man deal with in agriculture? Are they man-made laws? No! Every law is made by God Almighty, and it takes the profoundest intellectuality to interpret God Almighty; and yet we find the farmer today thinking that if there is any education needed anywhere, it is for the boy that is going to be a lawyer or doctor or banker, and we find the farmer's boy running away with the silly idea that if he is going to be a farmer he does not need an enlargement and strengthening of his intellect. It is wrong, and every thing that is an error is bound to reap its harvest of error. Christ said, "The truth shall make you free," and in farming as well as everything else it is a knowledge of truth that makes a man free; it is the acceptance of an error that makes a slave of him.

We need everywhere in agriculture an impulse along the line of practical, substantial education. A great many men are very anxious about their ancestors, and a lady friend asked me to hunt all around Washington to find something with reference to her ancestors so she could join "The Daughters of the Revolution." Well, that's all right; I believe in a just respect for those noble men who laid the foundations of this government, but it is a confounded sight more important today that every man should see to it concerning the man he is today, rather than the man his great-grandfather was. Sir Richard Steele said, "People who boast of their ancestors are a good deal like potatoes, the best part of the family is underground." Dean Hole, the English wit and clergyman, was appealed to one day by a shallow young man who said, "Dean, have you read 'Darwin's Descent of Man?'" "Yes," he said. "Isn't it preposterous, how

extremely ridiculous. Why, he says we are descended from monkeys, but I don't know that it would make any difference to me if my grandfather was a monkey." "No," said Dean Hole, "I don't think it would make much difference to you, but I think it would make a good deal of difference to your grandmother." Now, my friends, I must stop, but I want to impress one thought right here on the young men I see before me. I want to use one little single statement for the farmer's boy. I am applied to every year by from fifty to one hundred wealthy men all over this nation asking me if I can furnish them with well educated, skillful farm managers. There are men of wealth all over this country who have plenty of money and want to employ men of honesty, integrity, ability and skill to handle their farms and their herds of cattle. I cannot find them, but I could furnish lawyers by the car-load. Isn't it about time that the tendency of the educational forces of this country was toward making intellectual agriculturists? The other day in Boston a gentleman said to me, "If I could obtain the right kind of a man I would be willing to pay him from \$1,500 to \$2,000 a year to handle my landed property, and herds of cattle." I said, "I don't know where he is; the young men, most of them, are ambitious in another direction, and even farmer's boys think it is not genteel any longer to be a farmer." Oh, but they will find out their mistake.

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Music—Orchestra.

Adjourned to 9 a. m., Feb. 14.

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#### MORNING SESSION.

Morning session, February 14, 1901.

Convention met at 9 a. m.

The President in the chair.

## A DUAL-PURPOSE HERD—HOW I MANAGE IT.

Hon. J. W. Whelan.

Farming is a business and to be successful must be conducted on principles similar to other business enterprises. It differs from other vocations in being broader and more complicated, requiring the study and comprehension of more diverse and varied conditions, from which correct conclusions must be drawn in order to be successful, than other affairs in which people are engaged.

If the farmer is mistaken as to one or more of the elements or conditions on which he bases his operations, it costs him dearly and may result in failure. He must not only understand all the conditions and the means at his command but he must be able to combine them in such a manner as to make them work harmoniously as a whole—so as to produce the greatest net profit without loss, waste of time, labor, material or money. To do this requires the highest kind of business judgment as well as the power of organization and adjustment. The balanced farmer is of more importance than the “balanced ration” of which we hear and read so much. He needs balancing as much as the ration.

It is this lack of harmony with his surroundings that causes so many picturesque but dismal failures we so often see in farming communities. Silos built without any just comprehension of their proper use, filled with dry corn fodder or else green and immature, resulting in a decomposed condition, from which the sensitive and delicate Jersey turns up her nose and goes away in disgust; keeping a larger stock than the food products of the farm will sustain, and without proper or sufficient shelter; fences inadequate to keep stock in place, in order to utilize and consume the wasting forage of the fields or to keep them from trespassing on the neighbors; engaging in branches of farming in which the hired help and the family cannot be profitably employed only a portion of the time; keeping too much stock of one kind and not enough of another to consume and make profitable



use of what would otherwise be wasted; keeping so many cows that additional labor must be employed to do the milking morning and evening which cannot be profitably used the balance of the day; engaging in intense or specialized farming where land is cheap and labor dear; disregarding the market, its conditions and demands; engaging in a line of farming for which he has no taste or aptitude and in which experience is expensive; incapability of adjusting means to ends; a lack of industry, perseverance and good business judgment;—these are some of the things that need balancing as well as the farmer, and unless they are properly adjusted and harmonized, sooner or later failure and disappointment must result.

Nearly all parts of Wisconsin are well adapted to dairying combined with raising stock of all kinds for other purposes. Diversified farming can be followed with as much success as in any state of the Union. It has a great variety of soils, grains and grasses. Corn can be raised in nearly every county of the state and a plentiful supply of good water is found everywhere. While parts of the state may be and are peculiarly adapted to dairying alone, the greater portion is better fitted for mixed farming. The majority of farmers combine the production of butter and cheese with beef, pork, wool and mutton, while only a few belated antediluvians follow the plow on foot and raise grain for the market.

Every person who engages in agriculture and stock-raising, in order to succeed, as has been indicated, must have a knowledge of the business and be industrious—one is helpless without the other. One cannot by taking thought increase his stature one inch, neither can he lift himself by his own bootstraps. How often we hear a would-be farmer (or rather an agriculturist) talk eloquently, if not intelligently, to the rustics ranged around, how to succeed in farming. And yet when we visit his premises we find anything but success. His promises are greater than his performance. Then again we find a man working hard from one end of the year to the other and yet he is no farther ahead at the end than at the beginning. His last condition is even worse than the first. He is not able to adapt means to ends. He does not mix brains with his work.



The question as to how a dual-purpose herd should be managed—the topic assigned to me—is not a difficult one, provided the phrase “dual-purpose” be properly defined and understood, and provided further, as has been indicated, that all the conditions for handling such a herd are favorable. If, as is generally understood, the phrase “dual-purpose herd” means a herd of cattle wherein the cows give a reasonable quantity of milk and the steers make good beef, then I am free to admit that the difficult part of the problem is to get such a herd and maintain it afterwards,—and yet a majority of the farmers throughout the state are attempting to accomplish it. Even in the dairy districts a large number, if not a majority, are Shorthorns, grades and scrub cattle. This is not strange if we consider as before stated that farming is a business and as such the ruling thought and object is to make money. They reason that on the ordinary-sized farm, located at some distance from the larger cities, where corn, hay and grain are produced in abundance, land comparatively cheap, labor high-priced, and for economical use should be employed all the time,—that there is more net profit, after deducting all expenses incurred in dollars and cents, in the dual-purpose herd than there is in any of the specialized, one-purpose, dairy herds of cattle; that it gives a wider field for the continuous, profitable employment of labor, and utilizes products at a small expense that would otherwise be partially wasted; that it increases the sources of profit. Are these conclusions true or false? It does not follow because a majority of the people believe a thing to be true that it is so,—yet the presumption of its truthfulness is with the majority.

Under ordinary conditions, diversified farming in this state is more profitable than specialized, and the dual-purpose herd in addition to other advantages has one more element of profit than the one-purpose dairy herd. The whole question is, do we lose more than we gain by adding to the other advantages the production of beef and thereby possibly reduce the quantity of milk in our herds? Evidently the majority of farmers believe there is a gain when the equation is solved and the value determined.

The general or dual-purpose cattle are, as a rule hardier, have more vitality and are not as subject to disease and loss, require

less care and labor to keep them, and in case any accident happens to any of them or they prove not to be valuable for milk, they can be more readily converted into money and at a higher price. This, however, is only one factor in the intricate problem of deriving net profits which the general farmer must solve in order to be successful. The question of the cost as well as the economical use of labor, the additional expense and disadvantage in handling an all dairy-purpose herd in connection with pork production, are of more importance.

To illustrate how we attempt to solve the problem,—one hundred head of cattle and about the same number of hogs of all ages are kept on the farm. On an average, twenty-five per cent. of the cattle are cows. This number can be milked morning and evening by the help on the farm without shortening the day's work in the field. During the season for sowing, planting and harvesting the crops, the other stock are turned out to pasture and require no special care or attention. About one-third of the milk is sold to a milk-dealer in town and two-thirds delivered at the creamery. The skim milk is fed to calves and pigs. If the number of cows were materially increased it would necessitate an increase in the cost of labor to do the milking, which could not be economically or profitably used in other work on the farm. During the late fall and winter months we usually have a greater number of cows to milk; the steers and young stock are brought to the barns and the spring pigs have become hogs. The boys (and every farm should have boys and girls as well as pigs and calves), before and after attending school, assist the hired help to do the milking. The steers and hogs are fed in the pasture or feed lot with as much unhusked corn hauled from the stack as they will eat during the day. The cows are excluded from this feed except that on fine days in the afternoon they are allowed a short time to pick over the stalks. All the cattle are dehorned and divided into classes as to size and age, each class put in a separate stable, loose, the same as sheep, and fed hay and grain. The cows are treated in a different manner. They are not allowed a corn ration for the reason that it lessens the flow of milk. The greater number of calves are dropped in the fall and early winter

months and are in no case turned on grass until they are six months old. The heifers are raised and fed principally on milk, hay and oats, while the steers are given some corn as soon as they are able to make use of it. Feeding as well as breeding has an influence in making good milch cows.

The breed of cattle kept is full-blood and grade Shorthorns, the poorer cows for dairy purposes being sold each year for beef or to some purchaser who wants a good-looking cow that is supposed to give milk. The sires used are from the milk families of that breed. Only enough corn to feed hogs and pigs in the summer and to grind for cow feed in winter is husked. The steers and hogs husk and grind the balance of the corn, for which they neither make a charge nor take out toll. Pork and beef are made at the same time with but little labor and no waste when properly fed. During the day the stables are cleaned and the manure after being inspected by the hogs is hauled to the field and spread. The rejected portion of the hay in the mangers is taken to the horse yard where it is eaten with a relish.

This is a brief outline of the system followed, and under the conditions produces larger net profits, with less labor, and a smaller cash expense, than any other that might be adopted. Shorthorn cattle, selected as indicated, fit such a system perhaps better than any other breed.

I am not, however, like that man who said of his neighbor, the owner of a Jersey cow—that he was too proud to own a goat and too poor to buy a cow. I believe there are places and conditions where the Jersey or any other good special dairy breed would give better results than any general purpose cattle we now have. Such places and conditions are limited, and for that reason the dairyman will always be rewarded with good prices for his products and guaranteed continuous profitable employment so long as the human race have a taste for a good quality of fine flavored butter and cheese.

## DISCUSSION.

Prof. Henry: Mr. Whelan, what are your returns per cow, in pounds of butter or pounds of milk, or something that will show the audience what your Shorthorn cows are doing as individuals?

Mr. Faville: Make it dollars and cents.

Mr. Whelan: We keep no record with each individual cow.

Prof. Henry: But you know what your returns are from the creamery for your whole herd. You are a banker, Mr. Whelan, and you know to a cent the condition of every account and every asset in your bank every day, and here are cows worth \$40 or \$50 apiece to you—do you mean to say that you do not know what they do singly or in the aggregate?

Mr. Whelan: I know what they do in the aggregate; the boys know better what they do singly. I look at the net result; I am not watching details. I can tell pretty well when the balance is on the right side.

Mr. Bradley: Tell us about how many dollars each cow yields you, either in milk or butter.

Mr. Whelan: We have to count in the calf; we raise nearly all our own calves.

Mr. Bradley: So do the other fellows.

Mr. Faville: What are the calves worth?

Mr. Whelan: Last year I sold the calves for \$30 apiece at from two weeks to three months; sold them for breeding purposes.

Mr. Phillips: You say you want a cow to give a reasonable amount of milk. How much is that?

Mr. Whelan: I want a cow to give ten quarts or more a day for a considerable length of time.

Mr. Phillips: How long?

Mr. Whelan: I will say for nine or ten months.

Prof. Henry: What percentage of butter fat?

Mr. Whelan: It varies of course, I haven't any individual records.

Prof. Henry: What does your herd average?



Mr. Whelan: About four per cent., some a little over and some a little less.

Prof. Henry: What does the creamery pay you in any month, or for the year for a certain number of cows?

Mr. Whelan: I get from the creamery about \$700.00 a year. I get for the milk sold in town about half as much more and I sell about \$1,500 worth of beef cattle.

Prof. Henry: And about how many milking cows do you have?

Mr. Whelan: We run from twenty to thirty, varying at different times, average probably twenty-five.

Mr. Faville: Do you buy any calves?

Mr. Whelan: No. It is impossible to buy a calf that is worth feeding.

Mr. Bradley: You get between forty and forty-five dollars on an average for the milk that they produce and whatever the calf is worth besides.

A Member: Can you sell the milk and make the beef value up to thirty dollars for the calf?

Mr. Whelan: No, I think not; these calves are not sold for beef.

The Chairman: What we want to find out is, if a man is keeping a dual-purpose herd what would it be worth for beef.

Mr. Whelan: I never have done but very little of that. I don't think it pays ordinarily, not under my circumstances. It all depends on a man's particular circumstances; it depends on his good business judgment. There may be conditions where it would be profitable to do one thing and those may change, and it may be profitable to do something else.

The great problem as I look at it in farming is to get things balanced and to look out for the cash only; and the largest element in cash outlay is labor and to employ that economically and efficiently; that is what counts.

Mr. Philips: You recommend milking only about twenty-five or thirty cows, so as not to shorten up the day's work in the field?

Mr. Whelan: We usually have four or five—sometimes six persons to do that, and we utilize two or three boys.



Mr. Bradley: If you didn't have the boys the men would have to stop two or three hours earlier?

Mr. Whelan: Either that, or I would have fewer cows.

Mr. Foster: Are those calves full blooded or graded?

Mr. Whelan: Those that I have now are practically full blooded. I have bred them for fifteen or eighteen years; some of them are registered and some are not. I presume I could have made money if I had registered them.

Mr. Bradley: Now, Mr. Whelan, the average dairyman would not have stock that he could sell at thirty dollars for the calves. With the forty dollars for the milk that he would get from the cow, what would be the fair average for this steer calf? We Jersey fellows insist that our heifers are worth as much as your Shorthorns, but we still allow your Shorthorn steers are worth more than ours. Now, we want to know how much more.

Mr. Whelan: I could not tell you that. I never had but very few Jerseys, and I haven't sold but very few calves for veal. If I lived near Chicago or Milwaukee, possibly I would make a business of selling calves for veal, depending on the market.

Mr. Meyers: How long do you feed whole milk?

Mr. Whelan: About four weeks; we feed them right along.

Mr. Meyers: Don't you use your skim milk for your hogs too?

Mr. Whelan: Yes.

Mr. Meyers: That ought to come in on the profit.

Mr. Whelan: Yes, I count the pork profit the biggest profit in the business. I think that is where we make most of our profits right there in the saving of labor in handling corn.

Mr. Meyers: How much do you think that skim milk is worth a hundred?

Mr. Whelan: Well, I know it is valuable, just how valuable I wouldn't say. Some reports say twenty cents, some less. All I know about it is they like it and they seem to thrive on it if it is properly handled. It is worth as much to me as anybody.

Mr. Meyers: I think it is worth twenty cents a hundred to a man that takes proper care of the calves and pigs.

Prof. Emery: Mr. Chairman, I have been much interested in these statements and I am in agreement with the general propositions in the first part of the paper. As some of you know, for more than thirty years I have been engaged in school teaching in Wisconsin and during that time I had a theory that when a man should arrive at the age of fifty he should do something else than teach school, because the grandfathers and grandmothers are usually the ones that spoil the children. During all that time I had in my mind a plan to go upon a farm, to invest the little money I had been able to save during these years in a little farm, and gradually increase those acres. When the time came that I decided to go upon the farm, the question what to do was the one most in my mind. I hadn't money enough to farm for the fun of it; I wanted to farm for the dollars and cents in it. I cast about, studied Hoard's Dairyman, and other agricultural papers, and became imbued with the idea of dairying, and the question was, what kind of cattle I should take,—whether I should raise both beef and butter, or whether it would be better for me to select a dairy breed of cattle and give my exclusive attention to dairying. I decided upon the latter and in following up that course I found it of value to me to visit other people's herds,—not average herds, if you please, I don't care very much for average herds, or average dairymen or average cows or average farmers. So I did not go to places where I thought I would find these averages, but I wanted to learn from those who had made a great success handling the dairy cow, and I visited the herd of Mrs. Howie, and of Mr. Scribner, and Mr. Hill, and Mr. Hicks, and Mr. Buckstaff, and Mr. Taylor; and I learned much at all these places. You wouldn't think it strange that a man should go to the herd managed by the man who bred and reared "Brown Bessie," that great cow that won fame not only for her breed but for her state of Wisconsin and for this whole country—you would expect a man could learn something there. I am not going to speak of what I learned there, but I want to speak of one or two other places. I went to the dairy herd managed by the lady you heard from yesterday, the lady who owned a house on Grand avenue, Milwaukee, and who, because her son wanted to be a farmer and insisted on going to the Agri-

cultural College to learn to be a farmer and a dairyman, left her city home and went to this farm, as she has said sometimes, thinking to make him discouraged and bring him back into some other occupation, but they are there yet and have made the farm a success.

Among other things she resolved that that farm should be clean; and it is clean. I found that Jersey herd kept in scrupulous cleanliness, the walls of the barn white, every cow clean and sweet. Over the entrance was the label "The Jewel Casket," and they were cared for, not as the average cow, but as cows worthy of their breed and worthy of the work they were doing, and what is the result? Does she make it pay. Those cows are bringing her yearly about \$100 apiece for the cream sold to the Plankington House, Milwaukee. I did not ask on that farm concerning the work done upon the farm, but the work done in that herd is such as to commend it to me as an inspiration looking toward exclusive dairy work, being sure that there one can find abundance of opportunity for all his brain, all his effort, and can make it pay. I went to the herd of another person, a man who is employed as an institute conductor in Wisconsin. Sometimes we wonder if these men who go about at the State Institutes are putting into practice their own teachings, and I believe they are. This man of whom I speak had heard of Mrs. Howie's place and he remarked he was "danged" if any woman should beat him in keeping a herd, and I can tell you, from what I saw there, I concluded that he was a mighty close second. There was the same cleanliness of the barn, the same intelligent feeding and he today is making those cows pay him \$100 a year for cream sold in Milwaukee.

That is not average farming. This man has eighty acres—good land to begin with; twelve acres of the front are used for the buildings and for some permanent pastures, the remainder is divided into four lots of seventeen acres each. He keeps a herd of thirty cows and the young stock that he is raising from this herd. He keeps no swine. On those four lots there is a rotation of crops, seventeen acres of pasture, seventeen grass land, seventeen acres for oats and seventeen for corn. His name is Fred Scribner. I saw the corn fodder and I saw the silage

raised on that seventeen acres of corn,—raised by excellent tillage,—not average tillage,— intelligent work, skillful handling of the soil; he fills those two silos, holding one hundred tons each, and those cows receive silage every day in the year; they are fed bran or nitrogenous, protein food every day in the year and he sells enough corn and oats produced on the farm to purchase the bran that is consumed by this herd during the year.

In other words, this eighty acres of land under that intelligent tillage given them by this institute conductor and his assistants who are agricultural college graduates, supports that herd of cows which is bringing him probably \$100 a year apiece, and besides he is selling stock that will probably equal at least half as much more. And this is dairy farming; this is not dual-purpose work. This is work with an eye single to the one thing, and at this Dairy Convention, intended as it is to advance the cause of special dairy interests, I submit it will pay us to consider these things, not in the light of average effort, but we should seek the better and the higher purpose, thereby putting money in our pockets and living a more excellent life than the average life in every way.

Mr. Jose: How many cows are on this eighty-acre farm?

Prof. Emery: Thirty cows and about as many more of the young stock.

Mr. Merrill: Mr. Whelan, would that Jersey herd bring in \$100 if it was here in Mondovi, delivering milk to the creamery here?

Mr. Whelan: I am not the man that had the Jersey herd, I don't know.

Prof. Emery: I don't know anything about Mondovi conditions. I was undertaking to describe conditions not in an ideal way, but as I have seen them, but which I believe to be ideals which we ought to hold up and try to live up to. That is the only way to get beyond the average conditions which are holding us all down. Mr. Scribner is seventy-five miles from Milwaukee.

A Member: At what price per gallon was the cream sold in Milwaukee?

Prof. Emery: Mr. Scribner told me that his cream would



bring him about \$1.35 per 100 pounds, or 55 cents a gallon. He said about the same as 25 cents a pound for butter.

A Member: How are we to reach that when we are 225 miles away from the big cities?

Prof. Emery: We never can until we get better ideals and have object lessons before us as something to be striven after, so we make progress.

The Chairman: Mr. Scribner is located where he can get 25 cents a pound for his butter. If he were located in Mondovi, he could not get 25 cents, but it would average something like 21 cents from the creamery, bringing it to something like \$80 or \$85 per cow.

Mr. Favill: The right kind of butter is worth as much in Mondovi as it is worth within seventy-five miles of Milwaukee.

The Chairman: But, Mr. Scribner has a special market for his cream which brings him more than he could get if it were made into butter at the creamery. Some private dairies get 25 cents the year around; but those are the men that Professor Emery talks about that are at the top, they are not average butter makers.

Mr. Everett: There seems to be an opinion, that because Professor Emery has described these two herds that there is no other way to receive \$100 a year per cow except from cream. I believe our friend Goodrich has received \$100 for a good many years for butter.

Pres. Goodrich: I one year got \$107 per cow for butter. The butter was sold on the Chicago market. That was as a private dairyman.

A Member: Aren't those cows described by Professor Emery more than average cows?

The Chairman: Of course they are. You know he doesn't believe in average things.

Mr. Meyer: I don't believe in the average cow myself, but a conditions are around here a good many farmers couldn't breed Jerseys. If a lot of neighbors living near together could have a Jersey bull, we could have good cows too.

Mrs. Howie: The question has been asked here if these cows so kindly referred to by Professor Emery were not above the



average. Now, I would like to tell you a little about two common cows that stand in my herd as highly respected as any cow that has the finest pedigree in the herd. One of those cows was bought for the purpose of feeding the Jersey calves. Her destiny was to be turned off so soon as she refused to furnish sufficient milk to feed four or five calves. But I didn't like to see that cow going along under average conditions, so I said to the boys, "We will not have it said that any cow in this barn is neglected, you will please groom 'Dame Dotty' just as carefully as you would her more aristocratic sisters; you will treat her just as kindly and with just as much consideration." And how do you think Dame Dotty repaid us for that care and kindness? She gave over 10,000 pounds of milk in one year, and that milk tested from 4 to 4.8 per cent. Dame Dotty still stands in her stall at "Sunny Peak Farm," and Dame Dotty may stand there till she dies, whether she has a pedigree or not.

There is another cow that came into the herd to keep up our good cream record. That cow is "Miss Rose." Mind you, every cow that is a partner in our business has a name and is treated with respect just as any partner in business should be. Miss Rose has been showing her appreciation for kind treatment and systematic care and scientific feeding, such as is taught at the State University, by making sixteen and one-half pounds of butter a week by the Babcock test. Now, I haven't owned Miss Rose a year, but if she continues in that way, she may stay in the Sunny Peak herd whether she has a pedigree or not.

Mr. Meyer: But those two cows, of course, are not average cows,—they are way up at the top.

Mrs. Howie: Those two cows were not treated like average cows.

Mr. McDonald: Much has been said as regards market prices. We should remember that market prices are never created for any certain individual. Where the market price varies, it varies because of merit on the various products that are produced. A person has to create it himself and the difference between the net earnings of a herd are largely determined by the net price received.

## A JERSEY HERD—HOW I MANAGE IT.

W. L. Houser, Mondovi.

Mr. Chairman, Ladies and Gentlemen: Mine will be a very simple story and briefly told. As many in this audience know, I have been engaged many years in business other than farming, but there has always been a controlling force in my nature that led me toward the farm. Partly by design and partly through business conditions I became possessed, a few years since, of a farm within the city limits, land that is quite high priced, and in order to manage it intelligently and bring out of it something more than experience I cast about and determined that dairying was the solution of the problem. Hence I set about to establish a dairy herd and to conduct it with the purpose of making money out of my farm and out of my herd, and now I am here to tell you how I managed it, how I kept my cows, how I stabled them, how I fed them, how I cared for them, how I kept the records and what the results were.

First, I bought cows of my neighbors. I thought the Jersey cow was the typical dairy cow and there had been several parties about here who had been breeding Jerseys, using full blooded sires, and there were many high grade cows in this community, some very good ones, and when I could find or hear or know of one that seemed to be above the average I sought her out, tested her and bought her, sometimes paying, in a comparative way, very long prices for her. In that way I started my herd. My herd is now composed of high grade Jerseys and registered Jerseys, about half each. I have imported some, some came across the water from the island of Jersey direct. Now, that is the kind of cow I am operating on.

I have a basement barn, nearly all built above the ground, however. It is flooded with light. I used nearly all the space I could get for windows, only leaving room enough for piers upon which the structure could rise. I think there are about twenty-four double windows in the barn, thirty by eighty feet.

Each cow has an individual stall, one I designed myself, and which operates very satisfactorily to me and to the cows.

I have studied to feed my cows a balanced ration and to tell you how well I have solved that problem, or how well you may think I have solved it, I will tell you what I am feeding to those cows,—mixed hay, because we don't have clear clover; shredded fodder,—not so good as silage I believe, but I haven't got that far along yet, but I intend to have a silo in the near future; oat straw; the fodder is fed in the morning, the oat straw when the cows are put in in the afternoon and hay in the evening. My cows eat all this roughage, there is very little wasted: this year we had a bad rainfall and it was very difficult to get the fodder in in good shape, so there is some waste there.

For the grain ration they are fed oats and corn and bran in about equal quantities, and I have been feeding for the past two months an additional portion of buckwheat shorts, about seven pounds of oats, corn and bran and about three pounds of buckwheat shorts. So much for the feed.

Now, the care. My cows are kept in this barn where it scarcely ever freezes the least bit. It is quite well ventilated; each cow has an individual stall, she is tied with a chain about the neck. They are well bedded, the barn is kept scrupulously clean, swept out—not washed—but swept every morning; the cows are thoroughly groomed every day and on every day they are let out in the yard to water and the water is warmed in a tank. If the weather is cold they are put back in the barn about three o'clock. They are milked regularly, at the same time every morning and every evening, milking each cow in regular order, scarcely ever changing. Cows are very particular; they don't want to be slighted and they are sensitive if some other cow is given an unusual preference. No cross words are used towards my cows; they are not caressed with the milk stool or made acquainted with the boot. A man will get his walking papers mighty quick who abuses one of those cows. You can go up to any one of them in the yard and put your arm about her neck and she will thank you for the caress. So much for the care.

I wanted to know what my cows were doing; I wanted to know

whether it was a profitable as well as a pleasant business enterprise, and I commenced keeping records, and like Mrs. Howie's herd, every cow has a name—"Jersey Island Queen," "Jersey Island Countess," "Jersey Island Princess," "Jersey Island Duchess," and so on—these are our imported ones.

A record sheet is kept for each month. Every cow has a place on that record and the amount of milk she gives night and morning is placed thereon. I know at the end of the month just the exact amount each cow gave for that month, and I can tell you at the end of the year just how much each cow has earned for me. This record is kept religiously and perhaps you will be surprised when I tell you that if, for any reason, my men have to go a few days without the record sheets, they complain. I have no doubt many farmers in this audience will say it is too much trouble and takes too much time to keep a record.

The gentleman who preceded me, and who has a splendid herd of cattle and manages them splendidly, fails to keep this record, and he knows little of what his cows are doing according to his own statement to you. I have found on the contrary that my men want the record, and if they find a certain cow has given a pound or two less at a milking than she did at a previous milking, they are very much concerned to find out the cause, because they have before them the record that says that something is wrong.

Now, the results. I cannot make \$100 a cow yet, but I have been able to get gross results from that herd, averaging about \$65 each. Now, that includes a great number of young cows, heifers that I have raised upon my farm that have come in milk for the first time, but they are not to be discredited, my friends, because I have heifers on my farm that have made upwards of 400 pounds of butter in a year.

This \$65 is for the gross returns from the creamery and for the amount of butter used by my family and by my farmer and for the milk that we have sold.



DISCUSSION.

Mr. Foster: Do you allow anything for the calf?

Mr. Houser: Nothing for the calf: I have not allowed anything for the skim milk in this estimate, either, and it certainly ought to count, because I feed it to my calves and my hogs and get nice returns from them.

Perhaps the aggregate amount would approximate \$75 each, for the cows.

Mr. Foster: What is the average test of those cows?

Mr. Houser: The average test for my cows at the creamery has been repeatedly up to 5 per cent. and more. That is a matter of record at the creamery, because I have been part of the time without a separator and had to take the creamery record. Now I have a separator in the barn and the milk is immediately separated, the skim milk fed to the calves and pigs, while warm, and the cream taken to the creamery and there manufactured.

Mr. Cooledge: How often do you take cream to the creamery?

Mr. Houser: In the winter time twice a week, three times in the summer time.

Mr. Humphrey: About how many hours would you leave a cow out in bad day like this?

Mr. Houser: Today they went out a little earlier, because my man is here, or ought to be, but they generally go out about 10 o'clock and stay until about 3.

Mr. Humphrey: About what was the average price you sold your product for last year?

Mr. Houser: I think about 20 cents.

A Member: Was your grain ground?

Mr. Houser: Yes, I have a mill.

The Chairman: How many times a day do you water your cows?

Mr. Houser: We turn them out and they take what they want during the day.

Prof. Farrington: If you only deliver cream twice a week, in what way do you keep it between times?



Mr. Houser: We keep it in cans and in a tank in the summer time when it is warm.

Prof. Farrington: At what temperature?

Mr. Houser: It is cold well water; I don't know just what the temperature is, I should presume about 50 degrees.

Mr. Favill: Do you mean this audience to understand that you feed those cows 10 pounds of that ground feed per day for the whole year, or only for the milking period?

Mr. Houser: Only in the winter time. I feed grain the year around, however.

Mr. Favill: Do you vary the quantity in regard to the time your cow has been in milk?

Mr. Houser: Yes. I do not feed as much near the close of the milking period as earlier.

Mr. Favill: Now, Mr. Houser, do you feed your older cows and the younger ones the same amount of grain?

Mr. Houser: No; and I don't feed cows of the same age the same amount of grain. They won't all take the same amount of grain, and they won't all take the ration in the same relative form. You have to change your feed—to study your cows. I have spoiled some of my cows; I have made many mistakes.

Mr. Favill: Tell us about that.

The Chairman: He wants to know how to spoil a cow.

Mr. Houser: There are several ways: One way is to milk them too long. I have spoiled two or three cows—I don't know whether permanently—by milking them too near the time of coming in.

Mr. Favill: How near is that?

Mr. Houser: I have done it by milking within four weeks. By attempting to milk them up to that time, I have been unable to dry them off in four weeks.

Ex-Gov. Hoard: Doesn't that happen when you have carried the milking along to the time they commenced to spring bag for the second calf?

Mr. Houser: Yes; then you must continue the milking.

Mr. Favill: You mean for that season.

Ex-Gov. Hoard: I think they are generally permanently injured in the structure of the udder.

Mr. Houser: I don't know as to that. I had one that I had that experience with; she ran over and did not do very well, but the next year she did first rate.

Ex-Gov. Hoard: That is good luck.

A Member: How long should a cow be dry?

Mr. Houser: I think not less than six weeks. This may not coincide with experience and scientific fellows, but that is my judgment.

Prof. Henry: Do you use the Babcock test in order to determine the relative merits of the individual members of your herd, or do you depend upon the creamery test?

Mr. Houser: Most certainly, the Babcock test.

Prof. Henry: I would like to ask how many dairymen in this audience use the Babcock milk test to determine the merits of individual cows in their herds? Hold up your hands. I see thirty-four. Now, I would like to know how many keep a record of the milk of each cow, say, one day in the week, or some other period—we will say every day first, every day in the year. Seven. How many keep it at least once a week, weigh their milk once a week only? Four. Now, how many weigh it occasionally? One. These are interesting facts to have in our record at the beginning of the new century, and when this Association meets twenty-five years from now, I believe nineteen out of twenty will hold up their heads.

Mr. Houser: We won't have to wait that long.

Ex-Gov. Hoard: From my thoroughbred cattle I weigh every day; the grades perhaps once a week.

Mr. Houser: This audience is composed largely of men who patronize our local creameries. I wish the farmers of Buffalo county, who own routes and patronize creameries, who have and use the Babcock test, would indicate it. Eight. Now, how many of those farmers keep records of the individual product of each cow, daily or weekly? Two.

Mr. Brown: Mr. Houser has stated that the average gross receipts from his Jersey cows has been \$65 or thereabouts. Now, in producing that amount of money, have you figured out the expense of the feed and care you gave them?

Mr. Houser: A very pertinent and valuable question, and I

am prepared to answer it. I have reduced it to a positive demonstration, and it is \$35 for each cow's feeding and keeping and caring for her. That may startle the President and some of the rest of you. I don't think our feed is quite as expensive as it is with some of you.

The Chairman: Please divide it into the cost of the food and the cost of the work.

Mr. Houser: Buckwheat middlings costs us \$14 a ton; corn this year is worth about 30 cents a bushel; oats are worth 20 cents; bran is \$15 a ton. The cost of the food per cow per year is about \$25, including the pasture and I add \$10 for caring for her.

Chairman Goodrich: It used to cost me \$15 to care for a cow and milk her. I used to hold the watch on the boys—I would rather hold the watch than do the work myself—and that is the way I got at that.

Ex-Gov. Hoard: What do you reckon the pasture?

Mr. Houser: Five dollars each per cow.

Mr. DeWitt Goodrich: Have you any difficulty in getting competent help for milking, Mr. Houser?

Mr. Houser: I haven't had so far.

Mr. DeWitt Goodrich: What do you have to pay for men to do your work satisfactorily?

Mr. Houser. I don't like to tell. I am not ashamed of it, however. I am paying the man who is working around my farm now \$400 a year, and he has some concessions besides, and he furnishes more help than his own hands. His boy helps him and the girls help him some.

Mr. DeWitt Goodrich: And he boards himself?

Mr. Houser: Yes.

Mr. Bradley: You have got him cheaper than some of the rest of us.

Mr. Houser: Now, don't make him dissatisfied.

Ex-Gov. Hoard: That is just exactly what I pay my principal man. Mine is a farm of 150 acres within a fraction. My principal man furnishes a team and a few tools; he has a house and fire wood and the keep of a cow and two pigs and a garden, and he gets \$400 a year. The other man I pay \$20 a month

for eight months and give the farmer \$10 a month to board him: The farm is not yet in its complete work, but as near as I can figure out what it will do when the herd is to its final good capacity, if I can't make that farm pay me sixteen per cent. on its investment, at \$90 an acre, I will quit.

Mr. Houser: You won't have to quit.

Ex-Gov. Hoard: I know a farm right next to the city of Fort Atkinson of 170 acres. L. B. Royce, president of the Citizens Bank, a thorough business man, owns the farm. He has \$18,000 invested in it. He lets it to a man by the name of Froelich, a German, who is a very thorough, intelligent farmer, a reader and a thinker. Last year that farm produced 17 per cent. on a capitalization of \$18,000. Mr. Royce got half of it and Mr. Froelich got the other half, and it is carrying only about thirty-five cows. With more intelligent and careful management it could carry sixty, with no increase whatever to the original or fixed capitalization, and he proposes to increase the working capital on the farm which is invested in cows and will make that farm, I believe, produce twenty to twenty-five per cent. on this investment.

Prof. Henry: There are two or three points that should not be lost sight of by our audience at this time. We have heard concerning the Shorthorns and the dual-purpose cows. We have now heard from the gentleman giving us the merits of the Jersey. It seems to me a word should be said at this time to close up that subject. Do not forget for a moment, farmers of Buffalo county, and all counties, that at this particular time in the history of our country we are on top of a wave of comparatively high beef prices. The previous wave was in 1883, at which time you could sell almost any kind of a calf at a good round figure. The collapse came about four years later when men lost fortunes in the cattle business in many cases on the western plains, and when Shorthorn herds of great excellence were often broken up and sold for beef prices. The butter and cheese business have been in excellent condition through these last two or three years, but beef is unusually high because there is a shortage of beef cattle. Now, every farmer, you know, is feeding a good many more calves than a few years ago and in a little while



those calves are coming into the market; Wisconsin second and third grade animals are going to compete with better animals from Illinois, Nebraska and other states, and then prices are going to be lower again. Now, if it is for your best interests to be a beef producer, or even in certain cases, to keep a high grade, dual class of animals, I have no quarrel with you.

We cannot all be dairymen any more than we can be republicans or democrats or Methodists or Episcopalians; we never can all think and act alike. But if you are a natural beef-producer, if you have been in that line for years and done well in that line, go on, you will stand it with the prices you will get.

On the other hand, if you have been handling the Jersey or Guernsey or Holstein or any other specific dairy animal, if you have learned to manage them and done fairly well, don't be carried off your feet by this wave of high prices for beef animals at this time; don't lose your head. The man that jumps into this thing because prices are high and then out of it next year because prices are low, is the man that is all the time getting left.

If you are a natural dairyman, with these specific animals, stay with them, select your poor animals out by the Babcock test and the scales and get rid of them—give them a fair trial first to the best of your judgment and use the test. One of our dairy students who is one of the finest dairymen in the state, a boy who is making money right along, has helped a patron to bring his cows up from an average of \$19 to about \$60. There were twelve cows that brought in \$19 at the creamery. This young man told his patron how to feed and care for his cows. Mr. Miner sat down and figured with him, how he ought to feed; they made tests and studied out the whole business; the farmer was wise enough to take advantage of the young man's education on these matters and the result is he is receiving \$60 a cow instead of \$19.

Now, if you have got grades, do not trade them for pure breds; keep on with the best cows you have and get rid of the poor ones. If you have good dairy Shorthorns, keep on with them, but put the scales and the test behind them and then study your own feeding problems. Farmers of Mondovi, and of Buffalo county, if you will go to work on these lines I will guarantee that



your cows will give from forty to sixty per cent. more than they are giving now. We have tried it again and again at the University Farm. It is the feeding question that you should first get interested in, even more than the breeding. Learn to manage what you have got first to the best of your ability as to feed and care and when you have learned to do that then you can get into the high grades and the pure bred and you are in condition to handle them; but our cows in Wisconsin, all over the state, are starving and suffering today. They lack real, good, liberal feeding and fair care.

Ex-Gov. Hoard: I know of a large number of dairymen in Jefferson county who have proceeded deliberately to spoil their herds just because of this beef craze. I know of a number of men who have bred their herds of specific dairy cattle up to a high degree of profit, who have purchased a beefy Shorthorn sire and put it at the head of those herds and deliberately set to work to breed down, because, they said, they wanted more meat. I will give you one example. Milo Jones of Fort Atkinson had a high grade herd, producing 275 pounds per cow, with about twenty-five cows. He said to me a number of years ago, "I am going to have more meat. I want bigger calves. I want to save more money on the male calf." I said, "Milo, if you save money on the male calves, remember that the female calves will go the same way the male calves do; you cannot load your gun so as to shoot it if it is a deer and miss it if it is a calf."

So he started in. In years that herd were the daughters of a beefy Shorthorn bull and his butter average dropped to 160 pounds per cow, and he was disposing of the herd and ruining his whole prospect. All over this land we find men who breed in a little Jersey to get richness and then breed in Holstein to get quantity and then breed in Shorthorn to get meat and the result is that Jacob himself could not have asked for a more ring-streaked and striped proposition than we have got. We have got any number of Jacobs. Hold to your line of breeding, that is, to your family of breeding.

The Chairman: Our next subject is "Combined Dairying and Beef Production," upon which Mr. Charles Thorp was to have addressed you, but he has been suddenly called away, for

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which I am very sorry, because Mr. Thorp had made a specialty of dairying with a special purpose dairy herd, then as he got more money he got more land and he thought he would make some beef, but do you suppose he was fool enough to try to make beef and butter out of the same herd? Not at all. He keeps two kinds of cattle on his farm, one for beef and another for butter, and it would have been interesting and valuable to us to hear how he did it.

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### THE STORY OF A COW CENSUS.

W. D. Hoard.

Mr. President, Ladies and Gentlemen: I want to preface what I have to say on this subject by saying that as the publisher of Hoard's Dairyman I have for years been exceedingly dissatisfied with the state of our knowledge concerning the actual facts in our business. About a year ago I thought I would get at something practical in the west, and I employed Mr. Kinsley of Iowa to obtain the actual results of 100 herds of average cows, their returns at the creamery and cost of keeping. I employed Mr. C. P. Goodrich, our President, to go through and take a cow census of 100 herds in Jefferson county, Wis., the county which I believe stands at the head in point of actual dairy production, taken as a county, per cow.

I have just closed up in the issue of this week another cow census taken in Ohio. During the coming year I am going to take another one in New York, and another one in Minnesota, if possible, and I propose thereby to get a body of information which shall be of service to practical, thinking men. Of course I cannot go through the whole of this work but I will present some points.

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There seems to be a strong tendency among dairymen to resist the influence of a knowledge of the truth concerning the real

facts of their business. Every man among them is full of hope that somehow he is doing the best he can. I appreciate and admire a splendid hopefulness like that.

But, the outcome, what of that? How does the pocketbook look at the end of the year? Doesn't it look too often as if an elephant had stepped on it?

I have studied this business long enough, and the men and cows that are in it—myself and my cows included—to know that there is the biggest kind of a chance here for self-deception. I find a great host of dairy farmers who have never instituted any investigation as to the actual facts of their business. They keep no records; they get along with just as little figuring as possible. They are honest, hard-working, God-fearing men, but they will not keep books. They “guess” this, that, or the other way is right and go ahead.

As the editor of a dairy paper, I have been for years hunting for the real facts of this dairy business. You, who have read it, know that. At the expense of several hundred dollars I had a thorough analysis and census taken in 1886 of every farm cow in the town of Ellisburg, Jefferson county, N. Y. This town was the leading dairy town in New York and the cows numbered 5,507. The farmers owning these cows devoted their milk almost exclusively to cheesemaking, and the amount of their earnings was verified at the factory. There was great depression existing among these farmers. They were losing money, but they could not see how. I thought a thorough inventory or census of their year's work would help them to see the true situation, and, besides, throw a flood of light upon this question generally.

Suffice it to say, the business was done thoroughly by Mr. C. W. Jennings. Three hundred and sixty-seven farms were visited, many of them three times. Time sufficient was taken to investigate, cross-investigate, and verify the actual facts concerning the earnings of those 5,507 cows, as they were being managed by these 367 farmers. The result showed that these cows brought the town in debt over \$25,000 a year. That is, the food they consumed, reckoned at what it was worth in local markets, with pasturing at \$5, would have sold for \$25,000 more than these cows earned.

The information derived from this census created a great stir among the Ellisburg farmers, and also all of those who were fortunate enough to read the various letters from Mr. Jennings, detailing the facts in Hoard's Dairyman. Every farmer in that town got a sample copy of the paper containing those letters. It created a revolution in their ideas of cow and farm management.

Many of the readers of Hoard's Dairyman living in other portions of the country wrote me that that census had proven a great eye-opener and educator to them. A great improvement has taken place in many of the herds of Ellisburg since that census. What was it that led those farmers into that loss of \$25,000 a year? Lack of live, mental interest and study in the principles of dairy farming; that was what did it. What stirred some of them up to improvement and larger profits? A knowledge of the facts and better study. Since that time many of the herds of that town have increased their earnings per cow from 40 to 50 per cent. Some day farmers will learn that it pays a big profit to be intelligent in this business of handling cows.

Last year Hoard's Dairyman instituted the taking of two censuses, each of 100 herds—the first in Iowa, the second in Jefferson county, Wisconsin.

I wish to lay before you some of the more significant facts brought out by these two careful and painstaking attempts to get at dairy truth as it applies to average dairymen and cows.

In both named states the farmers whose year's business was investigated were patrons of creameries, and so we have the basis of actual record to proceed from.

The Iowa patrons differ somewhat from those in the Wisconsin census. The former are farmers who are, it is true, patrons of creameries but they are not yet dairymen. But little more than half of them, if I remember correctly, are readers even of an agricultural paper and not more than one in ten are readers of dairy literature.

On the contrary, Jefferson county, where the Wisconsin census was taken, is one of the most prosperous dairy communities in the United States. About 1,200 copies of Hoard's Dairyman are taken and read in that county. A comparison of results in the two sections will serve to show whether such literature tends

to promote the larger profit and increased wealth of the dairy farmer, or not.

Four things will stand out as lessons to be learned from a study of these two cow censuses:

(1) The kind of man each farmer is and the amount of intelligence he puts into his business, and whether he takes any pains to make himself more intelligent or not.

(2) The kind of cows best suited to the best profit in dairy work; whether it pays best to breed dairy cows or dual-purpose cows.

(3) The great difference in the earnings and net profits of different herds of cows right in the same neighborhood. Also the important fact of how much greater return some cows bring than others for every dollar's worth of feed consumed.

(4) The very important fact that it pays the largest kind of a profit to be intelligent and well posted in the art of breeding good dairy cows from dairy blood, as well as the art of intelligent feeding and handling of the cow.

These lessons need to be kept before our eyes all the time, or we go off after strange gods.

Right today, in my county, with all this knowledge of the difference in profits between poor or well-bred dairy cows before them, there are farmers who are deliberately setting to work to lessen the productiveness of their future cows by putting at the head of their herds bulls from beef breeds. They can see only the half dollar gained in a larger male calf for beef purposes, while they lose sight of the dollar lost in the heifer for dairy purposes.

I will now proceed to a consideration of the Wisconsin census.



## SUMMARY OF A CENSUS OF ONE HUNDRED DAIRY HERDS IN WISCONSIN.

No. of patron.	No. of cows.	BREED OF COWS.	Cost of feed per cow.	Returns from creamery per cow.	Pounds of milk per cow.	Pounds of butter per cow.	Av. price of butter.	Av. price of milk.	Value of butter for one dollar's worth of feed.
1	22	Grade Jerseys.....	\$23	\$47 10	4,369	243	19.4	104	\$1 88
2	15	Holsteins.....	35	42 25	6,070	227	18.6	69.5	1 21
3	22	Grade Jerseys, Grade Guernseys and Grade Holsteins.....	25	35 99	4,578	195.4	18.4	78.6	1 44
4	20	Grade Jerseys.....	27	34 66	3,886	185	18.8	89.2	1 34
5	15	Grade Jerseys and Scrubs.....	30	23 09	3,371	152	19	86	97
6	13	Natives.....	27	28 53	3,216	149.8	19	88.7	1 06
7	10	Grade Guernseys and Grade Holsteins.....	33	50 88	5,203	235.6	19.9	97.8	1 54
8	16	Guernseys and Grade Guernseys.....	35	48 50	4,935	219.5	19.4	98	1 39
9	20	Grade Short-horns.....	35	53 85	6,621	278.2	19.4	81.2	1 54
10	15	Grade Jerseys.....	25	39 21	4,051	212	18.5	96.5	1 57
11	15	Holsteins.....	34	55 00	7,599	285.2	19.3	81.1	1 42
12	7	Grade Jerseys.....	35	48 28	5,237	235.5	19	92.2	1 38
13	38	Dairy Grades.....	28	32 49	3,734	174	18.6	86	1 16
14	16	Grade Guernseys.....	30	55 8	5,596	288.3	19.4	100	1 86
15	24	Grade Jerseys, Grade Guernseys and Grade Holsteins.....	30	49 46	5,367	250.7	19.7	92.1	1 65
16	16	Grade Short-horns and Grade Holsteins.....	27	29 58	3,500	159.4	18.6	84.5	1 09
17	40	Grades of Dairy Breeds.....	25	30 38	3,594	165.8	18.3	84.5	1 21
18	24	Jerseys and Grade Jerseys.....	30	52 07	5,092	280.9	18.5	102	1 73
19	22	Grade Jerseys and Grade Guernseys.....	35	47 15	5,270	257.7	18.3	88.6	1 34
20	13	Grade Jerseys.....	35	51 22	5,188	273.5	18.7	98.7	1 46
21	14	Grade Jerseys and Grade Holsteins.....	30	37 21	4,211	200	18.6	88.4	1 24
22	14	Grade Jerseys.....	23	52 01	5,416	280.5	18.5	96	1 86
23	12	Grade Short-horns and Grade Guernseys.....	30	42 59	5,030	232.7	18.3	84.5	1 42
24	10	Grade Holsteins.....	30	48 30	5,160	249.2	19.4	93.6	1 61
25	15	Grades of Dairy Breeds.....	28	50 77	5,277	269.6	18.8	96.2	1 81
26	20	Grade Guernseys and Grade Short-horns.....	28	48 86	5,489	257.7	19	89	1 75
27	18	Natives.....	30	46 08	4,975	241	19.1	92.6	1 51
28	28	Grade Guernseys.....	34	56 09	6,819	301.6	18.6	82.4	1 65
29	34	Grade Holsteins.....	38	52 59	6,242	280.5	18.7	89.4	1 50
30	29	Grade Holsteins.....	32	57 03	6,379	292.5	19.5	84.4	1 79
31	20	Natives.....	36	43 08	5,140	223.6	19.2	83.8	1 20
32	35	Holsteins and Grade Holsteins.....	35	58 06	7,639	311	18.7	76	1 66
33	20	Grade Holsteins.....	35	43 43	5,353	227.5	19.1	81.1	1 24
34	34	Grade Holsteins.....	35	55 10	6,433	293.9	18.8	86.6	1 58
35	12	Grade Brown Swiss.....	35	47 43	5,236	257.8	18.4	90.5	1 35
36	18	Grade Holsteins.....	35	48 35	6,054	231.3	18.5	79.8	1 38
37	22	Grade Holsteins.....	34	57 27	6,944	291.3	19.7	82.5	1 66
38	5	Grade Holsteins and Grade Jerseys.....	25	41 69	5,214	227	18.3	79.3	1 67
39	8	Grades of Dairy Breeds.....	27	46 29	5,293	2 0	18.5	87.2	1 71
40	22	Grade Guernseys and Natives.....	30	41 22	4,877	238.1	18.6	87.3	1 47
41	20	Grade Short-horns, Dairy type.....	24	47 14	5,525	244	19.3	85.3	1 63
42	6	Grade Jerseys.....	25	32 20	3,599	182.1	17.7	90.2	1 21
43	8	Grade Holsteins and Grade Jerseys.....	29	48 00	5,619	239.2	18.5	85	1 65
44	12	Natives.....	30	32 12	4,053	179.7	17.9	79.2	1 07
45	15	Grade Jersey.....	30	61.41	6,501	322	19.1	94.5	2 07
46	20	Grade Short-horns and Grade Holsteins.....	30	50 11	5,653	265.2	18.9	88.6	1 67
47	12	Grade Short-horns, General-purpose.....	30	38 84	4,681	198	18.8	84.3	1 29
48	18	Grade Holsteins and Grade Short-horns.....	25	36 34	4,661	234.4	17.9	78	1 31
49	8	Natives.....	33	40 01	5,247	213.3	18.8	76	1 21
50	10	Grade Holsteins and Grade Guernseys.....	21 50	30 46	3,565	157.2	19.3	85.4	1 24

Summary of a Census of One Hundred Dairy Herds in Wisconsin — Continued.

No. of patron.	No. of cows.	BREED OF COWS.	Cost of feed per cow.	Returns from creamery per cc w.	Pounds of milk per cow.	Pounds of butter per cow.	Av. price of butter.	Av. price of milk.	Value of butter for one dollar's worth of feed.
51	16	Grade Holsteins and Grade Guernseys	\$22	\$9 97	3,344	162	cts. 11.1	92	\$1 41
52	8	Grade Jerseys	29	49 12	5,451	255.4	19.4	91	1 51
53	14	Guernsey and Grade Guernsey	30	45 81	4,815	291.4	17.3	95.2	1 73
54	12	Grade Holsteins and Natives	25	42 37	5,055	223	19	83.8	1 69
55	30	Grade Jerseys	25	38 61	4,139	198.8	19.4	93.3	1 55
56	13	Grade Jerseys	27	43 68	4,444	225.5	19.1	100	1 59
57	12	Grade Jerseys and Natives	25	39 76	4,414	219.2	18.2	90.3	1 59
58	14	Grade Guernseys and Natives	24	37 27	3,975	202	18.5	93.8	1 55
59	18	Mostly Natives or Scrubs	27	35 75	4,041	186	19.2	88.6	1 32
60	11	Grade Guernseys	31	44 69	4,810	232.8	19.2	92.3	1 44
61	18	Grades of Jersey, Guernsey and Holstein	23	30 74	3,276	163.1	19.8	93.8	1 34
62	16	Mostly dairy Short-horn grades	30	43 36	5,394	248	18.2	80.3	1 44
63	25	Natives and a little Holstein blood	31	41 15	5,026	223	18.5	81.5	1 35
64	12	Scrubs and a little Jersey blood	30	24 81	3,583	139	18.1	80.4	1 96
65	7	Grade Jerseys	30	58 22	3,728	197.1	19.4	101	1 27
66	20	Grade Jerseys	27	31 43	3,581	173.9	18.1	87.7	1 16
67	15	Grade Jerseys	27	47 55	4,773	245.4	19.4	99.6	1 46
68	21	Grade Jerseys and Grade Guernseys	23	44 87	4,749	235.4	19.9	94.5	1 53
69	20	Grade Jerseys	35	47 92	4,231	224.4	21.2	113.2	1 37
70	16	Grade Jerseys and Grade Guernseys	27	50 47	4,681	258.7	19.5	101.3	1 87
71	7	Good common cows	50	44 15	4,966	236.1	18.7	88.9	1 73
72	14	Grade Jerseys	30	51 91	5,350	290.9	18.9	102.6	1 83
73	20	Grade Jerseys and Grade Durhams	30	40 72	4,328	231.5	19.1	94.1	1 35
74	7	Grade Jerseys	28	40 92	4,370	211.4	19.4	96.6	1 46
75	20	Grade Jerseys, Holsteins and common cows	25	42 29	4,759	220.6	19.2	88.6	1 69
76	12	Grade Jerseys	27	40 07	3,952	208.5	19.9	101.4	1 48
77	20	Grades of different dairy breeds	23	48 46	5,354	234	19.1	90.5	1 73
78	20	Grade Jerseys	33	46 28	4,435	211.6	19.2	104.3	1 40
79	16	Grade Jerseys	23	54 16	4,920	285	18.9	110.1	2 08
80	20	Grade Guernseys	28	57 24	5,777	301	19	99.1	2 04
81	18	Grades of different breeds and some common cows	27	34 39	4,178	181.6	18.9	82.3	1 27
82	14	Grade Holsteins	31	56 76	7,030	300.3	18.9	80.7	1 80
83	16	Grade Holsteins	27	47 71	5,440	241.9	19.7	87.9	1 77
84	95	Holsteins and Grade Holsteins	34	38 49	5,773	209.4	18.3	66.7	1 13
85	18	Common cows	28	39 22	5,413	214.5	18.2	72.5	1 40
86	21	Grades of different dairy breeds	26	45 73	5,866	239	19.1	77.9	1 76
87	46	Grade Jerseys	33	38 57	4,306	315.5	17.9	89.6	1 17
88	19	Grade Jerseys, some Guernseys, some full bloods	27	45 49	4,778	241	18.6	95.2	1 69
89	12	Guernsey, mostly	29	45 42	4,797	222.8	20.3	95.9	1 57
90	12	Grade Holsteins and mixed cows	28	47 19	5,501	245	20.1	85.7	1 69
91	4	Grade Guernseys	27	49 45	5,753	261.8	18.5	86	1 81
92	8	Mixed breeds	32	37 55	4,036	208.4	18	93	1 17
93	20	Grade Jerseys, some beefy	29	35 76	4,316	202.6	18.1	85.1	1 27
94	20	Grade Jerseys	29	58 83	6,55	331.3	18	89.8	2 02
95	8	Grade Holsteins	26	41 55	5,590	229.3	18.1	74.3	1 60
96	12	Grade Guernseys and Grade Short-horns	30	42 11	4,754	219.7	19.2	88.4	1 40
97	20	Grade Jerseys and Grade Holsteins	25	36 61	4,534	193.2	18.9	81.7	1 46
98	25	Short-horns	30	34 58	4,363	187	18.5	78.7	1 15
99	14	Holsteins and Grade Holsteins	31	36 85	5,279	209	17.6	69.8	1 19
100	20	Grade Holsteins	30	44 82	6,124	237.7	18.8	73.2	1 49

The number of farmers and herds investigated was one hundred. Number of cows, 1,822. The average cost of the food consumed per cow was \$29.83. Average cash earnings per cow at the creameries, \$45.89. Highest cash earnings per cow was \$61.41, in herd No. 45, consisting of 15 high grade Jerseys; the next highest was herd No. 32, consisting of 35 grade Holsteins with a few full bloods, averaging \$58.06 per cow; the next in point of earnings was herd No. 80, consisting of 20 grade Guernseys with average earnings of \$57.24 per cow.

The lowest cash earnings per cow was \$28.53, herd No. 6, consisting of 13 native cows; next, No. 64, 12 scrubs and a little Jersey blood, earnings, \$28.81; next, No. 5, 15 grade Guernseys and scrubs, earnings, \$29.00; next, No. 16, consisting of 16 grade Shorthorns and grade Holsteins, earnings, \$29.58. These were the only herds whose earnings went below \$30.00.

Of the 100 herds there were 11 whose earnings per cow ranged from \$30 to \$35; 17 ranged from \$35 to \$40; 22 herds ranged from \$40 per cow to \$45; 25 ranged from \$45 to \$50; 12 herds ranged from \$50 to \$55; 8 herds ranged from \$55 to \$60; one herd, only, went above \$60.

The average pounds of milk per cow yielded by these 100 herds was 4,740; the average yield of butter per cow, 251 pounds; the average cost for keeping per cow, \$29.83; the average cash earnings per cow was \$45.89.

We now come to a very important and somewhat new feature for consideration; that of the earnings of each herd for every dollar's worth of food expended.

Four herds ranged from \$2.02 to \$2.08 for every dollar's worth of food consumed. This was certainly a safe investment, being over 100 per cent., and highly remunerative if a man had enough invested. Of these, the highest, \$2.08, consisted of 16 Grade Jerseys; the cost of keeping was reduced to \$26; returns from the creamery per cow, \$54.16; pounds of milk per cow, 4,920; pounds of butter, 286; average price received for butter, 18.9 cents; average price received for milk per 100 pounds, \$1.10.

The next highest was \$2.07 for each dollar's worth of feed. This herd consisted of 15 grade Jerseys; cost of keep per cow,

\$30; earnings per cow at creamery, \$61.41; pounds of milk per cow, 6,501; pounds of butter per cow, 322; price received for butter per pound, 19.1 cents; average price received for milk, 94.5 cents.

The third highest in this category was a herd of 20 grade Guernseys. They gave \$2.04 for every dollar's worth of food consumed. Cost of keep per cow, \$28; earnings per cow at creamery, \$57.24; pounds of milk per cow, 6,552; pounds of butter per cow, 331.3; price received for butter, 18 cents; price received for milk, 89.8 cents.

You will note that there is considerable variation in the price received for butter and milk. This will occur among patrons in the same creamery where the butter sells even for a uniform price. Those who received the highest price for butter and milk produced their milk in the fall and winter mainly, at a time of year when the price for butter is the highest—another argument for winter dairying.

You will also note that in the herd that gave \$2.08 for every dollar's worth of food consumed, the cost of keeping was reduced to \$26. This herd reached the highest economic return in cost of production though their butter product was 46 pounds less than the next herd. This teaches us the valuable lesson that the real thing for us to do is to look about us and reduce the cost of production all we can. The owner of this herd bought all his feed; he fed a balanced ration. He used his brain and it paid, did it not? His cows were not as productive, either in milk or butter, as one other herd, but he got the most per 100 pounds for his milk; the cows tested high, and the cost of keeping was low.

The highest cost of keep per cow was \$38. This was in a herd of 34 grade Holsteins. The returns from this herd show earnings per cow, \$52.59; pounds of milk per cow, 6,242; pounds of butter per cow, 280.5; price of butter, 18.7 cents; price per hundred of milk, 84.2 cents; return for every dollar expended in food, \$1.50.

Now, for instructive contrast, let us look at two herds which returned, one 96 cents and the other 97 cents for every dollar's worth of food consumed. The first consisted of low grade Jer-

seys and scrubs, all badly bred and poorly handled. The cost of keep per cow was \$30; returns from creamery, \$29; yield of milk, 3,371 pounds per cow; yield of butter, 152 pounds; price butter sold for, 19 cents; price per hundred of milk 86 cents.

We can see from the above facts that it requires more than 150 pounds of butter per cow, at a good price, to pay for the keep of that cow where cost of food is \$30 per year.

The second herd consisted of 12 scrubs, also mixed with a little Jersey blood. The cost of keep, like the other, was \$30; earnings per cow at creamery, \$28.81; yield of milk per cow, 3,583 pounds; yield of butter, 151 pounds; price of milk, 80.4 cents per 100 pounds.

Here was a plain case of ignorance, and indifference to sound knowledge. No man possessed of a particle of dairy sense, would produce such animals and call them dairy cows, or undertake to do a dairy business with them; but these two men did. They were actually so stupid that they did not dream that any of the patrons about them were doing any better than they. They had never read nor studied anything to obtain a judgment of what a good cow was or should do. Like thousands of men in this country who keep cows, they had no use for dairy literature, nor anything, in fact, but a poor cow and a losing dollar.

There were quite a number of the patrons who barely got through by the skin of their cow's teeth; some of them running as low as \$1.06, \$1.07, \$1.15, \$1.16, \$1.21, and so on, for every dollar spent in food. Twenty herds ranged from \$1.70 to \$1.85 for each dollar spent in food. Of these, 7 were grade Jerseys; 4 were grade Guernseys; 3 were grade Holsteins; 1 was native; 4 were grades of mixed breeds; 1 was Guernsey and Shorthorn grades.

Twenty-four herds ranged from \$1.51 to \$1.70 for each dollar spent in food. Of these, 3 were grade Jerseys; 8 were grade Guernseys; 7 were grade Holsteins; 1 was a native herd; 4 were mixed grades of all dairy breeds; 1 was Guernsey and Shorthorn grades.

Thirty-five herds returned from \$1.25 to \$1.50 for each dollar spent in feed. Of these, 1 was Brown-Swiss grades; 2 were Shorthorn grades; 7 were a mixture of all dairy breeds; 4



were natives; 3 were Holstein grades; 5 were grade Guernseys, and 11 were grade Jerseys.

Fifteen herds returned from \$1.07 to \$1.25 for each dollar of feed. Of these, 3 were grade Jerseys, 3 were grade Holsteins, 4 natives, 3 of mixed dairy breeds, and 2 were Shorthorn grades.

You will note as you go down the scale of returns for each dollar's worth of feed the number of natives and dual purpose cows increases.

Right here, in the society of these poor cows, we find the man who "knows it all," who has no use for book farming and who evidently likes his job, because neither men nor angels can get him to forsake it.

Nearly all of these poor cows, as far as we can learn, were bred from grade sires. A grade bull is an open bid for poor cows, usually struck off to the man who "can't be fooled" into improving either his mind or his cattle. Such men are found abundantly in all the dairy districts of the land. The great concourse of poor cows that flood the land were of their breeding and raising.

Please remember that these things are true in Jefferson county, Wisconsin, where more dairy literature is read than in any other county in the United States. A county, as I said before, in which something like 1,200 copies of Hoard's Dairyman are taken and read. Such men are found in the same creamery, neighbors to men whose returns are 40 to 75 per cent. greater.

This shows how ignorant men can live in the full blaze of light and intelligence and not know it. You may well ask: If these conditions exist to such a proportion in the most intelligent communities, what must be the condition in other communities where they read and think less on this question?

#### *The Iowa Census.*

Mr. Frank Kinsley, in the employ of Hoard's Dairyman, visited one hundred patrons of creameries in Iowa, and by close study and investigation arrived at a basis of calculation as to the dairy intelligence of the men who owned the cows, the efficiency of the cows themselves and how they were bred and fed, the yearly cost of the food, the amount of milk and butter per cow in

pounds and the cash value thereof. The pounds of milk, butter, and the cash value of same were derived from the books of the creamery. The census was published in the Dairyman in various letters from Mr. Kinsley the past year, and a complete table computed, and printed in the issue of November 30, 1900.

When a man keeps a herd of cows, milks them, feeds them and houses them, and sends the milk to a creamery, I class him as a dairyman, one who is subjecting himself to general dairy expense. The question then is, whether the cattle he keeps are the best for that sort of work.

There was a wide range in the character of the cows. The total number in these 100 herds was 982. There were four herds that ranged from \$2.11 to \$2.30 for every dollar's worth of food consumed. There were 58 herds out of the 100 whose cows averaged above one dollar and less than two dollars for every dollar's worth of food consumed, the highest being \$1.91, the lowest being \$1.00. Of these herds, 13 returned from \$1.50 to \$1.91; 20 herds returned from \$1.20 to \$1.50; 24 herds returned from \$1.00 to \$1.20.

Now we come to the side of absolute loss. Thirty-eight of these Iowa herds returned less than one dollar for every dollar expended in feed. This loss ranged from 2 cents to 98 cents per dollar. Think of it! In these days of prosperity, dairy information and progress, a man keeping cows, taking milk to the creamery, and loosing 98 cents for every dollar expended for food and thinking he was doing a dairy business. The only solace he could have was that his herd was small, only three cows.

Every one of these herds which brought absolute loss was a dual-purpose, or a native, herd. Mr. Kinsley classified the herds as "Dual Purpose," "High Grade Shorthorns," "Natives," "Grade Shorthorns," "Grade Dairy," "High Grade Dairy," etc. Fifteen herds were classified as "Dairy Type," "Grade Dairy," "High Grade Dairy," and "Grade Jerseys." These herds returned from \$1.43 to \$2.30 for each dollar's worth of food consumed.

SUMMARY OF A CENSUS OF ONE HUNDRED DAIRY HERDS  
IN IOWA.

Herd No.	No. of cows.	KIND OF COWS.	Estimated cost of keep-ing.	Po'nds of milk per cow.	Po'nds of butter per cow.	Value of butter per cow.	Value of butter from \$1 in feed.
1	10	½ Natives and ½ Dairy Grades	\$20 00	4,141	178	\$33 82	\$1 43
2	7	2 Reg. Dairy, balance Natives and Dairy Grades	22 00	4,646	209	39 71	1 69
3	5	Dual-purpose	22 00	2,878	126	23 94	1 09
4	5	Dual-purpose	24 00	3,848	165	31 35	1 36
5	4	Dual-purpose	24 00	3,816	144	27 36	1 19
6	9	High Grade Short-horns	34 00	2,946	131	24 89	78
7	2	High Grade Short-horns	33 00	2,975	175	32 25	98
8	5	Dual-purpose	30 00	4,185	184	34 26	1 16
9	7	High Grade Short-horns	32 00	2,999	135	25 65	80
10	5	One Dairy Type, balance Dual-purpose	28 00	3,736	168	31 52	1 14
11	4	Dual-purpose	20 00	3,108	137	26 03	1 30
12	5	Natives with some Dairy Blood	25 00	4,770	205	38 95	1 56
13	5	Natives	17 00	1,851	81	15 39	91
14	14	Dual-purpose	22 00	2,333	101	19 76	89
15	14	High Grade Short-horns	23 00	2,278	100	19 00	83
16	3	One Dairy bred, balance Dual-purpose	30 00	3,777	168	31 92	1 06
17	3	One Full Blood Dairy, balance High Grade Dairy	28 00	3,929	244	46 36	1 66
18	11	All Full Blood Dairy	29 00	5,036	325	61 75	2 12
19	7	Dual-purpose	24 00	2,544	112	21 28	1 06
20	6	Dual-purpose	23 00	4,023	169	32 11	1 39
21	9	Dual-purpose	25 00	2,977	128	24 32	97
22	8	Dual-purpose	21 50	3,002	158	29 52	1 20
23	7	Grade Holstein and Short horn	21 01	3,908	139	26 41	1 10
24	5	Natives	25 00	3,963	166	31 51	1 26
25	3	Natives	23 00	3,677	154	29 31	1 26
26	4	Natives	22 00	3,047	126	23 91	1 09
27	7	High Grade Short-horns	25 80	2,980	125	23 75	95
28	3	High Grade Dairy	22 00	4,397	193	36 67	1 67
29	8	Dual-purpose	24 00	3,206	140	26 80	1 11
30	6	Dual-purpose	24 00	3,660	165	31 35	1 31
31	8	Red Poll	25 00	2,526	114	21 66	90
32	8	Dual-purpose	22 00	2,499	120	22 80	7 04
33	8	Dual-purpose	22 00	2,511	114	21 66	88
34	13	Dual-purpose	23 00	2,932	132	25 08	1 19
35	4	Dual-purpose	22 50	2,897	130	24 70	1 10
36	10	Dual-purpose	23 06	2,166	98	18 62	81
37	3	High Grade Dairy	30 00	4,933	275	52 25	1 74
38	12	Dual-purpose	25 00	4,570	188	35 72	1 43
39	20	High Grade Dairy	26 00	5,300	315	59 85	2 10
40	18	Dual-purpose	33 00	5,098	233	38 57	1 17
41	7	Dual-purpose	30 00	3,726	165	31 35	1 05
42	4	Dual-purpose	23 00	2,400	103	19 57	85
43	12	Dual-purpose	30 00	3,166	131	25 27	84
44	4	Dual-purpose	25 00	3,134	131	24 89	1 10
45	9	High Grade Dairy	24 00	4,600	239	44 84	1 87
46	8	Dual-purpose	17 00	1,900	75	14 25	84
47	8	Dual-purpose	22 00	2,775	123	23 37	1 06
48	12	Polled Angus, ½ Dual-purpose	30 00	3,316	139	26 41	88
49	10	Goade Dairy	29 00	5,100	218	43 32	1 49
50	17	Dual-purpose	34 00	6,250	250	47 50	1 40
51	8	Full Blood Dairy	30 00	5,966	334	53 46	2 11
52	5	Dual-purpose	28 00	3,750	157	29 83	1 06
53	8	Dual-purpose	31 00	3,740	150	28 50	92
54	10	Dual-purpose	32 00	3,725	156	29 64	93
55	9	Dual-purpose	30 00	4,110	173	32 87	1 10
56	8	Grade Dairy	28 00	5,855	232	47 85	1 71
57	7	Natives	21 00	3,737	164	31 16	1 29
58	8	Dual-purpose	29 00	3,500	150	24 70	85
59	22	Grade Short-horn	30 00	3,515	140	26 60	88
60	7	Dual-purpose	25 00	2,839	122	23 18	92
61	5	Grade Jersey	25 00	5,116	225	42 75	1 75
62	4	Natives	20 00	2,256	90	17 10	85
63	5	Natives	20 00	1,980	85	16 15	81
64	5	Natives	22 00	3,359	150	28 50	1 30
65	5	Grade Short-horn	26 00	3,207	140	26 60	1 02
66	18	Dual-purpose	22 00	2,080	83	15 77	72

Summary of a Census of One Hundred Dairy Herds in Iowa—  
Continued.

Herd No.	No. of cows.	KIND OF COWS.	Estimated cost of keeping.	Po'nds of milk per cow.	Po'nds of butter per cow.	Value of butter per cow.	Value of butter from \$1 in feed.
67	3	Natives.....	\$22 00	3,071	133	\$35 27	\$1 15
68	10	Dual-purpose.....	23 00	3,100	130	24 70	1 07
69	12	Dual-purpose.....	33 00	3,658	121	22 80	1 69
70	8	Dual-purpose.....	22 00	2,522	100	19 00	86
71	22	Grade Polled Angus.....	25 00	1,438	58	11 02	44
72	7	Grade Black Poll.....	28 00	5,780	213	46 47	1 45
73	8	Dual-purpose.....	25 00	2,587	108	20 52	82
74	9	Dual-purpose.....	26 00	2,738	160	19 00	73
75	9	Dual-purpose.....	24 00	2,100	89	16 91	72
76	18	Dual-purpose.....	24 50	2,470	103	19 57	80
77	10	Dual-purpose.....	25 00	3,063	122	23 18	92
78	15	Dual-purpose.....	23 00	2,000	80	15 20	66
79	7	Dual-purpose.....	20 00	1,580	63	11 97	60
80	9	Dual-purpose.....	25 00	3,000	120	22 80	1 91
81	5	Dairy Type.....	25 00	5,160	206	34 54	1 54
82	30	Dairy Type.....	29 00	6,000	290	55 10	1 90
83	20	Grade Short-horn.....	32 00	6,000	300	57 00	1 78
84	5	Grade Polled Angus.....	25 00	3,506	151	28 69	1 15
85	7	Grade Red Polls and Grade Short-horns.....	35 00	5,211	225	42 94	1 23
86	11	High Grade Short-horn.....	30 00	4,859	209	39 71	1 2
87	14	High Grade Short-horn.....	25 00	2,330	97	18 43	74
88	8	Grade Short-horn.....	29 50	1,782	65	12 35	1 42
89	3	Grade Short-horn.....	26 00	3,711	145	27 55	1 06
90	12	Grade Short-horn.....	23 00	3,213	141	26 79	16
91	9	Grade Short-horn.....	27 00	3,663	126	23 94	1 89
92	11	Grade Short-horn.....	33 00	4,226	210	39 50	1 21
93	8	Grade Short-horn.....	27 00	4,593	193	36 67	1 36
94	4	Natives.....	26 00	4,575	189	34 91	1 34
95	5	Grade Short-horn.....	33 00	5,466	233	43 27	1 31
96	12	Grade Short-horn.....	33 00	4,285	177	33 63	02
97	12	Grade Short-horn.....	32 00	3,772	162	30 78	96
98	7	Grade Short-horn.....	35 00	5,168	225	42 75	1 22
99	16	High Grade Jerseys.....	25 00	4,745	296	56 24	2 23
100	12	High Grade Short-horn.....	28 00	3,980	165	31 35	1 12

I want to call the attention of all thinkers on dairy questions to the value of this table.

That, and the one concerning the results from 100 herds in Jefferson county, Wisconsin, in the issue of Hoard's Dairyman of August 10, 1900, are of great service in demonstrating the truth of several propositions, which I enumerate as follows:

(1) The effect of dairy intelligence or the lack of it in a farmer, as seen in his profits. There are so many farmers who keep cows and who do not think it pays to know any more than they now do, that it is well to have a clear, authoritative record on that matter. It is well to get the ignorant and well posted together and see, by contrast, which makes the most.

(2) This table illustrates very well whether general-purpose, or dairy-bred, cows are the more profitable to keep in a dairy.



(3) Here is found a very good demonstration of the practical truth of the advanced theories on feeding dairy animals. Only five out of the 100 herds were fed any protein feeds bought in the market, and, curiously enough, they are among those which gave the highest returns. There were but two or three men who fed a well balanced ration. One man, No. 39, fed a ration of gluten feed, bran and ensilage in a well balanced form and to high grade dairy cows. Now, note the result to this man; his cows gave a return of \$2.30 for each dollar in feed, and he made a net profit of \$33.85 per cow. No. 18 fed bran and clover hay to a herd of full blood dairy cows and got 325 pounds of butter per cow.

A word as to the general, or dual-purpose, question. How many steer calves, considering that one-half only are males, would it take, do you suppose, to make up to the 38 men who fed at a loss for their loss and the profit No. 39 got of \$33.85 per cow? In other words, as long as these men are putting themselves to the expense of keeping cows, feeding them, housing and milking them and carrying the milk to the factory, would it not pay them a great deal better to employ cows that would answer back with a good return at the pail?

To illustrate: Take No. 51, a full blood dairy herd, and compare results with No. 50, a dual-purpose herd. The dairy herd gave 5,966 pounds of milk per cow; the dual-purpose herd 6,250 pounds. The milk of the dairy herd made 334 pounds of butter, which brought \$63.46; the milk of the dual-purpose herd was 284 pounds more than the other, and made 250 pounds of butter, or 84 pounds less, which brought \$47.50, or \$15.96 less per cow than the dairy herd.

But that is not all. The dual-purpose herd cost \$34 per cow for keep, while the full blood dairy herd cost \$30 per cow.

Take Nos. 39 and 40. No. 39 was a high grade dairy, giving 5,300 pounds of milk per cow; No. 40 was a dual-purpose herd giving 5,090 pounds of milk per cow. The milk of the dairy cows, 210 pounds greater, produced 315 pounds of butter which sold for \$59.85; the milk of the dual-purpose cows, only 210 pounds less, produced 203 pounds of butter, or 112 pounds less,



which sold for \$38.57, or \$21.28 less cash per cow. As to cost of keep, the dual-purpose herd was \$7 per cow the most.

Take Nos. 37 and 38. No. 37 is a high grade dairy herd giving 4,933 pounds of milk per cow, which made 275 pounds of butter which sold at \$52.25. The dual-purpose herd No. 38 gave 4,570 pounds of milk, or 363 pounds less per cow than the dairy herd. From this milk was made 188 pounds of butter which sold for \$35.72, or \$16.53 less per cow than the dairy herd. In the case of these two herds the cost of keep of the dual-purpose herd was \$25; the dairy herd \$30.

And so comparisons of like character may be found in abundance all through this history of 100 herds. Iowa is where general purpose cows and general purpose dairying may be seen in all its glory. The wastefulness of such animals, with but few exceptions, for dairy work, is clearly to be seen. There are thousands of men in Canada and the United States who are deluding themselves in like manner, throwing away ten dollars' worth of milk and trying to make it up with five dollars' worth of steer; and yet all the time incurring the same expense, to keep and handle the dual-purpose cows as they would for the dairy cows.

Facts of this character multiply, the lessons to be drawn from them are becoming more apparent. The live, practical question, then, is: Are we intelligent enough to see these facts and dispose of them to our best profit?

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Pres. Goodrich: I want to say that the man that got the highest receipts, \$2.08 for each \$1.00, bought every bit of his feed, except a little bit of marsh hay. He lives on a little island in the marsh. I found he knew everything about his business; he had an account with each cow and his herd tested higher than any other one that I came across, but they were selected by the Babcock test.

Ex-Gov. Hoard: He had studied this important fact, that nine out of ten men do not study,—how to reduce the cost of production. Take every creamery patron in Wisconsin and his eye

is way over yonder at the price he is getting per pound on the butter. He don't control that end of the string at all, but there is where he looks; the end of the string that he controls is the cost of producing the article, that is the end of the string that lays on the farm, yet you will find him all the time trying to make money by looking to the other end. This man was a shrewd German who understood and looked after his end of the string right on his farm.

Now, there runs through all this census a factor that I want you to think of,—in the same creamery where all the butter sells for the same price from all the herds, there were men who got from two to three cents a pound more for their butter. Do you know how it came? These men made their milk in the winter, the cows calved in September and October, they made milk when it sold for the highest price. The other cows calved in the spring when the milk was made in the season when it was cheapest, and their owners got from two to three cents a pound less for what they produced. Oh, my heart goes out to these farmers who stumble along with a shade over their eyes and refuse to think, refuse to read; great big callouses on their hands and on their wives' hands, and on their general comfort everywhere, and no returns for it all, and thinking something is the matter with the government. The Lord knows the government is to blame for enough without laying all our own blunders onto it.

I have said before, that if the cow could talk, she would be heard all over this land, bellowing for an improved breed of dairymen.

I want you to note a comparison or two. In our home creamery we paid one man, General Burchard, \$65.67 for the butter fat in the milk of each of his nineteen cows. We paid another man \$35 for the butter fat in the milk of each of thirty cows. It cost General Burchard \$35 to keep his cows, and he got \$30 more than the cost of keeping; it cost the other man \$30 to keep his cows, and he got \$5 more than the cost of keeping. General Burchard received not quite 100 per cent. more in gross returns, but here is the telling point,—he did get 600 per cent. more net profit, because \$30 is 600 per cent. greater than \$5. What man among us wouldn't work his finger nails off to get

600 per cent., and yet, though we have the law and the prophets, as the old Dutchman said, "we go to hell all the while just the same."

I will call your attention to the last publication of Hoard's Dairyman showing a classified summary of the different creameries in the Ohio census. We have the cost of keeping, running all the way down from \$30 to \$22, and the returns for the dollars expended in food from \$2.75 down to 75 cents. Now, it cost me about \$100 to get that census taken. If any of you had spent \$100 for information, you would feel as if you had a right to have some judgment on it, wouldn't you? But you can see what is published for the use of every man who reads.

Professor Henry spent many good years of his life in study on the question of "Feeds and Feeding," and no man who owns cattle can afford not to have the information contained in that little book.

Recess to 1:30 P. M.

Afternoon session at 1:30 P. M.

President Goodrich in the chair.

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## SOME DAIRY OBSERVATIONS IN GREAT BRITAIN AND ON THE CONTINENT.

Prof. W. A. Henry, Dean Agricultural College, Madison.

My first observation on dairy matters was the day we landed from our ship at Antwerp. Our hotel was an old, old building, facing the "Place Verte," close under the spire of the great cathedral, with its chime of bells ringing each quarter hour. A score of Americans, along with the guests from other countries, were ranged about the beautifully decorated table where was being served a meal rarely equalled in this country, whether regarded from the delicacy of the cooking, the variety of the dishes served, or the service of the well-trained waiters. Suddenly some one bawled out "I want butter! butter! I am

used to eating butter with my meals." I am sure many Americans blushed for their country, for it was an American who was distinguishing himself by his boorishness. Nor was it some farmer from our western plains, or the denizen of some little American village, but a young man from the metropolitan city of New York, who had likewise made himself conspicuous on ship-board, and was evidently about to leave a trail of disgust and boorishness throughout Europe, wherever he might pass, advertising his country in a way that sometimes tends to make Americans hate themselves when on the other side.

All of this "tempest in a tea-pot" was over the fact that European hotels do not serve butter at the principal meal of the day—the six o'clock dinner. The next morning for breakfast we had unsalted butter from sweet cream. It was worked into hollow balls made by passing a thin wooden knife, end-wise, along the surface of a roll of butter, the separated shaving curling up into a hollow ball. This unsalted cream butter was delicious to my palate and I was well pleased to use it, as I was, at all times, to fall in with the customs of the people in whose country I chanced to be from time to time.

Let us journey to North Holland, which is situated between the Zuyder Zee and the North Sea, for here we will find the Dutch farmers still carrying on agriculture much after the manner of their forefathers. We are in the village of Schagen, a quaint cluster of brick-walled, tile-roofed houses skirting narrow, macadamized streets with brick side walks. These side walks are scrubbed and scoured at least once a week by the thrifty Dutch house-wives. Our hotel is scrupulously clean and old-fashioned in all its appurtenances. We drive out into the flat, open country which lies several feet below the level of the North Sea, not many miles distant. A great dike of earth, or several dikes one behind the other, protects this country from the North Sea on west, and the Zuyder Zee on the east.

These reclaimed districts are called "polders." Our road is of the finest character, with ditches filled with water skirting each side. Many of these roadside ditches are as much as seven or eight feet wide, in which little canal boats pulled by Dutchmen, or their wives, pass up and down the country,

gathering butter, cheese, eggs, etc., for the city markets. Shade trees line the road; the branches, frequently cut, furnish fuel. Occasionally our vehicle passes over or along a ridge of earth 10 or 12 feet high, and 15 or 20 feet wide on top. This ridge is nothing more or less than an artificial dike, made in some past age to keep out the sea. When the new district outside is reclaimed, then this old dike remains as a rib of higher land with farming lands on each side. From the small canals or ditches, the water is pumped by windmills or steam power to higher canals, and then still higher into larger ones, from which it finally pours out into the sea. Lying on either side of our highway are the green, flat fields, surrounded by ditches of water, connected with the homestead and each other by bridges, in the middle of which is a gate. The ditches are so deep that the cattle cannot cross them, and by a gate placed crosswise on each bridge, the fields are securely fenced by gate and water. In the heart of this northland, about 99 per cent. of the cattle are black and white, the odd one being either mouse colored or red and white.

The grass in summer is very, very green, golden butter-cups in some cases giving the pastures a yellow hue, even at a distance. Cows will not eat the butter-cups, but sheep will, and so some pastures are blotched with yellow, while others are simply an intense rich green. The grass of the meadows is so short that an American farmer would say there could be but small returns from such land. The forage grows close to the ground, as is shown by the heavy swath resulting from cutting with the scythe. The scythe is quite generally used, because a mowing machine will not cut close enough to the earth, and a large part of all the grass is within the first four inches.

It is very difficult to cure hay in Holland, owing to the prevalence of rainy weather.

Dotting the checker-board pasture fields of green are black and white cattle so numerous that as you ride along from one to two hundred animals are always in sight. Each farmer has from ten to twenty head of milking cows. Good cows range in value from \$80 to \$100. Meat brings a high price in Europe, and consequently cows always have a high value, even when



through giving milk. In the strictly dairy districts very little grain is grown, some of the lands yielding pasture and the rest furnishing hay for winter use. The farmers buy most of their grain from other countries, largely the United States and Russia.

We have been passing along the road for miles, intoxicated with the charming views on either side, interested not only in the checker-board, water-surrounded fields on which graze or recline the beautiful black and white cows, but in the great wind-mills fanning the air in all directions along the lines of the canals, while in the distance may be seen the white sails of ships on the blue sea. We alight and inspect some of the Dutch houses we have been passing. What objects of interest they are to an American. Briefly described, the houses are located close to the roadside, a little bridge crossing the ditch, landing us in the narrow yard in front.

The building is of red brick, but a single story in height and rectangular. The houses are generally about 40x50 feet in ground area. The roof is a four-sided pyramid of thatch about six inches thick, or glazed tiles of a red or gray color. The houses of the more aristocratic people are covered with blue glazed tile. Entering the house we find at our left a platform about 8 feet wide, extending along one side of the building next the wall under the windows. This platform is about as high from the floor in the rear as the top of a dining table. On this elevated platform the cows stand in winter time with their heads next the wall and their tails hanging over the edge of the platform, which is at least 3 feet above the manure drop. The manure drop is about two feet wide and eight or ten inches deep. Back of the manure drop is a wide alley-way. In the fall the cows are led from pasture to stable, walking up a bridge to stand on the elevated platform until spring, when they are led out once again for all summer, to the pasture. Back of the wide passageway comes the wall separating the rest of the building from the cow stable.

Passing through a door in the wall back of the cow stable, we come into the sitting room, and from that pass into the parlor. On the opposite side of the building, from the cow stable, are

wide doors at either end of the house, enabling loads of hay to pass into the building. The hay is pitched into the middle of the building, filling the space from the floor to peak, which is very high. The space, where the wagons drive through to deliver the hay, is occupied in the winter time by wagons, threshing machine, etc. It will be seen from this, that our square house of a single story has cows along one wall or side, living rooms along another side, and a passageway along the third, in which stand wagons and farm tools. The middle space of the building, surrounded by these various parts from floor to peak of roof, is the great hay mow.

There is no need of telling you that the Dutch cows are kept clean. No wonder the people have black and white cows. They must have something white as a standard for cleanliness. At the time of our visit in midsummer, the place where the cows had stood the winter before was as clean as any parlor in America. The walls had been scoured and painted; the floor had been scrubbed and scrubbed and finally covered with pure white sea sand beautifully smoothed. Then this smooth sand was made more interesting by the drawing of figures in it with a stick, as a child does when it plays on the seashore. In some houses, hundreds of sea shells were used for decorating sanded stable floors. The manure drop was covered with either ratan matting or with ratan and ingrain carpet. In some places, the family, instead of using the living rooms in summer, were dwelling in the cow stable, the dining table standing on the platform where the cows had stood. The better class of farmers in North Holland have gas machines and cook with gas, and use it for illuminating purposes. In the higher grade of houses, the windows are often of plate glass, the furniture solid mahogany, and silver plate and fine china are in evidence.

The cows are members of the family, and the choicest pets. When we went to the field to inspect them, the whole family accompanied us—father, wife, sons and daughters. We found the animals remarkably docile and as fond of being caressed as is the average house dog. Let Americans who turn up their noses at the practical Dutch farmers for keeping useful cows in their houses remember that we have with us flea-covered, mangy

dogs, diphtheria breeding cats, besides birds of various kinds in cruel captivity. The returns per cow with good farmers is about \$80 each. On many farms in North Holland, sheep are kept. When the lambs are 8 or 10 weeks old they are sold, and the ewes are milked twice daily, the milk being fed to the calves.

Holland has suffered from the fall in value of agricultural lands much as England did years ago. The Dutch butter makers, having good markets, were indifferent to progress in dairying. Butter from the different farms was mingled in the same cask and sent to market. As long as there was none better, it sold at good prices. Then came Denmark with her progressive methods and co-operation, making butter which was alike in the cask from one end to the other. Danish butter out-sold the Dutch butter, and the Dutchman, fretting at the lower prices he was forced to take, failed to help himself to the new condition of affairs.

Prices of lands fell and disaster was often the result. After years of this depression, matters were taken in hand, in part by the government, and efforts at improvement were made. Now dairy education is being pushed, but still the people are behind Denmark in dairy matters. The loss in land values in the ways indicated amounts to many, many millions.

Dutch cheese still holds a good market, not only at home, but in various parts of the world. The cheese factories are well built and generally clean. More persons are employed to handle a given quantity of milk than we think necessary in this country. No one can pass through Holland with his eyes open without becoming deeply impressed with the great importance of dairying and the excellence of the better class of Dutch dairy cows and dairy products. I found farmers who had kept records of milk yielded by the cows for many years past, and the Babcock test was now being used by some to determine the fat percentage of milk.

Denmark is today the highest example in all Europe of agricultural push and progress. Covering but a quarter the area of Wisconsin, it supports 10 per cent. more people and exports more than twice as much butter as we make in all our creameries. Denmark has as much poor land proportionately as Wisconsin.

The cows of Denmark are generally of a reddish color and are not so large as those of Holland.

I do not believe that their animals are as good producers as those of Holland, nor is the quality so high as those of Jersey or Great Britain. There are not the distinctive breed types in Denmark that we see in several other countries. In this particular the country resembles Germany and France more than Holland, Jersey or Great Britain. While in Holland the cows universally roam freely over the pastures, in Denmark they are kept in stables, or tethered in the fields, which are generally unfenced. It is not an uncommon sight, as one rides along the railways, to observe in one long row fifty to one hundred cows in a pasture field, tethered by ropes. When they require water a wagon resembling a sprinkling cart drives through the field, and the water is let out into a small tank, supported at the rear, and hanging low; the wagon passes down the line of cows supplying each animal with water. At evening time the cows are milked in the field, and the milk drawn away in a wagon. The creameries of Denmark are generally large affairs, and well managed. We saw one creamery, which, together with its storage rooms, pasteurizing plant, etc., represented an outlay of over \$60,000.

Denmark's educational work in dairying has been without an equal anywhere in the world. In no other country has the government accomplished so much practical good for dairying, both directly and through its support of its agricultural college. Not only have graduates gone out from the dairy school by the thousands, but the government has interested itself in dairying in other ways. For example, it keeps an expert studying dairy markets in Great Britain. Then it conducts a system of sampling and testing Danish butter, which is of the most practical character. At the Agricultural College, Copenhagen, is a building devoted wholly to testing dairy butter. At intervals throughout the year, those in authority telegraph to two or three scores of creameries on a given day, to that day send a sample package (over 100 pounds) of butter, already made, to the dairy school. There is no previous notice, and such butter as the factory may have on hand must be shipped the day the telegram comes.

These lots of butter from forty or more factories are arranged in the special building for inspection.

Inspectors employed by the government examine the package and report on the quality of butter by number. It was my pleasure to witness an inspection which was in progress at the time I was at the college. The reports of the inspection, with criticisms, recommendations, etc., are sent to the various creameries, and the butter is sold at the best obtainable price. The cost of this single line of educational work amounts to about \$10,000 annually, being borne by the government.

For years the Danish government has been building up the bacon industry alongside dairying. Realizing the great importance of whey and skim milk in pig feeding, they have endeavored to supplement dairying by producing bacon of a high quality. The success in this line has been marvelous, and is equaled only by Denmark's success in the production of fine butter. Today Danish pork products command prices, materially in advance of even the fine pork products of Canada, and much above the pork products sold from America. As Denmark succeeded in her butter business largely through combined and cooperative effort, so she is succeeding in producing bacon products in the same way. The farmers combine to build pork handling establishments. At one place we visited, 50 farmers owned a bacon producing establishment where 800 farmers marketed their hogs. These people had no fears of the Big Four, or any other packers. The output of their establishments was sufficient in quantity and high enough in quality to make its own way in the world's markets, and a well disposed government stood at the back of these enterprises, giving encouragement in every possible way.

In egg production Denmark is also forging to the fore, her exports having doubled in the last five years. This has largely been brought about through the combination of the farmers into syndicates. The farmers form local associations, the officers of which in turn elect central officers to control the management of the whole corporation. Each egg as it is gathered is stamped with the mark of the local association and the number of the individual in the association. Eggs so marked are taken to the



central point when they are shipped to Copenhagen. If any bad eggs are found at Copenhagen a fine of about \$1.00 is imposed upon the person sending the same, and repetitions will force one out of the association.

In Switzerland, dairying is the leading agricultural industry and its form there is extremely interesting in some particulars. Down in the Swiss valleys where the farmers live in winter time, the grass is very carefully conserved in summer for hay production. Hay making is exceedingly difficult in the valleys because of the cool climate, the few hours of sunshine, in many cases owing to the shadows of the mountains and the frequent showers. The cattle are not grazed on the level land where hay can be grown, and are even kept off the mountain side where hay production, though difficult, is possible with Swiss farmers. The cattle graze for the most part on the mountains higher up and farther away from home. As the snows melt with the coming of summer, the cattle pass up the valleys and along the mountain sides, cropping the green herbage as they pass. Huts, or "chalets," made of timbers, are seen here and there, far up on the mountain sides or in the very high valleys. About these huts the cows are kept for a time and the milk made into butter or cheese.

As the snow melts still farther up the mountains or valleys, the cows are driven on and on, other huts being necessarily occupied for cheese and butter production. Finally, in some places, the cows have passed up the valleys until in August they have come to near where snow perpetually covers the mountains. In these highest points vegetation flourishes for only six or eight weeks in the year and the pasturage is good enough for the cows only for as short a period as four weeks in some cases. In one instance it was my pleasure to sojourn almost under the shadow of those giant mountains, the Eiger, the Monch, and the Jungfrau. It was August, and at an elevation of about 12,000 feet the snow had disappeared and flowers were blooming on every hand. The vegetation was six or eight inches high and of the greenest, most luxuriant character. Grazing on this herbage were herds of Swiss cows, of brown or fawn color, each cow carrying a great, tinkling, silver-toned bell, suspended by a strap

broader than one's hand. The cows were so gentle that I could approach any of them and handle them as I desired. I measured many of the bells and found some of them fully six inches across the throat. No sight can be more beautiful than a herd of fifty or a hundred of these gentle cows, each with her tinkling bell, grazing contentedly on the herbage, with a background of glacier and snow masses reaching thousands of feet upward into the clear, blue sky.

The sun shines warm, the butterflies are flitting about and everything is peace and quiet, save now and then a mass of snow tumbles over some precipice, waking thunder-like echoes down the valleys. Now and then we see a peasant working his way down the mountain path with a cheese on his back, strapped to a chair-like saddle, suspended from his shoulders. Even the little children we meet toddling along these pathways have a miniature mountain basket strapped on their shoulders containing a toy or some other object of childish interest. Thus do the customs of the elders show themselves in the playthings of the children.

In France, dairying rules under continental conditions, many old customs surviving. The cows are kept in the stables in the summer, and the feed carried to them from the fields, which are without fences.

My observations of dairying were of the most limited character in Great Britain and Ireland. Here the cattle roam in pastures, which are separated, one from another, by hedges of hawthorn. The cattle generally are what we call the Shorthorn type, and many of them seem excellent milkers.

If any one thing was more striking to me than another in all my observations, covering nearly four months abroad, it was the absolute lack of proper methods of keeping dairy cows neat and clean in the stables. In every case when confined to the stable, the cows were fastened by ropes or chains to a manger of some sort. Usually there was no partition between the different cows and each cow could move sideways as far as she pleased. The results of this method of fastening were that it was impossible to keep the stables as clean as they should be without the greatest of labor. In several cases I spoke of stanchions and the Bid-

well stall or its modifications but no one seemed to know anything about these. Even Great Britain was as far back in these matters as was France, Denmark, or any of the continental countries.

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DISCUSSION.

Mr. Adams: Do the Danish farmers own their land as a rule, and if so, what is it worth per acre on an average.

Prof. Henry: I cannot answer that; I wish I could. They generally own their land, although there are men who own estates and rent the land—it is mixed tenure. The land will run at least \$100 for rather poor land and up to \$150 an acre. They must earn interest on that at four or five per cent. I saw lands in Ireland that rented for \$20 an acre a year, and one man told me that for a few acres he paid \$80 a year per acre; that was close to the city. But there are lots of pieces in Ireland where they pay \$20 a year rent for the land and I tell you they have to farm it.

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The chair appointed the following committees:

On Resolutions—H. C. Adams, H. C. Taylor and W. D. Hoard.

On Nominations—C. H. Everett, J. Q. Emery and W. A. Henry.

## THE DAIRY MACHINE FROM BIRTH TO MATURITY.

Mrs. Adda F. Howie.

Before beginning my paper I have something on my mind that I want to say. Last evening one of our earnest dairy workers said to me, "We dairy workers are no doubt doing a great deal of good, but recently I have become convinced that we are also doing some harm." I said, "Why, how do you make that out?" It had never occurred to me that way, because our intentions are so good. He said, "Because we hold up ideals from our present standpoint. We go before these people and we tell them what we are and have now, not how we began, nor our slow progress as we went along, but as we stand at the present time. They know it is impossible to begin where we are, and so they become discouraged and have no faith in us." Now, that worried me.

We so often hear the working partner of the dairyman called a machine that I have taken that name for my paper, but, mind you, I never heard her called that by a first class dairyman and I venture to say there is not a successful dairyman in this room, in this county, or in this state, that does not regard his working partner as something more than a mere machine and treat her with a consideration that is due an honored and prized friend.

I am often asked how to raise calves; if I should go back seven years and tell you all my experiences, perhaps you would be more careful about wanting to follow in my tracks, but it has been an excellent experience to me, and if I can help save you five years of that experience and put you where I have been for the past two years I shall consider that my time is well spent.

While it would be far more agreeable to think and speak of the bovine race as living, breathing creatures, endowed with a sympathetic net-work of sensitive nerves and a brain capacity capable of developing rare intelligence, out of deference to the prejudice of un-imaginative money-grubbers, who persistently

scorn the idea that wholesome sentiment may happily affiliate with practical business operations, we will endeavor to place a representative of the dairy breed on the same basis as a useful, though inanimate device, with a mechanism of so delicate and complicated a nature that any inventor must readily recognize the imperative necessity of placing a competent and trustworthy engineer in charge. And yet only too frequently do we find this valuable and responsive piece of machinery in the hands of one so utterly unfitted to properly appreciate the worth or manage the most clumsy and indestructible samples of this old and reliable invention that there is little cause for wonder when the carefully wrought specimens, polished and perfected through generations of skillful handling and breeding, are condemned by disappointed owners, as frail and unprofitable.

To appreciate this, one has but to take into consideration the probable outcome of a finely constructed Corliss engine, in charge of an ignorant, untrained coal-heaver whose vague ideas of delicately adjusted bearings and cleanliness have sprung from the associations of crude and questionable surroundings; who, through indifference, permits the valves and cogs to become clogged with the sticky sediment of a too liberally applied lubricant, simply because a well filled oil-can stands conveniently near; who placidly allows the boilers to be utterly ruined for the reason that it requires watchfulness and labor to replenish the evaporated water; or who suffers through indolence and carelessness one of the mightiest works of man to become tarnished and rusted, besmirched with dirt and oil until it is so unsightly an object that the builder would cry out in wrath and amazement, should he behold the desecration of his labor of love and patience.

Yet few will bear in mind the greater responsibility of a farmer who goes plodding along from day to day without seeking or caring to become more familiar with the workings of the mechanical contrivance that was intended by the *Great Inventor* to serve the two-fold purpose of pleasure and profit. When one invests his money in a piece of farm-machinery that is to be subjected to constant wear and strain, he is apt, if a prudent man, to carefully examine the material from which it is con-



structed. Undoubtedly he will take the wise precaution to insist that only the best grade of metal and the most durable quality of wood be used in its manufacture; and it is no more than right to expect the same painstaking discrimination in the selection of the embryo dairy machine.

One must shrewdly forecast the responsibility to be placed upon it. The sire ought ever to be chosen with a view to prepotent vitality. The dam should have proven beyond question her stability and merit at the pail and churn, and furthermore, if these good qualities have become solidly fixed through the transmission of many worthy ancestors on both sides, one will rarely be disappointed in the make-up of the bright-eyed, lively little creature newly added to his herd.

This bit of machinery does not come set up ready for use, and it will require weeks and months of patient, careful adjusting before she is ready to take her place as a reliable producer. Unfortunately no directions accompany her, and the would-be mechanic who relieves the mother of her charge must give heed to the laws of nature in dealing with her characteristics, if he would avoid friction and disaster.

In the first place the durability of rugged constitution is an imperative requisite for the long pull and strong pull that must be demanded of a profitable dairy-worker; and badly ventilated, damp calf pens are not calculated to promote vigorous health and thrift—for the framework of the dairy-machine is as susceptible to the effects of moisture as one composed of iron or steel. There is little doubt that humid and filthy quarters are responsible for at least one-third of the ailments of calthood.

Over feeding, too rich food and irregularity in feeding, may safely be credited with another third, while one-half if not three-fourths of the remainder of these dependent creatures are debilitated by drinking from unclean pails, and the balance are victims of colds, thoughtless neglect, and well meant, but unskilled doctoring—for a calf's stomach is always weak in proportion to its body and requires rest rather than the overtaxing exertion of digesting various kinds of nostrums.

As a rule, at the age of three or four days the dairy calf should be separated from its mother, and in order to make the

severing of maternal ties as humane as possible, the calf may be placed in a little pen partitioned off from one corner of the box-stall, so arranged that it cannot reach the udder of the cow, while the mother will in no way be prevented from fondling it to her heart's content. We have found that this change made directly after a morning meal and with no attempt to feed it until evening has proven the best means of weaning and teaching a young calf to drink. The cow may now be turned out for exercise and will undoubtedly return in a short time nervous and anxious, but as soon as she realizes that no harm will befall her little one and that it is in the hands of kindly disposed friends she will, without further ado, quietly take her place among the workers and, with intuitive confidence in the management, willingly entrust her daughter to the care of the herdsman, just as a loving human mother would place her child under the sole tutelage of some accomplished and refined instructor.

At this period, the calf should be moved to a roomy, dry, clean and well littered stall, free from draughts, and kept at as even a temperature as possible. For the latter reason it is not advisable to have the pens in winter located in a cow barn where the cattle are turned out during the greater part of the day, as the barn temperature, regulated to a large degree by animal heat, is subjected to too sudden and marked changes. It is wise to keep spring and summer calves stabled until at least two months old, fall and winter calves are better for being kept in-doors during the entire winter and early spring months, and no calf at any time should be compelled to occupy a pasture unprovided with abundant shade and shelter.

From the day of its birth, a handful of bright, clean hay should be offered as a temptation, and many a strong, active calf has, when a few hours old, been found chewing the alluring bait.

At the end of the first week one-half of its milk allowance may be skimmed, and at the end of the second week, separator-milk may be its only liquid nourishment. For the first two weeks it is prudent to feed, three times daily, from three pints to two quarts, and *no more* at one time. The milk should

never be given cold or lukewarm. When feeding three times a day, six quarts are sufficient, but when the calf is put on two meals a day, seven quarts evenly divided may usually be assimilated with good results. Never feed in wooden pails or troughs, and be sure the tin or earthenware receptacle containing the food is perfectly clean and sweet. Calf pails should be as often and thoroughly cleansed and scalded as milk pails; in fact, one of the most particular dairy-men of my acquaintance, in reply to my eagerly put question as to his method of raising some exceptionally thrifty looking stock, said, "I don't suppose you'll approve, but I just feed my calves from the milk-pails after we've finished milking, then I'm always sure about the cleanly condition of the dish." No one who had ever taken a peep into his spotless and orderly dairy room could harbor a thought of untidiness or lack of system, and I was forced to admit that the condition of the calves justified the means.

It is unnecessary to ever increase the quantity of milk, and if at any time the calf should begin to scour, at once reduce the ration one-half. A raw egg or a table-spoonful of un-cooked corn starch-added to the remainder will almost invariably correct the evil; and as the calf improves, gradually increase to the full amount. At an early age, from two to three weeks, the calf may be taught and should be encouraged to eat a small quantity of bran, whole oats, or any food containing a large amount of protein. A table-spoonful of the jelly made from well scalded old process oil-meal added once a day to the milk will insure slick coats and prove beneficial to digestion; but never on any account make the mistake of feeding a dairy animal fattening food. As the calf grows older, it will require more liquid, and water may then be added to the milk, and a frequent drink of fresh water, especially in the hot summer months, will be gratefully appreciated.

Endeavor to establish a habit of consuming large quantities of wholesome roughage, which should, when the animal is at the age of six or seven months old, supply abundant nourishment to develop both brawn and size; and while the discontinuance of the grain ration may serve to detract somewhat from her sleek and pleasing appearance, we believe that the stimu-

lating effect of a strictly vegetable diet, as it were, on digestion and appetite will more than counterbalance the defects of a few brief months of un-gainly proportions.

While exercise and pure air are admirable factors in the developing of stock, still, young stock, (or old for that matter,) should never be exposed for a lengthy time to intense cold or sleety storms.

A yearling may be promoted to the dignity of a regular stall, and will soon learn to know and take her place without prompting. If she has received the right kind of care and treatment, her sense of terror will lie dormant and a gentle command from the herdsman will bring her readily and fearlessly to his side.

The early maternity breeds should be ready to join the ranks of producers at an age from twenty-two to thirty months. For at least three months before calving, a heifer should receive special attention. A daily grooming and gentle handling of the udder will in a great measure prepare and familiarize her with the process of milking. During this critical period it would be well for her to receive a moderate ration of grain. If pasture is insufficient, a soiling crop should supplement it, or, if it be in winter a generous amount of cut corn-fodder, clover hay, or any other approved roughage, with the addition of a few roots, such as carrots and mangles, will make a satisfactory and appetizing diet.

And now, when this mighty, complex bit of machinery stands complete, ready and willing to contribute her earnings to the dairyman's income, I would ask, before turning her over to the care of an unknown engineer, that she be given every advantage on this her trial run, not only in order to enable her to show her appreciation of thoughtful breeding and painstaking care, but because the regular habits formed during a heifer's first milking year will, to a large extent, mar or make the standard by which her future usefulness is to be measured.

Insist that she be milked three times a day, whether she gives much or little, for at least three months. If possible, prolong the milking period until four weeks within the time of dropping her second calf. Then, if with her third freshening, she fail to meet her owner's expectations, he has still the satisfaction of



a duty well and faithfully performed, and be assured that every earnest effort in life will eventually meet with reward.

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DISCUSSION.

President Goodrich: I came to the conclusion some years since that a dairymilk woman could beat any man on earth in the dairy business. I really believe she can understand the cow's nature better than a man can; in the first place, you see she gives the cow credit for knowing something and that she has some feelings, that she has some affection. I don't believe that a milking machine will operate on a cow's affections like a good milker.

Mrs. Howie: For the past two years I haven't lost a single calf, though I have had one or two that were very delicate in the beginning. I would not like to tell you how many I lost before that from over-feeding and improper feeding.

Mr. Adams: Do you say you never feed a calf but six quarts a day?

Mrs. Howie: That is our rule; as they get older if we have separator milk to spare we can add that, but it is not necessary to do it. By simply adding water I find you can get very good results, and it is not necessary to add more milk, because they will eat more roughage, and that is what we want them to eat, and they will also nibble at grain and we find that beneficial.

Mr. Philips: If you have the milk to spare how long will you continue to feed her?

Mrs. Howie: Until she is about fourteen months old.

Mr. Adams: You say the milk ought not to be fed warm or cold. What temperature would you have it?

Mrs. Howie: I meant to have tried that before I came here, but I didn't, so I can't give it exactly. You see I try the milk with my finger, but I want it to be a little warmer than it comes from the separator, a good blood heat. Now, you may intend to do this work very carefully and you start for the barn



with the milk just right, and you see a cow that is going the wrong way or something else, and you set your milk pail down and go and put your cow on the right track; then you see a couple of cows fighting and you go and settle the difficulty, and then you think while you are right there, you will do a little something to the windmill, and when you come back the milk is cold and in just a few minutes that calf will have the colic from too rapidly eating that cold milk, and you will say, "Why, it was warm." Of course it was when you started, but it was not when the calf got it. I have a very strict rule in my barn that the instant a man begins to feed those calves, he is not to stop for anything. I think if the barn were on fire I should insist on his finishing feeding his calves.

Mr. McKinley: Is it always safe to continue milking up to within four weeks of calving?

Mrs. Howie: No; but the heifers' first milking period should be prolonged, even at the expense of the second milking period. Very few heifers do as well the second year as they do the first, and frequently the owner is disappointed and turns them off; if he will keep her and be careful in her methods, the third year will show him what she is.

Ex-Gov. Hoard: Why do you prolong the first milking period?

Mrs. Howie: Because I wish to fix that habit with my heifer. I wish her to go through life giving me an abundance of milk. I cannot afford to feed a dairy cow three or four months for nothing. You see, we are not looking to any one year of the heifer's life, we are looking for twelve good years of solid work at least, and so we can afford to sacrifice just a little on her second year in order that we can keep her up to this milking period, so that the third year she would not be dry over six weeks. We want her to establish the habit of holding out in her milk and do it the very first year. That first run will be what you can measure her future usefulness by and you get her into that habit the first year. A little extra attention in many ways will pay you in the other eleven years that are to come in her life of usefulness.

Don't think because she only gives ten or fifteen pounds that

she is not worth milking three times a day,—if you have never tried that, please do it and satisfy yourself. I am on my sixth year milking three times a day, and each year makes me feel more sure that I am in the right path and I am sure my cows are very much more valuable.

Ex-Gov. Hoard: How do you handle the mid-day milking?

Mrs. Howie: If it is not very much, it is strained in a can and warmed very slightly by setting the can in some warm water before running through the separator at night, but when, as sometimes happens, we have a full can; when we are milking six or seven cows at noon, then that is run through the separator as soon as it is milked

Ex-Gov. Hoard: Do you milk the whole herd three times a day?

Mrs. Howie: For the first few weeks after freshening; sometimes not more than five weeks; at other times I have milked as long as five months with profit, I think.

A Member: How do you divide the twenty-four hours?

Mrs. Howie: I presume I would have better results if I divided it into three equal periods, but we suit our convenience, and so long as the cow's udder is relieved I think it is all right. I have one little cow that is giving forty-seven pounds of milk a day. If I should allow that cow to go until night before milking, you can imagine the condition of her udder; she would certainly be very uncomfortable. We are not trying to get the most,—if I were making a test or trying to get the very highest production from my cattle, I should divide the day into regular intervals, but as it is there may be a difference of an hour or two.

A Member: Haven't you had heifers that would go dry in spite of you about four months, and after that be all right?

Mrs. Howie: No, I have never had heifers that would do that when I took care of them and milked them three times a day. I have had them when they gave very little milk, but I didn't expect them to do very much. I have had them give only about sixteen pounds of milk a day, and though the udder would hold it, I would still milk them three times a day, because I think in manipulating the udder you develop it. You

see I am looking out for every want in my cow. I want to develop her into a beauty just as we want our children beautiful, attractive and good. I do the same with my cows as I would with my children.

A Member: Is not sixteen pounds a pretty good mess of milk?

Mrs. Howie: No; I have one little heifer with her first calf who is now giving thirty-three pounds of milk a day. We take care of our cows and they pay us for it. Mind you, while I do not say that the pleasure I take out of this is not of double the value to me that any money could be that I could receive, we are getting a very good profit in money from our dairy workers.

Ex-Gov. Hoard: How much?

Mrs. Howie: I could not tell you exactly, but I could give you some figures and you may figure for yourself. During the month of January that has just passed, before going to Madison, I said to my foreman, "Will you please figure up our monthly record?" He stood right there and said, "It is 347 gallons of 24 per cent. cream." I said, "You are sure it is that?" "Yes, I know it is that." When I reached home my slip from Plankington House told me I had shipped 347 gallons of 24 per cent. cream. I was milking twenty-two cows; the first week there were twenty-four, but two of them are now dry, and out of those twenty-two cows four will be fresh in March and April. While I am not at liberty to tell you the price I receive for my cream, I can say that I have just been offered 80 cents for every gallon of cream that I will furnish a man.

A Member: You have to have your cream such a per cent., do you?

Mrs. Howie: Certainly; that is right; this is business.

Mr. Taylor: What is the commercial value of that cream in Milwaukee?

Mrs. Howie: You mean ordinary value? About fifty-five cents.

Ex-Gov. Hoard: If it was 25 per cent. cream, that would be a pound of putter to every four pounds.

The Chairman: Yes, twenty-two per cent. cream will do that.

Ex-Gov. Hoard: So that every gallon of cream would make two pounds of butter and on butter value you would have about 40 cents worth of butter.

Mrs. Howie: Yes; but when I made butter I received 30 cents a pound for my butter.

Ex-Gov. Hoard: I am taking the general average. Let me ask you, how much do you think your cows will earn you in gross, a year?

Mrs. Howie: This last year I have had a great deal of sickness in my family, and have been called away from home, so that the records, although they are carefully kept from day to day, have not been looked up as closely as they should be; but a year ago my cows averaged me \$125 apiece, and that was a little bunch of cattle, sixteen cows,—two little heifers came in for part of the time—that made eighteen, but there was an average of sixteen cows, and I received \$2,004.30 for their product. That is all that I could get out of them.

Ex-Gov. Hoard: How much do you say it costs you to keep those cows a year?

Mrs. Howie: Well, to tell you the truth we depend so much on Hoard's Dairyman to figure out what it costs us, that we don't keep track of it. I want to tell you this; if I stand before you today and get the credit of being a much wiser woman than I really am I would like to tell you where I got my knowledge. When I started out I began to take the agricultural papers that I thought would do me good. I took the dairy papers and I did not take them for the sake of having them come to the post office; but I took them because I wanted to read every page, and I find out a great many things from those papers. Then if you visit some of the dairymen and ask them if they knew me, they would probably smile very broadly and tell you some of the ridiculous questions I asked, and now it is very pleasing that once in awhile I can repay their kindness to me by telling them something new that I have discovered by my own work.

Ex-Gov. Hoard: But you don't tell me how much you think your cows cost you to keep.

Mrs. Howie: We are making use at the present time of some



silage that is not in the best condition, so I would not like to figure on the price of that silage. It was cut too green and I am using it just as carefully as I can. The farm was so run down when I took it that we have had but little clover and we feed oats and pea hay largely. Our roughage is corn stalks, pea hay and ensilage. Our grain is bran, ground oats, oil meal and gluten meal. Now, we seldom feed to any cow over eight pounds of grain a day with roughage. Once in awhile when we get a little proud we start up and feed a little higher to see what a certain cow will do, but my stock are breeding stock and I cannot afford to run them to the highest limit of their capacity, because I want good, strong calves just as near like their mothers as I can get them. I think it will cost me, by Hoard's Dairyman, about \$35 a year to feed those cows, and I am paid a thousand times for the labor by just walking up and down and having them bow to me.

Ex-Gov. Hoard: I beg the privilege of bowing to the owner also.

Mr. Adams: The Dairy Association has come up here into Buffalo county, not simply for the purpose of talking a good deal, although we are talking too, but to say a few things that will be of value to the farmers of this county, which will sink into their minds and stay there, so that it may result in some practical good. I hope that there are two ideas which you will carry away from the address of Professor Henry and also from that of Mrs. Howie. One is a lesson which comes to us from the agriculturists of Europe, and particularly of Denmark. There is something in that of encouragement to the Wisconsin farmer who is living on land that is worth from \$30 to \$40 and \$50 an acre, and who sometimes questions the fact whether or not he can afford, on that high priced land, to go on and try to make money in the farm business. Professor Henry has shown you that over in that little country of Denmark, through the spread of intelligence, through education, through the efforts of the government, on land that is worth from \$100 to \$150 an acre, under much harder conditions than we have in Wisconsin today, the farmers of that country are making money; and that brings us to the conclusion that in this state of Wisconsin where the



state university is coming to you year after year asking for appropriations to build up their system of agricultural education, that the farmers of this country will know that every dollar that goes into that object is coming back a thousand fold to the people of this state.

Now, I wish I could drive this calf business clear down to your boots. There has been nothing said here that is more practical and more valuable to any man that keeps a cow than what Mrs. Howie has said. I have been through the mill. I spent fifteen years raising calves and milking cows, chasing around trying to get fat and rich in that kind of business. Well, I didn't get fat, but I did get enough to live on.

Ex-Gov. Hoard: How about calves?

Mr. Adams: That is just what I am telling you. I killed more calves in three years than anybody in the dairy business in Wisconsin, simply because I didn't know enough to feed them, and I finally stumbled into precisely the same practice which Mrs. Howie has so clearly outlined here today and that is this—you may think this is a small subject,—but do you know how many calves we have in Wisconsin? In every year we have 800,000, and the value of those calves is diminished \$2.00 a head because farmers don't think and go to a woman like Mrs. Howie to find out how to feed them. It is the easiest thing in the world to take care of a calf and feed it right, and it is a little bit easier than that not to take care of it and have the calf die or be a scrawny beast that ought to die.

All you have to do is to give it warm milk, a little warmer than blood, and not to give it too much; and always feed it at the same time.

Ex-Gov. Hoard: And keep it dry.

Mr. Adams: What? the milk dry? Mr. Hoard always tries to add something—and he always can. If the farmers of this county would take all this good advice, they would add 100,000 to the number of calves in one year, produced in this county. I hope the ladies who are here today and whom we are mighty glad to see, will see to it that their husbands don't get stupid on this calf question.

Prof. Henry: We have had quite a number of agricultural

students from this county; there are at present eleven at the school from this county, and there are about ten here who have attended the short course.

Mrs. Howie: After taking my seat, it occurred to me that I had not given due credit for all the good I have received in this matter of taking care of cattle. When I began farming I do not think there is a person in this room who is more ignorant of farming methods than I was at that time. My son attended the short course at Madison, while I was on the farm; from day to day he wrote directions that I put into practical operation, and from that time we began to prosper. It did not interfere with our reading the agricultural papers, in fact, it encouraged us to do so, and we were very, very greedy to get all the knowledge we could. We found that farming was not only a profitable investment so far as money was concerned, but I think if you will come to the farm you will find as happy, contented and to a degree, prosperous people as you will find in Wisconsin. Now, of course, it is not well to be wrapped up in yourself or in love with yourself. I know there are many things for me to learn, and if I should be invited to come to the next convention, I hope I may have found out something else that will be of value, for I mean to go right on studying.

The foundation of all my knowledge, the inspiration for my farming operations came from the Wisconsin University, the agricultural department. We have been helped and we are here to help you. We would like to see every farmer prosperous, interested in his work.

It is no good to hand a child a volume of Latin and say, "Read it; you are a blockhead if you don't read it," and it would be about as foolish to get up here and tell you how we are doing and you look at us and say, "Well, I don't just understand it." Perhaps some of you are a little diffident and don't like to ask questions about things you would really like to know. I have derived too much benefit myself from the knowledge derived from others not to wish to give freely any that I possess. We are simply a kindergarten, working out this great problem together. We want to help each other spell out the first words of this volume. Our brains will become more active and in

another year those who are just beginning may out-distance the rest of us.

Now, in this business of dairying, many people do not know what it is to be clean. I went into a dairy not long ago where the people were very well to do; they had made their money by dairy farming and the man complained that the prices of butter were not as they once were. I went to the barn, and in doing so passed through the kitchen. I am not telling you in what state this house was—it was not in Wisconsin; I am not in the habit of criticising people who have been kind and generous to me, but I am giving you this example although I would never give you the name, even of the state—the table in that kitchen was full of dirty dishes. In one corner of the room stood a separator; I think it was a tank that you pour water in and separate your milk in that way. This was during fly time, and there were no screens, and the flies were very thick, because there was corn and cabbage cooking in the room. At the foot of the table was a lot of unwashed milk pails and a lot of filthy straining cloths, so filthy that only boiling in concentrated lye would clean them. Right opposite stood the butter worker. On this was piled a lot of dirty dishes and a kettle. Do you wonder that farmer complained that times were not as they were? Who is going to buy butter made after those methods? Do you suppose that if he brought one of his Boston customers into his kitchen that he would get an order for high-priced butter? No, sir, they wouldn't have the butter. Now, that was a large house, and I know that they did not use it all. I would have taken my parlor and I would have that room devoted to milk alone; not anything in there. We must fight against odors and dirt. If you had asked those people, "Are you clean?" "Why, yes, we are clean people." Our standard of cleanliness is defective. We must go to Holland and other countries to learn the true standard of cleanliness, and don't let us forget about it either, but above all, if you are making a first class product in butter, don't forget to devote a room to that. Now, the Wisconsin College of Agriculture is the stepping stone to success. You would not expect a child to read a volume of Latin until it had received instructions in its A, B, C's. One or two years devoted to that

school, providing you go there with the intention of learning, not simply because you will get higher wages when you come out, because when we hire these boys we hire them to put in practice the methods taught at that school.

If you have ten cows and can't do it otherwise, sell two of those cows and send your boy, and if you haven't any boy, send somebody else's boy that will come back and help you, because it will give you a clear insight into what you are doing and give you a standard for neatness and cheapness.

Prof. Henry: Mrs. Howie has sent her own son to the short course. She says if you cannot send your own son as she has done, send someone else's boy. There sit three gentlemen over there. That man sent somebody else's boy; that man sent his own son and that man has sent either two or three of other people's sons to the short course. We have eleven boys from Buffalo county this year. As soon as we have room for you, we ought to have twenty-five or thirty.

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### EXPERIENCE IN BUILDING UP A HERD OF PROFITABLE DAIRY COWS.

H. D. Griswold, West Salem, Wis.

Mr. Chairman, Ladies and Gentlemen: Some thirteen years ago this convention met at Sparta, Monroe county. I had the good fortune to be there and listen to Gov. Hoard and others upon the profits of the right kind of dairying. I was very much interested, and commenced to plan what could be done in my case.

I had fifty acres of good land, and four or five fairly good cows, but had been keeping them on the dual-purpose plan, viz.: some milk, some beef, and small returns from either.

I then concluded to abandon the beef and work wholly for cream and butter. The first thing to do was to decide on one breed of cows and then stick to it. I chose the Guernsey and



purchased the best full-blood sire I could get. I got some nice heifers from the first, but I purchased a Babcock test and scales (and used both), discarded the poorer heifers and always kept the best.

You will see by my first year's record that I had fairly good cows to start with.

*Average Yield of Butter per Cow for Each Year.*

Year.	Pounds.
1891.....	265
1892.....	315
1893.....	334
1894.....	379
1895.....	360
1896.....	357
1897.....	392
1898.....	383
1899.....	385
1900.....	337
Yearly average .....	350.7

The record is an average of all, heifers being counted the same as old cows. I have bought none, consequently have all time a large per cent. of heifers which cuts down the average. If the heifers were left out, the mature cows have averaged 400 pounds and over for the last six or seven years.

I have now the third Guernsey sire, and the cows and heifers are three-fourths and seven-eighths Guernsey. They all look alike, and the herd has a much finer appearance than one which is a mixture of everything.

There is, in my opinion, a great advantage in raising one's own cows. If one buys, one is liable to bring in some disease; then a new cow is strange to the place, and her fright scares the rest. My calves are pets from the start, and by the time they are grown every conceivable noise that four healthy boys can make they are used to; and when we milk, whether the boys laugh or whether they scap, the cow chews her cud and gives down her milk just the same.

Don't sell the best cows, no matter what the price offered. What is a cow worth that will give one seventy dollars a year



clear profit? And after you have raised a nice heifer, don't sell her until you have tried her and found what she can do.

I have no fancy, expensive stable; have built it myself, enlarging from time to time with the increase of the herd. It is double boarded, with paper between the boards, well lighted, and ventilated according to Prof. King's plan of ventilation, and white washed.

The stalls are from seven to eight feet in width, and the cows are fastened on each side with a chain around the neck. The manger is made with a continuous trough of galvanized iron in the bottom. This is swept clean every day, and the water run in with a hose from tanks in the stable. This water is nearly the same temperature as the stable and requires no warming.

I was brought up to turn the cows out in the morning and leave them out all day; thought it must be done for health. But I found that the more I kept them in during cold weather and storms the better results were secured.

About this time I had an experience. A fresh cow late in the fall was sick; though she got better, the weather was so cold I did not like to turn her out, so brought water to her and kept her in the stable. It seemed to me she drank a lot, so I weighed the water and found she drank 100 pounds on an average per day. Then I watched the cows that were turned out and was satisfied they drank much less, and shrank on their milk during a cold spell, while the cow that stayed in kept right up.

Then I fixed the stable so they could all stay in, and watched closely; if they showed any sign that it was an injury, was ready to turn them out again.

This was eight years ago. I am watching yet for that first sign. The cows are continuously stabled from about the first of November until the first of April.

In the fall and spring they are stabled only at night, and during the summer are out all the time except when milked.

My experience is that the best results are obtained when the cow is kept warm. The high bred dairy cow is a delicate animal; she carries no flesh, her hair is short and fine and she is poorly equipped for the long, cold winters we have in Wisconsin; but she pays big returns for kindness, good feed and warm,

comfortable stables. Watch her closely, supply all her needs from day to day, so as to keep up her full flow of milk as long as possible, for it is the long, steady record that counts at the year's end.

Milking is done first in the morning, after which the cows have a ration of ground feed, then corn stover, all they will eat; then they are left until noon when they are watered. Between five and six o'clock at night they are again fed ground feed; then the night's milking is done and they are fed all the hay they will eat up clean.

The ground feed is chiefly corn and oats, with bran, oil meal, or cotton seed meal to make a balanced ration. At present am using cotton seed as it is the cheapest protein feed I can get.

An average allowance is ten or twelve pounds per day, but we study the cow and feed more or less as she seems to require, always being careful not to over feed. We also feed some culled potatoes, half a peck to the cow. We have fed ground feed when the cows were in pasture, but if the pasture is good have seen no benefit. But one must watch, and if at any time the pasture begins to get short, feed must be furnished promptly.

The best cow last year made 504 pounds of butter; the poorest, 200 pounds. The herd numbered eighteen. The best ten cows averaged 400 pounds per cow. The cost of keeping for the year averaged \$30 per head; the average receipts for cream alone was \$65 per head. The increase of the herd and the skim milk fed to pigs would make ten dollars more. Most of the cows come fresh in the spring, and no cows come in during the middle of winter or summer.

The average price received for butter was 20 cents. Now, you will see that the poor cow, giving 200 pounds, would make ten dollars above the cost of feed, while the best one giving 500 pounds would make seventy dollars above cost of feed. It pays to make a vigorous effort to get the good one.

You will notice that the last year's record is considerably lower. Two or three years ago, to piece out until I could get a new sire (such as I wanted), a sire of another breed was brought into the herd and a few heifers of his get that looked promising were saved. They have counted in the herd for the

last year and that is one reason. Another is, that nearly all the cows in my neighborhood have done poorly the last year. Excessive rains made the pasture grass rank and watery, but an increased number in the herd and good prices have brought up the total receipts above the total last year.

It is surprising that so few men use the test and scales, especially men who are keeping full-blooded stock, for a buyer will not pay a big price for an animal unless the owner can show some kind of a record for the dam and grand-dam. Names and numbers and premium ribbons count for little compared with actual performance.

To the average farmer, with a few common cows, the up-to-date dairyman, with his herd of full-bloods, his nice buildings and hundreds of acres of land, is so far away from him that he will not ever try to attain unto it. But it is not necessary to have full-bloods. A good profit can be made with grades. Neither are expensive buildings a necessity. I have not hired a carpenter a day, but have put up all the buildings myself. I have not yet got a silo but hope to have one soon.

I still have only the fifty acres, but it carries now thirty-five head instead of the half dozen.

Any farmer, if he will give his mind to it, and watch carefully the details, can do just as well. There is no secret about it. Of course it is confining; one must work every day—Sunday and all—but the pay goes on every day, too.

Anyone keeping stock must have losses, and often one gets discouraged and is tempted to go into other things, but it averages up all right in the long run. It takes patience and perseverance.

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DISCUSSION.

Prof. Henry: Do I understand that you are farming on fifty acres of land?

Mr. Giswold: Yes, that is every inch I have.

Prof. Henry: How many cows do you milk during the year on the average?

Mr. Griswold: I had eighteen last year and about as many more young cattle.

Prof. Henry: Do you sell your cream in the city and get a large price?

Mr. Griswold: No, sir; part of it goes to the creamery and part of it to the city, but I only get a trifle more for that that goes to the city. I am practically a patron of the creamery.

Prof. Henry: What did your creamery butter bring you last year?

Mr. Griswold: About twenty cents.

Mr. Philips: They paid the patrons 21½ cents for butter fat last year.

Mr. Adams: How much ground feed or grain did you buy for the cows?

Mr. Griswold: About \$140 worth of ground feed, and I paid \$60 rent for a pasture, making \$200, but I sold enough other things off my farm to more than pay that \$200.

Prof. Henry: Do I understand that your sales from your dairy were about \$1,400?

Mr. Griswold: Not quite that much for cream, but the increase of the herd and the cream made that.

Prof. Henry: Do you keep pure bred or grades?

Mr. Griswold: All grades; a pure bred sire.

Prof. Henry: What is your object in building a silo?

Mr. Griswold: Because I think I can furnish the feed cheaper and I think it is good feed.

Prof. Henry: What was your object in introducing a new breed?

Mr. Griswold: I have not done that. I had a new sire for a short time to piece out a year, but I was sorry afterwards I did that; I went back to first principles.

Mr. Jose: Do I understand you to say you are not particular about noises on the farm while you are milking?

Mr. Griswold: It doesn't make any difference; the children run back and forth in the alley shouting and halloing and the cows are used to it; they pay no attention to a perfect stranger, except they are likely to reach out and lap his coat.

Prof. Henry: We have found the same thing—we have so

many visitors. If there should be ten thousand people going through the sheep barns, they would pay no attention, and the cows are about the same.

Mr. Philips: Mr. Griswold's cows are in the barn sometimes for a year and a half and they are used to noise from the start.

When you go to the creamery and find that herd making \$112 for the month of June—sixteen cows, about \$7.00 apiece—and then you go out onto many a hundred and sixty acre farm, just as good land, or better, and find them willing to take \$2.50 a month for their cows, you will understand that breeding in line and taking personal care of cows amounts to something. I have taken men there who offered him \$100 apiece for some of those grade cows, and he shakes his head and walks off.

A Member: Do you say you water your cows only once a day?

Mr. Griswold: That is all.

A Member: Is that enough?

Mr. Griswold: I think so when they are used to it.

The large stalls holding two cows are eight feet; two small cows will get along in seven feet all right.

Mr. Jose: It is all right to water cows once a day in the barn where the water is not cold, but where you water outside or where there are cold breezes blowing they will not drink enough.

Mr. Bradley: I have tried different times turning cattle out of the barn to water in the winter time. For twelve or fourteen years we have warmed our water and by feeding ensilage, which is a wet, succulent food. Where they eat a great deal of that morning and night, we find they don't want to drink more than once a day. We have tried turning them out in the morning, having them drink, and then turning them out again in the afternoon, and they would not drink. So I have come to the conclusion that once a day is often enough to water them if the water is reasonably warm, and I am quite sure it is where they are fed ensilage both morning and night.



## INFORMAL EVENING SESSION.

Following the custom established many years ago, the members of the Association and others in attendance upon the convention met with the citizens of Mondovi in informal social session. A sumptuous feast of everything desirable in the way of good things to eat was served by the ladies of the Congregational church, after which there were toasts and responses as follows:

H. C. ADAMS, Toastmaster.

Our Guests.....	W. L. Houser
Our Hosts.....	H. C. Taylor
The Agricultural Press.....	C. H. Everett
Scientific Farming.....	Prof. J. Q. Emery
Dairying in the Twentieth Century.....	Mrs. Howard Kelly
Advancement in Farming.....	Hon. C. W. Gilman
Practical Education.....	Hon. L. C. Harvey
The Men.....	Mrs. Adda F. Howie
The University and the Farmer.....	Prof. W. A. Henry
The Truth is Mighty and Will Prevail.....	Uncle Fred
Horticulture and Dairying .....	A. J. Philips
The Women.....	Hon. W. D. Hoard

## MORNING SESSION.

February 15, 1901.

The President in the chair.

SCORES OF BUTTER AND CHEESE AT THE WISCONSIN  
DAIRYMEN'S CONVENTION, FEBRUARY 14, 1901.

D. C. WOOLVERTON, (CHICAGO) JUDGE.

## CLASS I — Dairy Butter.

Name.	Postoffice.	Flavor.	Grain.	Color.	Salt- ing.	Pack- ing.	Total.
Maximum.....		45.	25.	15.	10.	5.	
Mrs. W. L. Houser .....	Mondovi .....	40	24½	15	10	5	94½
F. C. Curtis .....	Rocky Run .....	39	25	15	10	5	94
S. J. Unser .....	Tarrant .....	40	25	14½	10	5	93½
L. A. Meritt .....	Mondovi .....	39	24½	14½	10	5	93¼
W. H. Strenger .....	Mondovi .....	39	24¾	15	9½+	5	93
W. M. Chatwood .....	Mondovi .....	39	24½	14½	10	5	93¼
Dan Pabst .....	Mondovi .....	39	24	14	9½+	5	93
Mrs. Fred Ruff .....	Mondovi .....	39	24	14	10	5	92½
August Schreiner .....	Mondovi .....	39	25	14¾	8 +	5	92
Mrs. A. H. Lawrence .....	Modena .....	37	24½	15	10	5	91¾
Mrs. Jos. Pabst .....	Mondovi .....	33	24½	14½	9 +	5	91½
J. V. Payzant .....	Mondovi .....	38	24	13½	10	5	91
C. H. Cook .....	Lookout ..	37½	24	14	9½+	5	90½
Vane Smith .....	Mondovi .....	37	24	13½	9¾+	5	90
Mrs. R. Turner .....	Mondovi .....	37½	23	14	9½	5	89 ¼

## CLASS II — Creamery Butter.

Geo. H. Holmes .....	Baraboo .....	42½	25	15	9¾+	5	97.25
J. N. Wigginton .....	Mauston .....	42	25	15	10	5	97
W. R. Wigginton .....	Warrens .....	42	25	15	10	5	97
Thomas Wittig .....	Rusk .....	42	25	15	10	5	97
C. M. Kates .....	Custer .....	42	25	15	10	5	97
H. B. Hoiberg .....	Floyd .....	42	25	14¾	10	5	96.75
Nelsonville Creamery & Cheese Association .....	Nelsonville .....	41½	25	15	10	5	96.50
A. S. Grenlin .....	Alban .....	42	25	14½	10	5	96.10
C. J. Ward .....	Ft. Atkinson .....	41½	25	15	10	5	96.50
Ole J. Esker .....	Bloomer .....	42	25	14½	10	5	96.50
C. E. Bush .....	Black Earth .....	41½	25	15	10	5	96.50
J. R. Stratton .....	Meridan .....	41¾	25	15	10	5	96.25
A. Erickson .....	Volga .....	41	25	15	10	5	96
T. Corneliuson .....	Cooksville .....	41	25	15	10	5	96
J. A. Brunner .....	Tarrant .....	41	25	15	10	5	96
H. C. Larson .....	Dodgeville .....	41	25	15	10	5	96
Wm. Van Liere .....	Woodworth .....	41	25	15	10	5	96
F. O. Uehling & Co. ....	Hanover .....	41½	25	14½	10	5	96
E. W. Carter .....	Osseo .....	41	25	15	10	5	96
Albert D. Smith .....	Springfield .....	41	25	15	10	5	96
E. A. Paddock .....	Tibbetts .....	40½	25	15	10	5	95.5
Fred McCormick .....	Hetzel .....	40½	25	15	10	5	95.5
R. M. Bussard .....	Poynette .....	40½	25	15	10	5	95.5
Fred Wuethrich .....	Mayville .....	40	25	15	10	5	95
W. H. Hyne .....	Evansville ..	40	25	15	10	5	95
S. E. Coolidge .....	Augusta .....	41	25	14	10	5	95

CLASS II—continued.

Name.	Postoffice.	Flavor.	Grain.	Color.	Salt- ing.	Pack- ing.	Total.
L. O. Wahler	York	40	25	15	10	5	95
S. C. Wollensak	Grellton	41	25	14	10	5	95
Fred Ahrens	N. Freedom	40½	25	15	9½+	5	95
B. A. Oestreich	Tunnel City	40½	24	15	10	5	94.5
H. Hermanson	Scandinavia	40	25	15	9½+	5	94.5
J. O. Gibson	Gilmanton	40	24	15	10	5	94
M. Michels	Garnet	40	24	15	10	5	94
John E. Boettcher	Guthrie	41	25	13	10	5	94
George Man-er	North Bend	40	25	15	9 +	5	94
George E. McIntyre	Whitewater	40	25	14	10	5	94
James G. Moore	Albion	41	24½	13	10	5	93.5
Mondovi Dairy Ass'n.	Mondovi	40	24	14	10	5	93
C. E. Ryal	Augusta	40	24½	13½	10	5	93
C. O. Black	Marshal	40	24½	13	10	5	92.5
C. F. Langkilde	Hubbleton	39	24½	14	10	5	92.5
West Bend Cry. Co.	West Bend	39	24½	14	10	5	92.5
H. A. Milius	Almond	40	23	15	9½	5	92.5
J. F. Dabreiner	Jefferson	38	24	15	10	5	92
John Schaffner	Omro	42	25	15	10	*0	92
C. L. Passmore	Iola	39	23	15	9½	5	91.5
David Gibson	Nelson	41	25	15	10	†0	91

\*Badly packed. †Packed in crock.

CLASS III—Print Butter (Dairy).

W. H. Stringer	Mondovi	40	24½	15	10	5	94½
S. J. Unser	Tarrant	40	24	14½	10	5	93½
L. A. Merritt	Mondovi	39	25	15	9 +	5	93
Wm. Chatwood	Mondovi	39	24½	14½	10	5	93
Mrs. Jos. Pabst	Mondovi	39	24½	14½	10	5	93
August Schreiner	Mondovi	39½	24	14½	9½+	5	92¾
J. V. Payzant	Mondovi	38	24½	15	10	5	92½
Mrs. W. L. Houser	Mondovi	38	24	15	10	5	92
Mrs. Fred Ruf	Mondovi	38	24	14½	10	5	91½
Vana Smith	Mondovi	37½	24	14½	10	5	91
Mrs. C. O. Arnstead	Mondovi	37	24	14½	10	5	90½
C. H. Cook	Lookout	37½	24	14	9½+	5	90
H. M. Amidon	Mondovi	38	24½	10	10	5	87½

CLASS III—Print Butter (Creamery).

B. A. Oestrich	Tunnel City	42	25	15	10	5	97
W. J. Hyne	Evansville	41	25	15	10	5	96
W. R. Wigginton	Warrens	41½	24½	15	9¾	5	95¾
H. Hermanson	Scandinavia	41	24½	14¾	10	5	95¾
C. M. Kates	Custer	40	24½	15	10	5	94½
E. W. Carter	Osseo	40	24½	15	10	5	94½
David Gibson	Nelson	39	24	15	10	5	93
C. F. Langkilde	Hubbleton	40	25	13	10	5	93
S. C. Wollensak	Grellton	40	24½	13	10	5	92½
J. F. Dabreiner	Jefferson	38	23	15	10.	5	91

CLASS IV—Cheese.

Name.	Postoffice.	Flavor.	Text're and stock.	Color.	Finish.	Total.
Edward Wunsch	Sheboygan	42	29	15	10	96
R. Conrad	Sheboygan	41	28	15	10	91
Henry Wunsch	Cleveland	41	29	15	9	94
J. W. Lyforth (Swiss)	Griffin	41	27	15	10	93

## REPORT OF CHEESE INSTRUCTOR, WITH SUGGESTIONS FOR THE FUTURE.

E. L. Aderhold, Neenah, Wis.

During the past season my time was employed in visiting fifty-six factories. I held forty-one meetings and collected in fees \$270.

The season was not without peculiarities. First, a protracted drouth and a big crop of weeds; next, an unusually long period of extreme heat, with flies and mosquitoes pestering cows worse than ever.

The milk was low in casein, and slimy curds and curds lacking firmness were found everywhere in the curd-test.

As a consequence the milk yielded poorly and, in quality, the cheese was decidedly inferior to that of the year previous, and it has been a hard year on those factorymen who guarantee everything and give a "pound for ten." But, inasmuch as these same people won't learn their lessons until they pass through a similar experience, the results were not without benefit. Factorymen became more teachable and I kept very busy throughout the season.

While much has been done in the past, our field of usefulness seems wider than ever. The average character of our factories is as yet a cause for dismay. The factories which are satisfactory as regards construction, equipment and drainage are exceedingly rare, and we need an officer vested with power to clean or close up the unsanitary ones.

The milk which is furnished to the factories, generally speaking, contains impurities in quantities which preclude excellence in the flavor of the cheese, and the hot curing rooms will not permit of the development of excellence in either flavor or texture.

Those are today our greatest obstacles, against which no amount of skill on the maker's part can prevail.

Mr. G. H. Davis of Chicago, who has been for many years

a prominent dealer in Wisconsin cheese, has this to say about our curing rooms:

"The cheese placed in your average curing rooms will, in hot weather, oil very badly, which is one of the worst conditions cheese can be in, as it makes skims of them, loses weight, and the separation of oil from the curd makes the cheese dry and mealy, which, with age, will crumble when cut. All heated cheese will oil to a greater or lesser extent, and that which passes from the cheese is not the worst evil, as the oil fills all the curd-holes throughout the cheese and will become rancid with age. The texture never mellows down but gets sharp quickly. Cheese having oiled once will oil again much easier with less heat, are liable to get bitter and develop bad flavors."

The milk and the curing rooms have received my special attention during recent years and assurances have come to me in overwhelming numbers to the effect that the quality of the milk was appreciably better after a meeting than before.

The start which has been made in the curing room improvement is still more marked. Some of these have received better insulation, and, in my territory, nearly forty efficient sub-earth ducts have been built. During the past season these ducts were introduced in factories in Shawano, Marathon and Chippewa counties.

That the benefits of the sub-earth duct are no longer considered an uncertain quantity is demonstrated by the fact that approximately one-fifth of the factorymen whom I instructed during the past two years have either constructed them or made preparations to do so next spring.

One of the most perfect factories in the state has been built by F. C. Reineking of Sheboygan county. It is attractive, roomy, and the walls, having four air-spaces, furnish proper insulation to the rooms. Good drainage is also provided.

His flowing well of cold water suggested to me a new plan of furnishing cold air to the curing room, which I persuaded him to carry out at a cost of about \$100. The plan in brief is this: A trough 22 feet long, having partitions across it one foot from each end, is placed adjacent to the wall on the outside, and several feet above the level of the floor. This trough contains 20



galvanized iron flues, four inches in diameter, one inch apart, reaching from one partition to the other. That part of the trough occupied by the flues is fed by a constant stream of cold water, which surrounds each flue. The air having access to one end of the flues passes through and empties into an air-chamber at the other end, from whence it is conducted by means of a large pipe through the wall and into the curing room.

In passing through this device the air drops about two feet, which drop, I figure, will create automatic ventilation whenever the air in the flues is colder (and therefore heavier) than that in the curing room.

This factory was not completed until too late in the fall to test the merits of this system of cooling air, but there is no doubt in my mind as to its success.

Among the factors that contribute to the improvement of Wisconsin cheese the field instructor occupies a unique position, because, through the evening meetings at the factories, he can get in touch with many milk producers that cannot be reached in any other manner. For this reason the traveling instructor is indispensable and the great importance of his functions has led me to present my views as to some of the qualifications necessary to make an efficient field instructor.

In selecting timber for instructors in the past the management of this Association has sought men who were thoroughly experienced makers; who had some knowledge of the science of their profession and who could tell what they knew.

It is but a decade ago when practically all of our cheesemakers would have received a world of new ideas had they seen a man so endowed at work in a factory. However, if the instructor of today does not possess considerable persuasiveness as an additional qualification, he will accomplish very little. For, by the aid of the Dairy School and the Cheesemakers' Association, modern ideas are being thoroughly distributed annually and the chances are that when the instructor arrives at a factory he finds the maker in possession of literature describing and illustrating the latest methods.

Therefore, the instructor's widest avenue of usefulness to the

factoryman lies in persuading him to adopt and execute the ideas with which he is already acquainted.

That isn't all. The instructor must have that in his make-up which will enable him to get very close to the milk-producers; he must be able to successfully appeal to them to furnish milk of greater purity; he must be able to induce them to appreciate and *demand* better curing rooms and cleaner whey tanks; he must be able to point out to them that the practice of pinching the last penny out of the factoryman is ruinous to their own interests; he must be able to illuminate the fact that *they* are the ones who pay for all the mistakes, no matter where or by whom they are made.

The wisdom of sending out a man nowadays who does not possess the above-mentioned faculties would be questionable.

Experience has taught me that if an instructor can lecture to the patrons in German as well as in the English language, he can achieve more in many Wisconsin communities than if the English alone were at his command.

The instructors' usefulness could be further added to if they were sent out earlier in the season and if they were made available to attend annual meetings at factories where such important questions as "The method of paying for milk" and "The pound for ten system" are disposed of; also if they could be induced to lecture intelligently on such topics as "The difference in value of cows" and "The silo as a factor in reducing the cost of milk production."

The instructor's remuneration should be such as will justify him in thoroughly equipping himself for his task, and unless the terms of the agreement under which he labors are free from all features which may tend to dampen his enthusiasm or discourage strenuous efforts on his part, much will be neglected in the future.

## DISCUSSION.

Mr. Loomis: Do you think the cheese are more inclined to mold where they have the sub-air duct?

Mr. Aderhold: I cannot say that I think they are. We have had two or three ducts where they moulded terribly, and it was no doubt due to those ducts, that is, when the ducts were new, the first year. After that they did not. We have had other factories where they had these ducts where they had less trouble with mold than they had before. Generally speaking I do not believe that the duct is a creator of mold. But we must remember that the cheese buyers will buy the cheese and place them into storage where they know they will mold, most of them. Even if they mold, it is a question which is the lesser evil—the heat or the mold.

Mr. Favill: There isn't any question about it.

Mr. Aderhold: There is not with me.

Prof. Farrington: Is not the mold caused by dampness, moisture, entirely?

Mr. Aderhold: Why, yes; that is the greatest factor in producing mold.

Prof. Farrington: Do not the sub-earth ducts dry off these curing rooms?

Mr. Aderhold: No, sir; we never have a dry curing room where we have a sub-earth duct, if it is a good duct, and we never have it as moist as we sometimes do when there is not this ventilation. The fact that this air is first cooled and brought to the dew point in the ground, then it is warmed a few degrees before it enters the curing room—that reduces the relative humidity.

Prof. Farrington: But the sub-earth duct dries the air off some?

Mr. Aderhold: We have moisture somewhere from 75 to 85 per cent. in those curing rooms. That is pretty damp. But I think that with that amount of moisture we have fresh air continually, and if we keep our curing room disinfected, we need not have much trouble with mold. Cheesemakers have been too lazy on this score. They haven't tried to prevent cheese from molding as much as they ought to.

Mr. Merrick: What is the best method of constructing these ducts?

Mr. Aderhold: It depends upon the character of the soil. If one has a well three or four feet in diameter and forty feet to the water, that furnishes as good a duct as I have seen. The air then is forced with a wind cowl into the top of the well, the well is covered air tight and there is a pipe that begins at the water and leads up and under ground into the curing room. The air has to travel down into the well, the only outlet is from that pipe and that leads from the water. Where there are rocks or where the water would bother so we can't get them deep, we build them horizontal one hundred feet long and eight or ten feet deep. We lay three rows of ten inch tile side by side or four rows of eight inch tile. They are connected at the end of the duct with an air chamber. We have the wind at the further end of the duct forcing the air into the air chamber, then through the tile into the other air chamber and from there into the curing room. It is not expensive. We save on shrinkage at least two per cent. of the weight of the cheese. In that way it adds two per cent. to the value of the product and it adds fully as much and sometimes considerable more in the quality of the product.

Mr. Favill: Wouldn't those two savings in an ordinary sized factory cover the expense in the first season?

Mr. Aderhold: Yes, just about, and in larger factories it would pay twice over every season.

Prof. Farrington: Do you not have more calls for your services during a season than you can supply?

Mr. Aderhold: Yes, I do.

Prof. Farrington: How many more cheese instructors do you think there is an opportunity to use in this state?

Mr. Aderhold: About twenty, maybe fifty for the time the factories are running. In order to get in our work we have got to hold meetings and have demonstrations when we hold the meetings. We cannot do very much unless we do it through the milk producer. Of course the factories need improving, but the milk producers need it the most. We have got to show them how much money they are losing because the factories are imperfect

and when they will demand better factories and are willing to help the cheesemaker to improve his factory, then the cheesemaker has no excuse to hang back. I have often held meetings at factories when the patrons did not know what it was all about; they did not know there was such a thing as an instructor. Perhaps that is not altogether their fault, but they would come to those meetings and in many cases voted that they would bear half the expense of putting in a sub-earth duct and they had never heard of such a thing before they came there. The farmers have been blamed a good deal for the imperfections that we find at the factories, but they are not altogether to blame. They can be appealed to at the factories a great deal better than they can at any other one place. You can get much closer to them than you can at Farmers' Institutes or dairy meetings. You have got them in a small room and we sociably talk over such things as they are intensely interested in, and, if we can show them that they can get immediate profits by doing just a little better all around, we can do considerable good.

Mr. DeWitt Goodrich: Is the yield of brick cheese, in proportion to the per cent. of fat, the same as the American cheese? Nearly all brick cheese factories are paying the same price per hundred pounds for all kinds of milk, more so than the American cheese factories. Is there any good reason for that?

Mr. Aderhold: I have never figured on that, but I do not see why the relative proportion would not be the same, perhaps more so with brick cheese. The making is much simpler and the brick cheese maker can do more uniform work than the American cheese maker.

Mr. Goodrich: Isn't there more whey in brick cheese?

Mr. Aderhold: Yes, considerable more.

Mr. Thorp: How near to the water chamber do you supply air to the curing rooms with that arrangement of yours?

Mr. Aderhold: This is the first of the kind that has been built and it was too late in the fall to test it, but I expect the air will be down at least to 55. It can be controlled. The faster we let it run through of course the less time it has to cool, but you can control it and by letting it come in slowly I am sure we can cool the air down pretty low,



Gov. Hoard: Is it preferable to the sub-earth duct and if so, why?

Mr. Aderhold: Yes. Of course I am speaking theoretically, but I believe it is preferable for the reason that we have the cold air above the ground in this device. The air drops two feet in the first flue and into the curing room where with the sub-earth duct we have got the cold air down and we have got to force it up. This I expect will flow in its own current whenever the air in the curing room is warmer than the air in those pipes; and when it is not warmer we don't need it.

Gov. Hoard: How are you going to keep solar heat from warming that air in those pipes above the ground?

Mr. Aderhold: We have those flues surrounded by cold water, a constant stream of cold water flowing around them. Now, I do not want to say anything against butter making, but I do believe that our opportunities for making big money are a great deal better in making cheese than in butter making for the reason that very few localities in the United States are adapted to the making of a very fine cheese. You take the old creamery districts, those people have all got to be born again before they will produce milk that will be fit to make a decent cheese of. You take it further north, in the cheese sections, where there are patrons enough to furnish milk to the creamery, they have done a great deal better. They have to be very careful in producing milk for cheese making. I do not believe there is one factory out of one hundred that makes fine cheese yet in Wisconsin. We haven't got our standard high enough; but if we will cure our cheese in a low temperature so we will get a fine cheese and have it fine and mellow, I believe that in a few years we would increase the consumption of cheese enough to raise the price at least two cents a pound. We are eating only three pounds of cheese per capita per year in the United States; now, if we can bring that up to four pounds we would not have cheese enough to go around and certainly would not have any for England.

Gov. Hoard: That would make 76,000,000 pounds. It seems to be the experience everywhere that when you start a new cheese factory in any community that the milk is a good deal richer at the beginning, the first year, and that it steadily grows

poorer; in other words, that it takes less pounds of milk to make a pound of cheese the first year than it does subsequently and right straight along. Now, what causes are at work to produce that result, that deterioration of the milk?

Mr. Aderhold: Human nature used to have something to do with it, but I do not believe that applies everywhere. You know when they first tumbled into this cheese business in Sheboygan county, and they never got into it any other way, they did not go into it systematically, but the cows were not as big producers as they were a few years later. They increased their flow of milk by better feed perhaps, and finally they bred probably also for cows that gave a big flow of milk and they got in Holstein stock. Another thing, we did not make our cheese quite so moist and that reduces the yield, but further north, up along Chippewa county; I find factories and I don't think any of them tested below four per cent., they averaged from 4 to 4.1 and 2 right in the middle of the summer and richer in the fall.

Gov. Hoard: When we run our cheese factories on the pound plan isn't there a natural tendency at work to induce the farmer to constantly push towards a bigger flow of milk without regard to the quality?

Mr. Aderhold: Yes, and to help the flow along with a pump. It tends towards rottenness in every direction, and they are getting it. These cheese makers that give a pound for ten, they do not calculate to live up to their bargain, but the farmer who has to pay for it does not know that.

Mr. Meyers: How many cheese factories did you find in the state that employ the Babcock test?

Mr. Aderhold: I did not keep track of that last season, but the year before I think there were 20 out of 46. There were some localities where there were none.

Mr. Meyers: Isn't it a fact that rich milk will make good, rich cheese and more of it too.

Mr. Aderhold: I don't take much stock in its making the cheese richer; it makes more cheese.

Mr. Meyers: A rich cheese will sell for more money.

Mr. Aderhold: No, not yet.

Mr. Bradley: Could you make as good a cheese out of 21½ per cent. milk as you could out of 4 per cent. milk?

Mr. Aderhold: No, sir; that 2½ per cent. milk is not normal; that is a different proposition.

Mr. Bradley: Well, take normal milk, 3 per cent. milk; can you make a cheese that will taste as good as you can from 4 per cent. milk?

Mr. Aderhold: Well, there are other things that bear on that. I have not seen any 3 per cent. milk, in fact, unless it was in April, when milk isn't very good any way.

Gov. Hoard: Why isn't milk good in April?

Mr. Aderhold: The cows are not at their best, they have had nothing but dry feed for a long time and they can't get it until later on.

President Goodrich: I made a little investigation about this test dropping down in April. I went over to Mr. Hoard's creamery, and I went to other creameries, and I saw that certain herds dropped down, while a few herds kept right up. The old saying is between hay and grass the milk is poor, and there is something in it generally, but with some herds there was nothing in it. I went out amongst the patrons to see what the matter was, and I found that those herds that kept right up, the cows were kept in the barn, or in a close yard so that they did not see and smell the grass and wish they had it when they couldn't get at it and so make poor milk. That is just what does it, the excitement of that cow will reduce the per cent. of butter fat whether she is worrying about some dog or worrying because she can't get the grass that she can smell.

Mr. Aderhold: The lowest tests that I saw last year was about three and four-tenths. If I had gone into Sheboygan county early in the season I could have found some with smaller tests, because there is where they have the cows that give a big flow of milk and they are good cows; but you take normal milk that will test 3 5-10 and compare it with normal milk that will test say 4 3-10 and make cheese of the two of them and the buyer will give just as much for the one as the other providing it is equal otherwise. There is a very small percentage of fat

more in the richer cheese than in the other. Within those limits the yield of cheese is very nearly the same.

Gov. Hoard: Then what advantage is it for any man to take good milk to a factory where there is poor milk brought? For instance, for a man to take any 4 5-10 milk and pool it with 3 4-10 milk?

Mr. Aderhold: Why, he gets paid for what he brings there, it makes more cheese certainly.

Mr. Bradley: Mr. Noyes, who has been with us in Institute work in Wisconsin for several years, has some times seemed to carry to the farmers the idea that 3 per cent. milk did not make as good cheese as 4 per cent. milk and I have told people that they ought to try and improve the quality of their milk because it makes better cheese.

Mr. Aderhold: We ought not to use that low limit. We do not find 3 per cent. normal milk in our cheese vats. He should say 3.5 and 4 or 4.5; then he will be all right. I doubt if Mr. Noyes has had experience in making up normal milk testing 3 per cent.

Mr. Taylor: Don't you think there are herds that will produce milk as low as 3 per cent?

Mr. Aderhold: Yes, but we are making cheese in the factories of the whole business. You are going to extremes, when you talk about pooling 3 per cent. milk with 4.5. When they get to extremes the relation of yield does not quite hold.

A Member: Is there anything in the statement that Holstein cows are more profitable for cheese making than Jersey cows?

Mr. Aderhold: That is a question I have never studied. I have always been told, though, that the profitableness of a cow depends upon the amount of butter fat that she gives as compared with the amount of food she consumes.

EXPERIENCE OF A CREAMERY INSTRUCTOR IN  
WISCONSIN CREAMERIES.

Mr. DeWitt Goodrich, Fort Atkinson.

When I was asked last April to undertake the work of creamery instruction and inspection for this association, I understood that the field was a new one and that the work must, in a measure, be experimental.

With the help of occasional suggestions from the President and Secretary, different plans for advising creamery-men of the effort being made to serve them and for carrying the work forward, have been employed.

With what success the work has been inaugurated and thus far carried on may, I trust, in a measure, be apparent from the testimony of those with whom I have labored.

A report of each creamery was made to the Secretary and after a few weeks' experience, during which time reports were laboriously written out, the following form was adopted for these general reports:



WISCONSIN DAIRYMEN'S ASSOCIATION  
Report of Butter Instructor for each Factory Visited.

Name of Creamery .....	Give method of Salting and Working..
Co-Operative or Proprietary .....	State condition of butter thus worked..
Location .....	General Condition of Building.....
Name of Proprietor or Secretary.....	Was Drainage good? .....
Postoffice Address .....	Was Floor of Wood or Cement?.....
Name of Buttermaker .....	Was there any bad smell in the Cream'y
Has he attended Dairy School. ....	What was cause?.....
Wages received .....	Was Creamery clean? .....
Does he have a helper?.....	Where was Sour Milk Tank?.....
Who receives the milk?.....	How often was it washed?.....
No. of Patrons for Month of.....	Were there Screen Doors and Windows?
No. of Cows for Month of.....	Were there many Flies in Factory?....
Av. Pounds of Milk Daily for Month of	Was Cream Vat covered, and how?....
Average Test for Month of.....	Was Butter off flavor? .....
Average Yield for Month of.....	Did you find the cause?.....
Per cent. Overrun for Month of.....	How was skim milk divided?.....
Method of Sampling and Testing.....	Was this method satisfactory?.....
Any trouble with cloudy tests?.....	What objection was there? .....
What seemed to be the cause?.....	Was skim milk pasteurized?.....
Any Patrons dissatisfied with the test?	Was this satisfactory? .....
How satisfied.....	How was Refrigerator? .....
Much loss of fat in skim milk.....	Give temperature .....
What was cause? .....	Had there been any trouble from mold?
Much loss of fat in butter milk?.....	Did you call an evening meeting?.....
Give cause .....	How many patrons were present?.....
How is milk heated?.....	How long did you stay? .....
When is cream first cooled?.....	How much money did you receive?....
How, and to what temperature?.....	
How ripened? .....	REMARKS.
Is acid test used?.....	.....
When cooled for churning.....	.....
How, and to what temperature.....	.....
Is Combined Churn used?.....	.....

The following outfit was carried: One standard thermometer, one tested Babcock pipette, one Farrington acid test, skim milk and cream test bottles, a speed indicator, a 2 c. c. pipette and mercury for measuring test bottles. With this small outfit, some dairy literature and samples of pure cultures for starters were carried.

The plan which seems to have yielded the best results is one early tried but continued with more success after some months experience. This plan was to visit all creameries in a locality or section of the state, inspect them in a measure (with the consent of the proprietor), state the object of the visit and make such suggestions as to improvement in methods and conditions as seemed most important and likely to be heeded; not forgetting, however, to commend such methods and degree of cleanliness as were found worthy of it. Visits of this character have been most graciously received and no reasonable information withheld; and I have frequently been employed to remain and give further services.

I believe this plan has yielded the best results, both in arriving at the actual conditions existing in creameries and in helping those who desire to improve their condition; and this class may be extended to include the creamery-man who, though he may not be classed as progressive, is businesslike enough to want to live up to the light he has and will accept more if brought to him.

The plan on which the cheese instructors, employed by this organization, have worked for a number of years, viz.: responding to calls from factories, was also tried so far as it afforded employment, but the departure being a new one, few creamery-men knew of the work and many of those who did were not familiar enough with the exact character of the work to care to spend any money to find out if it would be beneficial to them or not. Considerable time and postage was used in writing creameries of the work, outlining in a general way in what respects we hoped to be most helpful and especially calling attention to the value of patrons' meetings at such times for the discussion of questions of mutual interest, and closing with a statement of the share of the expense that would be expected of them should the services be given.

A large number of creamerymen were reached in this way and a few applications for services received in reply to such letters, but on the whole a much smaller percentage than was anticipated.

I believe that not a few creamerymen denied their patrons (and themselves) the probable benefits of patrons' meetings through fear that something might be said to disturb the mutually placid business relations.

Some of the advantages of the plan of inspection and instruction mentioned as having yielded best results are:

1st. The buttermaker is found in his normal state. He has had no time to slick up for company as might be the case if a time was set for a visit. If his pipes or pumps are foul you can bring him face to face with his guilt.

2nd. Creamerymen like other human beings get careless and frequently do not notice little things which have gone wrong so gradually that it is scarcely noticeable to one daily accustomed to the place. As an example of this I will mention a soft pine floor, bright and clean when new, but almost invariably a water-soaked, sour, germ-breeding, ill-smelling thing before many years, and frequently rotted through in spots and patched. The change has been so gradual that the man daily accustomed to the place can scarcely realize the bad impression this may have on the stranger, to say nothing of the possible ill effects on the products of the factory.

Creamerymen who hire their creamery work done and are busy with other matters often get so accustomed to things running along smoothly that they gradually drop off looking after details, leaving more and more to the buttermaker. If they are fortunate enough to have the right kind of a buttermaker all goes well. But if not, trouble is pretty sure to follow sooner or later.

The fact that the market is not discriminating enough, especially when the demand is good, frequently accounts for things going from bad to worse and for the creameryman not being apprised of any deterioration, if he judges from account sales alone. But when the break comes in the market, as it did a month ago, and undergrades move very slowly, if at all, lines

which have been bringing top prices right along or selling on good contracts are either dropped or the price cut on account of off lots.

The truth of this was shown a short time ago when a number of calls were received from creameries which had had no complaint as to the quality of butter as long as the market was firm; yet I cannot believe, from conditions which I found in these places, that the butter could have run uniformly fine up to the time the complaint was made.

I am aware that all the poor butter cannot be laid to the buttermakers, as I know of some intelligent creamerymen, who, in the race for their share of business, will instruct their men to accept almost any kind of milk and to be very careful not to offend any patron by too direct reference to dirt and filth in their cans; or worse than that receive the milk themselves and after accepting everything, without a word of caution or instruction, from cans which would be a disgrace to any well regulated dairy, except their buttermakers to make a first class article every day.

One feature of this work which has certainly been of direct value to the patrons and proprietors of some creameries and undoubtedly set others to thinking along a line that will naturally lead to action is that of measuring test bottles and pipettes. About 1,000 bottles have been tested and of these it is estimated that between three and four per cent. varied more than 2 per cent. from the standard. The greatest variation found in bottles in use in creameries was one giving a reading of 2 per cent. too low on the whole scale and one giving a reading of 1.6 per cent. too high—a difference of 3.6 per cent. In other words 5 per cent. milk tested in these two bottles would show a reading of 4 per cent. and 5.8 per cent. respectively, and the fat in 1,000 pounds of 5 per cent. milk calculated from a test with these two bottles would show a difference of 18 pounds. It should be remembered that these two bottles represent the extremes found during eight months' work and the examination of a large number of bottles. The greatest variation from the standard outside of these two bottles was .6 per cent.

By carefully sampling and testing the same kind of milk in all the bottles in a factory it will be easy to determine if any are strikingly incorrect.

My method of measuring bottles was with a carefully calibrated 2 c. c. pipette and mercury. This is necessarily a slow method and one requiring care, but fairly close work may be done with the same pipette with water.

There is another method contrived by Mr. O. A. Trowbridge of Columbus and used in his creameries which strikes me as being the best, simple method I have seen. It is simply a large round nail, with the head removed and a thin wire attached so that it can be lowered into the neck of the bottle. File off from the end as much as may be necessary so that what remains will displace exactly two cubic centimeters of water or other liquid. If now we fill the bottle exactly to the zero mark, then drop the instrument to the bottom, the liquid will rise along the scale and if it exactly reaches the top, the calibration may be regarded as correct, and the variation, one way or another, will determine in what respect the scale is incorrect.

If some creamery supply house could be depended on to make these little things of exactly the right size so that they could be depended on, that would be all right; but I would recommend having them made and hand-tested by the Experiment Station or Dairymen's Association and furnished to the Wisconsin creamery men at bare cost.

There is another phase of the testing problem which is, I fear, of greater concern to the creamery and dairy interests of the state than the matter of incorrect test bottles.

I refer to the practice of "doctoring" tests; cutting them down for the purpose of reporting a big price paid for butterfat, or stuffing the test of some patron who lives perhaps nearer some other creamery but has made a change just to try it awhile. Such practices as these are far more prevalent than I had supposed. Naturally close competition increases the temptation and fosters that kind of business.

In one section of the state, where all the creameries pay for butterfat, there was for the month of December a range in price per pound paid patrons of from  $21\frac{1}{2}$  to 27 cents. Elgin was  $24\frac{1}{2}$  cents for butter and it is not reasonable to suppose that there was a difference of over 1 cent per pound in the price received for butter.



Here are some tests from the factory of one of the kind who evidently thinks he is a better judge than the Babcock test. They were obtained with his permission after a little hesitation, perhaps thinking he had done no one any great injustice.

I will read the tests in the following order. 1st. Butter-makers' test for first half of month. 2d. Test credited to patron for that period. 3d. My test for last half of month.

Buttermakers' Test.	Test credited to Patron.	Instructor's Test.
4.6	4.2	5.0
4.0	4.0	4.0
4.6	4.2	4.7
4.2	4.0	4.4
4.6	4.0	4.4
3.8	4.0	3.9

This dishonest practice is bound to work lots of mischief in the locality where practiced and if they could but realize it, is bound finally to work against the guilty ones.

It is quite common to hear creamery patrons speak disparagingly of the tests but if such are really anxious to find out and the creameryman is as anxious as he should be to convince them that it is correct, there would be little trouble in doing so. A half hour spent with a skeptical patron or group of patrons in making duplicate tests ought to be sufficient to convince everyone that the Babcock test is all that is claimed for it. As a check on the buttermaker, perhaps the most satisfactory solution of this problem would be for each farmer or neighborhood of farmers to own a small and inexpensive tester. There would no doubt be some hard language used and some honest creamerymen accused of jugglery until patrons had learned to operate this test correctly, and also that samples from a single milking are not always true indications of the performance of a herd for one or two weeks.

I am sure that the simple fact of the ownership of a number of testers among patrons would have a most wholesome effect on the care and fairness meted out by this class of creameries. But more than all this, the farmer would have at hand at all

times one important factor for determining the value of his individual cows. Really shrewd creamerymen are *urging* their patrons to get testers and helping them to learn to operate them. In places where this is practiced I have found least friction, a constantly increasing yield per 100 pounds of milk and yield of butter per cow.

During the eight months I have been in the field, 127 creameries in 29 counties were visited, 13 visited twice, and 32 creameries received services for which compensation was made in amounts ranging from to \$1 to \$7 amounting in all to \$127.75. The average per cent. of overrun for 32 creameries is 17.7 and ranged from 8 to 27.

Of 45 creameries having a sour or buttermilk milk tank 25 did not wash them at all, 10 occasionally, and 10 every day or two; only 6 or 7 pasteurized skim milk. Out of 55 creameries interviewed on that point, 10 used the acid test regularly; 15 ripened cream without starters, 20 used homemade skim milk starters, 8 pure culture, 8 butter milk, 5 sour cream and 4 whole milk.

With about 1,000 creameries in the state, and the industry rapidly developing in central and northern Wisconsin, it is evident that, if there is any virtue in the work thus begun, there is certainly need of more men in the field.

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#### DISCUSSION.

Mr. Philips: I had a little experience this last summer that I did not quite understand. My man was running the separator and he told me that we were not getting test enough for the cream. I proposed to send some of that milk down to Prof. Henry, of the Experiment Station, and I told him to take out a small bottle full, just as they do for the creamery test, and I sent it down to Prof. Henry. He took out the bottle full as carefully as he could. The last test was 22. I packed that bottle very carefully, put the cork in tight and sent it to Prof.

Henry. The next week when the man came after the cream he reported the last test and it was from 22 to 29. He asked if I had heard from Madison, and I said "Not yet." But I did at last and Prof. Henry wrote me: "Your bottle came all right but the cream all leaked out and run into the cotton so we had nothing to make the test of." But any way, that test worked so well, although the cream all ran out, that we got the next up to 27 or 8. That Experiment Station is a wonderful thing.

Gov. Hoard: Mr. Philips' experience reminds me of the man who advertised for a boy and the next day his wife presented him with a pair of twins.

Mr. McDonald: Isn't it possible to take an accurate test at home and the same milk tested at the factory will show a discrepancy and both be right?

Mr. DeWitt Goodrich: Not if the bottles are correct and the man who makes the tests understands his business.

Mr. McDonald: Well, then, friends, I have never received an honest test at the creamery. I have been assuring the patrons of our creamery for five years, that everything was absolutely straight on the test. I claim that there is enough cream that gets clogged around in the neck of the bottle where the milk sets over night so that there will be a discrepancy in the test taken from that milk and the milk tested at home immediately after straining.

Gov. Hoard: Then another point with the creamery and factory men, the habit of reading low comes naturally in order that there shall be a safe margin all the time in his favor. Of course, if they are all read low it will do no injustice when he comes to divide the money. Then again, the overflow is contained in the money that comes back, that is, it makes a big overrun, so that your individual test may read naturally when you read it as high as you can fairly and honestly while he will take the same test and read it low. There is where the personal equation comes in.

Prof. Henry: We have a telescope at the University of Wisconsin, of which there is a picture in the Encyclopaedia Britannica because of its marvelous mechanism. It is considered one of the most perfect in the world. The United States govern-

ment had a man there who spent four years time taking tests of that telescope. Often in making those tests the man would quit, and would say "I will quit because I am too nervous." Now, in reading from the bottle in making these tests we can easily see how it will read a little bit differently with different people. Some men will always naturally read under, to the lowest point, while others will read it higher.

Mr. Imri: I have found in very cold weather that if there is far to go to the creamery it is almost impossible to read it perfectly clearly. There will be a little stick in the neck of the bottle. Now, if the creamery man does not see that, it goes back into the cream and there will be variations in the test, although of course they are small.

Gov. Hoard: The calculation is so remote in this question of justice in operating a creamery that we really have only to consider the question of a fair division of dividends. This discrepancy is all covered in the money you get back. Where the creamery takes that cream and returns to the farmer on the basis of butter fat alone, the overrun and all this matter does not come back to the farmer, and is not made up in the final division money. There are various systems, there are selfish men everywhere, and they are not on any one side of the business, either; we have just as selfish and unreasonable and hoggish farmers as we have hoggish creamery men, and the difficulty is to get this hoggishness out of the problem some way. But the proposition is true, my friends, just the same, that every farmer ought to have the Babcock test. Now, I separate my milk every morning. I feed the skim milk warm to the calves and pigs, and the cream is taken to the creamery. I am interested in having as fair a division as possible. My son runs the creamery and he don't think any too much of his daddy, and I look after things. I looked over the last report and I figured one with the other, and I found he had paid me 6 cents less than was my due and I went after him; but little errors of that kind can not help but happen. Now, I am not altogether satisfied that I am getting as much out of my cream, testing the cream, as I would if I had it in milk, but I am more than making it up in the value of the skimmed milk.

Mr. Meyers: Tell me how to take an accurate sample of cream as it comes from the separator?

Mr. DeWitt Goodrich: If that cream is delivered in a sweet condition, at it should be, I would take it just the same as I would with the milk. I would take the precaution to have it thoroughly mixed, and then dip out a sample.

Mr. Meyers: Would you weigh it?

Mr. Goodrich: That would not have anything to do with taking the sample, but I should weigh it of course. I would weigh the sample into the Babcock bottle.

Mr. Bradley: Will you use the same pipette as for milk?

Mr. Goodrich: I would not use any pipette at all, except as a means of transferring the cream from the cup into the bottle, but not for measuring.

Mr. Meyers: Suppose you had 25 or 30 per cent. cream, wouldn't that make a difference?

Mr. Goodrich: That is why I would weigh it, because the 30 per cent. cream is lighter than the 20 per cent.

Mr. Bradley: I have been trying to test cream with the same pipette that I use with my milk with a cream bottle, a wide necked bottle, and I supposed I was getting it right.

Mr. Goodrich: You have been cheating yourself, Mr. Bradley. There are scales made on purpose for this work, that is, a little balancing weight to balance the bottle, and a weight to put on the opposite side, just 18 grammes. The pipette of cream is held up and run into the bottle, being very careful to drop it slowly toward the end.

Mr. Bradley: Where can you get those scales, Prof. Farrington?

Prof. Farrington: The scales we use at the Dairy School are made by Henry Troemmer, Philadelphia, and they cost about \$3 I think. It is not practically very necessary to make a test each day. A composite sample may be run of this cream just the same as they do with milk and it may be kept in good condition for a month. At the West Salem Creamery in this state they have about 400 patrons and about half of those furnish cream from farm separators; the other half from gravity cream. Each of those 400 patrons has a bottle for that purpose, com-



posite samples are kept for a month before they are tested, and they are all weighed and tested in one day, all being done by one man. Of course he has become expert at it with practice.

Gov. Hoard: I believe this farm separator business is the coming system in creamery work, but, my friends, there is danger in it unless you are clearly advised. Talking with my son about our 10 Hoard creameries and about encouraging farmers to go over into that system, he says "Here is where we are. . . We are making a fine butter and one that is consumed by from 5 to 7,000 families every week; that butter has to be made of the very highest order. Nearly all of it is in prints with the name of Hoard stamped on it, so that if anything is wrong with it it is rough on Hoard." Now, he says, "Father, by the present system the milk is gotten away from the farmer's barn and his premises just as quick as possible, every day, but if we are going into the cream separation system, those farmers will keep that cream two or three days, and we can not make the same quality of butter." Now, that is the point we want to consider. I think the cream will have to be delivered every day or else it must have the most vigilant kind of care. You can not eat your cake and sell your cake and give away your cake. You can not save yourself on the skim milk and put it in the final price you are going to get on the butter. You have simply to look after the question of quality. Oh, there are such a lot of farmers who do not realize the meaning of care concerning butter and cream. We supply the Raleigh House in Washington, one of the leading hotels there. That butter goes down to them and back came at one time a protest against about 500 pounds of butter, and the man was right. A careless operator in that creamery knocked a whole lot of money right out of it. When you come to this proposition, my friends, you have got to be like Caesar's wife, absolutely above suspicion all the while; and so I want you to recognize this danger that will arise in adopting this system unless the farmer turns right in and helps to contribute to the making of the finest kind of cream. There is great advantage to the farmer in the farm separator; your skimmed milk is absolutely worth double what it is when it is brought back from the ordinary creamery. In our creamery we take the utmost care

of our skimmed milk. We do everything we can to make it worth all it can be to the farmers, but when the skimmed milk comes back to me after all that care, I know it is not worth half as much for my calves and pigs as though it were separated and fed twice a day, warm and fresh. Now, let us think out how we can get the two things together, of delivering the finest kind of cream, and still saving our skimmed milk in this its best condition.

Mr. Bradley: It ought to be easier for the farmer to take care of 5 gallons of cream than of 20 gallons of milk.

Gov. Hoard: As you multiply the richness of the cream you multiply the danger. The trouble is, the farmer is all the time looking for the easy thing to do. The cream ought to be delivered every day, I am sure.

President Goodrich: The Governor will remember that he asked me to go out and investigate the Moody Creamery. They were making three kinds of butter, one from separator gathered cream; one lot from whole milk; and one from gravity raised cream. I went there in the interest of "Hoard's Dairyman" to examine into things, and I found that the finest cream and the finest butter was made from the separator gathered cream gathered every day, and undoubtedly it was some of the best patrons who were doing it. The poorest butter was made from the gravity raised gathered cream, and the next from the whole milk. I believe if it is done properly and gathered every day, that they can make better butter from the separator gathered cream than from the whole milk. You see the milk is separated immediately after milking, and if there is any solid dirt in there it don't stay and soak all night.

Mr. Aderhold: How should that milk be separated?

Gov. Hoard: It depends on how you arrange your barns. My milk is separated in the barn, but I have got a ventilation system there that you can hardly smell the stable at all.

A Member: Will milk take on odor when it is throwing off vapor?

Gov. Hoard: I don't know. I hear some say "Yes" and some say "No." I am one of the fellows that say "No."

Mr. Meyers: What percentage of fat would you recommend farmers to separate their milk to?

Mr. DeWitt Goodrich: I see Mr. Meyers wants to know what percentage of fat in the cream is the most advantageous to handle at the creamery.

Gov. Hoard: All the way from 20 to 22.

Mr. Goodrich: No, I would run up from 25 to 30. That is one trouble that they are having, where they are gathering cream in this state, where they are taking the cream from the hand separator. The man who sells the separator is anxious to have that separator do as close skimming as possible and they have given the idea that the separator will do much closer skimming if the cream is made thin. Then in addition to that, the farmer gets the impression that if he has more cream he is going to get more money. Then the buttermaker has an awful lot of thin cream and he finds that he must churn at a higher temperature, and he has a larger per cent. of loss in butter fat. I have noticed this result.

Mr. Houser: I think, too, that the farmer wants to get a greater amount of skimmed milk.

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## DAIRY EXHIBITS.

Prof. E. H. Farrington, Madison.

There are three classes of people interested in dairying. First, the producer of the milk; second, the manufacturer of the milk into butter and cheese, and third, the consumer. We have heard in this convention a great deal about the milk producer, but my particular interest is confined to the manufacturer of the butter and cheese from the milk.

Now, during the past winter I have had a family of 120 children and one thing that I have accomplished during the winter is to learn the names of each one of these men and call them by their names.

We have at the Dairy School 120 students whom we have sent out to the butter and cheese factories of the state and have tried our best to teach them the best methods of making butter and cheese, and the exhibits I want to speak of today are those that we made at the State Fair last fall. There has been very little said about the exhibit of butter and cheese at this convention, but we have had a first rate exhibit. There have been over fifty entries of butter and many of the packages have scored up as high as 97. There was a very small exhibit of cheese and perhaps a small attendance of cheesemakers here so it may be there are not many people who would be interested in my particular line of work.

In the last few weeks we have heard reports from South Africa of the loss of a battle to the English because one of the guns got jammed and the enemy came up and caught and defeated the English. Now, the buttermaker sometimes finds himself in the same condition. If the churn gets jammed or the separator gets clogged, there is trouble in the whole community, and the farmers have to suffer if they do not understand their business. I venture to say there are not half a dozen people in the audience can understand what has happened when the separator gets clogged. We try to teach those things to our dairy students.

On account of my limited experience in this line of work it will be necessary for me to discuss very briefly the question on which I have been asked to give my views.

In my attendance on state fairs during the past few years I have noticed that the dairy exhibit is usually confined to entries of butter and cheese which are competing for premiums. These exhibits are placed in a large refrigerator to which the general public and even the exhibitors cannot be admitted.

The tubs of butter and boxes of cheese are scored in about the same routine way every year. After the scoring the packages must still remain in the refrigerator and as good a display of them as possible is made by taking the cheese out of the boxes and removing the covers from the tubs of butter and placing them close to the windows in the refrigerator in order that the public may have a chance to see them. The prize butter and

cheese is distinguished from the other exhibits by cards or ribbon of various colors.

The makers of the butter and the cheese entered for premiums receive a score card signed by the judge and also a share of the pro rata premium fund if the quality of their entry merits it. The names of the prize winners generally appear in the papers and some of the strictly dairy papers will also publish the names of the exhibitors with the scores given by the judges. But outside of this rather limited circle the dairy product exhibit is apt to go unnoticed. The men who make the butter and the cheese do not attend in great numbers because there is no opportunity given them to inspect the exhibits. They can see the butter and the cheese through the windows of the refrigerator but nothing more. They do not get a chance to examine even the one exhibit which takes the prize.

On account of the absence of these men who use dairy machinery there is often a very meager display made by the dealers in dairy supplies. The manufacturers of dairy machinery do not care to go to the expense of advertising and exhibiting their wares to people who are not particularly interested in them. They will, however, gladly crowd the space allotted to them if they are encouraged by a large attendance of dairymen.

The success of a dairy exhibit, therefore, depends on some one's ability to make it instructive and attractive to the butter and cheese makers, the milk producers, and the crowds that come to learn something new or to be entertained. That it is possible to do this our experience at the Wisconsin State Fair last September proved beyond a doubt.

The space assigned to the Dairy School exhibit included one entire side of the dairy building and a large front window in the refrigerator. This furnished a space about eighty feet long and fifteen feet wide. This space was divided into three sections. The central section was partitioned off by cardinal colored cloth, which is the University of Wisconsin color, and all the bunting decorations were cardinal and white.

Butter making was carried on at the south end, cheese making at the north end, and the central space was filled with milk testing apparatus, text books, descriptive charts and diagrams.



In the butter making section, a three H. P. gasoline engine was running. This engine furnished ample power to run the line shaft from which the separators and churns were operated.

During the four days of the fair, milk was received daily and skimmed by the cream separators which were in constant operation. The cream was ripened and churned and all the appliances and apparatus used in modern butter making were shown in operation. The following information was printed on large charts exhibited in this section:

*Printed Chart.*

"The amount of butter produced in Wisconsin is estimated to be eighty million pounds per year, and it is valued at thirteen million dollars.

Dane county leads with six million pounds per year.

Eight hundred and forty thousand cows furnish milk to nine hundred and fifty-one creameries and fifteen hundred and seventy-one cheese factories in Wisconsin."

In the cheese making section milk was made into cheese daily before the passing visitors. A cheese vat, cheese press, cheese hoops, curd knives, bandages, hygrometer for measuring the moisture in curing rooms, etc., were supplied to illustrate the entire process of cheese making.

The apparatus for making tests of milk by the Wisconsin curd test was also shown and curds from pure milk as well as some from tainted and defective milks were exhibited.

A number of the common types of cheese were also shown in this section, each one being properly labeled to indicate what cheese makers mean by such names as "Cheddar," "Flats," "Favorites," "Young Americas," "Goudas," etc.

A duplicate of the cheese sent to the Paris Exposition by the Wisconsin Dairy School was also on exhibition. These cheese were explained by large printed charts which gave the following description of them:

"Six cheese made at the Wisconsin Dairy School to show that the amount and the quality of cheese varies with the richness of the milk.

Each cheese was made from the same weight of milk.

200 lbs of milk testing 0.1 per cent. fat.....	11 lbs. cheese
200 lbs. of milk testing 1.0 per cent. fat.....	13.4 lbs. cheese
200 lbs. of milk testing 2.0 per cent. fat.....	16.0 lbs. cheese
200 lbs. of milk testing 3.0 per cent. fat.....	18.3 lbs. cheese
200 lbs. of milk testing 4.0 per cent. fat.....	21.6 lbs. cheese
200 lbs. of milk testing 5.0 per cent. fat.....	24.8 lbs. cheese

A duplicate set of these cheese was sent to the Paris Exposition April 15, 1900, and later awarded a gold medal, as shown by the following communication:

Wisconsin State Dairy School,  
Madison, Wisconsin.

Gentlemen: It gives me pleasure to inform you that we have just received from Major Henry E. Alvord, Chief of this Division, and now in charge of the U. S. Animal Industry exhibit at the Paris Exposition, a partial report of awards on dairy products in the U. S. Collective exhibit, which states that the cheese made by your pupils received a gold medal.

Very respectfully,

R. A. PEARSON,  
Acting Chief of Dairy Division."

Other printed charts shown in this section contained the following information.

"Wisconsin produced over sixty-five million pounds of cheese in 1899. This is more than one-fourth of the entire cheese production of the United States.

"Shipments of Swiss, Brick and Limburger cheese from Green county in 1899 reached over twelve million pounds, which is about one-half the total annual production of these cheese in the state."

"The Wisconsin Curd Test was developed at the Wisconsin Dairy School where students are taught how to use it.

"It detects and locates the sources of impure milk so that floating curds and 'huffy cheese' may be avoided.

"The State Traveling Cheese Instructors find this test to be of great benefit in showing patrons that cheese factory milk must be well cared for.

"Losses of thousands of dollars annually to Wisconsin cheese

industry are now prevented by the use of the Wisconsin Curd Test."

The central section of the exhibit was a cardinal room, the walls of which were built in the form of a semi-circle. On these walls were hung photographs, diagrams and charts illustrating the work done by the students and the professors of the dairy school. The large framed photographs, 25x30 inches in size, showed the students at work in the different departments of Hiram Smith Hall, the dairy school building.

Five large charts showed the construction of horizontal and vertical sub-earth ducts for regulating the temperature and the moisture of cheese curing rooms.

A map of the state showed the location of 127 creameries and 133 cheese factories operated in 1900 by former dairy students, and another map showed the number of students from each county of the state that had attended the dairy school since its opening in 1890. This map showed a total attendance of 1,022 students; 836 of these were from 59 counties in Wisconsin and 184 were non-residents.

A large framed picture showed a collection of photographs of the Babcock milk test machine, beginning with the original one which Dr. Babcock had made and including the first and latest machine in common use.

The value of testing the milk of farmers' cows was shown by a framed picture containing the photographs and the records of twelve cows owned by farmers supplying milk to the University creamery. A printed chart describing this picture contained the following statement:

Test your cows. Weighing and testing the milk of thirty-four cows on four farms showed the butter value of each cow's milk for one year to be as follows:

	Best cow.	Poorest cow.
Farm A. ....	\$53.35	\$28.72
Farm B. ....	58.20	44.83
Farm C. ....	60.72	37.96
Farm D. ....	55.49	39.60

Does each one of your cows give milk enough to pay for her feed-

Another printed chart contained the following information:

"The Wisconsin Dairy School used over two million pounds of milk per year in giving its practical instruction in butter-making, cheese-making, milk and cream pasteurizing and experimental work.

"The milk is furnished by about fifty patrons living in the vicinity of Madison. This gives our students a milk supply similar to that of the 2,500 creameries and cheese factories of the state.

"The products of the Dairy School are: Fancy print and package butter, full cream cheddar cheese, pasteurized milk and cream."

On the tables in this section there were many types of hand and power Babcock milk test machines, all the different forms of whole milk, skim milk and cream tests bottles, and other glass-ware now used with this test. Other apparatus also shown was the lactometer for determining the solids not fat in milk, the Marshall and the Monrad rennet test, and complete outfits for testing the acidity of milk and cream by the Mann's test and by the Farrington Alkaline Tablet test.

A full line of dairy text books was also on exhibition and the blanks and examination papers used in the instruction of students at the Wisconsin Dairy School.

A large printed chart contained the following information:

"The Babcock Milk Test originated at the Wisconsin Dairy School. It is now universally used for testing the milk of creamery and cheese factory patrons and for locating unprofitable cows.

By detecting the losses in skim milk, buttermilk and whey it effects a saving of \$800,000 annually to Wisconsin alone.

Over 60,000 copies of bulletins and reports describing this test have been issued by the Wisconsin Experiment Station."

Through one of the large windows of the refrigerator, visitors could see an elaborate display of ornamental designs and statues made of butter. The central object of this display was a butter model, two feet long, of Hiram Smith Hall, the dairy school building. This attracted a great deal of attention as it was something entirely new to a Wisconsin State Fair crowd.

Another new feature of the dairy exhibit was the effort made to obtain some evidence in regard to the butter and the cheese which was entered for premiums.

A printed blank containing questions in regard to "How the butter was made," and "How the cheese was made" was sent to each person applying for dairy blanks for exhibiting butter and cheese.

The object of this inquiry was to compare the judges' score of each entry with the description sent by the butter or cheese maker, and to see if the good and the bad qualities could be explained in such a way as to be of some assistance to each maker as well as to furnish a contribution to the general knowledge of butter and cheese making.

A study of these descriptive blanks and the judges' scores shows that the butter makers and the cheese makers did their part and faithfully filled out answers to all questions asked in the blanks sent them, but the judges' score cards were as a rule only filled out with figures.

The reasons for the opinions of the judge if sent to the maker would be of great value not only in aiding him to overcome some defects in the future, but all this information when studied by a competent person would be a valuable contribution to the general knowledge of butter making, and I sincerely hope that some arrangement may be made with future judges by which the reasons for the scoring figures will be written on the score cards so that it can be sent to each maker for his instruction.

This is one valuable means of improving the quality of the dairy products of the state. If the judges give more time to this part of the work, and if it were possible to make the refrigerator large enough to permit the butter and cheese makers to examine the packages and the score cards attached to them, it seems to me that such an opportunity would be of great value to the men who are interested in their work and eager to learn all they can about dairying.

An exhibit which contains some or all of the features mentioned in this brief outline cannot fail to be attractive and educational. The buttermakers may see many of the machines and



supplies that they have been reading about during the year in their dairy papers.

Such inspection gives him a chance to judge of the merits and the defects of various machines, and thus saves him many dollars either by convincing him that a certain machine will be more economical than one he is using, or by demonstrating that a much advertised process of some ingenious person is a fraud. He can also cultivate his eye and taste in the market requirements for color and salt in butter, and compare his butter with those that were given the highest score. He may get a new idea in milk testing and learn why he has had trouble sometimes in getting satisfactory tests. From the different styles of testers on exhibition he can determine which one he ought to buy, or how he can add some improvement to the one he has in use at home.

The cheesemaker cannot only make comparisons of his own cheese with those that took the prizes, but by talking with other makers he can learn some new things about the handling of milk in the vat or the curds on the rack, that will explain many things about which he has been uncertain. He may also see for the first time some new forms of cheese or others that are not so new but that he has never had a chance to do anything but read about. New tests, like the curd test, the rennet test, acid test, etc., have been shown for the first time to many cheesemakers at the fair.

If in addition to these exhibits of products and machines there is a chance to see the processes of butter making and of cheese making in actual operation during the exhibit, then the ambitious workman has before him everything that is needed to illustrate the art which he is practicing at home and one of the best chances in the world to compare notes with others and learn something thereby.

The dairy exhibit also affords many opportunities to the dairy farmers and the milk producer. Dairy butter is generally exhibited in a great variety of packages for one thing, and the difference in color and flavor are much greater than in the creamery butter exhibits. Some farm dairy butter makers could easily learn at the fair why their butter must always be sold

from one to five cents below the market price. Their package may be unattractive and they may not know how to prepare the top of their jar of butter in a neat and taking way. These points could be easily picked up at a butter exhibit, and every butter maker could learn how to bring his butter up to the quality and appearance of that which took the prize.

The machinery exhibit is just as valuable to the dairy as to the creamery butter maker. Farm dairy machines and supplies are always on hand and many a dairy farmer has gone home from an exhibit and harnessed a bull or a sheep to a piece of work that he formerly did himself with his own muscles. He also may learn how to determine which cows in his herd are failing to produce enough in a year to pay for their feed. This simple problem has been demonstrated by pictures and records in the dairy school exhibit at the fair, and men who have milked cows for years were astonished to learn that dairymen had such poor cows and that they were so ignorant of how well or how poorly the cows were doing.

This testing of common cows on the farm is one of the most important and progressive lines of work for our farmers to follow and when they have realized it sufficiently to find out just how valuable or how worthless each cow on the farm actually is proving to be, the dairy interests of the state will make one of the longest forward strides that has even been taken in any branch of agriculture.

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DISCUSSION.

Prof. Henry: How many students have taken the regular cheese manufacturing course at the dairy school?

Prof. Farrington: Up to the present time there have been 1,142 dairy students, about 951 from Wisconsin.

Mr. Adams: Do they know much when they come out and have they very much knowledge about the dairy business when they commence as a rule?

Prof. Farrington: We have all grades of students in one class. We have some students there who can not write English at all. In one class we will have students who have a very little education and men who have graduated from college. We try to teach them all something about the dairy business as they come.

President Goodrich: Which knows the most when he comes there, the man who has graduated or the man who has some knowledge of the dairy business?

Prof. Farrington: Well, I don't know. There are some sensible men among those who have had four years in college, and they are not always blowing about it, either.

Gov. Hoard: You have struck one point which interests me exceedingly. The larger proportion of the young men that you get there come from country district schools, don't they?

Prof. Farrington: Yes.

Ex-Gov. Hoard: In what do you find those young men most deficient, isn't it an understanding of percentage in arithmetic?

Prof. Farrington: Yes, that is very true.

Ex-Gov. Hoard: We find it so. We have had three graduates of the Fort Atkinson High School in our creamery who could not cast up the dividend in percentage. Now, we must remember that only about five per cent. of our youth get any other schooling than that of the country district school. Who is to blame because these boys go to Madison and have been hampered, footbound and headbound and handbound, and there for the first time confront their own deficiencies. Now, who is to blame? I tell you it is the farmer himself who is not willing that that country district school should be the very best in the country. They will stand and "jew down" the teacher, they will not employ good teachers nor pay them, they will not see that the boys getting only three or four months of schooling in the year are given a good square chance so that if they want to go to Madison and get a better show for themselves they will have a chance in life. I know all about this because that is the only chance I had for any schooling and I have been handicapped from that day to this. The only teacher I ever had that was worth a continental was one man that took me right out to

the fountains of knowledge. And they discharged him in a year because they said he would take the boys out into the meadow and teach them something about the botany of the little clover plant or something else, and those ignorant men said that that man didn't keep order at school, but let the boys go out in the meadow with him, wasting their time when they ought to be studying their books. When he was driven away the tears were running down my cheeks, because I saw my true friend depart.

Oh, I tell you, farmers, the time has come when you ought to stand up and make this country district school the very best school on earth for the boy to go out of and we would not see these earnest, honest young men coming up to Madison and being obliged to go to work and do a lot of country district school work before they can go through the Dairy School.

Prof. Henry: Over 2,000 trained students have gone out from our school taking all branches.

Ex-Gov. Hoard: In 1890 there were 47,780 children in this state, nearly all of them in the farm districts, children between the ages of seven and fourteen, who were never permitted to attend any school whatever, neither public, private, parochial or anything else. You heard Prof. Harvey say last night that there are sixteen schools in this state averaging only one scholar to the school. In 1870 I took the census of four towns in Jefferson county, a very strong German county. Now, just before I started in my work, some German swindlers from Chicago came into that county and quietly slipped around among these old Germans who couldn't talk English and pretended to be taking the census and they would ask a lot of questions in German, and then they would present a paper and say, "You sign this," and those simple-minded men supposed they were being dealt with honestly, and they signed away \$8,000 worth of notes in three days, right in one neighborhood. When I came along to take my census, it was all my life was worth. Of course these men had skipped out, after getting the notes discounted at the bank. They could talk German and they simply gouged those German farmers. As I went along I found many well grown children who could neither read nor

write the language of this country. One man had three sons under twenty-two years of age and I said, "This is wrong that these boys can't read English." He says, "No, Deutch is good enough." I said, "Deutch is not good enough; it wasn't good enough for you fellows to keep your money in your pockets with. Would you have signed that note for \$800 if you could have read it?" And it struck the old man right in the face. I said, "Eight hundred dollars would have given those boys a good deal of education, but you go and throw it away to a swindler because you are hugging to your mind the idea that German is good enough for you. Oh" I said "can't you see that it takes a little education to keep your money in your pocket after you get it there?" The next thing I knew, the old man was sending those boys over to the public school. It had cost him \$800 to know why.

Mr. Merrick: I think we ought to give some kind of a public expression of our desires on the subject of the Agricultural School, for I am sure this whole audience wishes to support our Agricultural Department at Madison.

Mr. Adams: To give the gentleman and the rest of these gentlemen an opportunity, we ask that the committee on resolutions make report at this time.

The following resolutions were presented by the committee, and on motion of Mr. Miles, duly seconded, were adopted unanimously:

#### RESOLUTIONS REPORTED BY THE COMMITTEE.

*Resolved*, That the people of Mondovi and Buffalo county have made this 29th annual meeting of the Wisconsin Dairy-men's Association one of the best in its history. They promised much. They have kept their promise.

*Resolved*, That we appreciate fully the courtesies extended by the railroad companies in making a one fare rate, and giving special train and car service.

*Resolved*, That we hereby express to the eight Congressmen from this state, who voted for the Grout Bill, our kindly feeling toward them for having voted to drive the fraud out of oleo-



margarine and sweep the dairy markets of the country clean of dishonest competition. We know our friends. We shall not forget them. We assure Senators Spooner and Quarles that the dairymen of Wisconsin are mindful of their efforts to secure favorable action in the senate, at this session, upon the Grout Bill now pending. That measure is demanded in the interest of honest trade. The dairymen of this state are opposed to class legislation. They recognize the fact that oleomargarine has rights in the market when sold under its own name and color. We want no unfair advantage for butter. Let it stand upon its merits. But we ask Congress to use its taxing power to compel oleomargarine to stand upon its merits as a cheap and inferior substitute for butter, and not cheat consumers, by appearing in the markets as a counterfeit.

*Resolved*, That we respectfully request the legislature, now in session, to increase our annual appropriation from two thousand to four thousand dollars. We can use the money to the great advantage of the state in giving additional factory and creamery instruction.

*Resolved*, That we most heartily favor Assembly Bill No. 17, providing for a central building for the College of Agriculture, for increased instruction in dairying, and increased instruction and facilities in the care and management of live stock.

*Resolved*, By the Wisconsin Dairymen's Association, that we urge upon the legislature the wisdom of submitting to the people at the next election, the Constitutional Amendment now pending before that body, authorizing the state to aid in the improving of country roads. Such aid will not alone encourage the dairy industry and help to facilitate the farmers' daily delivery at the creamery, but will be a distinct assistance to Wisconsin agriculture.

*Resolved*, That a copy of the above resolutions be forwarded by the secretary of this Association to the presiding officers of the Senate and Assembly at Madison.

## RESOLUTIONS INTRODUCED BY W. D. HOARD.

*Resolved*, That this Association most earnestly requests the present legislature now in session to enact laws whereby the elements of agriculture shall be taught in the common schools of our state.

*Resolved*, That the Association most heartily endorses and supports the able and efficient administration of the State Dairy and Food Commission by Commissioner Adams, and it is our firm belief that he should be provided by law with authority to employ at least two more inspectors in his work so important to the dairy and food interests of this state.

Ex-Gov. Hoard: Mr. Adams and I have been fighting on this Grout Bill. I spent two months a year ago in Washington and spent the months of December and January with a week or so out, this year, and I don't know how much more. I have for several years carried the honor and the duties attached to the office of President of the National Dairy Union. I come from old Revolutionary stock and their principles were pounded into me by my mother. This has been a great honor, but lots of expense and hard work. The Grout Bill now is in very good shape, and we hope it is all right, but it has been an expensive matter and the dairymen of Wisconsin ought to do more than they have done to help. The oleo men have had a fund of \$150,000 to work with and we are asking only for assistance in the payment of actual expenses.

(Contributions amounting to \$60 were collected from those present for the above purpose.)

The committee on nominations, by its chairman, Mr. Everett, offered its report, which, on motion of Prof. Henry, seconded by Mr. Philips, was unanimously adopted, and the gentlemen named therein declared the duly elected officers of the Association for the coming year, as follows:

For President, C. P. Goodrich; Secretary, George W. Burchard; Treasurer, H. K. Loomis.

Recess to 1:30.

AFTERNOON SESSION.

Convention met at 1:30.

President in the chair.

The committee on the President's Address reported that it had held no meeting and had no report to make.

The Treasurer's report was presented and approved.

TREASURER'S REPORT FOR 1900.

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.*

1900.		
Feb. 28.	Amount in hands of treasurer .....	\$1,537 22
	Memberships for 1900 .....	270 00
	Contributed by individuals or firms to be added to premiums .....	155 00
Nov. 22.	From State Treasurer .....	1,000 00
Dec. 29.	From State Treasurer .....	1,000 00
		\$3,962 22

*Disbursements.*

1900.		
Feb. 24.	Hotel bills of speakers and others at Watertown . . . . .	\$78 60
	E. C. Bennett, of Iowa .....	40 00
	Prof. T. L. Haecker, Minnesota .....	40 00
	H. K. Loomis and assistant, expenses, Watertown, . . . . .	17 73
	G. H. Kennedy, butter judge .....	20 15
	Chester Hazen, exp. attending Conv. . . . .	2 70
	Prof. W. A. Henry, exp. attending Conv. . . . .	5 24
	Prof. F. W. Woll, exp. attending Conv. . . . .	5 50
28.	Premiums . . . . .	237 93
	Stephen Favill, exp. attending Conv. . . . .	2 10

Mar. 12.	U. S. Baer, exp. attending Convention..	2 67
Apr. 6.	Milwaukee Lithograph and Engraving Co., stationery . . . . .	20 00
19.	H. K. Loomis, expense attending Ex. Com. meeting . . . . .	10 50
	Prof. W. L. Carlyle, expense attending Convention . . . . .	2 74
	Prof. E. H. Farrington, expense attend- ing Convention . . . . .	1 77
	Mrs. R. Howard Kelly, reporter . . . . .	108 24
30.	Byron Snyder, butter lost at annual Convention . . . . .	2 50
May 6.	W. A. Henry, expense attending Ex. Com. meeting . . . . .	3 50
June 6.	John McCready, instructor . . . . .	105 00
	E. L. Aderhold, instructor . . . . .	135 00
July 6.	John McCready, instructor . . . . .	100 00
	E. L. Aderhold, instructor . . . . .	105 00
Aug. 9.	E. L. Aderhold, instructor . . . . .	85 00
	John McCready, instructor . . . . .	110 00
	DeWitt Goodrich, instructor . . . . .	133 50
Sept. 7.	John McCready, instructor . . . . .	110 00
	E. L. Aderhold, instructor . . . . .	72 50
	DeWitt Goodrich, instructor . . . . .	62 50
Oct. 6.	DeWitt Goodrich, instructor . . . . .	53 00
	E. L. Aderhold, instructor . . . . .	70 00
	John McCready, instructor . . . . .	115 00
Nov. 23.	E. L. Aderhold, instructor . . . . .	97 50
	DeWitt Goodrich, instructor . . . . .	72 00
	John McCready, instructor . . . . .	135 00
Dec. 10.	DeWitt Goodrich, instructor . . . . .	50 50
	John McCready, instructor . . . . .	45 00
24.	E. L. Aderhold, instructor . . . . .	60 00
1901.		
Jan. 12.	DeWitt Goodrich, instructor . . . . .	86 50
Feb. 8.	DeWitt Goodrich, instructor . . . . .	96 75
26.	W. D. Hoard, printing . . . . .	45 10
	G. W. Burchard, secretary, salary . . . . .	250 00
	G. W. Burchard, postage, freight, etc... .	116 41
	H. K. Loomis, postage, exchange on drafts, and revenue stamps . . . . .	4 54
	Cash to balance . . . . .	1,044 55 \$3,962 22

## FACTS FROM A GATHERED CREAM CREAMERY.

A. J. Philips, West Salem, Wis.

The West Salem Co-operate creamery will be the subject of my paper.

While attending the first Farmers' Institute that was held at Fort Atkinson in the spring of 1886, I received a letter from one of the prominent merchants in our village of West Salem asking me to collect all the information I could on the creamery business and to be at home on the next Saturday, as a meeting was called for the purpose of organizing a creamery association, saying he was tired of handling butter at a loss. This meeting was held as announced. The farmers were willing to furnish their cream but doubted the success of the undertaking and declined investing any money in it. Mr. Johnson being satisfied that something should be done to advance the dairy business and improve the butter output of the town, secured a site and with the help of his partner, Mr. Larson, commenced at once the erection of a building. Machinery was purchased and operations commenced. Very fortunately the butter maker employed, in the person of Mr. Elmer, proved to be a very competent man, who still does the work and is now known to the butter trade of Philadelphia, New York, Boston and Chicago as an expert at the business. After Messrs. Johnson and Larson got to running in good shape and the farmers were well satisfied with results, they bought a farm and moved the creamery one mile from the village and increased their facilities for butter making. They continued their business until the spring of 1891, at which time the farmers were fully satisfied that the business was paying, they decided to organize and build a Co-operative creamery, but Mr. Johnson having other business that occupied his attention, made them an offer and sold out to them. They at once employed a competent man as manager, Mr. William Leets, who still holds the position. His salary is and has been six hundred dollars per year. Mr. Waite, the butter maker, started at a salary of \$40.00 per month. This was



gradually increased until it reached \$75.00, at which figure it now is and has been for a number of years. As a co-operative plant it started in 1891 with 144 shareholders. In '92 they increased to 184; in '93 to 232; in '94 to 275; in '95 to 317; in '96 to 353; in '97 to 357; in '98 to 368; in '99 to 383; in 1900 to 399. Notwithstanding the fact that a number of large patrons in the south part of the town organized and started a separator creamery of their own, the butter made of this gathered cream in nine months of 1886 was 62,629 pounds; in '87 it was 138,786 pounds; in '88 it was 219,320 pounds; in '89 it was 254,194 pounds; in 1890 it was 260,900 pounds; in '91 it was 189,778 pounds; in '92 it was 277,333 pounds; in '93 it was 371,000 pounds; in '94 it was 449,800 pounds; in '95 it was 512,190 pounds; in '96 it was 645,526 pounds; in '97 it was 654,276 pounds; in '98 it was 653,798 pounds; in '99 it was 706,648 pounds; in 1900 it was 693,391 pounds—a total of 6,089,518 pounds, or enough to make fifteen trains of cars of twenty cars to a train, counting 20,000 pounds for a car load. The hauling to and from the depot and about the creamery is done by the tenant on the farm who does all the teaming and pays \$500.00 per year for the use of the farm and the butter milk.

Since 1890 the cost of gathering the cream and making the aforesaid butter has been as follows: In '91 it cost 3 69-100 cents per pound; in '92 it cost 3 23-100 cents per pound; in '93 it was 2 57-100 cents per pound; in '94 it was 2 50-100 cents per pound; in '95 it was 2 33-100 cents per pound; in '96 it was 1 97-100 cents per pound; in '97 it was 1 90-100 cents per pound; in '98 it was 1 85-100 cents per pound; in '99 it was 1 76-100 cents per pound; in 1900 it was 1 95-100 cents per pound. The price raised last year on account of the other creamery running in the same territory. There has been paid to the farmers and patrons of this creamery for cream during these years the following sums, to-wit: In 1886 during nine months \$9,528.58; in '87 it was \$21,111.98; in '88 it was \$33,507.49; in '89 it was \$38,835.50; in 1890 it was \$39,835.50; in '91 it was \$34,789.57; in '92 it was \$53,486.77; in '93 it was \$73,423.28; in '94 it was \$79,808.08; in '95 it was \$84,-

950.31; in '96 it was \$91,339.96; in '97 it was \$96,349.63; in '98 it was \$103,677.88; in '99 it was \$117,761.70; in 1900 it was \$125,844.44, or a total of \$1,024,250.87. The average price paid patrons has been as follows: In 1891, 18 cents per pound; in '92 it was 20½ cents per pound; in '93 it was 20⅔ cents per pound; in '94 it was 18 cents per pound; in '95 it was 17 1-6 cents per pound; in '96 it was 14½ cents per pound; in '97 it was 15 5-12 cents per pound; in '98 it was 16⅔ cents per pound; in '99 it was 20½ cents for butter fat; in 1900 it was 21½ cents for butter fat. The territory where this cream is gathered is about sixteen miles in extent, north and south, and about the same east and west. But in this same territory there is located one Swiss cheese factory, two separator creameries and one gathered cream creamery. On the south they gather cream near by and six miles beyond the separator creamery at Barre Mills; on the east they gather within a mile of the separator creamery at Rockland, Wis. Also on the east they gather four or five miles beyond another gathered cream creamery at Bangor. This creamery I have been describing is now and has been for two years buying by the Babcock test, which they think is the fair way. As to comparative prices received for butter we could not make exact figures, only this far—the manager tells me he has received all these years and is now receiving the highest eastern quotations and oftentimes one-half to one cent per pound higher. He contracted in Boston one season at Elgin prices on track at West Salem station. He could contract every season but he prefers to sell on the market. Some of this butter is sold in Chicago, but the bulk of it goes to Philadelphia, some to New York and some to Boston. The entire make is now and has been some months shipped to Boston. The manager informs me that coal at \$5.00 per ton is more expensive than oak wood at \$3.25 per cord. It costs a trifle less than \$1.00 per hundred to gather the cream. They pay from fifty cents to \$1.25 per hundred. Now, in addition to the amounts that I have stated, the organization have paid out of their profits, for a farm and equipments, worth at least \$10,000. They hold their annual meeting for the election of officers this week, February 23, and

in all probability the old board of directors and officers will be re-elected as they have given general satisfaction. Of the large number of patrons of this creamery at least two-thirds, or about two hundred and fifty, own and operate farm separators. I have given you the facts as near as I could without comment and if the hearer or reader wish to ask questions or make further inquiries, he or she is at liberty to do so. I believe with good cows, given good care, plenty of farm separators, intelligent dairymen, good machinery, a competent manager and an expert butter maker, that the gathered cream creamery is destined to be the creamery of the future.

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DISCUSSION.

A Member: How do those who have not separators raise their cream?

Mr. Philips: By deep setting.

The Member: Is the same price paid for the gravity raised cream as the separator cream?

Mr. Philips: I don't think they make any difference but our butter maker knows the difference.

Prof. Henry: How is it possible for a creamery to make butter for less than two cents a pound?

Mr. Philips: Well, the large amount of territory that is covered. You see the price has gone down from  $3\frac{1}{2}$  to less than 2 cents. When they started there were not so many patrons and some of them had to go twelve miles. Now, they have let the contracts to gather the cream to the lowest bidder, and it is not as expensive as it used to be.

A Member: What do they keep that farm for?

Mr. Philips: They think they make money on it, it is a good investment. The creamery is built on the farm and they run the farm and this man does the hauling. They get \$500 a year for the farm, and he does all the hauling.

Ex-Gov. Hoard: Does it lessen the cost of making butter in any way?

Mr. Philips: No, not at all.

A Member: Do they churn the gathered cream and the separator cream separately?

Mr. Philips: No, not if it is good cream.

Mr. Houser: You have examined a good many creameries and know about the cost of making butter in those creameries. How does the price charged in your creamery compare with other creameries throughout the state?

Mr. Philips: My idea is that our people are doing it for less. This new separator creamery that is started over in the southern part of the town is charging their patrons four cents a pound and the result is that several have dropped back into the old home again.

Mr. Houser: I will ask our secretary to state the cost per pound to the patrons to this creamery for the past year.

Mr. Philips: That 2 cents covers the making of the butter and the gathering of the cream.

Mr. Brownlee: I don't remember the exact cost for the past year. For the year 1900 it cost \$1.92 a hundred, each patron delivers his own cream or hires his neighbor. We put the butter on the cars.

A Member: Haven't you a separator in your creamery, Mr. Philips?

Mr. Philips: No, sir.

Prof. Farrington: I got the impression that the butter maker in this creamery had two vats and he put the cream of a poor quality in one vat and the best cream in another vat, is that so?

Mr. Philips: Yes.

Prof. Farrington: What does he get for the poor butter?

Mr. Philips: What he can. He sells it on its merits. He does not put any brand on it.

Prof. Henry: And do all the patrons get an average price? Do they have to suffer, those who bring the good cream?

Mr. Philips: No, sir; the man who brings poor cream takes less.

Mr. Aderhold: Does your butter maker make up that poor butter every day?

Mr. Philips: No, and to tell the truth he doesn't have much of that poor cream.

Mr. Bradley: Our creamery down here is conducted pretty nearly like this, and probably three-quarters of the cream comes from hand separators and the maker tells me he gets top prices for the butter made from the hand separators. He took all of the cream made from the gravity process and had it churned by itself and had it sold, and it brought a lower price, but he does not tell the people that had separators how much less, because there was too wide a difference, and if he did that he was afraid he would not get their cream, and the consequence is the other people are not getting a fair shake, because the poor cream fellows get more than they ought to.

Mr. Philips: Our butter maker dares tell a man just about what he wants to. He traced some poor cream last summer to one of our best farmers and found that the trouble came by letting the milk stand in the stable until they got through milking before they carried it to the separator. He told them they must quit that, or else he could not take their cream, and they quit it. It was all right after that.

Mr. Gibson: How often do you gather cream?

Mr. Philips: Three times a week in the summer, twice a week in the winter.

Mr. Gibson: And where do the patrons having these hand separators keep them?

Mr. Philips: They have them in all sorts of places; I think mostly in the barn; some in the kitchen and some in a building built on purpose.

Mr. Gibson: Do you think that a common barn in Buffalo county, or any other county, is a fit place for a cream separator?

Mr. Philips: Yes, if the barn is kept clean. Our best dairymen all have their separators in the barn. I have a room built right onto the barn; there is nobody occupies that room but the bull, and he is a privileged character, because he does the separating; but we keep it clean. There are no odors in there and it is well ventilated. As a rule the cream is carried to the ice house, or some other good place as soon as it is sep-



arated. We can't work it off onto those fellows unless it is good.

Mr Gibson: I have seen a great many right in the feeding alleys, behind the cows, and I don't believe any butter maker can make first class goods out of such cream.

A Member: I don't see what hurt it can do to separate in the barn if there is a cover over the can so no bacteria can fall in. While the cream is warm it will not take on odors from the barn.

Mr. Aderhold: But while the cream is running out, the bacteria have access to the cream. I cannot see any excuse for doing it in the stable.

Mr. Philips: The first separator I ever saw running was in Mr. Goodrich's barn. He was selling butter in Chicago at the highest price, and I thought if it was all right for him it would be all right for me. Of course the best way is to build a separate room.

Mr. DeWitt Goodrich: I have heard the President of this Association say that he has not made as good butter since he used the separator as he did before. He did not say that it was because it was in the barn, but I think it was probably because of the bacteria just the same.

Mr. Philips: Old man, you will have to take a back seat. The boy has been to the Agricultural College, you haven't.

President Goodrich: I shall not argue with him a bit.

Mr. McKinley: I am like some of those short course students—very much deficient in percentage. A year ago this month the West Salem Creamery published their annual report, showing the work that had been done in several different parts of the state. The query was, How they could pay 21½ cents for butter fat when the secretary of the creamery had reported that they had received but eighteen and a fraction for the butter, besides the cost of delivering and manufacturing. Now, I took special pains to inquire about that of the secretary by correspondence, and he informed me that the report had been unanimously adopted by their patrons and stockholders; but that didn't satisfy me, so I pushed my inquiry, but I am yet in the dark, I cannot make my percentage clear.

President Goodrich: Mr. McKinley seems to be puzzled over the fact that when butter fat is worth 21 cents a pound, butter is worth only eighteen. Six pounds of butter fat will make seven pounds of butter. That is just in the ratio of 18 to 21, and that looks very plain to me. The difference represents the overrun; if there is one-sixth overrun, that is the exact ratio. That is the kind of arithmetic that we want the boys to understand.

Prof. Farrington: Suppose you have four pounds of butter you get a dollar for it, and you divide the dollar by the four pounds, that makes 25 cents a pound for butter. Now, if that butter contained 80 per cent. of fat, that 80 per cent. of four pounds, which is 3.2, you are getting one dollar for that 3.2 pounds, while in the other case, you get one dollar for four pounds. That makes 25 cents for the butter and 3.2 into the same dollar is a little more than 25.

A Member: If I understood Mr. McKinley right, he said that the creamery received 18 cents for butter and paid for butter fat  $21\frac{1}{2}$  cents. That will be all right if it costs nothing to make, but it costs 1.95 to make that butter. Where does that come from?

Mr. Philips: The expenses are taken out before the patrons get that.

Mr. Meyer: It is all done in the overrun. I have seen when we took in 100,000 pounds a month, we could pay just about as much to the patrons per pound as we received at the factory, because of the overrun.

President Goodrich: I knew of two creameries, last summer; one was paying 3 cents a pound more for butter fat than the other, but when a man changed from one to the other, he didn't get a cent more for his milk. I guess the patrons did not have Babcock tests.

A Member: I am manager of a co-operative creamery, and I know how it is done. These creameries are competing with other creameries around them and they think they can satisfy their patrons better if they will show a little higher test, and can give them a little better figures than the other.

President Goodrich: I went to one creamery where the man

objected to my looking over his books; said he didn't propose to allow me to. I said, "All right, you don't have to, if you have got anything you want to cover up." But just the same I found out what the trouble was. He was advertising all around that he was paying 3 cents more for butter fat than the creamery right next to him, while the truth was he was reading the test so low that he could do it. Now, he did not save money for himself out of it, only he was fooling the patrons or trying to, but somebody was catching onto it, because they had taken milk to this creamery which had tested higher in another place. It is just a trick to keep patrons.

Mr. DeWitt Goodrich: As I said in my paper this morning, I found differences in the overrun in different creameries ranging from 8 to 27 per cent. The man who had the 27 per cent. overrun, I am certain read his tests a good deal too low; that is the only way he got such an overrun; he could not do it by any legitimate means.

Mr. Houser: Creamery patrons are very much interested in this proposition, and especially those who have used the Babcock test. If they are careful about testing their cream or their milk and find at the end of the month that it differs radically from the test at the creamery, there is reason for dissatisfaction, and in many cases there is the presumption that there is something crooked about the operation of the creamery; therefore it seems to me very important that the creamery man should read his test just exactly as it is, and, secondly, that the patron have the Babcock test, and be in a position to insist that the creamery man shall test and read it just as it is. There ought to be no trouble in getting it to agree substantially.

A Member: I am not here to charge any creamery with dishonesty. I believe if there is a reading of the test lower than it actually is that it is uniform and applies to all patrons, but this is a subterfuge to deceive the patrons, and make them think they are getting more for their product than they are actually getting; and therefore I say that in a sense it is dishonest and it does not encourage on the part of the patron very accurate methods. If he finds that he cannot test his milk at the creamery where it is supposed to be done in the most scientific way,

he either swears at the Babcock test or at the creamery man, and in many cases becomes disgusted with it and throws the test aside, and says, "I will take what I can get and let it go at that."

President Goodrich: I can see one way that the test can be read differently by two people and be perfectly honest. You see where the oil comes up in the bottle, one man may think it is right to read clear over the top, and another may think it is right to take it about where it averages, while another may still have another notion and take it at the lowest point, and all be perfectly honest. Now, I appeal to Prof. Farrington to tell us which is the right place.

Prof. Farrington: You want to read at the bottom of the connection. There is a certain amount that had been left in the bulb of the test bottle and in order to make a correction of that to cover all the fat in the neck of the test bottle, you should read to the two extremes, from the extreme top to the extreme bottom of the column of fat.

A Member: This gentleman says that this creamery he speaks of gets two kinds of cream, one from the gravity process and one from the separator, the cream raised from the gravity process bringing the less price. Now, we are using two hand separators; one is called the Buckeye and raised cream by the gravity process, and our creamery men are not satisfied with that cream. We took cream from those patrons who used the separators and those that use the Buckeye, and took it to the creamery and had the butter maker churn each exactly alike; work it exactly alike and brought it here. Now, I want you to tell me why that raised by the gravity process scored five points more than that from the separator.

Mr. McKinley: I think Mr. Philips has reason to be proud of the creamery at West Salem. I am, but I rose to ascertain, if possible, this point I was trying to get at.

Mr. Philips: If Mr. McKinley will come to West Salem, he can come right in there and ask all the questions he wants to.

## WHY I AM A DAIRYMAN.

W. C. Bradley, Hudson, Wis.

I am not a dairyman by birth or from choice; being a millionaire would suit me better. We did not go into the dairy business for our health as some have done, but it is certainly a healthful occupation. No one who takes an active part in caring for twenty-five cows is likely to grow corpulent or complain of the gout.

I am not a dairyman because the smell of cow and calf pens and ensilage is agreeable. A hot house full of roses would smell better.

We are not cleaning stables, carting ensilage, forking hay and bedding for the fun of the thing. Reading the magazines and skipping Markham's poetry, "which is too deep for the man with the hoe or the milk pail to understand is better pastime."

Milking cows, feeding calves, separating cream, putting up ice, washing cans and pails is good work for winter, but a voyage to Porto Rico or a trip through Old Mexico would be more enjoyable.

Dairying is not a hot bed for developing political ambition. The dairyman is too busy. Most politicians have followed a business that gave them more time for scheming.

I never knew of but one man who became governor of Wisconsin, because, as his rival in the convention said, he had cow fertility on his shoes.

I am not a dairyman because I enjoy being tied to a cow's tail, although I never got into so bad a fix as the deacon who tied the cow's tail to his boot strap in fly time. But to my story why I am a dairyman. Well, years ago I promised a girl if she would marry me that some day we would be rich or at least lay a foundation for the children to grow rich on. Now, come to think of it, I don't believe there was anything said about children at that time. We had other things to talk about.

It must have been years afterwards when we had given up all hopes of getting rich that the welfare of the children was



considered. But we started with an intention to be rich, and, as our capital consisted of two pairs of hands, we bought a farm on the "I promise to pay" plan, and the whole farm was sown to wheat, as was the custom, and for two or three years we did fairly well, but it took a lot of hard work and some bookkeeping to buy machinery, hire help and pay \$700 a year in interest.

Then the "Chinch Bug" came and helped us harvest our wheat, and one day as I was oiling the binder and saw the canvas covered with bugs, and I knew I could not make my payment on the binder, I thought I could hear the McCormick agent saying to himself, "A charge to keep I have."

Then those little bugs seemed to be laughing at me and saying, "Bradley, you are a fool." Then I knew I was licked and quit growing wheat. But what to do next? Seeing a notice of a dairymen's meeting in St. Paul, I went over and heard W. D. Hoard tell how to take care of a cow. I had been taught that we ought to give honest labor for every dollar earned, and after hearing Mr. Hoard talk, concluded there is no kind of farming that required so much work and patience for the dollars earned as in dairying. So we borrowed more money, built a silo, and bought a creamer, bought some Jerseys, and began milking for the millions there was in it.

And have been at it ever since with good results. Dairying tends to the right kind of character building. The dairyman knows that he must feed in order to get milk, so he does not expect something for nothing as some others do. It keeps us out of mischief and at home nights, so we sleep good.

It furnishes steady work the year round at good wages, usually. Dairying keeps the fertility on the farm which helps fertilize the bank account. It will pay the mortgage on the farm and help us get a mortgage on the other fellow's farm if we want it.

So I am a dairyman because—well, for the same reason I am getting bald headed—because I can't help it. Sometimes I wish I could trade the farm for a fish pond or turn it into a strawberry patch; then I take my pencil and try to figure how I could get \$200 a month out of it and I get stuck; for the strawberry crop and prices are both uncertain, but people must have

milk, cream, and butter every day, so we keep on milking for the money there is in it.

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DISCUSSION.

Prof. Henry: I would like to know if you have a level farm, one that is good for grain growing.

Mr. Bradley: Yes, it is remarkably level in spots. Out of 320 acres by government survey, as near as I can find out, I have 976 acres that I cultivate.

President Goodrich: Do you cultivate more than one side of it?

Mr. Bradley: We cultivate two sides and one end. It is not a good dairy farm, because I believe that the corn crop is the best crop to give us cheap feed in the dairy, and it is hard work for us to find level patches enough on the farm to grow corn. I don't like to grow corn on rough land, because it washes and we have to grow it in several patches over the farm on what level spots there are, and it bothers me a good deal more than it would if I had a level farm.

Mr. McKinley: Do you think your silo has been a profitable investment?

Mr. Bradley: I don't have to think anything about it. I never knew that it was worth so much to us before this winter. In Northern Wisconsin we had so much rain this fall that the corn stalks were practically worthless in our section—that is, the early cut corn anyway. There was some late cut corn that was planted very late on account of the excessive drought, indeed we planted it way up into July, some after the 4th of July, that was cut after the rains were over with and was pretty fair fodder, but the corn that was planted the average time, from the first of May to the 20th, was so badly spoiled that the fodder is pretty near worthless. My silo was built seventeen or eighteen years ago; it was an old-fashioned wood silo, built as we knew how at that time, but the silage is just as good today as it can be; the cattle are eating every bit of it. The corn that we are feeding that was shocked and spoiled in the field is almost

worthless, so that the men who have a silo this year will find that it will almost pay for itself in the saving of the crop this year. There are dozens of men in this audience who will tell you they could not get along without the silo. Where there has been trouble it has been because of bad construction. Where they have been filled with corn that was frozen and dry, of course it was no good.

Mr. Hatch: At what stage of ripeness would you prefer putting corn into the silo?

Mr. Bradley: I think we ought to have it pretty well matured, pretty well dented, just about the time that you would think it was right to cut and shock I think is the best time to put it into the silo. We think that we get a little sweeter silage in putting it in pretty well matured.

Mr. Hatch: Do you like to have it planted so that each stalk has an ear on it?

Mr. Bradley: Yes, and yet we want it planted thick enough, so that the stalks are not overgrown stalks. There is a difference of opinion about this matter. Charles Linse, a German, says he wants the biggest stalk with the biggest ear he can get. There is no doubt that the cattle will eat up the stalks all right, and perhaps that is the best way, but with me I prefer planting a little thicker and getting perhaps a half size or two-thirds size ear on the stalk; the cattle get more food, I think. There is another element right here, and I want to ask a question on it. I have thought considerably about it this winter, and so I ask Prof. Henry what is the difference in loss in the silo between the stalk and the grain of the ear we put in? We understand that there is very little loss in first rate ensilage from the stalk or leaf part, but that there is a little more loss in the grain part.

Prof. Henry: I do not dare try to answer that without going back to the books.

Mr. Bradley: One of our neighbors this year bought a shredder, and cut and shredded his corn, throwing fodder, leaves and everything, except the grain, into the silo, and putting the corn into the crib. Now, was that the better way?

Prof. Henry: There is no gain by removing the ears. We made that experiment very carefully in this state, and it has

been made in Vermont and other states, and they all agreed in showing that there was no gain in removing the ears. In other words, there is no gain in making the division and then bringing the elements together, and there is a great deal of additional labor.

A Member: Do you cut the corn or put it in whole?

Mr. Bradley: We cut it, run it through the cutter. There are some places in Wisconsin where they put it in whole. Mr. Hodgson, one of the best dairymen in the state, insists he gets better silage putting it in whole, but there are very few that do that, I think, and I am sure the average man had better cut his silage.

Mr. Hatch: What material would you use in building a new silo?

Mr. Bradley: That would depend on the material that a person had at hand. If I had plenty of stone, I would certainly build a stone silo, from top to bottom, outside and in. I should go down in the ground—I was going to say four feet—below the floor. Mr. Jacobson here says to go down ten feet below. I had charge of building the new silo at the asylum farm in St. Croix county, and we went down ten feet below the feeding story, and that part of the work anybody can do, so it makes it cheap. We built a couple of stones, niggerheads, two feet above the surface, and from there up we built with brick; the brick only cost \$5 a thousand, and we only had half a mile to haul them, so that was cheap material. But where you cannot get brick, put up a wooden silo, and I think the best ones I have seen have been those sheeted inside and then lathed and plastered and a second coat of cement inside of that. Those are the nicest looking silos I have been in.

Mr. Philips: I think those laths are liable to decay; they did in my cellar. I put the brick right against the wall and plastered onto the brick.

Mr. Bradley: I wouldn't go more than four feet below the cutting floor on my farm, but out there at the asylum they had a lot of men they wanted to keep busy, so we went down eight feet. However, Mr. Jacobson went down eight feet, and he says he would do it again.

Mr. Jacobson: The little German that works for me thought he was going to have a lot of trouble when he got to the bottom of that eight feet, but he has been in the habit of pitching out all the way down gradually and he never noticed the difference.

Ex-Gov. Hoard: Why not put it up higher?

Mr. Jacobson: We put it up twenty-six feet. It was no trouble to pitch it at all.

Mr. McKinley: Have you had any experience between the different varieties of Dent and Flint corn? We have filled our silo the third time, and invariably we would fill one day with Dent corn and one with Flint corn. My cows appreciated the Flint corn, but I think we will not plant any more Dent corn for some time unless we ascertain reasons that will justify it.

Mr. Bradley: I think that the Flint corn is just as good in a silo as the Dent corn, but you must have a different grain binder than I have. We have an awful lot of trouble getting along with the Flint corn where there are lots of suckers. Then there is another objection to the Flint varieties. You take and shock that and if you don't put it in exactly the right shape, it will soak up the water and spoil your fodder a good deal worse than Dent corn. So for that reason I don't want any Flint corn to shock. It is all right to put in the silo.

Mr. McKinley: The hogs have no objection; they eat nearly all the suckers. There is nearly always an ear of corn on the sucker.

Mr. Philips: Charley Linse built the first silo in La Crosse county and he has filled it twenty-five or six years. He told me that last fall when they filled it, they took the hose and run water on top of it until it was a perfect mush on top, and that is all the covering they put on it, and he says the ensilage they are feeding this winter is the finest they ever had.

Ex-Gov. Hoard: General Burchard built a round silo and didn't roof it. There came heavy fall rains and wet it down and he records some experiences. Now, I want a show of hands on one thing. I would like to have as many men as have built summer silos raise the hands; I mean for feeding in the summer. I see eight. Now, how many have built silos especially for summer use? One.



Mr. Taylor: Yes, I built it last fall for this next summer.

Ex-Gov. Hoard: Now, we are apt to have very severe droughts. Invariably in our creameries the patrons who had silage and feed in it in the droughts showed hardly any shrinkage in their milk whatever. I have a whole mass of testimony on that from all over the United States.

Mr. Bradley: I want to say a word more about summer feeding. I know that there are hundreds of hungry cows in the state of Wisconsin every year, because we have not provided some kind of summer food to tide them over, and our heifers go dry when they ought to be made to be good cows, and kept doing good work clear through. I believe every farm should sow a patch of rye, which is good pasture to turn the cattle onto, or to cut it and feed it in the manger, if necessary. Plant an acre or two of early Minnesota corn, and have that to feed. Sow an acre or two of peas and oats. Do something to feed these cows when the weather is dry. There is more loss from cows being hungry in the summer time on poor pastures than there is in the winter.

Mr. Favill: If the drought came in May and June as it did this year, you couldn't have rye; it wouldn't grow. I want to answer Mr. Hoard's question. I saw my nephew, who is on my brother's old farm, about the first of July. He milks sixty cows. When the pastures through Jefferson and Dane counties were as brown as you ever saw them in August, I was down to my nephew's place at Lake Mills, and I said to him, "How do you get along? Are your cows starving to death?" He says, "They are not starving at all." Well, of course, I asked him what he was doing, and he said he could explain it all right. He had an unusual amount of roughage in the fall before and he fed that out pretty well before he touched the silo. He knew the silo would keep better than the roughage, and the result was that when spring came he had more than half of his silage left, and had enough to give his cows all they would eat every day through the last half of May, when it began to be dry, and all through June, and his cows never did any better than they did last summer. Now, gentlemen, if I were a young man and going to dairying, I would have a silo expressly to tide over the

summer drought. There has never been a season in the last fifty-six years in Wisconsin (I can swear to it, for I have been here,) but that some time during the season there was enough food would grow to put in the silo, and there it would be, ready to tide over the summer drought, which is sure to come, one season with another, and if it doesn't, why, you have got the silo there to keep the silage just as good till you do need it. I would feed silage in the summer, then when you come to the winter, feed a little narrower.

Prof. Henry: If the Dairy Association, in coming to Mondovi, does its work, this meeting is worth half a million dollars to Buffalo county, and for several reasons; one of which is that it is going to start the silo movement up this way. We find represented here only about ten silos and a number of those from distant points. Farmers of Buffalo county, put in silos. We bring you that as the expression of the Wisconsin Dairy Association from long, long experience; we bring it from the Agricultural Colleges of all the states. Set your heart on a silo; talk to your wife about it and get one as soon as you can. If it is a choice between building a house and a silo, I would have the silo first; it would help you toward building a better house, or an addition to your house. That is a practical thing we want you to work to.

Another thing: I told you about the rape plant for feeding hogs, calves, sheep and young stock. Now, you can try the rape experiment for from fifty cents to a dollar for all the seed you need. Order some forage rape and grow it. Then get your silo, and those two things run along together will be worth a lot of money to you.

A Member: How much will a silo cost, a common one that will keep ensilage?

Ex-Gov. Hoard: I built a silo that will hold 200 tons, and I built it expensively, and it cost me about \$1.30 a ton capacity. A man needs about five tons to the cow. Multiply the cost per ton by five and you will get at it. One township in Jefferson county has more silos in it than all Buffalo county.

Prof. Henry: A gentleman over here asks about a silo for

twelve cows. Let me say when you get a silo you will keep twenty cows on that same farm.

Mr. Bradley: I want every man in Buffalo county to go over to Fairchild and look at a couple of stave silos that hold 100 tons that only cost \$75 apiece. I don't say stave silos are the best, but they are much better than none and they can be built cheaply.

Mr. Elliott: What would be the dimension of a silo for winter use for a herd of, say, twenty cows, and then also for summer use?

Prof. Henry: If you will send a postal card to the Wisconsin Experiment Station, Madison, Wis., asking for bulletin, we will send you one that will give dimensions of all kinds of silos, with cost, directions for building, plans of all kinds. We have sent out several thousand bulletins on request and have a few thousand left.

A Member: Is it necessary to have a dead air space in a stave silo?

Ex-Gov. Hoard: Not absolutely necessary. You will find them in Jefferson county without the air space, but the silage will freeze to the staves; it won't hurt the silage though.

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## WISCONSIN AND THE PAN-AMERICAN EXPOSITION.

H. H. Loomis, Sheboygan Falls, Wis.

(Mr. Loomis' paper presented the general plans for the dairy exhibit at Buffalo and some of the reasons why Wisconsin should be fitly represented there. Its publication is omitted for lack of space.)

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### DISCUSSION.

Mr. Adams: I want to supplement what Mr. Loomis has said. That is going to be a very great exposition. It is being

managed by one of the brainest men in the United States in exposition work, Mr. Buchanan. He was a prominent candidate for Secretary of Agriculture under President Cleveland and was vigorously endorsed by a large number of men in this country interested in agriculture, because of his fitness for the position. He made a great success of the corn palace in Sioux City. He also handled the agricultural part of the Exposition at Chicago. He then went to Argentina to represent this country there, and by his wisdom and knowledge of men he so popularized himself that Chili and Argentina submitted to him the job of settling an old dispute over boundary lines which had threatened them with war for a long time. He resigned his office, took up that matter, settled the trouble and they gave him \$50,000. That man is in charge of this Exposition, and he is going to make it a hummer, and Wisconsin wants to be in it, and has done well in choosing Mr. Loomis to look after her dairy interests. He is a modest man, but for many years he has had charge of the detail of our exhibits at our annual meetings, and while the rest of us fellows were sitting around smoking cigars and unloading our wisdom onto the public, Loomis was off in some room where the cheese and butter were, working day and night. Now, he is going down there to look after the dairy interests of this great state. See that he has behind him and with him the earnest sympathy and support of the people of this state.

I have had occasion to be proud of Wisconsin a great many times. A year ago I was all through New England, in the dairy conventions and other meetings, and everywhere I was greeted with the remark, "Well, you come from Wisconsin; that is a great state, isn't it?" I would swell up and burst the buttons off my clothes and do the best I could to answer those kindly expressions. It was a genuine gratification to me in going over that grand section of our country to hear every day and from a large number of men the familiar names of Henry and Hoard and Hiram Smith, and to find out that those old New England farmers are reading literature which comes out of the Wisconsin University and its Agricultural Department with even more interest than a great many of the Wisconsin farmers are today.

We have done good things in this state; we have had good men to help us and our reputation has gone out across the Alleghanies, to the Pacific coast, and across the ocean, and we must live up to that reputation.

I want to congratulate the people of this county and city on this meeting.

I have attended in the past ten years ten of these meetings, and at none of them have we had a better meeting from start to finish than at this one in Mondovi.

We have had a splendid attendance right along, splendid attention, and great comfort, and if we have done anything to stimulate an interest in this business of farming, which is a business for the best brain that exists on earth, we shall feel that we have been more than paid for coming. If we have left here for your consideration some thoughts that will stimulate the minds of the farmers of this county, we know that the fruitage will be that of thought; we know that it means more comfort to those women; we know that it means more attention for your children; we know it will make more comfortable and happy homes; and we know that it will make better citizens of this splendid state.

President Goodrich: Now, I want to make a few remarks. I want to thank this Association for my election as President. I very deeply appreciate the honor.

A year ago I thought you were making a mistake, and I don't know but you are doing so now, but all I can say is, if you can stand it, I can; and one thing I want you to understand—my heart is in the work if my head isn't worth much. I am not going to make a speech and I will tell you why. I heard a lecturer say last Sunday night that these men who talk so much are not men for action, and he told of a woman who told her husband, "Keep your mouth shet, Jim, and you will get along all right." Now, that's my plan all right. But, mind you, that lecturer kept his mouth going for full two hours. Mr. Adams had expressed my sentiments exactly, so I will only say that I have this winter attended dairy conventions in four states, and not one has apparently been as good as this. There has been no unprofitable talking, there have been no cross-



grained men trying to find fault with everything and jab pins into anybody—not one. So I shall go away from here—the last convention, perhaps, that I shall ever attend, though I hope not—feeling that it is the best I have ever attended.

Prof. Henry: I want to get in a little bit of practical talk before I leave for Madison.

I want to tell the farmers a remedy for preventing smut on oats. We did not discover it, but we have tested it and pass it over to you.

Get at the drug store a pound of 40 per cent. formaldehyde, which will cost from 60 to 75 cents. Put that into 50 gallons of water, and sprinkle it over 50 bushels of oats; mix it thoroughly with a shovel so that every part is wet; let it dry enough so as to use it in the seeder and then sow your oats. The formaldehyde will kill all the spores and you will have no smut. Smut costs the state of Wisconsin about three quarters of a million dollars a year. The oat acreage is 1,700,000 acres; the yield is 64,000,000 bushels, and about 5 per cent. of the crop is injured by smut.

There is one thing you have got at this convention. Now, another: Go to your seedsman and tell him you want some forage rape, not rape seed—get Dwarf Essex, and buy about 20 pounds. I heard a farmer say the other day that a little patch of it made over \$100 for him by putting hogs into it and then giving them some grain feed. You can feed sheep and calves and hogs and young stock with it. Sow it with your oats in the spring, wait until the oats are up, and then eight or ten days after seeding oats, go into the field and sow rape. Or, at the last cultivation of your corn, go in and sow rape. Or, you can put it in a field by itself. An acre will keep 20 or 30 or 40 hogs a month. Sow it from April to August. Sow it anyway.

Ex-Gov. Hoard: Mr. President, I have attended twenty-eight of these conventions—every one, except one, when I was sick—and I know of none where the people gave the Association more encouragement than right here. This is a splendid audience for the last day, and they have all been fine. It does us good to rub together; we ought to do it more than we do. We need to appreciate that we are here in this world for a purpose

and to put that purpose above ourselves. We came here against my judgment in the first place, but I am glad we came. I believe we have done good work.

A good many of us have been long in the traces. Now, as a last thought I am going to give you Eben Holden's dying declaration, which I think is one of the best I ever heard. He was a plain old yankee farm hand and when he lay down to die, he talked to the boy this way: "Bill, I ain't ever done nothin' I am ashamed of. I never swore, except it was necessary. Never lied in a hoss trade. Never ketched a fish bigger than it was. Don't know where I am goin'—whether it's East or West, North or South. Don't know whether it's track or trail, but, Bill, I ain't afraid." And so the old farm hired man laid down, worn with toil, heavy with service and went to his Maker, and so we say to you, "We may not see you again, the days and the months that elapse will divide us, the cemetery will get some of us—but it won't make any difference. We have faced life together."

Mrs. Barbauld said,

"Beautiful life, you and I have been long together,  
In fair and in stormy weather,  
So, not 'Good Night,'  
But in some fairer clime,  
Bid me 'Good Morning.'"

Mr. Everett: There has been one representative of Buffalo county who has been untiring in his efforts, first, to bring this convention here, and then to make it a success after it gets here, and I mention his name because I feel that you should be grateful to Mr. Walter Houser for his good work.

Mr. Favill: Just a word before we close. Farmers, we have no right to go on as many of us do, as if we, the heads of families, were the whole thing. Take your boys and girls and wife into the partnership, give them a chance to study the business thoroughly, and then share in the profits, and don't forget that the cow is a partner, too, and entitled to proper consideration. She will stand by you if you will stand by her. Friends, I am the oldest man in the house. I have always been on a farm or had one to fall back on when everything else failed; and every-

thing is liable to fail. Give the boys a foothold on the farm. They will be happier, more contented there in the long run. There you are dependent only upon yourself and the good Father above. Stick to the farm. Stick to the cow.

President Goodrich: This meeting is now adjourned *sine die*.

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