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Wisconsin Buttermakers' Association

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1917
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SIXTEENTH ANNUAL MEETING

**WISCONSIN
BUTTERMAKERS'
ASSOCIATION**



UNIVERSITY OF WISCONSIN
MADISON

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Held at Sparta, Wisconsin

**DECEMBER FIFTH TO DECEMBER SEVENTH
NINETEEN HUNDRED AND SIXTEEN**



PROCEEDINGS OF THE
SIXTEENTH ANNUAL MEETING

of the

Wisconsin Buttermakers'
Association

HELD AT
SPARTA, WISCONSIN
DEC. 5-7, 1917

Compiled by G. H. BENKENDORF





E. J. MORRISON,
Chetok, President



CARL JOHANSSON,
Rose Lawn, Vice President



G. H. BENNENDORF,
Secretary, Madison



H. E. GILFELLEN
Mt. Hope

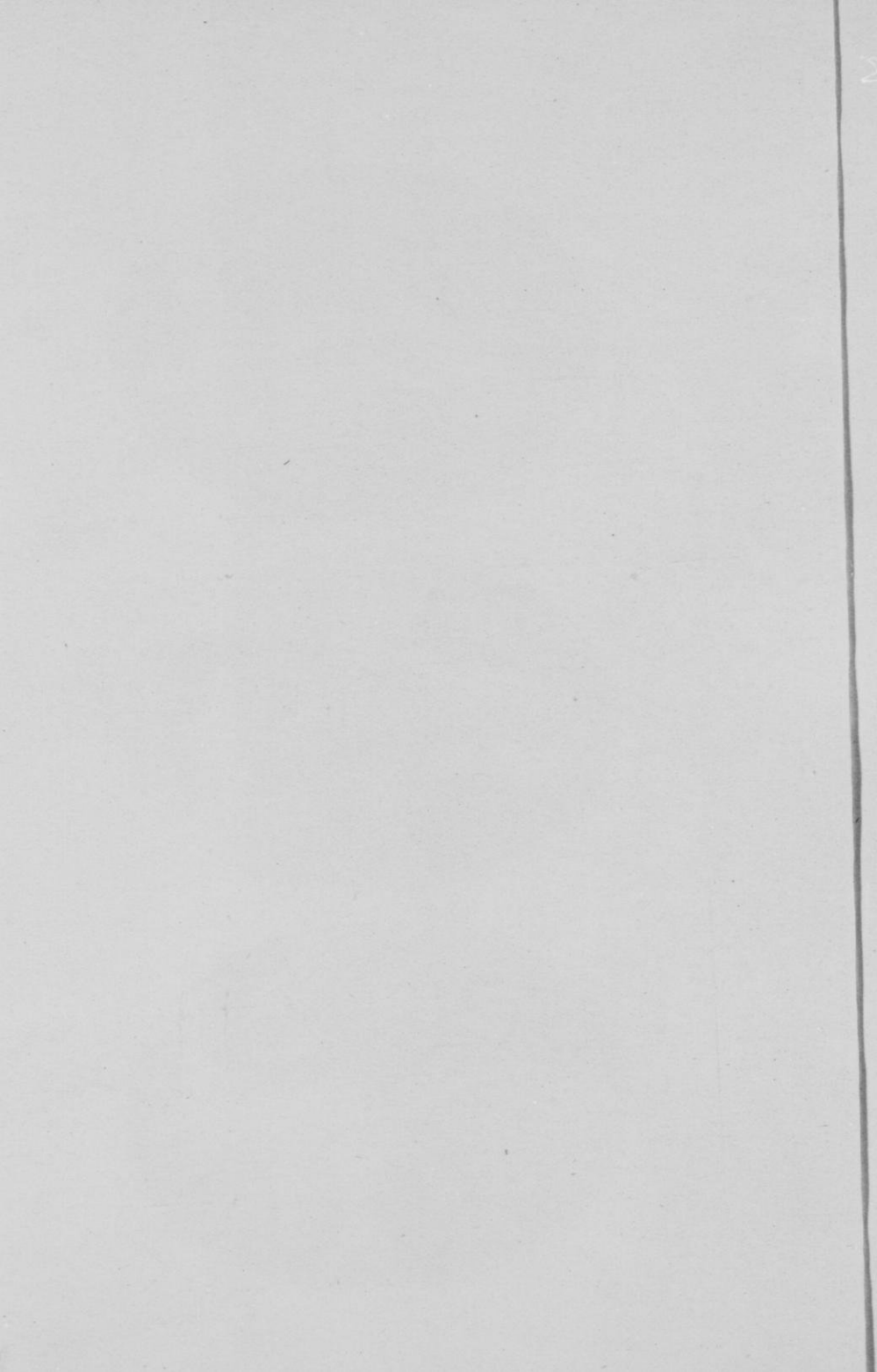


E. C. DODGE
Windsor



O. B. COHENISH
Pt. Atkinson

MEMBERS EXECUTIVE COMMITTEE 1917.



List of Officers 1916-1917 and 1917-1918.

E. J. Morrison, President.....	Chetek
Carl Jorgenson, Vice President.....	Rose Lawn
G. H. Benkendorf, Secretary.....	Madison
Fred M. Werner, Treasurer.....	Waterloo

Executive Committee.

O. B. Cornish.....	Ft. Atkinson
C. J. Dodge.....	Windsor
H. E. Griffin.....	Mt. Horeb

NOTE—In view of the fact that no changes were made in the Constitution and By-laws of this association, the same is not printed in this report. Anyone desiring a copy of the Constitution can obtain it by writing the secretary who will forward an annual report in which it appears.

Names of Members of the Wisconsin Buttermakers' Association, 1917

Life Members.

NAMES	ADDRESSES
Cook, S. A.....	Neenah, Wis.
Fulmer, F. B.....	Moose Jaw, Sask., Canada

Annual Members.

Adams, M. J.....	Reedsburg
Allen, Ford J.....	226 W. Jackson Blvd., Chicago, Ill.
Alexander, C. B.....	175 W. Jackson St., Chicago, Ill.
Anderson, C. J.....	King Ventilating Co., Owatonna, Minn.
Angove, Jas.....	106 Wisconsin St., Milwaukee
Allen, C. L.....	Cashton
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Betz, Theo.....	Grand Rapids
Bowen, Roy.....	Bangor
Bockelman, Fred.....	c. o. C. E. McNeill & Co., Chicago, Ill.
Blaker, A. H.....	Sharples Separator Co., Chicago, Ill.
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Brennan, T. W.....	125 S. Water St., Chicago, Ill.
Barclay, Edw.....	Grantsburg
Boerschinger, Henry.....	Green Bay R. 5
Betz, John H.....	Maiden Rock
Brink, Albin.....	Nelson
Boerst, Elmer.....	Rockton
Benkendorf, G. H.....	Madison
Christensen, Walter.....	Klevensville
Carswell, Robert.....	773 S. Smith Ave., St. Paul, Minn.
Coyne, D. J.....	Coyne Bros., Chicago
Carswell, Allan.....	Clear Lake

LIST OF MEMBERS

NAMES	ADDRESSES
Cornish, Oscar.....	Ft. Atkinson
Carver, C. A.....	114 Wisconsin St., Milwaukee
Campbell, W. L.....	Steuben
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Cole, Chas. L. Jr.....	806 Mutual Life Bldg., Minneapolis, Minn.
Crump, J. L.....	Dairy Record, St. Paul, Minn.
Cook, S. B.....	Cumberland
Chapiewski, A. J.....	Newberg's Corners
Caffisch, W. H.....	Baraboo
Casperson, H. C.....	Deer Park
Dickey, L.....	Glenwood City
Dixon, W. G.....	Sharples Separator Co., West Chester, Pa.
Dehn, W. J.....	La Valle
Dodge, C. J.....	Windsor
Dodge, E. C.....	Lake Mills
Dufner, S. J.....	Sparta
DeBow, W. P.....	Blair
Decker, John J.....	Phillips
Davidson, D. E.....	1531 Kingsbury St., Chicago, Ill.
Davis, N. E.....	220 W. South Water St., Chicago, Ill.
Dillon, H. P.....	Oshkosh
Ford, Jas. A.....	Sparta
Flannigan, Theo.....	Readstown
Fischer, H. C.....	Morton Salt Co., Milwaukee
Farrington, E. H.....	Madison
Ford, J. B. Company.....	E. P. Owen, Wyandotte, Mich.
Frutchey, Geo.....	2935 Fifth Ave. S., Minneapolis, Minn.
Galloway, Geo.....	City Point
Garner, E. L.....	Sharples Separator Co., Chicago, Ill.
Grenier, T. J. H.....	Sharples Separator Co., Chicago, Ill.
Gates, G. P.....	Madison
Green, R. C.....	Albion
Groby, L. A.....	Spring Valley
Gallagher, Thos. J.....	165 W. South Water St., Chicago, Ill.
Gordon, W. A.....	Creamery Journal, Waterloo, Iowa
Gerland, C.....	Rice Lake
Hanson, W. L.....	Brooks
Haugdahl, Sam.....	St. Peter, Minn.
Hoffman, A. E.....	426 Denver St., Waterloo, Iowa

LIST OF MEMBERS

NAMES	ADDRESSES
Hurst, Wm.	Seymour
Helgeson, Theo. F.	Holmen
High, John	Janesville
Henry, Y. E.	106 Wisconsin St., Milwaukee
Herman, C. A.	102 Wisconsin St., Milwaukee
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Hammerschley, J. G.	Refrigerator Sales Co., Milwaukee
Hilstead, A. C.	Oregon
Hart, C. E.	900 Superior St., Milwaukee
Hanson, E. R.	700½ Cramer St., Milwaukee
Ipsen, A. C.	Cobb
Jenks, Geo. J.	Hunter, Walton Co., Chicago, Ill.
Jackson, Edwin M.	West Salem
Jones, W. E.	Eagle Chemical Co., Milwaukee
Jansen, C. J.	Withee
Keppel, V. S.	Holmen
Knippenberg, P. M.	Eagle Chemical Co., Milwaukee
Kolb, F. J. L.	350 N. Clark St., Chicago, Ill.
Kachel, C.	Whitewater
Kroeger, Ed.	Lime Ridge
Kruse, Geo. C.	708 W. Randolph St., Chicago, Ill.
Luethi, C. F.	Waumandee
Lee, C. E.	Madison
Lennartz, Theo.	Frederic
Linn, Geo. W. & Son	Chicago, Ill.
Lloyd, J. E.	Sparta
Lasher, F. M.	Ft. Atkinson
La Court, L. J.	Livingston
Lally, W. A.	901 Merchants Loan & Trust Co., Chicago, Ill.
Lee, Vinton D.	Neillsville
Lieurance, John	Sparta
Moran, J. H.	West Salem
Morrison, E. J.	Chetek
Merryfield, F. V.	Waupaca
Meyer, M. H.	888 44th St., Milwaukee
Morterud, Gus	Westby
Munshaw, F. A.	c. o. C. H. Weaver Co., Eau Claire
Merrill & Eldridge Co.	Chicago

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Rentz, H. M.	Westby
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Reider, Wm.	Calvary
Rice, H. W.110 2nd St. N.,	Minneapolis
Reddy, S. W.	Platteville
Randecker, Chas.	Stoughton
Solie, H.	.....	Osseo
Schultz, R. A.	.....Merchants' Dispatch,	St. Paul
Skogmo, P. W.	.....110 2nd Ave. N.,	Minneapolis
Samulson, O.	.....	Stanley
Swartzlow, J. J.	.....	Sparta
Sprecher, John	.....	Madison
Sorge, Albert	.....	Reedsburg
Scheel, Louis J.	.....Clinton, L. B.,	557
Schneider, Wm.	.....	Johnson Creek
Swits, George	.....	Ft. Atkinson
Schultz, H. H.	.....	Osage, Ia.
Shumway, C. P.	.....102 Wisconsin St.,	Milwaukee
Schwebs, H. J.	.....West Doty St.,	Madison
Sherman, A. R.	.....1516 Dayton Ave.,	St. Paul, Minn.
Skinner, D. P.	.....416 La Salle St.,	Chicago
Simonson, I. O.	.....	Middleton
Shilling, S. B.	.....136 W. Lake St.,	Chicago
Schlesselman, E. F.	.....	Fountain City
Southard, R. B.	.....	Marshfield
Towle, T. S.	.....	Baraboo
Taylor, Dan	.....1821 Kennilworth Ave.,	Chicago
Thompson, M. E.	.....Creamery Package Mfg. Co.,	Minneapolis
Union Fibre Co.	.....	Winona, Minn.
Vanderhoe, Geo. F.	.....	Reedsbnrg
Weigle, Geo. J.	.....	Madison
Weeks, M. E.	.....Creamery & Milk Plant Monthly,	Chicago
Wuethrich, Fred.	.....	Doylestown
Whitmore, E. J.	.....	Owatonna, Minn.
Walker, W. M.	.....369 Robert St.,	St. Paul
Yankey, C. C.	.....	Tunnel City

LIST OF MEMBERS

NAMES	ADDRESSES
Moore, J. G.....	Madison
Marcus, B. L.....	Muscoda
Mistele, W.....	Hustler
Mayenschein, Norman.....	Hillsboro
Miller, J. C.....	Augusta
Malles, Jas. H.....	Stockholm
McMillin, H.....	Cashton
McCarthy, John V.....	492 Clark St., Chicago, Ill.
Nelson, J. N.....	Holmen
Nauscawan, F. R.....	114 Wisconsin St., Milwaukee
Nordbrook, O. W.....	615 Randolph St., Chicago, Ill.
O'Brien, J. P.....	c. o. J. B. Ford Co., Milwaukee
Olsen, H. P.....	Butter, Cheese & Egg Journal, Milwaukee
Ohm, Lewis D.....	Van Tilberg Oil Co., Minneapolis, Minn.
Oberfell, A. W.....	11 Mitchell St., Milwaukee
O'Connor, James.....	Elroy
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Prescott, A. G.....	Tunnel City
Purves, J. T.....	Berlin
Picotte W. D.....	Eau Claire
Peterson, Hans H.....	Warren
Parker, John J.....	Camp Douglas
Pratt, A. T.....	Paterson Parchment Paper Co., Passaic, N. J.
Peterson, John H.....	Cashton
Peterson, C. A.....	Weyauwega
Passmore, L.	Appleton

Exhibition Membership List.

Anderson, Robert S.....	Northland, Wis.
Anderson, Camilla.....	Weyauwega
Bartel, Jos. J.....	Peebles, R. 37
Bolstead, Ed.....	Stoughton
Bolstead, L. L.....	Basco
Bogart, J. H.....	Stoddard
Buchholtz, D. L.....	Kendall
Banks, R. H.....	Spring Valley
Betthausen, J. A.....	Oakdale
Berge, Thos. J.....	Northfield

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NAMES	ADDRESSES
Bartel, Hubert.....	New Holstein
Back, Chris. J.....	Luck
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Christensen, Christ.....	Neillsville
Christensen, Odin.....	Nelsonville
Christensen, Hans.....	Tomah
Chapin, C. J.....	Sheridan
Christensen, Hans.....	Rose Lawn
Cleaves, R. C.....	Iola
Carlson, Robert.....	Balsam Lake
Doolan, Hod.....	Marshall
Donnet, David R.....	Wonewoc
Danielson, E. A.....	Grantsburg
Dressler, Val.....	Louisburg
Engel, Carl.....	West Salem
Else, R. J.....	Helenville
Erickson, Albert.....	Amery, R. 4
Eckwright, E. R.....	Bloomer
Enerson, Hilbert.....	Comstock
Fostvedt, Clarence.....	Wild Rose
Fjelstad, John.....	Elroy
Griffin, H. E.....	Mt. Horeb
Graunke, E. J.....	Emerald
Gilbertson, Joel.....	Medford
Garlick, R. A.....	Neshkoro
Herreman, H. J.....	Black Earth
Hartwig, Herman.....	Deerfield
Hanson, Wm. T.....	Camp Douglas
Hanson, O. C.....	Hazel Green
Hoiberg, Hans.....	Coon Valley
Hanson, Maurice.....	Iron River
Halliday, E. E.....	Mauston
Hayton, Ray.....	Stanley
Johnson, H. A.....	Westby, R. 2
Jensen, George.....	Saxeville
Jorgenson, Carl.....	Rose Lawn

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NAMES	ADDRESSES
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Koehn, A. J.....	Edgerton
Kohel, Louis M.....	Beaver Dam
Kubat, W. H.....	Marshall
Koenig, H. C.....	Plain, R. 1
Kretschmar, Julius.....	New Lisbon
Klonowski, Adam.....	Grand Rapids
Kielmeier, R. C.....	Manitowoc
Kristensen, Peder.....	Cushing
Larsen, Axel.....	Nashotah
Larson, Olaf.....	Gays Mills
Lund, Peter.....	Arkdale
Longteau, Earl.....	Green Bay
Lindvig, R. J.....	Milltown
Lange, Aug. Jr.....	Chelsea
Madsen, Axcl.....	Oregon, Ill.
Mattson, John E.....	St. Croix Falls
Meyer, John R.....	Slades Corners
Moyes, W. A.....	Ironton
Mogenson, John.....	Wyocena
Maso, Fred Jr.....	Fennimore
Marvin, G. N.....	Black River Falls
Mickelson, M.....	Westby
Mayenschein, Norman.....	Hillsboro
Mehlus, Wm.....	Bangor
Mehnert, Paul.....	River Falls
McCauley, Paul.....	Elmwood
Neilsen, H. P.....	Deerfield
Nichols, Harry.....	Elkhorn
Newman, A. W.....	Black Earth
Nichols, Wm.....	Centuria
O'Dell, Claude.....	Ripon
Oakes, S. E.....	Sparta
Oakes, H. B.....	West Salem
Olsen, Lauritz.....	West De Pere
Olson, L. C.....	Galesville
O'Hearn, Frank.....	Melrose
O'Keefe, R. J.....	West De Pere, R. 1

LIST OF MEMBERS

NAMES	ADDRESSES
Peterson, Elmer A.....	Poysippi
Peterson, P. E.....	Hersey
Peterson, Theo. R.....	Weyauwega
Paul, Henry A.....	So. Superior
Peterson, Louis.....	Bonduel
Paulson, H. A.....	Phillips
Quale, J. H.....	Platteville
Rasmussen, John.....	Leon
Rasmussen, E. G.....	Melvina
Root, F. S.....	Rudolph
Ringger, Jacob.....	
Recknagel, H. F.....	Seymour
Rogers, L. G.....	Clear Lake
Rupiper, Jos.....	Waterford, R. 25
Siepert, C. J.....	Franksville, R. 10
Sauer, G. P.....	Cedarburg
Stewart, G. M.....	Mazomanie
Saltwedel, Ernest.....	Lime Ridge
Simpson, J. D.....	Viroqua
Sierger, Wm.....	Chaseburg
Sleyster, Richard.....	Endeavor
Schultz, Arthur C.....	Arcadia
Sorenson, L. M.....	Clear Lake
Schulz, Alfred.....	Phlox
Stiles, Everette C.....	Thief River Falls, Minn.
Thompson, F. C.....	Mukwonago, R. 40
Turner, L. W.....	Montfort
Thompson, Oscar.....	Black River Falls
Townsend, Homer.....	Chetek
Werner, F. M.....	Waterloo
Wallace, D. F.....	Alma Center
Wheeler, H. A.....	West DePere
Warner, T. J.....	Rosholt
Wolzein, C. F.....	Black Creek
Winner, Grant.....	Osseo
Yager, Joseph.....	Thorp
Zimmerman, A. W.....	Norwalk

LIST OF MEMBERS

Owners and Managers.

NAMES	ADDRESSES
Prescott, A. G.....	Tunnel City
Hurst, Wm.....	Seymour
Carswell, Allan.....	Clear Lake
Betz, John H.....	Maiden Rock
Malles, J. H.....	Stockholm
Allen, C. L.....	Cashton
Kroeger, Ed.....	Lime Ridge
Samulson, O.....	Stanley
Gerland, C.....	Rice Lake
Reddy, S. W.....	Platteville
Moran, J. H.....	West Salem
Towle, T. B.....	Baraboo
Swartzlow, J. J.....	Sparta
Dickey, L.....	Glenwood City
Lennarts, Theo.....	Frederic
Morrison, E. J.....	Chetek
Dodge, C. J.....	Windsor
Rintz, Henry M.....	Westby
Winter, L. H.....	Eau Claire
La Court, L. J.....	Livingston
Barclay, Edward.....	Green Bay
Mortrud, Gus.....	Westby
Keppel, V. S.....	Holmen
Nelson, J. N.....	Holmen
Marcus, B. L.....	Muscodia
Randecker, Chas.....	Stoughton
Chapiewesky, A. J.....	Newberg Corners
Ipsen, A. C.....	Cobb
Caffisch, W. H.....	Baraboo
Peterson, C. E.....	Weyauwega

SIXTEENTH ANNUAL MEETING
of the
Wisconsin Buttermakers'
Association

Held at Sparta, Wisconsin, December 5 to 7, 1916.

OPENING SESSION, TUESDAY EVENING,

December 5, 1916.

Meeting called to order at 8 o'clock with President E. J. Morrison of Chetek in the chair.

CHAIRMAN: The first on our program is a selection of music by the Boys' Glee Club of the High School.

The music was cordially applauded.

CHAIRMAN: The next on our program is an address of welcome by Mayor F. P. Stiles of Sparta.

ADDRESS OF WELCOME.

By Dr. F. P. Stiles, Mayor of Sparta.

Mr. President and members of the Wisconsin Buttermakers' Association: The City of Sparta is very proud, and I as the representative of the city, am personally proud to give you greeting and bid you welcome, and thrice welcome, on this the occasion of your Sixteenth Annual Convention. And I have another reason for pride in calling your attention to the kind of people we raise in Sparta, when I remind you that the President of your association is a Sparta boy, and I am especially glad to welcome him back to Sparta.

We realize tonight, gentlemen, that you and your confreres are really the men who have made Wisconsin famous.

Wisconsin, we all realize, is a most wonderful state and holds a prominent position among her sisters. We are proud of

our university and our schools, diligently working for the advancement of science, education and good citizenship. We are proud of our lakes, rivers and streams, "gleaming misty and wide," and of our hills and vales, for on ten thousand hills our people feed their flocks and, "when curfew tolls the solemn knell of parting day," the lowing herds descend to ten thousand peaceful vales, bringing home their garnered riches.

We are proud of our men and women, our sturdy loyal citizenship. Men may talk of hyphenated Americans, but I have yet to find the man who has lived and labored with us for a decade who does not place his loyalty to America in general, and to Wisconsin in particular, above his allegiance to any or all the empires and principalities of blood soaked Europe.

Much we have to be proud of, but when called upon, as the spell-binders say, to "point with pride," we revert to our amazing dairy activities. Wisconsin, in addition to her good people, has a population of 1,800,000 cows. An encouraging percentage of these is well kept and carefully bred, and this percentage is increasing. I don't know about the bees, but if they are proportionately numerous, this must be that land of which you have read, literally flowing with milk and honey.

Under your skillful guidance a mighty stream of the golden product of your industry flows continuously, bringing luxury and contentment to the children of men who dwell in less favored communities.

The dairy products of Wisconsin are worth much more by many millions every year than all the gold ground from the rocks and sifted from the sands of California, Colorado, Nevada and Alaska. Your butter is more beautiful to look upon, more universally utilized and better adapted to the advancement of human welfare and contentment. For what shall it profit a man if he gain all the gold of Alaska and cannot get good butter? The man who carefully and scientifically manufactures good, pure, sanitary butter is a benefactor to his race, and deserves recognition as such. Of course there are other states which produce butter, but the comparatively young State of Wisconsin is in the van, and recent developments indicate that when central and

northern Wisconsin comes into its own, we shall secure a lead which no other state can approach. As long ago as 1910 New York, which has been in the business a couple of centuries, produced only about one-half as much butter as Wisconsin. When we really get into our stride, we will surprise the world. According to Hoard's Statistician we make—or rather you make 4.2 pounds of butter for every tick of the clock, and incidentally, Wisconsin produces half of the cheese of the country.

Your presence in such numbers indicates your enthusiasm and determination to excel, and the program which has been arranged promises you much in the way of practical and scientific information, which is essential in your exacting and important work. We have every confidence that the disclosures of modern science in the broad fields of sanitation and hygiene will be seized upon and utilized by you for the production of the most savory butter that ever tickled the palate of the epicure.

Therefore, gentlemen, do we most heartily tender to you the freedom of the city. Some men call this a dry city. Let me suggest that you will find the finest mineral water in America flowing from our public fountains, you will find the milk you drink here reeking with butterfat, and the butter you spread on the excellent bread, which is peculiar to Sparta, lacking in none of those technical perfections, the absence of which is so deplored by your experts. You may spread it on thick, for in our local Farmers' Co-operative Creamery we make 1,010,000 pounds of butter per year, this creamery ranking second in output in the state.

Your history indicates that as an association your growth will be rapid, and we hope that our city may keep pace with you that in the fullness of time we may have you with us again. To this end we shall endeavor to entertain you with that old-fashioned hospitality which never fails to cordially "welcome the coming and speed the parting guest."

Mr. President, and gentlemen, we tender to you our distinguished consideration and all the rights and privileges of our devoted city. I trust this convention will result in the advancement of the interests of the farmer and the buttermaker, and I am sure it will. Have a good time. (Applause.)

CHAIRMAN: The next on the program is a response by Mr. Lauritz Olsen, Buttermaker from West Depere, Wisconsin.



L. OLSEN

RESPONSE.

By Lauritz Olsen, West Depere.

Mr. Chairman, Ladies and Gentlemen and Members of the Wisconsin Buttermakers' Association: In behalf of the Wisconsin Buttermakers' Association I wish to thank the Mayor and the citizens of Sparta for the hearty welcome we have received tonight. I wish to assure you it is the kind of welcome that makes us feel at home. It is the first time in the history of our association that we have met in your city. Perhaps some of the buttermakers throughout the country, and I confess I was one of them, were wondering how Sparta would take care of the Wisconsin Buttermakers' Association, because we have experienced considerable trouble in cities many times larger than Sparta in getting rooms, but this afternoon when I got off the

train and looked around, looked over your buildings and met some of your enterprising citizens, I was sure Sparta was a town of the right sort, and as far as the inner man is concerned I have been satisfied so far, and I can appreciate a good meal, and we can write home to our wives and mothers and tell them we are well taken care of.

Now to talk about ourselves, our purpose and what we represent, will say that we are a part of Wisconsin's greatest industry—the dairy industry—and meet here for the purpose of discussing ways and means by which we can make this great industry still greater; to learn from one another how we can operate our creameries in a sanitary and economical manner, so the man whom we all have to depend upon—the producer—can realize more on the product he entrusts to our care, that is, his milk and cream. After he has passed his milk or cream in through the weigh room door we, in a way, become responsible for it, and it is up to us to show the best possible result and do it in a way that will bring fame not only to our creamery, but to the creamery industry of this great state—Wisconsin.

When I said that the producer should realize more on his product, I did not mean that we expect prices to go higher, but to eliminate waste and turn it into profit, regardless of what market prices are.

I presume you who have to buy butter think prices are high enough for anybody, which is true, but I can say truthfully that the dairy men in this state make very little more profit, if any, this year than last year, because feed-stuff which a farmer must buy in order to produce winter milk is nearly fifty per cent higher than it was last year.

Without a doubt you have heard much through the press about the high prices of foods, especially butter, also the reasons for the high prices, and it seems to depend on the paper as to what causes the high prices, but it is generally considered that the blame lies somewhere between the war, the Democratic administration and the butter, trust, whatever that is. The supply and demand doesn't seem to have any influence according to the newspapers.

It puts me in mind of a story I heard during last Fall's political campaign. The incident happened to one of my patrons. One of the candidates on the Republican ticket came to this farmer, who was a Democrat, and told him how wrong the Democratic administration was and how much better the Republican administration would be for the farmers in general. It happened that the potato and cabbage crops in our section were almost failures, and the farmer asked the candidate if he thought that he would have had a better potato and cabbage crop if we had a Republican president. This, of course, was unreasonable, just as some of the statements you read in the newspapers are unreasonable. The real cause for a shortage is never brought out.

Newspapers like to print large figures when speaking of butter in cold storage, and when we read that there is one hundred million pounds of butter in cold storage in this country, somebody not familiar with conditions in the butter markets might think that this is an enormous amount, but when you stop to think that there are about twenty million families in the United States, it brings the large amount down to the small amount of just one five-pound jar of butter for each family.

Who do you suppose likes to see these misleading statements printed, for instance, in the matter of butter? Well, it would be reasonable to assume that it is someone who is interested in seeing the people who buy butter turn against it and try to get them to buy a substitute in place of butter. You know if you have an article of any kind that is good and is much sought after in the markets, there are always imitations, "something just as good but cheaper," but the very fact that an article is good enough to be imitated is proof of its superiority. You know how many singers try to imitate Harry Lauder or John McCormack in producing records for the various musical instruments, but after you have heard them you know that there is only one Lauder or one McCormack, and their work costs you more but you are willing to pay it because it is better; and so it is with butter, there are imitations, but the genuine article costs more and is worth it.

There are several articles on the market imitating or supposed to take the place of butter, and chief among them is oleo-

margarine. Oleomargarine manufacturers do not always stop with selling their product in imitation of butter, but often sell it as butter where they have a chance to sell it colored, and in this way defraud the people who are led to believe that they are buying butter. They also spend a lot of money advertsing in magazines and daily papers or other places where the people can see it, and they have clever advertisers and plenty of money, and when you read in the papers, for instance, that the Women's League in St. Paul opposed the re-appointment of the present dairy and food commissioner because he arrested dealers selling colored oleomargarine, someone had made these women believe that he was trying to stop the sale of oleo, when as a matter of fact he was only trying to enforce a law he was under oath to enforce and protect them from being imposed upon by unscrupulous dealers.

What would these same women say if someone went to the Mayor of St. Paul requesting the removal of the Chief of Police because he made the saloons close up at certain hours, or arrested drunkards in the streets, or otherwise performed his duty for the welfare of the city? Don't you suppose they would feel very indignant and get up in arms about it; and one act looks about as bad as the other.

The oleo interest claims that they are prohibited from selling a wholesome article of food, but you people of Sparta know that this is not the case, they are only prohibited from selling it as butter, which would seem right and fair to everybody.

I would like to impress upon the minds of those here tonight who have to buy butter that the Buttermakers and Dairymen of this state are not trying to stop the sale of oleo, but we are trying to stop the illegal sale of it, that is, it being sold as butter, and we believe that when you buy oleo you do not feel like paying butter prices for it, which would surely be the case if the foes of pure butter could get laws passed permitting them to color their product. We are not asking special favors, but we do insist on a square deal, and we believe it is to everybody's interest to see that the dairymen get it. I am sure that no one in this state wants to see its greatest industry crippled.

What I have said this evening has been directed principally to the people in general. Before I close I want to say a few words directly to the buttermakers. When we ask the people to stand by us in our efforts to secure our rights we must also remember to give the people who buy our butter a good honest article of food; we should try to make it better tomorrow than we did today, better next year than this year; quality should be our main aim, quality raw material made into the best quality butter; not the kind of quality that is produced through blowing methods—whitewashing—or other means of resurrections. If there is any such butter made in this state by any member of this association, it should be our duty to expose such men to the public.

Let other states have that honor, if there is any honor in making the resurrected kind of butter.

Wonderful improvements have been brought about in buttermaking the last twenty years, and we should keep on improving. I must tell another story about the farmer's wife who was taken sick and when the doctor called the first time he took the husband aside and told him that his wife was very sick, but he expected that she would recover. Next time the doctor called he told the farmer that his wife was improving, but still sick; but when the doctor called the next day for the third time he told the farmer that his wife was very much improved. This was in the morning, and in the afternoon one of the farmer's friends and neighbors called to see how the patient was getting along, and meeting the farmer at the door asked how his wife was getting along, whereupon the farmer told him she was dead. His friend asked what caused her death. The farmer answered, "too much improvement."

So we must look out not to improve in a way that will cause the death of the dairy industry. Let us strive to build our work on character more than on reputation. Reputation is what our friends or enemies say about us, but character is what we are. Whoever wins the highest honor on butter at this convention gets a reputation for making good butter, but the character of his work is found in the way he runs his factory and makes his

every-day butter. Reputation is what gets a man a job, but character is what makes him keep it. Reputation was what made the citizens of Sparta extend an invitation to our association to hold our convention in their city, but the character of our association is what will cause them to invite us again.

In behalf of our association I wish to thank you, Mr. Mayor and citizens of Sparta for your cordial welcome, and believe you will find us in character as in reputation.

I thank you. (Applause.)

CHAIRMAN: I want to just say a word. I am not in the habit of picking flaws with what has been said, but I do want to correct Mayor Stiles. He referred to me, the president, as being raised in Sparta. I was a Sparta boy. I don't want to be classed as having been born here. I have recollections of boyhood days here. It was here that I spent the days from the time I was six years old until I grew to manhood, and going through your beautiful streets I believe I have grown ten years younger. I have come along to spots where I played boyish tricks. I know that I felt happy.

I want to say further that when Secretary Benkendorf wrote to me that the Executive Board had met at Madison and asked me what my choice was, I think I wrote only Sparta. I am glad we met here and glad to see as many out this evening as there are out. As far as the hospitality, there was no question of that in my mind. Hospitality has been one of the by-words of Sparta.

I would like to ask the Vice President, Mr. Jorgenson, to occupy the chair.

Mr. Jorgenson takes the chair.

MR. JORGENSEN: Ladies and gentlemen, the next on the program tonight will be the annual address by your President, Mr. Morrison.

ANNUAL MESSAGE.

By President Morrison.

Mr. Chairman, Ladies and Gentlemen: Before I start this address I want to say that in my younger days I used to have

quite a faculty for getting up before a crowd of this kind and offering all kinds of excuses. I want to tell a little story that broke me of that habit, so I am not going to offer any excuses.



E. J. MORRISON

Back in the Fall of 1894 a neighbor of mine, a farmer, received the nomination for member of Congress in the Tenth Congressional District of this state on the Peoples Party ticket, which was in existence at that time. He was a man well versed in farming and naturally smart, but had never received much of an education, had never had the chance for an education, but he made up his mind that he would give the other two candidates a run for their money, and he made a very good run for that district. He finally went up to Superior and the audience that he saw there was much larger than he had been in the habit of addressing, and it made him a little bashful, in a way, and he gets up before the audience and starts out something like this: "Ladies and Gentlemen, from the Peoples Party standpoint, now, you wont expect a speech because I am not capable of making a

speech, I haven't had the education. In the next place I am nothing but a farmer. I want to say, ladies and gentlemen, the fact of the matter is I was practically brought up between two rows of corn." There was an Irishman in the back part of the room who spoke up, "A pumpkin, by thunder." (Laughter.)

For the sixteenth time in the history of the Wisconsin State Buttermakers' Association we are convened, and this year in this beautiful and hospitable little city of Sparta. Sixteen times have we come together to discuss and advance problems and theories pertaining to the art of buttermaking. Just as long as butter is made, and benefits from attending conventions are recognized, just so long, I suppose, will we find ourselves meeting periodically to exchange ideas.

I cannot too strongly urge upon the members present at this and subsequent meetings the necessity for frank and open discussion. This meeting should be more of a buttermakers' reunion a place to greet old faces. It is all of this, but, indeed, a great deal more. A convention of this kind is a sort of clearing-house information bureau and battle ground. No problem is too small, too insignificant to settle definitely and satisfactorily before we disband. If anyone has a fact to reveal or a remedy for any evil to propose, let him feel free to express himself. We are all of us too highly impressed with the possible benefits to be derived from a free and full discussion to permit a too well-nurtured sensitiveness curtail or discourage any member from expressing himself without restraint upon any subject.

It is gratifying to the promoters of this convention to see so many members present. Perhaps we have not chosen the most opportune time for a convention. We had decided upon an earlier date, but since the National Association held its meeting about the middle of November, we deemed it advisable to hold our own state convention after the National Convention. We realize the sacrifice that you all are making in order to be in attendance. We believe the program we have arranged will amply repay you for your efforts, particularly so if you enter lively into the discussion, which will follow the reading of every paper. We also note with pleasure the presence of many traveling salesmen and

representatives of houses with whom we have been transacting business the past year. We are always able to learn much from them. They are without doubt the most willing and conscientious of teachers. And where would we turn for the latest stories were they not with us? Although the South Dakota convention is undoubtedly drawing some, we have secured a good representation, and we extend to them a welcome.

Conditions within the creamery industry have remained largely unchanged during the present year. The industry itself, however, is constantly increasing. Wisconsin is today a greater dairy state than she was a year ago, and signs indicate that she will continue to forge ahead for years to come. The price of butter has been higher than ever before, which means that the farmers have received a better price for their butterfat. This high price has in a measure compensated the farmers for the extra care of the milk and cream which the extremely hot weather during the summer months necessitated. The buttermaker, also, was called upon at this time to exercise unusual diligence to produce a high grade of butter, and he is to be commended for the good results that were obtained during these trying months. While the high price of cheese prevailing the past few months may work a hardship to the creamery business if the market continues to advance, the probabilities are that the price of all dairy products will soon adjust themselves as heretofore, so as to prevent one produce having much of an advantage over another. From this cursory prospectus, we see that the past year has been a very successful one for the creamery industry.

There are certain conditions existing in the creamery industry of Wisconsin, however, which need speedy and lasting correction, if we ever hope to attain that standard of quality which has earned for our sister state, Minnesota, the name of being the producer of the highest quality of butter.

We have been working under the Wisconsin License Law nearly a year, and this has undoubtedly been the means of improving the appearance of the interior of many creameries throughout the state. The enforcement of this law has not inconvenienced any of us; nor do we desire to return to the days of

few restrictions and regulations. But after all, has the enforcement of this law improved the quality of our butter? I believe you will agree with me when I say that it has not to any appreciable extent. The reason is obvious: the law does not reach the root of the evil. It does not affect the cream before it is brought to the well-kept creameries. A sanitary creamery cannot do justice to insanitary cream. We need more farm inspectors; men peculiarly adapted to talk and counsel with the farmers; show them how easy and profitable to all concerned it is to produce dairy products in a sanitary manner. We must use our influence with our legislators to have them make a larger appropriation to secure more men for this purpose. I am sure that Honorable George J. Weigle, our able and efficient dairy and food commissioner, is willing to do all that lies in his power to better farm conditions, and is merely awaiting the necessary appropriations. I have been informed that a bill has been framed to present to the Legislature this winter providing for more inspectors, and I hope that it passes. I recommend that we pass a resolution at this convention endorsing and urging its passage.

Another glaring evil in our system today is the presence of unfair competition. It is conceded, of course, that good, wholesome, legitimate competition operates as a stimulus to any industry, and the creamery business offers no exception. It is idle for me to elaborate upon this point. I doubt if there is anyone present who has not had to contend with some of this unprofessional conduct on the part of competitors. You all have had patrons come to you at some time or other with the story that some competitor of yours offers to pay more than you are paying, and that he is not particular as to the condition of cream. You are then called upon to decide whether you will accept the cream in the future without objection, or whether you will persist in your attempts to reform the patron at the possible expense of losing his patronage. Such competition is unfair, because no creamery man should be compelled to waive his right and duty to object to poor cream; nor should he offer to pay a higher price merely to secure a patron. Such a practice redounds to the credit of neither the creameryman nor the creamery industry. Insist that

the milk and cream be delivered in a good condition, and offer no special prices or inducements to one patron over another. There is no objection to one creamery paying uniformly a better price than a competitor, but the injustice lies in one creamery paying a special price to a patron merely for the purpose of seducing him from a competitor. May we not hope that the time will soon come when no creamery will secure a patron because he offers him the highest price for inferior cream, or offers a fancy price simply to get a hold on the patron!

This discussion of unfair competition leads us logically to the subject of harmony within our own ranks. We should avoid any practice which tends to cause a spirit of vindictiveness. If we commit an offense against our competitor, it is only human to expect him to retaliate in some manner to some extent. By observing all the rules of fair play, we will find ourselves at the end of the year just as far advanced financially, and the creamery industry of the state put upon a higher level. So permit me to admonish you to treat your competitors as competitors, not as enemies or opponents in the bad sense of the word. Attend all the gatherings of creamerymen, if possible. Be susceptible to suggestions from the dairy and food department. In other words, work in harmony, rather than at cross-purposes, with any movement calculated to raise the standard of our own noble industry.

We all aspire to the honor which Minnesota has received for several years past, namely, the honor of being the state which produces the highest grade of butter. It is a worthy aspiration. We should feel proud to realize our state is sufficiently adaptable to dairying to place us at the top of the list of great dairy states. But how much more to our glory would it be if we were the premier high-grade butter producing state! The outlook is not at all discouraging. We realize now what is necessary for us to do to win the coveted honors. When we have won out in our fight to improve conditions upon the farm; when we have eliminated unfair competition, and thus removed the premium on poor cream; when we have learned the benefits and pleasures derived from an observance of the utmost harmony within our

own numbers; then, and perhaps not until then, will our adjoining State of Minnesota yield the banner for high quality of butter to our own fair state. (Applause.)

President Morrison resumes the Chair.

CHAIRMAN: The next on the program will be a selection of music by the High School Girls' Glee Club.

The music was enthusiastically received.

CHAIRMAN: While I think of it, I want to make my appointments for the Resolution Committee, which will be Mr. V. S. Keppel, Mr. C. J. Dodge and Mr. Hans Hoiberg. The committee, if they are here, will get busy as soon as they can and be ready with the resolutions at the proper time.

The next number on the program is a reading, "The Churning Song," by Miss Nell Jones.

CHAIRMAN: The next number will be a vocal solo by Harry Potter.

CHAIRMAN: The next number on the program is a reading by Miss Lorna Axtel.

CHAIRMAN: Secretary Benkendorf has a few remarks to make.

SECRETARY BENKENDORF: Mr. Chairman: (Applause.) I am very glad to have you feel this way about it, because I want to ask all of you to come up and give me money. You know that in spite of the high cost of living the membership stays the same, and we wish that all of you that have not registered yet and have not secured a membership, would get a membership at the Secretary's office. To make it more convenient we have opened an office here and you can give me the money and get a badge right here.

I want to call your attention to the fact that tomorrow night the citizens of Sparta have arranged for a vaudeville. This vaudeville will be held in this hall (the Armory) and you can get your reservations as you leave the hall. It is well to get your reservations tonight because by tomorrow there may be no reservations. They are going to have a five-act vaudeville, and I am told it is going to be very fine.

I am going to call your attention for a few minutes to some charts we have here. We will take these three charts over here. It shows the distribution of the milch cows in 1870, and you will hardly see any dots on the left hand chart. Each dot represents 250 cows. The middle chart shows the distribution in 1890, and you will notice the dots are getting quite thick in the southern part, no dots in the northern part. The last chart practically represents the distribution at the present time. In the southern parts the distribution is getting very thick. It may be of interest to you to know that there are over two cows for every man, woman and child in the country in Green County. Sheboygan has about 80 cows per square mile. This county hasn't as many as Jefferson County, but the cow population is going rapidly to the north.

On this chart over here the number of cows are given at each census in 1850, 1870, 1880 and so on. At the present time it is estimated we have about one million eight hundred thousand cows in the State of Wisconsin, or practically three hundred thousand more cows than any other state in the Union, and we are increasing the population about thirty to forty thousand cows every year. It will not belong before we will have two million cows in the state.

Those charts back there, the right hand chart shows the butter production in the leading states. Wisconsin leads with one hundred thirty-one million pounds. Iowa is second and Minnesota third. The left hand chart shows the production of cheese. These are figures showing the production of cheese in 1914. You will notice that Wisconsin easily leads the left hand one. We produce two hundred six million pounds of cheese while New York only produces ninety-seven million pounds. We are producing about fifty-five per cent of the cheese in Wisconsin. I think we would be safe in saying that we are producing sixty per cent of the nation's cheese in Wisconsin, but we have nothing to back that statement, but we have the government data that we are producing fifty-five per cent.

I want to call your attention to this chart over here. The annual dairy output exceeds all the total gold mined annually in

California, Colorado, Nevada and Alaska by twenty million dollars. You often hear of the gold produced in Alaska and the hardships people had to go through to get it. They will not equal the value of the dairy products in Wisconsin by twenty million dollars, and you want to remember that when you take gold out of the earth it is gone forever, and for us it is an annual event to take out that amount. I think I am safe in saying that the total value of the gold produced in all the states of the Union amounts to over one hundred million dollars.

I thought I would call your attention to these charts because some of you may not be here tomorrow. Of course the President has extended to you, and will extend to you, an invitation to come here every day, but we want you to look at these charts.

CHAIRMAN: The next number is music by the orchestra.

CHAIRMAN: The next on our program is an address by Prof. R. A. Moore of Madison.

THE BREEDING, STANDARDIZATION, AND DISSEMINATION OF PURE BRED SEED GRAINS.

How to Increase the Dairy Output of Our State.

By R. A. Moore, Wisconsin College of Agriculture.

The subject I am to present this evening is one of world wide importance as it affects the agricultural and commercial development of each state and the nation. The question of how to keep the young man upon the farm is one of great importance as is plainly noticeable from the prevailing custom of the young people to leave the farm and wage the battle of life within the city. A century ago ninety per cent of our people were producers and lived in the country, but today nearly sixty per cent of our population live in the city. Our schools to a certain extent have been responsible for educating the boy away from the farm, but there has been a far greater factor at work in this respect known as the lack of opportunity. It is quite largely to emphasize the opportunity afforded young people on the farm

through the introduction of the pure bred seed grains and factors now at work to improve the conditions upon the farm that I appear before you this evening.

The work of grain breeding has been in progress at the Wisconsin Station since 1898, and experiments clearly show that marked improvement can be made with all grains and forage plants by following definite lines of systematic breeding.

For centuries our animal breeders have been busy improving farm animals until throughout the civilized world we can find the beautiful Guernsey, Holstein and Jersey cattle; the Percheron, Shire and Clydesdale horses; the Poland China, Berkshire and Chester hogs; the Shropshire, Dorset and Oxford



R. A. MOORE

sheep, with many other strains of cattle, horses, etc., not mentioned. These patient breeders have clearly demonstrated through a long series of years what can be accomplished in the way of improvement brought about by animal breeding, and have done much in the way of establishing pure bred animal centers where

farmers can secure pure bred sires and dams if necessary to improve and finally to take the place of the scrub stock usually kept on the average farm. A noble, painstaking work carried on for hundreds of years for which men devoted the best years of their lives for this noble achievement and then transferred the work to their offspring who in like turn carried on the work and reaped the reward of the improvement made by forefathers and then left to their offspring a still further improvement that had been effected during his lifetime.

No such continuity, however, was found in grain breeding. As a matter of fact no one seemed to think seriously of the seed grain situation and scrub grains of no distinct breeding were found everywhere throughout farming communities. The production of pure bred seed, the very foundation rock upon which the best live stock industry is based, seemed sadly neglected, and a general deterioration of the productive powers of grains was everywhere noticeable.

The plant breeder has it within his power to make great strides and with his opportunity of dealing with millions of individual plants can accomplish in a single generation the improvement that has taken centuries to accomplish in animal breeding. Only fifteen years ago Wisconsin was trying to grow a hundred scrub varieties of corn, from fifty to one hundred varieties of barley, oats, rye, wheat, etc. No distinct varieties noted for the quality and yield were known to our farmers. Corn, the crop upon which so many of our dairymen were dependent, the seed with few exceptions was annually bought in accordance with the scoop shovel method, resulting in the farmers getting shelled seed corn, usually several varieties mixed, to be planted together in the same field. No wonder we were not successful in our efforts at corn growing when our seed embodied early, medium and late corn and often very low in vitality and energy. Our seedsmen were powerless as no pure seeds could be obtained and regularly they were forced to put upon the market scrub corn and other seeds.

Barley Improvement.

In the barley region it was found that often bearded, beardless, hulless, two rowed, four rowed and six rowed varieties were found in the same field. Different varieties of barley require different periods of time for germination, some of the varieties will germinate in two days, some in four days, some in six days and some intermediate. The maltster was puzzled as he desired to have a barley for malting that the kernels would all sprout at approximately the same time. If he waited for the six day barley to sprout he would lose the value of the barley that sprouted in two days and if he tried to strike a happy medium, which was the only thing he could consistently do, he lost at both ends. He could not stand the loss, consequently paid for the barley in accordance with the amount of malt he could secure from it, hence the farmer received less money for this barley.

Also, the different varieties of barley ripen at different periods and the farmer was forced to cut at a time when some of the barley was green and some over ripe. By so doing he suffered another loss which took from him a large portion of that which otherwise would have been clear profit. Not only the farmer had to suffer a loss but every community and town from which barley was shipped suffered from the shortage of funds returned for the season's crop.

Then, all crops suffered in quality and yield per acre from the sowing of the scrub seeds of no uniform breeding. To correct the above defects, and many others, the College of Agriculture took up the work of breeding pedigree seeds which now far surpass in yield and quality the grains formerly sown upon our farms. The breeding of grains is not so technical a process as many of us are often led to believe. After living some fifty years in this old world I am led to believe that the great things in life are the plain and simple things, and if we become keen observers we will notice those grand, noble object lessons of exceedingly great value lying all about us, and Mother Nature ready to aid and assist us in wresting from her her choicest secrets. Most all of our greatest inventions were brought about by close observa-

tion of simple things. The average person is looking altogether to far away for the great things in life and too often the colors of the bow of promise shine with all their beauty for him in Mexico, Central America and northwest Canada, when in his own native clime their charm is entirely lost and their beauty scarcely recognized. So in the breeding of grains and forage plants the wise breeder will closely observe the things near at hand and be ready to grasp the truth at every stage of progress. The painstaking, close observing, patient person who can settle down to a ten year job and camp on the trail, exercising eternal vigilance cannot help but succeed.

I have not the time to dwell upon the details of the system of small grain breeding pursued, but will say that it has taken eighteen years' time to bring forth the pedigree seed grains which we are now shipping to all parts of the earth. We have also bred four standard varieties of corn.

Pedigree barley, winter rye, winter wheat and oats have been bred at the Wisconsin Station. Four standard varieties of Wisconsin corn have been taken through a course of breeding known as the ear-to-row method. By this method it is possible to get the progeny of one ear out of many that has within it the power to transmit to its offspring its permanent characters of high yield, symmetry of ear and other important characteristics.

The variation of yield between ears of corn of the same variety is exceedingly great, the yield also of seed ears, ears that are sufficiently good to retain for seed is greater still. By careful breeding it is possible to get a variety to yield three and four times as many seed ears as the variety would yield if no breeding were put upon it. Good seed corn is worth \$3 to \$5 per bushel in the ear when properly cared for. It makes a difference to the average farmer now on the high priced lands whether he is growing corn worth \$3 per bushel or corn worth only 70c per bushel. It is also possible by breeding to get a variety of corn to double its general yield. The Silver King, or Wisconsin No. 7, which is one of the most highly bred varieties, gives a yield of twenty-five per cent and thirty-five per cent seed ears which

before improvement did not give more than six per cent seed ears and the remainder common feeding corn.

The farm crops are the foundation of all good agriculture in any state. All our dairy and animal husbandry work, and even the existence of our own lives, depends upon the plant life of our state. Therefore, the plant breeder occupies a tremendously responsible position. We feel that the plant breeder is working all the time with million dollar propositions and the least little improvement that can be made to any of our standard grains runs up to millions of dollars in a single year.

We feel, however, in order to get the most of those grains and forage plants that are produced upon the farms that it is thoroughly essential to market these farm crops through the farm animals, thus keeping the fertilizing elements at home upon the farm, and marketing the produce, as cream, milk, butter and cheese. I wish at this meeting to thoroughly emphasize the fact that our great dairy industry, which brings to the farmer over one hundred million dollars annually, is dependent upon the farm crops produced in the communities in which our factories are operated. If we are to double our dairy output today it will be necessary to double our forage crops, so consequently the forage plants produced in respective counties is an index of what we will be able to do in our factories.

By the systematic way of marketing our farm crops through the farm animals we have been enabled to increase the value of our lands until at the present time the farm crops are really bringing to the farmers of Wisconsin nearly five hundred million dollars annually. The corn crop alone this year is worth over one hundred million dollars.

I have one suggestion to make, and that is hearty co-operation with our factory operators. We have one example which stands out prominently as to what can be done by hearty co-operation on the part of our men operating factories.

A few years ago I had some correspondence with your tried and trusty Mr. C. J. Dodge of Windsor. I learned that he had something like an acre of land adjacent to his factory and was eager to show the people in his community that it was possible

for them to grow alfalfa. I entered immediately into co-operation with him, and he seeded this acre to alfalfa and demonstrated by its wonderful growth and its ability to thrive and give great quantities of high protein feed that it was the thing to grow for dairy animals in his community. This alfalfa field was an object lesson for every one who visited the creamery, and was instrumental in placing hundreds of alfalfa fields in that community.

After this work was well under way, in discussing the matter with Mr. Dodge we agreed that it would be a wonderful thing if we could impress the people in that neighborhood with the value of growing the pure bred Golden Glow corn instead of growing scrub corn, so consequently the acre of alfalfa was plowed and Golden Glow corn was grown upon the field. It was really surprising to note this wonderful growth of the Golden Glow corn. It stood out prominently and could be seen at a great distance, and with its wonderful characteristics it could not help but impress every farmer who witnessed the field. Mr. Dodge, with his characteristic ability, grew this corn for seed and fire-dried it in his creamery so that it was all good seed. This seed he was able to sell readily at from \$4 to \$6 per bushel, which could not have helped but net him a nice little return from his acre of land. Besides this return he impressed the people of his community that Golden Glow corn was the corn to grow for seed corn and for silage purposes, and consequently many of his patrons, impressed by this field of corn, were ready to put in fields of Golden Glow corn. This undoubtedly has been the means of increasing the silage in that community to such an extent that people can keep more cows, and I dare say Mr. Dodge is running out a larger product than he was a few years ago.

I merely bring this up as a practical illustration as to what can be done by a live, active factory operator. Many factories, I know, are located so that they either have land adjacent, or they could rent or in some way secure an acre of land near by. The Department of Agronomy would stand ready to co-operate with these men in giving them the best possible information as to the seeding of alfalfa, or growing of any other good forage crop which if established in the community would aid in bringing

about increased forage. If we are to double the dairy products of Wisconsin I feel that Mr. Dodge has showed us the way, and I only hope that this wonderful example of what can be accomplished will not die out but will be taken up by other factory men and be made a permanent feature. In this way I feel that millions of dollars can be added to the dairy output of Wisconsin, and a valuable lesson with the pure bred forage crops be impressed upon the people of our state.

CHAIRMAN: I want to announce to the Executive Committee if they are in the hall that they are requested to meet in Secretary Benkendorf's office at the Sidney Hotel immediately after the adjournment of this meeting.

The members will be given an opportunity to inspect the butter on exhibition from 8:30 to 9:45 tomorrow morning. It is in the assembly hall just a few doors up the street.

We have one more number on the program this evening entitled "America." After this we will consider ourselves adjourned until tomorrow morning at 10 o'clock, when we will meet promptly on that hour. Ten o'clock doesn't mean 10:15 or 10:30. We have a good program and we expect lively discussions and hope to see as many out as possible, especially of the butter-makers. We will now pay attention to our closing number.

The Meeting adjourned.

SECOND DAY'S SESSION, WEDNESDAY MORNING.

December 6, 1916.

Meeting called to order at ten o'clock by President Morrison, who presided.

CHAIRMAN: The first number on our program this morning is "The Kerosene Engine as a Source of Power in a Creamery," by L. Dickey, of Glenwood City.

THE KEROSENE ENGINE AS A SOURCE OF POWER IN A CREAMERY.

By **L. Dickey, Glenwood City.**

Ladies and Gentlemen: I have been asked to say a few words regarding the use of the kerosene engine as a source of power in the creamery, and will endeavor to give you a statement of my experience with one for the past four years.

The kerosene engine is not in as general use at the present time as it would be if people were better informed regarding its convenience and economy, especially the latter, as kerosene is less than one-half the price of gasoline at the present prices.



L. DICKEY

There seems to be a general impression that the kerosene engine, or in fact any internal combustion engine, is not reliable and might give trouble when needed the worst. That this impression is wrong is proven by the experience of various users of this kind of power who all state that when given intelligent

care and attention it will give good service and cause no trouble other than that required to keep it clean and in adjustment.

The kerosene engine requires some more attention in my opinion than the gasoline engine, owing to the fact that it will not start cold on kerosene, but requires gasoline to start on, although three to five minutes is usually sufficient to warm them up so kerosene may be used. Also I have found that the piston and rings will get foul with carbon sooner with kerosene than gasoline, although the carbon does not get as hard and is easier to remove.

While the kerosene engine may have the drawbacks I have mentioned, it more than makes up for them by the fact that it will operate for less than one-half the cost of gasoline or steam, also in the case of steam power there is no comparison in the matter of convenience, as the buttermaker does not have to wait for steam in the morning, but can have his cream in the churn and be churning by the time he has steam to wash the vats, also in the hot weather in summer can let the steam go down in the afternoon and cool the cream whenever necessary without having the creamery as hot as an oven all the afternoon and half the night.

It is also very convenient sometimes on Sunday in warm weather to be able to stir up the cream or cool it down, or perhaps pump water for soaking tubs without having to get up steam in the boiler. Our engine has been in service four years, during which time it has caused no trouble other than ignition trouble and the removal of the piston for cleaning. I have made it a practice to remove the piston about once a month. This is more often than is necessary with gasoline and perhaps is more often than is necessary with kerosene. In the cleaning operation we have broken several rings in removing them, which with some springs and ignitor porcelains has been our only expense.

During the four years we have used this engine we have made about 300,000 pounds of butter per year, or 1,200,000 pounds all told, and the engine is running as well today as when installed, which speaks well for durability, especially as it is only a 6 H. P. which is too small for the average creamery. Who

would think of putting in a 6 H. P. steam engine in a creamery? We have a 6 H. P., although if we had it to do over again we would put in a larger one. As to power, although only 6 H. P. we very often use our 900 pound Victor churn with any size churning, and cool cream in a 400 gallon Wizard vat. We have put out a large churning and run two 400 gallon vats and a Han-nigan pump at the same time, although it is hard on the engine and causes it to heat and smoke. Also when you work an engine too hard your bearings will wear out and give you trouble.

Kerosene will give more power than gasoline if used in conjunction with water in an engine designed for it, due to the fact that it is a heavier fuel, and contains more heat units. The water is added to retard and assure complete combustion and prevent carbon which would otherwise form. If no water is admitted the engine will knock like a sledge hammer and you can hear it all over the creamery.

In regard to the cost of this kind of power will say that I have no figures of the amount of kerosene and gasoline we have used except for the past three months, September, October and November, during which time we made 71,156 pounds of butter at a fuel and power cost of \$73.50, or .0013 cents per pound. Of this sum \$47.50 was for coal and \$26.00 for kerosene and gasoline. The coal bill was very high due to the fact that our boiler is an old 15 H. P. and the brick work is cracked and in poor shape. I believe a 10 or 12 H. P. boiler properly bricked in would cut our fuel bill in two.

I have here a few letters from users of kerosene engines in different parts of the country, which with your permission I will read to you. I think they will prove of interest as they give some idea of the cost of this kind of power. The first one is from the Stitzer Creamery Company of Stitzer, Wisconsin, which was written to Prof. Benkendorf.

"Mr. G. H. Benkendorf,
Madison, Wis.

Dear Sir:

In reply to your recent inquiry regarding kerosene engines will say that we installed it July 31st, 1914, and it has given us pretty good service, only being out of commission a couple of times, and then only for a day or so as we had to send for extras. In giving you the figures of what the fuel has cost us it may seem rather high, but this is partially due to the fact that our engine is only 8 H. P., which is not sufficient power to run our churn, separator and compressor all at the same time, which necessitates our running the engine about ten to twelve hours per day in the extreme hot weather which we had this season.

As to the odor, I do not think any trouble will arise from it if set in a separate room from where the product is handled and some ventilation provided. We have ours set in the boiler room, which is adjacent to the make room, and we have had no trouble from it.

For a period of nine months, commencing January 1st, 1916 to October 1st, we have used \$180.97 worth of kerosene and have made during the time 93,337 pounds of butter. We probably have used about \$5.00 worth of gasoline during the time to start the engine with.

Hoping this will be of some help to you in making up your paper, and assuring you that I would be glad to furnish any further information I am,

Yours very truly,

C. R. WINSOR."

Their make for 1915 was 130,000 pounds at a cost of \$200 or .0015 cents per pound, including refrigeration.

I have also another letter from Adams Co-operative Creamery Company of Adams, Minnesota. This was written to myself.

"Mr. L. Dickey,
Glenwood City, Wis.

Dear Sir:

In reply to your request of recent date will say that I am unable at this time to give you complete figures on our fuel bill for this year and will be unable to do so until we take our yearly invoice January first.

For the year ending January 1st, 1916, we manufactured 360,000 pounds of butter and our fuel expense, including both kerosene oil and coal, amounted to approximately 11 cents per pound of butter made.

We use a 10 H. P. engine and find it large enough to handle two size eight churns. We do not pasteurize our cream and are able to handle our work with a 6 H. P. boiler, but would not recommend the installation of so small a boiler, as it requires too much attention.

This is our fourth year with an oil engine, and we consider it a very good investment, but for the best results would recommend a 10 or 12 H. P. boiler, bricked in.

There has been some objection to oil engines in creameries on account of the smell, but we have never had a complaint and our engine room is not closed off from churn room in a way to make it gas tight.

We have never had any serious trouble with our engine, in fact never have stopped on account of trouble, but of course power of this kind must have attention as well as any other piece of machinery.

Personally I prefer an oil engine to steam, as it certainly reduces the expense and also the labor.

Respectfully yours,

A. W. FRANKLIN."

Another letter from Rose Creek, Minnesota, written to myself.

"Mr. L. Dickey,
Glenwood City, Wis.

Dear Sir:

Upon your request will be glad to give you all the information I can in regard to the use of our gas or kerosene engine at our factory.

We installed same March 13th, 1915, and I have found it highly satisfactory in every way. As to power, I think it is better than steam for a factory of our size, as we make about 100,000 pounds per year. As for convenience, I prefer the kerosene engine. It is always ready for immediate use. The expense, too, is greatly reduced with this equipment, as you will note by the enclosed slip which I obtained from our secretary, Mr. Johnson.

We have an eight horse power upright boiler, which is sufficiently large even though one would want to pasteurize.

Here is one good point in favor of the kerosene engine over the gasoline. I took same apart last winter to clean out the carbon, but found little if any there, which cannot be said for gasoline.

Hoping this will aid you in preparing your paper, I am

Yours truly,

ALFRED OVERLIN,
Rose Creek, Minn."

Mr. Overlin speaks of not finding any carbon in his engine. Perhaps that is on account of the construction of it, but it does not agree with mine. I found when I allowed it to go from six to eight weeks I would have to remove the piston with a punch.

On a slip attached to Mr. Overlin's letter are these figures:

"Amount of fuel used after installing kerosene engine:

Amount of oil used per year estimated \$50.00 to \$60.00.

Amount of coal used per year estimated \$95.00 to \$100.00.

Amount used when we had steam power \$350.00 to \$400.00 per year.

Rose Creek, Minn."

I also have a letter from the Hersey Co-operative Creamery Company. He is a neighbor of mine, only eight miles across the country.

"Prof. G. H. Benkendorf,
U. W. Dairy Dept.,
Madison, Wis.

Dear Sir:

Yours of the 31st received in regard to kerosene power for creameries. For my part I would have no other, with the exception of motor. They have, of course, their bad features as well as good. I can get down in the morning, stir up my fire, crank my engine, start the cream in the churn and by that time I can rinse my vat with warm water, if necessary, it being therefore a time saver. If my water tank is dry I can pump without 80 lbs. of steam. I have not run a steam engine long enough to get acquainted so do not know how it is to be up for repairs. We have been very fortunate with our kerosene engine. For the three years we have had such minor repairs as springs, ignition trouble and new set of rings.

The main trouble with gas or kerosene, especially kerosene, is the exhaust and smoke. Our engine is a 10 H. P. but with a load on, or when a fair size churning is about done, it will get hot and smoke. We have a door between the engine room and the make room which eliminates this trouble. The first year I was here, 1914, I was green, you might say, with this kind of power. I was told they had to be watched very closely. I was cut in flavor at the monthly scorings at Madison just once because I was afraid to close that door.

We were going to install a funnel-shaped ventilator, suspend it over the engine to take the smoke out. When this creamery changed from a steam to a kerosene they also changed from 16 H. horizontal boiler to a 6 H. upright, which was a greater ex-

pense. We could have installed steam heat with the former boiler, but it is impossible with this upright.

In figuring the cost of power we have to add on the repairs to the boiler as every two or three months it required two or three new flues. Our cost per pound for making was \$.0014 on 209,000 pounds of butter, which we consider very large. For the last year of steam the cost was \$.0034 on 175,000 pounds of butter.

Trusting that this information may be of some value to you I remain,

Yours very truly,

P. E. PETERSON.

I have also here an extract of a letter from Mr. Dodge written to Prof. Benkendorf.

"I have your communication of the 31st relative to a kerosene engine. I will say that we used one for about one year with very good results. We have, however, taken this out and replaced it with electricity and therefore could not give you much information excepting that it was very much cheaper than the gasoline motor."

In regard to the cheapness of kerosene and the difference between the price of running a kerosene engine and steam engine, I was surprised myself, although I had run one four years. When I started to make up this paper three months ago and get these other letters and made up my own results, I was very much surprised at the difference in price between the operation of a kerosene engine and a steam engine.

We sometimes hear of butter having a kerosene flavor or gasoline flavor and some people may be skeptical about installing an internal combustion engine in the creamery, but from my own experience and that of others I believe there is no danger of odor in the work room if the engine is partitioned off from it, and the buttermaker uses proper care in removing the odor of oil from his hands and clothing after working around the engine. Mr. Peterson states he has a 10 H. P. engine and he finds when the churning is about done his engine will smoke, get hot. His engine is the same make as mine. Mine is 6, his is 10. His cost

about half what mine did. If I was to put in one again I would put in an 8 or a 10, and I would advise anybody else to do the same, because there are lots of times when a man would like to install two churns.

We have never had a complaint of oil odors in our butter during the four years we have used our engine, and believe where you do find this odor it is caused by the gasoline engine on the farm which sometimes is too close to the separator and is not partitioned off.

We all know there is a dark and a bright side to everything, but all things considered, I believe where it is handled with proper care and given the attention it deserves, the kerosene engine will prove a good investment for anyone from the standpoint of convenience and economy. You will find from those two standpoints you cannot afford to put in anything else as they are more convenient than gasoline, they will run on half the cost—kerosene is $7\frac{1}{2}$ cents, gasoline is $17\frac{1}{2}$. Your fuel and power bill is easily cut in two by using a kerosene engine. I thank you. (Applause.)

CHAIRMAN: This paper of Mr. Dickey's is certainly to the point as regards gasoline engines, and I know there are plenty of you who have lots of questions to ask. Anyone who has a question to ask Mr. Dickey in regard to any statement he has made in his paper, don't be afraid to ask it.

SECRETARY BENKENDORF: I just want to say a few words in regard to how I happened to ask him to be on the program. I happened to be in Northern Wisconsin and called at Mr. Dickey's creamery. While there I noticed he was using a kerosene engine. I asked him about what results he got and he gave me a very favorable report. I told him the subject would be one of particular interest to the boys, and he kindly consented to go on the program.

I remember about six or seven years ago we got hold of a station near Madison and we kept close tab on our fuel. It amounted to about \$400 a year. We were running a steam engine, coal was about \$4.00 a ton and gasoline about 10 cents a gallon, something like that. Our annual fuel bill was about \$400.

We installed a gasoline engine and the fuel bill, that is coal and the gasoline at the price of gasoline about 10 cents, amounted to about \$200, so we were able to cut down the fuel bill about half. Of course gasoline has gone up rapidly so we have to pay about 19 cents a gallon for gasoline at present. There is little difference now between the two kinds of fuel. I think this is a very able paper. I asked him to give us facts; not simply give us generalities, but give us some facts and he has complied very well.

I was walking down the street with him today and he made this remark to me, which I want to call your attention to. He said, "I was really surprised when I commenced to investigate the cost of fuel, of kerosene power with coal power. I always felt it was cheaper, but I didn't know it was so much cheaper." This young man began to investigate. We ought to investigate what we are doing, not take it simply for granted. I think Mr. Dickey got as much good out of this paper as he gave to us, because he is satisfied now that kerosene is very much cheaper.

CHAIRMAN: Are there any of you who want to ask Mr. Dickey some questions? You are not going to let him off as easily as this.

PROF. M. MORTENSEN, Ames, Iowa: I agree with Mr. Dickey in reference to the cost of kerosene engines. We have some plants in our state where they have kerosene engines and we have tried to get at the cost. It requires a small amount more kerosene than gasoline. It is usually figured that it requires about one-eighth gallon of kerosene as against one-tenth gallon of gasoline for a horse power hour. That, of course, would make a great saving. If kerosene were 8 cents a gallon, that means a horse power hour would be one cent, as against gasoline at 16 cents a gallon, that would be 1.6 cents for a horse power hour.

Another thing which should be considered is the cost of installation. The cost of a kerosene engine is greater than is the cost of a gasoline engine. There would therefore be some more depreciation, but that wouldn't amount to a great deal.

MR. C. J. DODGE, Windsor: About how long does a kerosene engine last?

MR. DICKEY: I have used mine for four years and I have never worn a piece out in that time.

MR. ROBERT CARSWELL, Menomonie: I would like to ask Mr. Dickey if he would not advise putting a good partition between the engine and the make room. I know of a creamery where they were going to put in a kerosene engine, they were going to put it in the open room when they were advised by the dairy authorities not to put it in the open room. By doing that they had to build an additional place for the kerosene engine.

MR. DICKEY: I believe it would be advisable to separate the kerosene engine from the butter. You can notice the smoke in the room if it is in the room with the butter.

CHAIRMAN: I would like to ask Mr. Dickey if he would advise using a kerosene engine in preference to electricity where you can get the power.

MR. DICKEY: No, sir. I believe electric power is best. It is very much handier. In any internal combustion engine there will be trouble. If you can get your power reasonable, I believe it would be better to install a motor.

MR. LAURITZ OLSEN: I want to ask Mr. Dickey if he ever had any trouble with an electric motor.

MR. DICKEY: I never had any experience with them.

MR. OLSEN: I had an experience four years ago. Something went wrong with the electric motor and we didn't get it fixed until the next day.

MR. DICKEY: All kinds of machines will go wrong sometimes. I believe that an electric motor will go wrong less than an internal combustion engine.

CHAIRMAN: I would like to say for Mr. Olsen's benefit, we installed an electric motor in our creamery this fall, but we left our engine intact. All we will have to do is to slip the belt onto the engine and go ahead if our motor goes wrong.

MR. OLSEN: I believe the steam engine will give less trouble than the electric motor.

MR. DONNET: I would like to ask if it would be worth while to change a gasoline engine over to kerosene.

MR. DICKEY: From the experience I have I will say that

I don't believe it is advisable. There are adjustments on the market today. We all know kerosene will not vaporize as easily as gasoline, and there is that problem of premature explosion, and there is also a difference in the combustion chamber,—compression chamber. I believe if the gasoline engine was old I would throw it away, but if it was new I believe the best plan would be to exchange it or try to sell it and get a genuine kerosene engine.

CHAIRMAN: The next on the program is "How We are Bettering Our Creamery Conditions," E. M. Jackson, Instructor for Associated Co-operative Creameries of the LaCrosse River Valley, West Salem.

HOW WE ARE BETTERING OUR CREAMERY CONDITIONS.

By E. M. Jackson, West Salem.

The creameries of La Crosse River Valley, consisting of Spatra, Rockland, Newburg Corners, Bangor, Barre Mills, Holmen and West Salem, realizing that the dairyman was not improving the quality of his cream rapidly enough to meet the demands of the consumer, formed an organization and called it the Associated Co-operative Creameries of La Crosse River Valley.

It was then decided that a man should be hired to visit the patrons of the different creameries and educate them as to the importance and how to produce a better quality of cream.

I will try to explain how we are bettering the quality of our raw materials in this way, classing the dairyman in three classes (1) the good dairyman; (2) the ordinary dairyman, and (3) the poor dairyman.

1. The good dairyman is a patron who is trying to do his best, keep his cows clean, feeds them good wholesome food, washes and scalds his utensils after each skimming, keeps his barn clean, well lighted and ventilated and then takes the best care of his cream he knows how until it is delivered to the creamery. In other words, he takes an interest in dairying. I find that

when I visit the good dairyman he wants to know if there is any way in which he can better his conditions.

2. The ordinary dairyman is milking cows because this is one way of making money on the farm. He means well. Possibly there is another part of the farming he takes more interest in. Nobody has said anything to him about the importance of producing a high quality cream and so he has not been trying



E. M. JACKSON

to produce a better cream. When his faults are pointed out to him he will admit them and is willing to remedy them as soon as it is convenient. In some cases it takes quite a while, where they have to build an ice house or separator room. Possibly he has not the money and doesn't want to borrow it. He may be a renter and it would hardly be fair to expect him to make permanent improvements and then in a year or so have to move away and leave them. It is then necessary for me to get in touch with the owner.

3. The poor dairyman is producing his cream in the easiest way possible, and does not care in what shape it is delivered to the creamery. He rinses his separator at night and washes it in the morning when through separating. He may be busy in the morning and the separator will not be washed until the next day. He may leave his cream standing on the separator and skim his warm cream into the previous skimming. He may have a spring a few rods from the house, but rather than carry the cream to the spring he will set it in a tub of water and change the water whenever he thinks of it, or don't happen to be busy, or puts it in a poorly ventilated cellar. When his faults are pointed out to him it goes against his grain. He will say he has sold cream for fifteen, twenty or thirty years and nobody has complained of the quality and I have no reason to. He may not admit that what I have told him is true on the first visit. On making another visit sometime later I find that in most cases what I have told him is commencing to take root and he is a more pleasant man to talk to. Again on a return visit I have found other dairymen that do not show any signs of improvement and don't talk as if they were going to improve. It has been necessary in these cases to call a state inspector and have the law laid down to them. I find that as a last resort this will make them come to time.

In all three classes of dairymen I find that some suggestions can be given to a more or less extent. We are asking the dairymen to keep their barns reasonably well lighted and ventilated and keep them whitewashed. I find that it is an easy matter to convince them that whitewash is an important part of cleanliness. Those having wooden floors are willing to put in cement as soon as the old ones give out. I have urged those having separators in the barn to build a room outside and also tell them that it is against the law to keep the separator in the barn. The biggest opposition I meet here is that it is too cold outside for the separator in the winter. By taking the utensils to the house at night and washing them this is overcome.

I have urged those living a reasonable distance from a pond or river to put up ice, and those not having that chance, to ar-

range so that all of the water pumped to the stock will pass through a cooling tank for the cream first. During the winter some of the dairymen have been keeping the cream in the kitchen not knowing where else to keep it from freezing. Those having a spring have not that trouble. Those that have a tank with water passing through every day can, by insulating the tank with sawdust, keep the cream in there all winter. Those having an ice tank with sawdust, keep the cream in there all winter. Those having an ice tank can, by placing a can of hot water in the tank on the coldest nights, keep the cream in there all winter. During the summer some dairymen keep their cream in the cellars. I have urged them to either use ice or water for cooling.

I have found that a common place for finding old particles of cream is in faulty seams, some of them due to the factories not soldering their seam flush with the rest of the can and the dairyman not soldering the seams when they break open. This has been the cause of considerable poor cream.

All of these troubles are not remedied at once. On my trip through my territory I notice from time to time a new milk house or ice house going up, and this can be used as a leverage on the fellow that is backward about improving his. I ask those not up to standard to go with me to some place that is and let them see for themselves how the up-to-date dairyman is doing things.

We are troubled with a good many dairymen having low tests. Some of them think they get more out of their cream by doing so, others think that the man doing the testing will not give them their accurate test. I then take a sample of their cream and take them to the creamery and test the sample before their eyes and let them see for themselves.

Most of the creameries in the association have a system of charging the patrons for hauling according to the number of pounds of cream delivered. For instance, hauling costs 30c per 100 pounds of cream; one man sends 100 pounds of cream testing 30 per cent butterfat and another sends 100 pounds of cream testing 15 per cent butterfat. It costs the patron with the 30 per cent butterfat 1 cent per pound of fat to have it hauled, while it

costs the patron with the 15 per cent cream 2 cents per pound of butterfat. This is used as an argument against thin cream, besides he has more skim milk to feed the hogs and calves, less cream to cool and it keeps better.

By the patrons knowing that somebody is coming around to look over their dairies has a tendency to make them keep things in better shape so they will not be ashamed to have him look them over.

The association is practically in its infancy now. We have other problems that we intend to work out in the future, one in particular,—the long routes which some of the cream has to travel over before reaching the creamery. Just what course will be taken has not been decided on at present. We also intend to work out a plan so that all the supplies of the different creameries can be bought as one and the butter sold on the same plan.

Briefly stated, we are trying in a friendly way to point out to the dairyman his short-comings and at the same time educate him to that point where he will understand the importance of furnishing a pure and wholesome product, thereby increasing his profit in addition to his having the satisfaction of knowing that his efforts and product will stand whatever comparison they are called upon to meet.

If there are any questions you would like to ask about the association, I will be glad to answer them.

MR. T. J. WARNER, Rosholt: I would like to ask what the expense is of this inspection work.

MR. JACKSON: Each creamery pays according to the amount of butterfat they have. $15\frac{1}{2}$ pounds of butterfat amounts to one cent in cost.

MR. WARNER: What I am trying to get at is the salary per year.

MR. JACKSON: \$2,000 and he furnishes all of his own fare and all of his own expenses in every way.

MR. WARNER: If you find cream is kept in poor condition you advise him to take better care of it, and then if he don't do it you—

MR. JACKSON: I will go to him and tell him how we want

him to take better care of it. I may make three or four visits. If in time he don't want to do it, then I call on the state.

MR. WARNER: Have you got any trouble with the creameries, if a patron has poor cream and one creamery don't want to take it he will take it to another one?

MR. JACKSON: No, there is an agreement among themselves that one creamery will not accept a patron's cream if another one rejects on account of poor cream.

MR. C. E. LEE, Madison: I would like to ask if the dairymen take kindly to this work.

MR. JACKSON: In most cases they do. Once in a while you will find one that doesn't.

MR. LEE: Have conditions improved from that standpoint throughout the year?

MR. JACKSON: Yes, they have. When they first started out they didn't know the nature of it.

MR. LEE: Would it be any advantage to you to have police power in your work?

MR. JACKSON: In some cases it would, and it is really in the worst cases where we need it.

MR. LEE: Would police power be a handicap to you?

MR. JACKSON: In certain places people wouldn't like it because they feel you are coming to them with the hand of the law.

CHAIRMAN: I think I can see in a system like this that it would be much pleasanter for the buttermaker, because we all know it takes constant digging and working with the patrons to keep conditions as they should be.

MR. JACKSON: Another thing, with practically all of our cream it is gathered by wagons and the buttermaker doesn't see all his patrons perhaps more than once a year.

MEMBER: Have you been able to get them to deliver thicker cream?

MR. JACKSON: Yes, in some places. Some places they haven't any richer cream. It is hard to tell exactly how much we have raised the test.

MR. LEE: In your estimation in what line of work should you put forth your greatest activity?

MR. JACKSON: In the care of the cream.

MR. LEE: Either that or in the test of the cream.

MR. JACKSON: In the care of the cream. Of course we talk along all the lines, but it is the good quality of cream we are after for the most.

MR. THOMPSON: I would like to ask whether it would be advisable for a lone co-operative creamery to start anything of this kind?

MR. JACKSON: I will tell you that in a lone co-operative creamery where you have a lot of competition around you, it is a whole lot in how you go at the farmers.

MR. THOMPSON: I find most creameries have hard competition and I notice there are six of you creameries working together. We have a hard job of it. If you had only half that number you would have it twice as hard.

MR. WARNER: How do you think it would be if all the creameries in a county would get together and join in an association like this?

MR. JACKSON: I think that would be all right. We have all the creameries in La Crosse County and half the creameries in Monroe County.

MR. WARNER: You figure the expense according to the number of pounds of butterfat made?

MR. JACKSON: I am paid a salary and then it is divided among the creameries according to the number of pounds of butterfat.

MR. SAM HAUGDAHL: I think we ought to call on some of the managers.

MR. J. F. MORAN: As one of the managers of this association I can only speak along the same lines Mr. Jackson has already talked on. We are highly encouraged with the work he has done so far. We are confident in starting our second year it is going to bring good results. There isn't going to be the strife. That later on the results will more than repay the actual expense we have been to. The creameries work very harmoniously together. It can't help but do great good towards improv-

ing the quality of our cream, but of course there is no way yet to tell the percentage of gain.

MR. HAUGDAHL: Has the fat content of the cream been increased any by the instructor's efforts?

MR. MORAN: I couldn't say whether this is so or not. At the close of our year we can answer that question better. I haven't averaged up our tests and I didn't intend to do so.

MR. HAUGDAHL: What do the patrons think about the proposition?

MR. MORAN: They seem to be taking to it very kindly. When we first took it up they found fault. They thought it was another salary to be paid. Now the farmers admit themselves it is good.

MR. WARNER: There is one question I would like to ask the manager just speaking now. In forming this association was this question put up to the patrons in the creamery first or did the managers there go ahead and organize?

MR. MORAN: We called in different boards of directors of the different creameries. There were eight creameries in this county at first, but two of them dropped out, and we called the directors of the different eight creameries together when we organized the association. It wasn't put up to the patrons at all. It was at the annual meeting, at the annual creamery meeting, but at the time we went into it it wasn't put up to them at all.

MR. WARNER: The reason I asked this question is that we have been thinking some of that in Portage County, and the question was whether the managers of the creameries would go ahead and organize something of this kind first or call the patrons together.

MR. MORAN: I think in order to start good feeling it ought to be put up to the patrons in some way.

MR. HAUGDAHL: Do you think if it had been put up to the patrons at the annual meeting in the first place that they would have accepted it?

MR. MORAN: They did in fact.

MR. HAUGDAHL: They had to because you started it before you put it up to them.

MR. MORAN: No, it was discussed at the meeting previous to the organization, but it was never put to a vote.

MR. H. P. OLSEN: Would it not be advisable for each creamery to belong to the same kind of an organization?

MR. MORAN: We have one individual creamery in our association.

MR. OLSEN: And it works out all right?

MR. MORAN: And it works out all right.

CHAIRMAN: I do not think the individual creameries would object to anything of that kind. Mine is an individual creamery and we would like to have something of that kind started up in our county.

MEMBER: Does this man have anything to do with the sale of the butter?

MR. JACKSON: No, I have nothing to do with that. I mentioned in the paper we are thinking of working out a plan.

MEMBER: I think the creameries would get quite a benefit along something of that kind, selling of the butter.

MR. JACKSON: We think so too. We are going to look into that.

CHAIRMAN: If there are no other questions along this line the next will be the reading of the report of the Secretary and Treasurer, and after that will be the election of officers.

SECRETARY'S REPORT.

SECRETARY BENKENDORF: Mr. Chairman, I have here a typewritten report.

GENERAL FUND.

Receipts.

1916

Feb. 2	Balance reported at Eau Claire Convention.....	\$1014.10
6	Milwaukee Realty & Security Co., 1914 report.....	1.00
6	Eau Claire House, Eau Claire, one page ad.....	10.00
6	Atlantic & Pacific Tea Co., one page ad.....	10.00
6	Dairy Record, half page ad.....	5.00
6	Chicago Mill & Lumber Co., one page ad.....	10.00
6	H. C. Christians Co., Johnson Creek, one page ad..	10.00

Feb.	6	Hilmer Com. Co., St. Louis, half page ad.....	5.00
	7	International Harvester Co., Chicago, one page ad..	10.00
	11	Chr. Hansen's Lab. Little Falls, N. Y., one page ad	10.00
	11	Wm. J. Haire & Co., Boston, half page ad.....	5.00
	11	Preservaline Mfg. Co., Brooklyn, N. Y. half page ad	5.00
	12	Wells Richardson Co., Burlington, Vt. one page ad	10.00
	12	Torsion Balance Co., New York, one page ad.....	10.00
	12	Fox River Butter Co., Chicago, one page ad.....	10.00
	12	Elov Ericsson, St. Paul, half page ad.....	5.00
	12	Coyne Bros., Chicago, one page ad.....	10.00
	12	Gallagher Bros., Chicago, one page ad.....	10.00
	12	Geo. W. Linn & Son, Chicago, half page ad.....	5.00
	19	C. H. Weaver & Son, Chicago, half page ad.....	5.00
	19	W. D. Hoard Co., Ft. Atkinson, one page ad.....	10.00
	19	Creamery Package Mfg. Co., Chicago, one page ad	10.00
	21	Geo. C. Mansfield Co., Milwaukee, half page ad....	5.00
	26	Union Storage Co., Pittsburgh, half page ad.....	5.00
Mar.	14	Van Tilburg Oil Co., Minneapolis, one page ad.....	10.00
	18	Fred Mansfield Co., Johnson Creek, half page ad...	5.00
	27	Refrigeration Sales Co., Milwaukee, one page ad...	10.00
	27	Northey Mfg. Co., Waterloo, Ia., half page ad.....	5.00
Apr.	1	Baker Ice Machine Co., Omaha, Neb., half page ad	5.00
	12	J. B. Ford Co., Wyandotte, Mich., one page ad.....	10.00
	17	Union Fibre Co., Winona, Minn., 1 page ad.....	10.00
	5	Interest on money on deposit.....	60.00
Feb.	1 to	July 1, cash memberships	222.00
July	1	Two Rivers Plating Co., Two Rivers, half page ad..	5.00
Oct.	7	Gude Bros. Kifer Co., New York, one page ad.....	10.00
	7	D. E. Wood Butter Co., Evansville, one page ad....	10.00
Nov.	25	Interest on deposit at Roach & Seeber, Waterloo..	40.00
	24	Memberships from Premium Fund	180.00
	25	Fox River Butter Co., Chicago, one page ad.....	10.00
	25	Clifford L. Niles Co., Anamosa, Ia., one page ad...	10.00
	25	Dittman & Co., Chicago, half page ad.....	5.00
	25	Butter, Cheese & Egg Journal, one page ad.....	10.00
	25	Spangenberg Co., Chicago, half page ad.....	5.00
	25	Coyne Bros., Chicago, one page ad.....	10.00
	25	Elgin Butter Tub Co., Elgin, one page ad.....	10.00
	25	H. C. Christians Co., Johnson Creek, one page ad..	10.00
	25	Leserman Bros., Chicago, half page ad.....	5.00
	28	W. D. Collyer & Co., Chicago, one page ad.....	10.00
	28	Wells & Richardson Co., Burlington, Vt., one page ad	10.00
	28	Refrigerator Sales Co., one page ad.....	10.00

Nov. 28	Preservative Mfg. Co., Brooklyn, N. Y., half page ad	5.00
28	Dairy Record, St. Paul, half page ad.....	5.00
28	Hilmer Commission Co., St. Paul, half page ad.....	5.00
28	Wm. J. Haire Co., Boston, one page ad.....	10.00
28	Marschall Dairy Lab., Madison; one page ad.....	10.00
28	S. S. Borden Co., Chicago, one page ad.....	10.00
28	Chas. P. Mecabe & Son, New York, one page ad...	10.00
29	Fitch, Cornell & Co., New York, one page ad.....	10.00
29	Hoard's Dairyman, Ft. Atkinson, one page ad.....	10.00
29	Wis. Dairy Supply Co., Whitewater, one page ad...	10.00
29	Geo. C. Mansfield Co., Milwaukee, half page ad....	5.00
29	Geo. W. Bull & Co., Chicago, one page ad.....	10.00
30	Henneberger & Herold, New York, one page ad.....	10.00
30	C. E. McNeill & Co., Chicago, half page ad.....	5.00
30	Hunter & Walton Co., Chicago, half page ad.....	5.00
30	The Vilter Mfg. Co., Milwaukee, one page ad.....	10.00
30	Torsion Balance Co., New York, one page ad.....	10.00
30	Werner-Jenkinson Co., St. Louis, half page ad.....	5.00
	Total	<u>\$2022.10</u>

GENERAL FUND.
Disbursements.

1916

Feb. 6	Wm. Schneider (Judge) convention expenses.....	\$ 18.00
10	Allan Carswell, Clear Lake, convention expenses....	10.41
10	G. H. Benkendorf, program expenses, convention expenses, hotel bills, etc., of speakers.....	80.97
10	Butter, Cheese & Egg Journal, printing and mailing convention program	248.98
10	Whitehead & Hoag, Newark, N. J., 506 desk calendars and 500 badges	138.82
16	F. M. Werner, Waterloo, convention expenses.....	12.24
16	C. A. Day, Madison, convention expenses.....	9.88
16	E. C. Jacobs, Elk Mound, convention expenses.....	6.16
16	C. O. Johnson, Eau Claire, convention photo.....	2.00
16	C. E. Lee, Madison, convention expenses.....	18.54
21	G. H. Benkendorf, Eau Claire office expenses.....	11.69
21	E. H. Farrington, Madison, convention expenses....	8.46
26	Quirin Moersch, Malone, convention expenses.....	13.48
Mar. 2	A. G. Stafford, Chippewa Falls, reporter.....	80.73
2	Geo. J. Weigle, Madison, convention expenses.....	14.25
2	C. P. Norgord, Madison, convention expenses.....	12.53

Mar. 14	H. E. Griffin, Mt. Horeb, convention expenses.....	16.10
27	Nat'l Cry. Buttermakers' Assn., membership.....	5.00
Apr. 12	Geo. J. Weigle, expenses attending Chicago hearing	12.75
12	H. P. Olsen, Milwaukee, 80 convention diplomas....	4.50
15	O. B. Cornish, Ft. Atkinson, convention expenses..	17.04
May 17	E. H. Farrington, attending hearing at Washing- ton, D. C.	60.92
Aug. 16	P. B. Haber Printing Co., Fond du Lac, printing 800 copies annual report	338.39
Sept. 14	Tracy & Kilgore, Madison. 800 inserts, 1000 en- velopes	31.50
	Total	<u>\$1173.34</u>

SUMMARY.

1916		
Feb. 2	Balance on hand Eau Claire Convention.....	\$1014.10
	Receipts	1008.00
	Total	<u>\$2022.10</u>
	Total disbursements	<u>1173.34</u>
Dec. 5	Balance on hand Sparta Convention	\$ 848.76

PREMIUM FUND.

Receipts.

1916		
Feb. 2	Reported at Eau Claire Convention.....	\$ 898.74
4	Hunter & Walton Co., Chicago, 3760 lbs. butter @ 27c	1015.20
6	Dairy Department, Madison, 162 lbs. butter @ 27c..	43.74
Oct. 7	H. C. Christians Co., Johnson Creek, donation.....	15.00
7	DeLaval Separator Co., Chicago, donation.....	10.00
7	Worcester Salt Co., Chicago, donation.....	10.00
Nov. 2	Diamond Crystal Salt Co., St. Clair, Mich., donation	10.00
28	Chas. P. Macabe & Son, New York.....	10.00
Dec. 4	Morton Salt Co., Chicago	10.00
	Total	<u>\$2022.68</u>

Disbursements.

1916			
Feb. 4	Exhibition expenses, G. H. Benkendorf, express on butter, lumber, labor, etc.	\$	90.48
10	C. J. Dodge, convention expenses.....		19.07
19	Excess butter		56.70
19	Complimentary butter, 110 lbs. @ 27c, less express and membership		21.60
22	E. M. Henwood, convention expenses.....		15.96
Mar. 4	Hoard's Dairyman Co., Ft. Atkinson.....		90.00
Nov. 24	180 memberships transferred		180.00
Feb. 19	Pro rata distribution at Eau Claire.....		736.30
	Total	\$	1210.11

SUMMARY.

1916			
Feb. 2	Balance on hand at Eau Claire Convention.....	\$	898.74
	Total receipts		1123.94
	Total	\$	2022.68
	Total disbursements		1210.11
Dec. 5	Balance on hand Sparta Convention.....	\$	812.57
	State Fund, balance	\$	692.94
	General Fund, balance		848.76
	Premium Fund, balance		812.57
	Total	\$	2354.27

CHAIRMAN: We will hear the Treasurer's report.

TREASURER'S REPORT.

TREASURER WERNERS My books were checked up with the Secretary's last night.

GENERAL FUND.

On hand Eau Claire Convention.....	\$1014.10
Received for advertising Eau Claire program.....	230.00
Advertising in Sparta Convention programs.....	275.00
Annual Report	1.00
Cash membership	222.00
Membership transferred from Premium Fund.....	180.00
Interest	100.00
Total	\$2022.10

Disbursements.

Orders drawn by Secretary	\$1173.34
Balance	\$ 848.76

STATE FUND.

On hand Eau Claire Convention	\$ 619.20
Allowed by state	600.00
Affidavit voucher rejected .....	.25
Total	\$1219.45

Disbursements.

Orders drawn on state	526.51
Balance	\$ 692.94

PREMIUM FUND.

On hand Eau Claire Convention.....	\$ 898.74
Exhibition butter	1058.94
Donations	65.00
Total	\$2022.68

Disbursements.

Pro Rata Butter Eau Claire Convention.....	\$ 736.30
Excess butter	56.70
Membership transferred to General Fund.....	180.00
Orders drawn by Secretary	215.51
Complimentary butter	21.60
Total	\$1210.11
Balance	812.57
General Fund Balance	\$ 848.76
State Fund Balance	692.94
Premium Fund Balance	812.57
Balance in treasury	\$2354.27

CHAIRMAN: I would like to call on the Executive Committee for a statement from them.

MR. C. J. DODGE: The Executive Committee had their meeting last night, went over the report and found it correct and signed it so. Mr. Benkendorf has vouchers for all moneys paid out. We would be pleased to have anyone of the convention determine for himself.

CHAIRMAN: Now, then, gentlemen, you have heard the reports of our Secretary and Treasurer. What is your pleasure?

MEMBER: I move they be accepted as read.

Which motion was duly seconded and unanimously carried.

CHAIRMAN: This brings us down to the election of officers for the ensuing year. I want to state that tomorrow morning the butter will be on exhibition and at the noon hour will be sold to the highest bidder. Any of the members has the privilege of going into the hall just a few doors west on this same street and looking at the exhibit between the hours of 8:30 and 10:00.

SECRETARY BENKENDORF: I want to call your attention to the fact that we are going to have a vaudeville performance in the hall tonight. They have arranged for your convenience that the tickets will be sold here in the hall.

I want to also call your attention to the fact that if anyone is dissatisfied with his room where he is staying, Mr. Sim Oakes will be glad to meet him and make other arrangements.

CHAIRMAN: We ought to patronize the vaudeville tonight. We have every guarantee that it is an A No. 1 company.

I am going to ask Mr. Shilling to take the chair for the election of officers. I don't think we could have an election if he was not in the chair.

VOICE: Speech, speech.

MR. SHILLING: Mr. Chairman and Gentlemen: I can assure you I appreciate the honor and privilege of standing before you for a short time. Somebody hollered for a speech, but I am not in the speech making mood. The fact of the matter is, gentlemen, I have about dropped out of the speech making business. You know that a few years ago I got married, and as long

as I couldn't talk all the while I quit talking at all. I rather carried that idea out in conventions as well as elsewhere.

However, I heard a new Ford story when I was coming out on the train yesterday and I will tell you that. It seemed that a man had complained to the company about his Ford car riding hard and they had written back to find out the reasons why, and he wrote in and told them he had only driven about 75 miles an hour, and they wrote back and said, "There is no car that will not ride hard when you are going 75 miles an hour." He wrote back again and he said, "I didn't go 75 miles straight ahead, I only went 25 miles straight ahead and 50 miles up and down." (Laughter.)

Gentlemen, before we start the election of officers I do want to congratulate you because it seems good to me. I am rather old fashioned, I admit. I want to congratulate you. We never have as good meetings in the world in a large city as we do in a small. We get together. I never saw as enthusiastic a welcome as we got last night. When the people of a city come out and give you a welcome as they did last night, we feel we are getting somewhere.

Just one thing in regard to the talk here, that is the inspection of the dairies. I think that is one of the best questions that has been taken up. You are making wonderful strides in progress in doing that. It is most desirable in the improvement of the product of anything that has been taken under consideration. I want to urge you to go ahead and do more of that kind of work. I do think we are making progress. I believe it is necessary to say a whole lot of things we don't like to say, but I am not of the opinion it is getting poorer. I believe we have got to that point in the history of butter making in this country when we realize the necessity of doing better, and a meeting of this kind and the enthusiasm which is here is indicative of that fact, and I would urge you to keep on with the work.

The first officer will be your president. Who will you have for your future president?

MR. CARL JORGENSEN, Rose Lawn: I nominate Mr. Morrison.

Which nomination was duly seconded.

MEMBER: I move that the nominations be closed.

MR. SHILLING: If there are no other nominations I will entertain a motion that the rules be suspended and the secretary be instructed to cast the ballot for Mr. Morrison for your future president.

MEMBER: I make such a motion.

Which motion was duly seconded and unanimously carried.

MR. SHILLING: Who will you have for your vice president?

MEMBER: I nominate Carl Jorgensen.

MR. MORAN: I move that the rules be suspended and the secretary be instructed to cast the ballot for Mr. Jorgenson for vice president.

Which motion was duly seconded and unanimously carried.

MR. SHILLING: Your next in order is your secretary. Who will you have for your secretary?

MEMBER: I nominate Mr. Benkendorf.

Which motion was seconded.

MR. JORGENSEN: I make a motion for Mr. C. E. Lee of Madison.

MR. LEE: It is impossible for a man in my position to accept that office.

MR. JORGENSEN: I don't see why it is impossible for Prof. Lee to accept. I wish Prof. Lee would accept.

MR. SIM OAKES: Why should we change our secretary? We have certainly got a good, live man and he has done a great thing for our Association and I think he should be re-elected.

MR. ALLAN CARSWELL: I beg to differ with Mr. Oakes. I think we are pursuing the wrong track. I can't agree with Mr. Jorgenson that Mr. Lee should be elected as secretary. Wisconsin is big enough. No one understands what the buttermakers are up against better than they do themselves. We have hundreds of men in Wisconsin who are capable of filling that position. We should have a genuine buttermakers' association. This idea of connecting the Buttermakers' Association up with the Dairy School of Wisconsin or the Dairy and Food Commission of the state is all children's play. We ought to have an associa-

tion of buttermakers. We are the men that are paying the expenses of this association. If we go and give any one of these offices to an outsider we are just passing so much along to somebody outside of our business that doesn't belong to the business and we are passing up some pretty good men in the association. Why should we pass it up to some professor down at Madison or some inspector down at Madison and get into trouble there is no need of getting into? There is little enough in the Association anyhow for us. Let us get what belongs to us. I believe in advancing these men. A man who has served this association and has served it well ought to be advanced. I want to place before you the name of a man who has been in the creamery business over twenty years in Wisconsin. It would not only be an honor to him, but to ourselves. He will get something out of it, and that is the name of Mr. Fred Werner of Waterloo, as secretary of this association.

MR. WERNER: I decline that nomination. In the first place I haven't the time, and I don't think I am capable of filling the place of secretary of the association. I thank Mr. Carswell for that honor.

MR. LEE: I want to say that Commissioner Weigle feels just as Mr. Carswell feels. No man in our position under Commissioner Weigle will take the position of secretary of this association.

MR. SHILLING: Up to the present time there have been three nominations, but there has only been one who has not declined.

MR. CARSWELL: I don't like to have our friend Mr. Werner go back on us. I have got nothing against Mr. Benkendorf, but I have had this in mind ever since this association has started. It is not fair to anybody, more especially the buttermakers. If Mr. Werner does not accept it I am sorry, but I believe he will make good. He is worthy of being secretary and he is capable and he has managed that creamery and if he can't act as secretary of this little association, boys it beats me. If Mr. Werner will not take it I wish to nominate Mr. Hans Hoi-berg of Coon Valley.

Which nomination was duly seconded.

MR. SHILLING: We have two candidates now before the convention, Mr. Hoiberg and Prof. Benkendorf.

MR. HOIBERG: I appreciate the honor of the nomination, but I do think Mr. Benkendorf is better able to accept that. I appreciate what Mr. Carswell says, but buttermakers have no time. It takes lots of time to do it. If a fellow just tries it once he will find out. The Dairy School is working with us and for us just as well in this position and other positions. I don't think and nobody thinks we are being run by the Dairy School. I will withdraw in Prof. Benkendorf's favor.

MR. JORGENSON: I nominate Mr. Carswell of Clear Lake. Which nomination was duly seconded.

MR. SHILLING: Are there any other nominations?

MR. OAKES: It looks to me as if there was a little spite work going on here, and trying to get an officer out of his office that has been working very hard for us. He is a live man. Why not re-elect him instead of getting in somebody else?

MR. CARSWELL: I didn't come down here to get the office of secretary. I am not much of a mixer. The boys have been good to me. I have got all I want out of it. I have a good man in mind up in our end of the state, but he is not present at this convention. I positively decline to accept this position. There are a hundred good buttermakers who will make good. I am willing to abide by the rule of the majority and I will gladly second Prof. Benkendorf's nomination for secretary of this association.

MR. J. G. MOORE: I move that the rules be suspended and the president be instructed to cast the ballot of the association for Mr. Benkendorf for secretary for the coming year. (Applause.)

Which motion was duly seconded and unanimously carried.

MR. SHILLING: Who will you have for your treasurer?

MEMBER: I nominate Mr. Fred Werner.

Which motion was duly seconded.

MR. WERNER: I have been treasurer for three years and I believe in passing the honor around.

MR. MOORE: I move that the rules be suspended and the secretary be instructed to cast the ballot of the association for Mr. Werner for treasurer for the coming year.

Which motion was duly seconded and unanimously carried.

MR. SHILLING: The next is a member of the Executive Committee to succeed Mr. C. J. Dodge of Windsor.

MR. WERNER: I nominate Mr. C. J. Dodge.

Which motion was duly seconded.

MEMBER: I nominate Lauritz Olsen of West DePere.

Which motion was duly seconded.

MR. DODGE: I will withdraw in favor of Mr. Olsen.

A ballot was taken and the result was 57 votes in favor of Mr. C. J. Dodge and 37 in favor of Mr. Lauritz Olsen.

MR. WERNER: I make a motion that the informal ballot be declared formal.

Which motion was duly seconded and carried.

The meeting adjourned.

WEDNESDAY AFTERNOON SESSION.

Meeting called to order at 2 p. m. by the President.

CHAIRMAN: Wisconsin Buttermakers, I want to thank you from the bottom of my heart for the honor you have given me in re-electing me president of your association. I am realizing very plainly that I am not as young as I was, and I really believe it would have been better for the association to have put in a younger man. I realize I am on the down hill slide a little and I really thought I would never stand in the way of a younger man in these honorary positions.

It is practically decided that our next national convention will be held in this state, in the city of Milwaukee. You all know how our sister state Minnesota has held that banner for years and that we have tried hard—I am not going to say as hard as we might, because if I stay at the head of this association I am not in the habit of being behind. I will do everything within my

power that will prevent Minnesota from taking that banner from us and I want to ask every member of this association to do everything in his power to capture that banner. If we would place Wisconsin's motto "Forward" over the door of each creamery, I think we will hold the banner here another year. (Applause.)

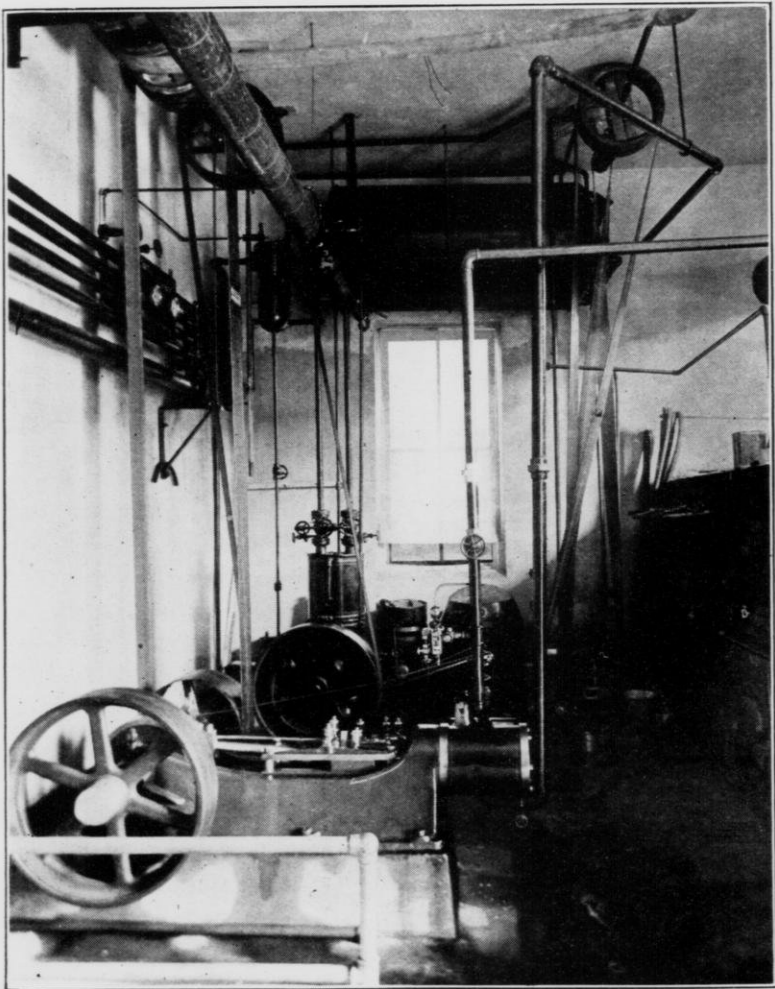
The first number on our program is "The Advantage of a Hot Water Heater in a Creamery," by H. B. Hoiberg, Coon Valley. (Applause.)

THE ADVANTAGE OF A HOT WATER HEATER IN A CREAMERY.

By H. B. Hoiberg, Coon Valley.

Mr. President and Members of the Wisconsin Buttermakers' Association: About six months ago I received a letter from our Secretary, Prof. G. H. Benkendorf, suggesting that I take a trip to Viroqua to see the exhaust steam water heater which Mr. A. O. Storvick, Government Expert from Minnesota, had installed in the Viroqua Creamery early in the Spring. When I had read the letter I wondered what kind of a water heater it could be, as I had seen several and used different kinds of exhaust steam water heaters, but none of them amounted to a great deal. But I thought to myself, if Mr. Benkendorf thinks it is worth seeing, it must be a good one and worth investigating. So a few days later the President and Vice President of our creamery company and myself drove over to Viroqua, about twenty miles overland.

We were very well received by the genial manager, Mr. W. W. Wigginton, who explained to us very fully the workings of the heater. Let me tell you, gentlemen, I felt like two cents to think that I had operated creameries in the state of Wisconsin for over twenty-six years and in all those years had let hundreds of dollars go through the roof in the form of exhaust steam, besides chasing around the creamery with a tin pail carrying warm water from the wash sink to the farthest corner of the creamery, wearing out my soles and legs.



Showing location of tank.

After our return home our creamery board authorized me to purchase a hot water tank suitable for our needs. In the meantime, before I had placed my order for a tank, Mr. Storvick called on us, and gave me some very valuable information as to the proper sizes and construction of tanks and how to install them. In passing permit me to say that Mr. Storvick is deserving of great credit for his untiring efforts in introducing the hot water tank in this state. Mr. Storvick is meeting with success in nearly every place he goes, but in some places he is met with suspicion, one party even insinuating that he was getting a commission on every tank installed by him. Mr. Storvick needs no white-wash from me or anyone else, he is too well known for that, but I simply cite this to show that we still have some creamerymen in Wisconsin who will not and perhaps cannot see a gold dollar when it is held before their eyes. I do claim, and stand willing to prove to you, that the hot water tank is a money saver and not a single creamery using a steam engine for power can afford to be without one a single day.

We have had ours in use less than sixty days, but in that time I have not used one pound of live steam to heat water used for cleaning purposes or for warming the cream up to the proper temperature, and instead of running cold water into the boiler it goes in at 200 degrees F. On account of the short time we have had ours in use it is impossible for me to give you any personal data in figures as to the actual saving of fuel, but I will quote from Mr. Wigginton's letter to me under date of October 29, 1916, as follows:

"We give the exhaust steam water heater credit for a saving of from 15 to 20 per cent in fuel. This will be a saving of over \$100 each year."

Mr. Wigginton goes further and says:

"This means not alone a saving of fuel, but a saving of labor as well, a saving to the boiler as the exhaust steam water heater takes out a considerable part of the impurities in water such as lime and iron."

This is Mr. Wigginton's opinion of hot water tanks. His was, I think, the first one to be installed in this state.

It is a known and undisputed fact that in using the common slide valve steam engine, we only utilize from 10 to 14 per cent of the steam we produce and pay for in coal and labor. The other 86 to 90 per cent goes to waste. In using one of the water tanks you will save nearly all of what now goes through the roof. Then there is the saving of labor and the convenience of having your hot water where you want to use it. I do not claim that you can hire a buttermaker for less money when you have one of those tanks installed in your factory, but I do claim that he can do better work for you and that means dollars in your pocket.

Mr. Creamery-owner, we all know that if the buttermaker is overworked he will and has to "slide" things, as we say, and that means a loss. The profits and losses in a creamery are often balanced by the little details. There is some comfort for the buttermaker when he is ready to wash his cream ripeners, milk vats or floors. All he will have to do is to turn a valve and the hot water flows and then scrub. Let me tell you, it is hot water too! The other day, when I was running the hot water into one of my ripeners before washing it, I glanced at the thermometer and it showed a temperature of 195 degrees, and that without going through the nerve-racking process of listening to the so-called "noiseless" water heaters, and the best of it all—it did not cost anything to get the water warm. There is also a great saving of labor in attending to the boiler, for when you start your engine you can also start your hot water pump and regulate it so that it will keep the water level in your boiler at all times, and consequently you will have an even boiler pressure—not a pressure ranging from 80 to 60 pounds, which is almost unavoidable when you are obliged to use an injector, and it goes without saying that your boiler will be longer lived. Nothing is so hard on a boiler as a sudden inflow of cold water.

I will now try to explain to you the construction of the hot water tank and the installation of same, using the chart you see here, which was so kindly reproduced and enlarged by Mr. Benkendorf from a small lead pencil sectional sketch which I sent to him. This is the boiler room as we have it. That is the

tank suspended from the ceiling. We use three-quarter iron rods suspending it from the ceiling about 12 inches. That tank is 26 x 72 inches long. Inside there are twelve two inch coils laid in three layers across. The exhaust steam comes from the engine and goes into the tank and out through the bottom and out through the roof or through the side of the building as you wish. There is another pipe on top. There is where the hot water comes. We put in an inch and a quarter pipe over the top. You can take your hot water either from the bottom of the tank or the top. You always take it from the top unless you close down. The cold water comes in from a pipe upstairs through a two inch pipe. For every gallon of hot water taken out a gallon of cold water flows in. This is the pipe that goes down to the boiler pump, and you can pump at all times. That tank cost us \$115 all set up.

In closing I will say that great care should be taken when placing an order for a tank to specify just what you want. It has come to my notice that in one or two instances the manufacturers of the tank only put in four coils instead of twelve, consequently the buttermaker could not get the water any hotter than about 85 degrees. I am indebted to Mr. Storvick for the following figures, which he has gathered from careful observations in places where tanks are in operation:

For a creamery making 100,000 pounds of butter yearly, the tanks should be 30 inches in diameter by 72 inches long, which will hold about 200 gallons of water and should contain 305 square feet of coil surface, or, in other words, 48 linear feet of two inch pipe.

For a 150,000 pound factory it will be thus: 36 inches in diameter by 72 inches long, holding 315 gallons of water, 425 square feet of coils or 67 linear feet of two inch pipe.

For a 200,000 pound factory: 36 inches in diameter by 96 inches, holding 420 gallons, 588 square feet of coils or 93 linear feet of two inch pipe.

In a factory making 250,000 pounds it will require 42 inches in diameter by 96 inches long holding 575 gallons, 785 square feet of coils or 125 linear feet of two inch pipe.

A creamery making 300,000 pounds or more will need a tank 48 inches in diameter by 96 inches long holding 750 gallons, 103 square feet of coils or 112 linear feet of three-inch pipe.

It is very important that your cold water intake should be larger than the hot water outlet; for instance, if you have a one inch outlet you should have at least one and a half inch intake, and if you have a one and one-fourth inch outlet use two inch intake. You will notice that there is a two inch pipe from the cold water tank and only one and one-fourth inch which lets out the hot water.

Mr. Storvick informs me that there are only a dozen exhaust steam heaters in use in Wisconsin while Minnesota has seventy-two. Shall we be outdone by our sister state? It must be a good thing, otherwise Minnesota would not have taken it up. That reminds me of a little incident which happened several years ago in a small town where I used to live and belonged to a fraternal organization, and we, as the custom was, elected a delegate to attend the Grand Lodge meeting, which, judging from the royal welcome and hospitality this city has given us boys and from the report Mr. Whitmore, our delegate, made, must have been held in Sparta, Wisconsin, that year. Well, Mr. Whitmore went, and at our first meeting after his return the presiding officer called on Brother Whitmore to make a report of the meeting. I will never forget the results. Mr. Whitmore got up, addressed the chair, and said: "Officers and brothers, you ought to have been there." That was all we could get out of him, but we knew it came from the bottom of his heart. I will say, "brother creamerymen, you ought to have an exhaust steam water heater"—this is from the bottom of my heart too.

I thank you.

CHAIRMAN: Are there any questions to ask Mr. Hoiberg?

MR. WARNER: Do you have any check valve from your supply tank down to your boiler?

MR. HOIBERG: That always comes with the pump, with the ordinary hot water pump. The check valve is right in there.

MR. WARNER: That leads from the supply tank down?

MR. HOIBERG: No, there is no check valve down there.

MR. WARNER: You don't have any trouble with your hot water getting too hot and getting up into the supply tank?

MR. HOIBERG: No, I have had water up to 200 but never had any trouble.

MEMBER: I would like to ask if that tank would work just as well if it were set up horizontally instead of the other way?

MR. HOIBERG: It works just as good, only you can't empty it, of course. You can't force the water out. As long as you have a steady inflow you can't force it out.

MEMBER: Wouldn't the back pressure on those coils interfere with the engine?

MR. HOIBERG: It seems not. I can't notice anything.

MR. THOMPSON: I would like to ask Mr. Hoiberg what thickness the tank is.

MR. HOIBERG: Three-sixteenths and the ends are—

MR. THOMPSON: Boiler iron?

MR. HOIBERG: Made just the same as the boiler.

MR. BENKENDORF: The question has been asked about back pressure. There ought not to be any back pressure there at all. It will create sort of a vacuum there and there won't be any back pressure.

MR. H. P. OLSON: Where is the best place to put that tank?

MR. HOIBERG: That is immaterial, but really if you have room in the engine room, that is the best place. You can put it right over your boiler. Some of them do that. If you haven't place on your ceiling, get a vertical tank.

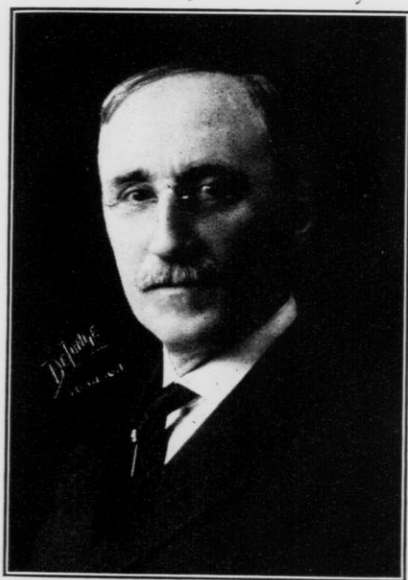
CHAIRMAN: If there are no other questions we will close our discussion on this. The next on our program is "The Value of Skim Milk to Creamery Patrons," by Prof. E. H. Farrington.

THE VALUE OF SKIM MILK TO CREAMERY PATRONS.

By Prof. E. H. Farrington, Madison.

Mr. President, Ladies and Gentlemen: I judge from the appearance of the audience that the association has been fortu-

nate in choosing Sparta as the place for holding its annual convention this year. I have been in town only a few hours, but I have heard a great many remarks to the effect that this has been the best meeting we have had, and I hope if there are any Spartans here they will realize how much their hospitality is being appreciated.



PROF. E. H. FARRINGTON

Another thing I want to state as a member of this association and as a citizen of Wisconsin, and that is, I think we are fortunate in having with us this afternoon two professors besides myself. It has been stated that the only trouble with professors is that they talk too long, but I will try not to take up too much time myself. I am very glad to welcome the professors from the Dairy Departments of Iowa and of Minnesota, and think we are fortunate in having with us Prof. Mortensen and Prof. Washburn, whom we will hear from later.

I don't know but I ought to tell you the way in which a student defines a professor. A student's definition of a professor is this, "a professor is a man of mediocre intelligence who learns what he knows by asking questions of his class."

I would like to stand up here and say that I can learn a great deal from you by asking questions, but I have been asked to talk about one particular thing that is of more or less interest to everyone in the creamery business, and so I will confine my remarks to that subject.

I would like to say, though, before I begin on that line that the past year has been quite an important one in the creamery industry. You all know what high prices we are having, and I even think that in future years some of your descendants will hark back to the butter and creamery prices of 1916, and perhaps your children will think these prices all fairy tales! I know that to us who have been in business for a number of years it hardly seems true that the conditions we have this year really exist, or that they will continue to exist for any great length of time.

Another event that happened during the past year, perhaps deserves mentioning. I suppose some of you remember that a very large gathering of persons interested in the dairy industry was held in Washington last May. That was a very important meeting, and I want to express my appreciation to the members of this association for the privilege they gave me of an appointment as a delegate from this association to that meeting. I enjoyed that meeting very much. It was claimed by many people that it was one of the largest collections of people interested in the dairy industry ever gotten together in this country. A great many things were discussed.

First, the sampling of butter by the Internal Revenue Department for making a moisture test. This received considerable attention. I presume there are not many in the audience, and I am sure there are not many in this state, who have had trouble with the Internal Revenue Department of the United States Government on account of excessive moisture in their butter. As soon as they get in trouble a good many of them write to us

at the Dairy School, and we do the best we can to help them out.

There is one thing about this work that I think will be reformed, and that is the method of taking samples of butter for these tests. Something was done at that meeting in regard to that point. Steps were taken to convince the people who have that work in charge, that their methods of taking samples were not always correct, and I think in the course of time we will have a remedy for that situation.

Another thing that was talked about there more or less was the enforcement of the moisture law. You and I know that there are instances where butter is made and the per cent of moisture may run a little over sixteen per cent, it is purely an accident on the part of the buttermaker and the creamery man. Those men are not criminal. They have simply broken this particular ruling and I do not think they ought to be prosecuted. I think the officials enforcing the law ought to distinguish between an intentional violator of the law and one who violates it by accident, and at that meeting in Washington steps were taken to remedy that phase of the question. It seems to me only fair, and I think in the course of time that an arrangement will be made by which a man of that sort will be given more than one chance, and it will be necessary to demonstrate that it is an intentional violation of the law before assessing the fine. I don't want to argue this point at all or say anything about the law itself except this one particular point, which I think is a reasonable thing to expect and in the course of time we may have a law that may be formed on these general plans.

These are two things I want to bring back to you from that meeting in Washington. There may be others, but it is not my province this afternoon to discuss that meeting. I simply wanted to mention it and to acknowledge to you my indebtedness for sending me there as a delegate of this association.

There are two more things I want to mention to the buttermakers and creamerymen of the state. One of them is a condition which I think you are all familiar with and which I think is helpful to the buttermakers and the creamerymen, and that is

the county agents now being established throughout the state. Many of you know who these county agents are and as butter-makers and creamerymen I think you can use them in helping to improve the quality of your products. I hope you are co-operating with the county agent in your locality to improve the conditions of the farmers in your particular locality, because the prosperity of your business depends a great deal on the prosperity of the farmer.

Another movement that has grown very rapidly during the past few years, is the conducting of cow testing associations. This is something which we as buttermakers ought to be interested in. These cow testing association men, somewhere about fifty of them in Wisconsin I think now, meet at Madison every winter, and hold a meeting for a week. They are all young men and I hope you are co-operating with them and doing everything you can to help along their work. I have heard it suggested, however, that in certain instances the cow testing association man is making trouble for the man at the creamery.

We all know what it is to have a suspicious patron and it so happens that some of them think the buttermaker does not know how to test the cream and milk at the factory. Some of them like to appeal to these cow testing association men to test their samples. I have heard some complaints that the cow testing men do not work in harmony with the creamery man and in some cases they have reported a test that is not the same as the creamery gave. This is unfortunate, but when each has a helpful spirit, the cow testing association man can be very valuable to the community, and especially to the creamery.

I come now to the discussion of my subject for the afternoon, The Value of Skim Milk to the Creamery Patron.

We have patrons in our Dairy School Creamery at Madison and have had for over twenty years, so I know something of the creameryman's standpoint on this question. Many of our patrons think the skim milk is not worth anything. Of course that number is diminishing every year. In what I have to say I have tried to pick out from many experiments a few illustrations that you

can use in your own community to demonstrate to the farmers what the actual facts are in regard to the value of skim milk.

Skim milk at the present time is worth nearly as much to the creamery patron as he received for whole milk some years ago. The majority of creamery patrons I think fail to realize that there is comparatively little difference between the feeding value of skim milk and whole milk when fed to the calves, pigs and chickens on the farm. Everyone knows that the butterfat skimmed from the whole milk is too expensive a luxury to feed to farm stock, but the skim milk left is too valuable a feed to waste at any price.

Feeding experiments without number have been made by scientists and by practical feeders to note the results obtained by feeding skim milk on the farm and many attempts have been made to estimate its value to the farmer. These experiments have convinced many farmers that they do not wish to sell their skim milk, but some of them do not know even yet that feeding calves, pigs, and chickens economically is one of the secrets of the farmers' success. Nearly every land owner knows that dairying is one of the most profitable lines of farming, but those who get the largest returns from the dairy farm are the stock raisers as well as the sellers of dairy products from the farm.

Many different suggestions have been made as to the best way of demonstrating the feeding value of skim milk to the farmer so as to convince him of its value. Probably no one subject has received more attention from the professors and experimenters connected with our Agricultural Colleges than the feeding value of skim milk on the farm. In the past these experiments have been confined to noting the gain in weight of calves, pigs and poultry as the result of feeding skim milk with and without other farm feeds, but in recent years it has been shown at the Wisconsin College of Agriculture by Professors Hart and McCollum that skim milk contains an unnamed something absolutely necessary for the normal growth and development of farm stock but it is not present in other feeds.

For years chemists have analyzed feeding stuffs and reported the amounts of protein, carbohydrates, fat, and mineral

substances contained in each one. At first this was all that it was assumed necessary to find out concerning these feeds, but after a while someone suggested that the digestibility of the protein, carbohydrates, etc., was fully as important as the total quantity of these constituents present in all feeds. It is only within the past few years that the experiments referred to have shown that even knowing the total digestible protein and other constituents is not enough for measuring the difference in value of feeding stuffs but in addition to this information we must find out what kinds of proteins are present in the different feeds.

It has been shown that a single grain feed contains several kinds of protein and that these are always present in the same proportion in the same grain. Further, it has been demonstrated that certain combinations of proteins are capable of supplying the particular something that is needed for normal growth and development of animals while other proteins and protein mixtures do not contain this mysterious substance.

Up to the present time feeding experiments have demonstrated that skim milk contains all the necessary proteins and they are in proper proportion for the normal development of growing animals. These experiments also showed that certain grain mixtures have caused the animals receiving them to become weak, blind and show symptoms of paralysis.

Skim milk is a natural food for young animals. It contains not only the right proteins, but also everything else, including mineral matters needed for the growth of the animal's skeleton. There are no vegetable feeds that will take the place of skim milk; a successful substitute has not yet been found.

The value of certain patent or special feeds sold in small packages at high prices for feeding young stock is often due to the milk powder or casein these contain. The well-informed farmer knows that he can supply these constituents to his stock by feeding skim milk and that is much less expensive than the high-priced foods mentioned. Nearly everyone knows that farmers selling their whole milk have great difficulty in raising calves. Whole milk is too expensive for this purpose. If a farmer expects to milk cows as a part of his farming operation, he ought

to grade up his own herd by selecting calves from his best cows and he can only do this successfully by feeding them skim milk.

Skim Milk to Calves.

Although skim milk is a satisfactory food for young calves, experiments have shown that it can not profitably be fed alone for any great length of time. Calves need some roughage in their feed along with the skim milk in order to properly develop their growing digestive organs. A calf must naturally be allowed to have its mother's milk for the first few days of its life. It may then be taught to drink by feeding whole milk three times a day at first and gradually reducing the number to two feeds per day. After about three weeks a little skim milk may be added to the whole milk and in about ten days by increasing its proportion the skim milk may be entirely substituted for the whole milk.

Calves need grain or roughage before them continually and this should be provided for as soon as the calf is two weeks old. Under such conditions it has been demonstrated over and over again that a calf will make satisfactory growth and a normal development.

A great number of feeding experiments have been made to show the value of skim milk for raising calves. I have selected one of these in which all the feed as well as the calves were carefully weighed for a period of time.

Twenty calves were divided into two lots of ten each. One lot was fed whole milk and the other skim milk, both receiving the same grain and roughage ration in addition to the whole milk and skim milk they consumed. At the end of the feeding trial the gain in weight of both lots of calves was figured at the same price per pound and the value of the whole milk as well as of the skim milk fed both lots was found by subtracting the cost of the grain feed and the roughage from the value of the gain in live weight of the calves.

Without recording the details of this experiment, I find that the calculations showed the value of the whole milk to be 89 cents per 100 lbs. and the skim milk to be 61 cents per 100 lbs.

In this experiment the gain in live weight of the calves was figured at eight cents per pound. Present prices would undoubtedly change the figures obtained in this experiment, but the relation between the value of the whole milk and the skim milk would be the same.

Skim Milk for Pigs.

The digestive system of pigs is not the same as that of calves and on this account it is possible for pigs to grow to normal size and development by feeding them skim milk alone. It has been proved, however, by numerous feeding experiments that better and cheaper gains in weight by pigs may be obtained by feeding corn or some other grain mixed with the skim milk than is obtained by feeding skim milk alone. The most satisfactory ration for pigs seems to be about one part of corn to three parts of skim milk. When the pigs are very young, however, the proportion of one part of corn to five parts of skim milk has been found to be better.

The calculation made by Prof. Henry from a large number of feeding trials led him to conclude that when corn is fed with about three parts of skim milk, and corn is worth 50 cents per bushel, the money value of the skim milk is 27 cents per hundred pounds, and when corn is 84 cents per bushel, the value of skim milk is 46 cents per hundred pounds.

Gov. Hoard has suggested the following rule for finding the money value of skim milk. "Multiply the market price of live hogs in cents per pound by 5, when skim milk is fed alone, but when fed with corn or barley, multiply the market price by 6."

Applying this rule and taking 9 cents as the market price of hogs makes the feeding value of skim milk when fed with corn or barley as 54 cents per hundred pounds.

The Gurler plan for estimating the value of skim milk is to assume that 100 pounds of skim milk when fed in combination with corn to hogs is worth one-half the market price of corn per bushel. According to this rule when corn is \$1.00 per bushel, skim milk is worth 50 cents per hundred pounds for feeding pigs.

These estimates of the feeding value of skim milk are all practical ones and are based on many observations obtained from a large number of feeding trials. There will naturally be some exceptions to them, but skim milk has a peculiar value for growing animals in building up bone and muscles, and in developing the vital organs of the animal. It is difficult to give a money value to these points, but they should be taken into account when one is considering the feeding value of skim milk.

Skim Milk for Poultry.

Many feeding trials have been made with growing chickens in which they have been given mixtures of grain alone and the gains in weight compared with those obtained by feeding mixed grain and skim milk. One of these experiments in which twenty chickens were fed, showed that the cost of feed per pound of grain alone was 4.5 cents and with the lot fed mixed grain and skim milk the cost of feed per pound of gain was 3.5 cents or one cent less per pound of gain. It was noted that the chickens fed grain and skim milk ate more feed and were in better physical condition than those fed grain alone.

Another feeding experiment made to note the effect of skim milk on egg production showed that a lot of 22 hens fed for 122 days on a ration to which two quarts of skim milk was added daily to moisten the grain, laid 1244 eggs, and another lot of 22 hens fed at the same time on the same grain ration but with no skim milk laid 996 eggs. There was a difference of 248 eggs in favor of the skim milk lot and if the eggs are valued at 24 cents per dozen, the skim milk was worth \$1.02 per hundred pounds based on the increased egg production.

The Loss in Soil Fertility.

Every successful farmer knows that it is absolutely necessary for him to consider the subject of soil fertility on his farm. Most farmers have learned that by selling hay and grain crops from the farm the soil becomes exhausted unless stock is kept for the purpose of converting these feeds into salable products

and retaining the fertilizing constituents of the feed on the farm. An analysis of the different farm crops as well as of dairy products has shown that the fertilizing constituents in a ton of hay are worth about \$4.50; a ton of corn about \$5.00; and a ton of wheat about \$6.00; and that every ton of these crops sold from the farm is taking just that amount of fertility out of the soil. An analysis of dairy products shows also that butterfat contains the smallest quantity of fertilizing constituents of any one of them and by applying the same calculation to dairy products as has been used in estimating the fertilizing constituents in farm crops, it has been shown that by selling a ton of butter from the farm only 50 cents worth of fertilizing constituents are sold while a ton of milk removes about \$2.00 worth of fertilizing constituents from the farm. These figures plainly show that it is much more economical to feed the grain crops to cows and sell cream from the farm than it is to sell whole milk which contains over four times as much soil fertility as does the cream.

Some Salable Skim Milk Products.

There are certain seasons of the year when some farmers prefer to sell their skim milk rather than feed it because they claim the pigs have grown beyond the skim milk stage and the calves have also become weaned and are feeding entirely on grain and hay. This condition is more prevalent during the winter months than in the spring.

In case the creamery patrons prefer to sell rather than to feed their skim milk there are a number of salable products which can be profitably made at the creamery from this surplus milk.

The recent high cost of living has made an unusual demand for cottage cheese and this is a product which when well made can be sold at a profitable figure from the creamery.

Casein may also be made from skim milk and during the past year there has been an unusual demand for casein at good prices.

The following directions for making these products have been outlined by Prof. Sammis and are the basis of exercises

given our dairy school students during the present winter course.

First. Cottage Cheese.

To the skim milk add 2-15 per cent starter through a strainer. Heat to 90-95 degrees F. and let stand until sour. When coagulated and thick, stir frequently with a rake, keeping the curd in coarse pieces and heat gradually until a temperature of 110 degrees F. is reached.

When the curd has settled well and is firm enough, drain off the whey and pour clean cold water over the curd to cool it. Stir the curd in the water, then drain until dry and mix with the curd about $1\frac{1}{2}$ per cent salt. The cottage cheese is then ready to pack into tubs lined with parchment paper or can be placed in small packages for retail.

Second. Pimento Cottage Cheese.

To the cheese as made according to the above description mix one pound of finely ground canned pimento with every 25 pound cottage cheese. This mixing is conveniently done by passing the cheese and the pimento through a grinder.

Third. Wet Casein.

To the skim milk add 10-20 per cent starter. Heat to 100 degrees F. and leave to sour. When thick stir gently with a rake or by hand and heat to 120 degrees F. After draining off the whey, wash the curd with water at 120 F. and finally cover the curd with water and heat to 180 or until the curd becomes doughy. It is then ready to pack for shipment.

Fourth. Dry Casein.

The curd prepared as in 3, may after washing with water at 120, be drained and pressed. It is then ground fine in a mill, spread out in a thin layer on trays and dried in a current of warm air. Casein buyers pay for the weight of dry casein.

The yield of cottage cheese is approximately 16-18 pounds per hundred pounds of skim milk, and when this is sold in 12 ounce packages at 10c per package, the receipts will be about \$2.50 per hundred pounds skim milk.

The buyers of casein pay about 10-12 cents per pound dry casein at the shipping point from which it started. The yield per hundred pounds is about three and one-fourth pounds dry casein

so that the receipts when casein is made are about 32-38 cents per hundred pounds skim milk.

If there is any one thing a creamery man or a butter man ought to get enthusiastic over it is skim milk and he ought to transfer his enthusiasm to his patrons.

The results from feeding trials by experimenters may seem to be exaggerations, but they are not; they are based on actual feeding trials and if any farmer would take the time to make some exact observations by feeding skim milk to his own stock and note the results or note the prosperity of the farmers who do feed skim milk, he ought to be convinced that skim milk should remain on the farm.

A brief popular outline of the recent results obtained in regard to milk as a food is contained in the following statement prepared by Prof. Hart:

THE VALUE OF MILK IN NUTRITION.

Prof. E. B. Hart, Wisconsin College of Agriculture.

Milk is a perfect or complete food. By that I mean that, as the sole article of diet, it will efficiently support growth and reproduction. There are but few single articles of diet that will do this. Eggs will do it, but corn meal or oat meal will not. There are experiments on record where milk used as the sole article of diet over a long time has failed to nourish completely either calves or rats; but these failures, we interpret as due to intestinal putrefaction, caused by the use of the heavy protein diet and the tendency for milk when used alone to produce constipation. As soon as some bulk is given the diet through the addition of "roughage" to serve as a mechanical factor, milk becomes chemically a perfect food.

Nature, after many trials and probable failure, finally produced in milk a secretion of superior character; but in what respect is it superior to most other articles of food? Why is it especially important in the nutrition of all young, be they the human baby, the farm calf, or the farm pig?

Factors for Adequate Nutrition.

We recognize today the necessity of five factors in the diet for complete nutrition. These are good proteins, suitable ash mixture, sufficient energy, and two chemical substances of unknown character belonging to the class of materials called "vitamines." A sixth, but abnormal, factor sometimes creeps in with the diet of natural foods and is in the nature of toxicity or poison. For example, cottonseed meal, although a natural food stuff and in extended use, is known to contain a toxic substance and consequently this product must be used with care. Milk contains all the five factors mentioned above and none, so far as we know, of the sixth; and it contains these five factors in suitable proportions. Corn meal may contain all the normal factors of nutrition, but they are either too low in quantity or too poor in character. *Milk contains them in proportion adequate for rapid growth*, and that is why it is a superior food. In fact we today use milk as the yard stick of nutritive efficiency. In experimental work its ash mixture is generally taken as the standard.

Importance of Ash.

The failure of swine to grow on corn meal alone or corn meal, fortified with a concentrate like gluten feed, is primarily due to its low and poor ash content. This was known to Henry many years ago. Poor proteins are also a factor in the corn meal diet, but a poor ash mixture is the principal one. Suppose we make ash additions to a corn meal-gluten feed ration in such proportions as to make the total ash similar to that of milk, then what happens? We get growth at a fair rate. It will not be at a maximum rate because the corn grain proteins are not good enough to accomplish that.

If the corn meal is supplemented with skim milk then, as has been demonstrated so abundantly in practice, growth at a rapid rate becomes possible. The reason for this lies in the improvement of the ash and the introduction of better proteins. These matters are known to practice, but only lately have we gained understanding. Once understanding comes then teachers can

insist that these practices become universal if good results are to be obtained; and when poor results occur the reason for them can be better understood. Milk with its abundance of calcium and phosphorous also makes possible a rapid skeleton development. These two elements are laid down in the bone tissue as calcium phosphate and give rigidity and strength to this tissue.

Importance of Good Proteins.

We are learning that the members of this important class of food substances differ among themselves in nutritive value. A pound of protein from corn meal is not equal to a pound of protein from milk in making new growth. This is probably the most important fact in a practical sense that farmers will have to recognize in the future. The building units from the proteins of our cereal grains are not so well suited as those from milk for rapid construction of the protein structure of animals. It is precisely in this direction that nature produced an important result, when the mammary gland constructs from the blood stream the proteins for the nutrition of the young. If the cereal grain proteins are used as the sole source of proteins for a growing pig they will show an efficiency of less than 30 per cent, while the proteins of milk will reach 65 per cent. In other words, but 30 per cent of a pound of proteins from the corn kernel would be stored away, while 65 per cent of those from milk would be held up by the animal. In storing the 30 per cent from the cereal grains 70 per cent was wasted because it did not fit well into the growing structure of the young; but only 35 per cent was wasted when we used milk proteins for a growing pig or growing calf. Such results are very significant and make it clear why milk in any form, either whole, skimmed, as buttermilk, or even the manufactured products such as cheese, becomes a superior article in the ration or diets of growing animals and for human consumption.

The farmer who keeps skim milk in the ration of the growing calf or pig, or the milk products manufacturer who makes available skim milk or buttermilk in a clean wholesome way for

human consumption will in the first case, repay himself by producing better animals, and in the second case help ward off the dangers of under nutrition among the children of our cities. I have known growing children made strong by the abundant use of milk and eggs in the diet and with it comes a great resistance to disease.

Importance of "Vitamines."

The term "vitamines" is a very attractive one today and will be over-worked or made to explain, sometimes correctly and sometimes incorrectly, a heap of sins in nutrition; but there are at least two of these substances of unknown chemical construction which are absolutely necessary for the growth of the animal. One is contained abundantly in butterfat and the other abundantly in skim milk. One might judge from this statement that the one in the butterfat would not be contained at all in the skim milk and consequently skim milk would be inadequate as a sole source of diet for complete nutrition. It is probable, however, that some of the "vitamine" contained in the milk fats dissolves to some extent in the whey of milk and consequently is present even in skim milk, although perhaps not as abundant as we should wish. But the point most important for this discussion of the superiority of milk in nutrition is that this secretion contains both of these substances and thereby, with its splendid ash, efficient proteins, supply of "vitamines" and absence of poisons when fresh and sweet, makes it the great common article of diet on the farm and in the home.

Milk Substitutes.

Are there any? If there are they are unknown to me. A wisely made calf meal contains some milk powder or blood flour and we are not advised as to what proportion of these make up the mixture. These products, milk powder or blood flour, would improve the common grain mixture used in calf meals so far as the efficiency of their proteins are concerned, but their dilution would not make the mixture equal to straight skim milk. But

wisely, most of the manufacturers of calf meals advise the use of their product in conjunction with skim milk; and such advice is sound. They make no claim that their product is a complete substitute for milk. The man who finds a perfect substitute will reap a rich reward and the goal is worth while. Witness the results of the Indiana Station where a ration of skim milk, their own calf meal mixture, and a commercial calf meal were compared in the rearing of calves. According to their data at hand it was found that a calf fed skim milk as the main source of the proteins reach a weight of 280 pounds in 180 days; on their own calf meal 245 pounds in 180 days, while the commercial calf meal the animal reached 200 pounds in 180 days. Such results are readily understood, now that we know of the great efficiency of milk proteins as compared with those from grain mixtures.

At our own Station Professor Halpin has placed young chicks on rations made up of corn, green clover and water; wheat, green clover and water; and corn, green clover and milk with good results. The group receiving the milk made two or three times the growth of those receiving the other rations and in the same time. "Keep a cow in conjunction with your poultry plant" is the advice of an experienced and successful poultryman.

Influence of the Sale of Milk from the Farm on the Animal Industry.

The cities, condenseries and cheese factories are today offering good prices for whole milk. The temptation to sell all of the milk produced on the farm is strong. The effect of this policy on the young stock is also apparent. Maximum growth and strong vigorous animals will not be produced in the same time by the use of milk substitutes. The growth period will be longer. Those sections of our country following such a practice are not the centers visited by buyers of good live stock. Farmers in our own state and in the center of the cheese industry, are learning that it is folly to try to raise good calves without milk. Already they are following the sound practice of reserving a supply of whole milk for the growing calf. The animal is kept on whole

milk. eight to ten pounds per day, for from seven to eight weeks and then gradually this supply is withdrawn until at the end of three months a small allowance of milk is still a part of the diet. Even at the end of five to six months, one pound daily, or just enough to color the water is still in use. This is splendid practice and should be the common rule rather than the practice of the few.

In the language of a wise German, "Milch ist ein besonderes Saft," (a wonderful juice), and its virtues should be known and appreciated by every man.

(Applause.)

CHAIRMAN: Gentlemen, I consider this a very valuable paper and one on which I think there ought to be a great many questions. It is one we are all interested in I know. I would like to ask Prof. Farrington how the value of skim milk compares with the value of whey.

PROF. FARRINGTON: That is something on which feeding experiments have also been made and it has been found that by feeding skim milk to one lot of pigs and whey to another along with corn meal, in almost every case the whey is found to be worth one-half as much as the skim milk. What is the feeding value of buttermilk? If there isn't any extra water in the buttermilk it is fully as valuable as skim milk in feeding pigs.

MR. WILLIAM HURST, Waukesha: I would like to ask Prof. Farrington if this feeding value of the whey is the unskimmed or the skimmed whey?

PROF. FARRINGTON: That is a very natural question to ask, because many are putting in whey separators in their cheese factories, and the farmer thinks that the three-tenths of one per cent fat the separator takes out of the whey is worth ten times as much as the same amount of corn meal, but it is a fact that a little corn meal enriches the whey, so that the skimmed whey is almost as valuable as the unskimmed.

MR. D. R. DONNET, Wonevok: I would like to ask if the buttermilk is as good for young pigs as skim milk, or if there is any difference.

PROF. FARRINGTON: Have you tried any experiments?

MR. DONNET: Some, yes.

PROF. FARRINGTON: I never have known of any instance where the skim milk was of any more value for young stock than buttermilk. Of course the buttermilk is rather sour and it takes the young stock some time to get accustomed to it, but I think when they do they will like it as well as the skim milk.

MR. LAURITZ OLSEN: I would like to ask Prof. Farrington if he thinks sour skim milk is of more value than sweet skim milk, or is of equal value.

PROF. FARRINGTON: I think it is of equal value.

MR. OLSEN: Over in Denmark in the old creameries in late years they have installed regular ripening plants for skim milk and they leave it there until the next day and they put in starter and the next day they feed it to their cattle.

PROF. FARRINGTON: Some experiments in Vermont, I think were made, in which they fed one lot of pigs on sweet skim milk and another lot sour skim milk, and the found both of equal value.

PROF. M. MORTENSEN, Ames, Ia.: In reference to the feeding of sour milk by the Danish farmers, they prefer to have the milk the same flavor at all times. As it is in the creameries here the whey will be sweet one day and sour the next day. The farmer is receiving that milk always at a certain degree of acidity and when it comes home it is always the same.

MEMBER: I have fed buttermilk to calves and I have fed skim milk to calves and sweet milk to calves, and that is the best of all.

CHAIRMAN: If there are no other questions along this line we will go onto the next number, "Business Correspondence," by Prof. M. Mortensen, Ames, Iowa.

BUSINESS CORRESPONDENCE.

By Prof. M. Mortensen, Ames, Iowa.

Mr. Chairman, Fellow Buttermakers, Ladies and Gentlemen: I am always pleased to come out to some of the neighboring states and meet the buttermakers. I have been a buttermaker

now for twenty-three or four years. We don't like to be called professors, I believe Prof. Farrington's definition of a college professor will explain why we don't like to be called that way.



PROF. M. MORTENSEN

Iowa expects to win the next banner. I notice Mr. Martin Meyer is here, and I think we had better ask him to make two banners. It has been said that the Iowa people win the banner before the convention and the Minnesota people store it for us. I believe it will be a good idea for us to co-operate, you in Wisconsin and we in Iowa, and we will build a little cold storage right on the Mississippi River between Wisconsin and Iowa, and after they find out we have the storage facilities I believe they will let us have it.

I was interested in Prof. Farrington's soil productivity. In Denmark during the past years they increased the productivity of the soil 53.2 per cent. From one acre today they obtain a crop

53.2 more than they did before. That is due more or less to the feeding of skim milk in that country. I will also mention the amount they are feeding. Wisconsin is such an immense state and Iowa is a small state, and Denmark is one-fifth the size of Iowa. We make a great deal of grain in Iowa. The corn crop is worth a little over \$200,000,000 a year. Do you know how much grain and corn that little country imported in 1913? They imported grain and corn to the amount of \$150,000,000, more than is grown in the same area of land in Iowa. All of that corn and grain is fed to the animals, and the skim milk is fed back to the soil.

When I began to write a paper on this subject for which I am marked down, I found it was not such a very easy problem after all. There were two problems before me. First I imagined that there were a good many older people here who knew a great deal more about correspondence than I did; and second there might be a great many young people who write many letters. I always used to visit my best girl and never wrote to her. Coming here, I find that the most of you are older people, and I am sure you have possibly a hundred letters for one I have written. You will kindly accept the few remarks I have just made as coming from a professor, as Prof. Farrington defines it.

A volume of business is annually being transacted between firms and individuals who have never come in personal contact with each other and they have become acquainted and started a business relation with each other due entirely to correspondence. We are frequently corresponding with our customers and may possibly be writing from twenty to a hundred letters for each time we have the opportunity of calling in person or through a representative of the firm. It therefore becomes evident that the business letter is one of the big factors in business and that it is of equal or even greater importance that we are represented by a business letter which will be considered as a credit to the institution where it originated than that of being represented by the proper representative. The latter will make only a short call and should the impression he made be unfavorable the effect therefrom may gradually die away and be forgotten. The letter, how-

ever, has become the property of the one to whom it was addressed and if it creates an unfavorable impression it reflects on the firm even more forcefully and will continue to convey the same impression at least as long as it remains in his possession and such a letter may not merely prevent an immediate sale, but sales for a period of years.

The first impression obtained from a letter comes from the stationery that is being used. The stationery selected by a firm should at least not be out of harmony with the business of the company. A dairy farm should select paper of good quality. It cannot any more afford to write letters on poor cheap appearing stationery than it can afford to send its salesman out in cheap and shabby clothing. The color of stationery should also be given attention. A white color is always safe, other colors should be selected with caution. A blue stationery used by a dairy firm would seem to be entirely out of harmony with the business; a dealer in skim milk might make use of the blue color without being criticized but a dealer in whole milk, cream, or butter would prefer a color significant of a product that is rich and of high quality. A cream color might be a more suggestive color for a dairyman to select. However, a cream color should not be confused with an orange color or even a lemon color. It should be more delicate and unless such a satisfactory color could be obtained it would seem safer to stay by the white.

Business stationery should bear name and full address of firm or individual. Other information which may properly belong to a letterhead is such as names of firm officers, telephone, cable address of the firm, and capital stock of the firm. Manufacturers often add a cut of the plant. This is usually for the purpose of impressing the recipient with the magnitude of their business and thereby also make the impression of reliability. A building should never be used for the letterhead by a firm occupying only a small part thereof unless the building bears the name of the firm using it. The space on side margins of the paper should not be used for printing matter. Engraved or lithographic stationery is to be preferred to printed. A letterhead

should never be used for second sheet, but a blank sheet of same size and of the same paper stock as the first sheet.

The envelope should be of same paper stock as the sheets used. It should have the return address in the upper left hand corner. The address should be plainly and neatly written. This is of particular importance when the letter is written to an individual or to a smaller firm where the owner or manager opens the letters himself. The size of the regular commercial envelope is about $3\frac{3}{4}$ " x $6\frac{1}{2}$ ".

The open faced envelope is used quite extensively for mailing bills thereby saving the labor of addressing the envelope. It may be very useful for such purposes even though many are opposed to receiving a letter, the outside appearance of which indicates that a bill is contained within. This is particularly true in reference to individuals and it is the safer policy not to adopt the open faced envelope for other purposes than that of using it for mailing statements and bills to firms. As an envelope for business correspondence it cannot be considered to be well adapted as it necessitates that the paper be folded in a very inconvenient and unattractive way and as the outside appearance is against such a letter it will not receive as hearty a welcome as will a letter appearing in a more attractive clothing.

The letter should be so written that it is properly proportioned on the sheet, that is, the white margin at the bottom is practically the same as the white margin at the top. Likewise, the margin on the two sides of the letter should be the same, and the right hand margin should be made as regular as possible. The body of the letter should also be divided into paragraphs as that makes the letter more readable and more pleasing to the eye. Black ink is the safest to use although colors may be used.

A dairy carrying on a retail business will often send letters to individual homes in the city. Such letters may be sent merely for advertising purposes, but the lady of the house will usually receive them and the appearance of the letter should therefore be such that it will appeal to her. A letter written on business stationery would not receive her attention. If such letters are written on high grade stationery similar to that used for social

correspondence it will be more highly appreciated. Such stationery may be absolutely plain. If desirable to have the return address on the envelope then it might be placed on the upper left hand corner of the front or preferably on the back of the envelope. The letters should be very small and the engraving most neatly done.

A business letter is composed of the following parts:

- The Heading
- The Introduction
- The Salutation
- The Body of the Letter
- The Complimentary Close
- The Signature.

The heading is the first point to be considered and includes the name of the place from which the letter was sent and the date of writing. If necessary the street and room number may also be given. The heading is placed at the upper right hand corner immediately below the letter head. Some place it nearer the center. In a social letter it is often reserved until last.

The introduction or inside address is composed of the name of party or firm to whom the letter is written, street number, city and state. It is placed at the beginning of the communication or, as in the social form, it is placed at the lower left hand corner of the sheet and then includes only name and address. The latter style may be considered as the stronger. The reader is able to get into the subject matter of the letter without any loss of time which appeals to the busy man.

A business letter intended for a business firm should always be addressed to the firm itself and not to an individual member or to some employee of the firm. When it is addressed to an individual it becomes a personal letter and if the party to whom it is addressed is absent for some time the letter will be left until such party returns whereas it would receive prompt attention had it been addressed to the firm. If the writer desires that his letter is brought to the attention of some certain person of the firm then the inside address may call for the attention of that particular party as follows:

The Sunset Creamery Co.,
720 Lincoln Ave.,
Royal, Iowa.

Attention of Mr. J. C. Smith.

The salutation depends much upon the subject matter of the letter, the rank of the person to whom it is written, and to the acquaintance of the parties concerned. If writing to individuals, a business letter commonly starts with "Dear Sir" or "Dear Madam" and with "Gentlemen" if writing to a firm. The form "My dear Sir" is often used in business and may be considered very good, however, the former is the safer to use.

The more personal form of salutation as in "Mr. Brown" or "Dear Mr. Brown" appeals to many people. It makes the reader of the letter feel as if there is a more intimate relation between him and the writer and that form is often preferable, especially so if the two parties are acquainted.

The body of the letter may begin upon the same line as the salutation or, as is most frequently done, on the next line below. The body of the letter is that part which contains the real thought and substance. It is only the business letter which is full of good thought and ideas that is worth while writing. The other may just as well not be written for it gains no friends, creates no new business, may even be a business loser. It is well, especially for the beginner, to study each letter before delivering it to the mail. Single out the real strong parts of the letter as well as the weak parts and the entire superfluous parts. Such analysis may often reveal the fact that the letter is of no value and should be rewritten.

A letter which answers the purpose for which it is intended must contain the thought which the writer wants to convey in such a way so the reader takes an interest therein and feels that the writer is telling something that is of value to know. It is therefore to the writer's interest first to make clear to himself how best to present his subject so that it will appeal to the reader and appear of interest to him. The very first sentence of the letter should arouse interest. It should never begin with "I" or "We" as "We are pleased to inform you that we will be in

a position to manufacture all kinds of fancy ice creams beginning May 1st and we most earnestly solicit your patronage, etc." This information might be of some interest to a party owning a financial interest in this particular ice cream factory, but not to a mere customer and even less to the one who never purchased ice cream from that factory. The writer should endeavor to place himself in the back-ground and the one addressed in the front rank. It would appeal more to a lady if it could be shown to her that this letter is written entirely for her benefit. A letter as the following comes nearer meeting this requirement.

Dear Madam:

You always desire to have for your parties an ice cream which is somewhat different from that served by your neighbors. If you consider that we can assist you in this matter then we should be glad to have you call us over the phone at any time. We are just equipping our factory for taking care of special orders and shall endeavor to keep the quality of our product up to your expectation.

Good tact and judgment are essentials in business correspondence. A letter that answers its purpose should always make the reader feel somewhat more friendly toward the writer or the firm from which it comes. A letter which cannot accomplish that is either of no value or it may prove to be injurious. The following letter is a type of the letter.

Dear Sir:

We have your favor of recent date asking for a subscription for the erection of your new Lodge Hall.

We hardly consider that we should be called upon by your members for a donation as the members of our firm all belong to the Greenview Lodge and help to pay for the up-keep of same, however, we like to see you meet with success and enclose herewith ten dollars as our donation.

Yours truly,

SUNSET CREAMERY CO.

The writer of the above letter should first have decided in his own mind as to whether or not the cause was a worthy one, whether or not he could afford to make a donation and possibly also the advertising value of such a donation. If he decided to make the donation he should endeavor to go on record as a willing and cheerful giver instead of criticizing the organization for calling for support. As the letter now reads the receivers of the donation are made to feel that they would rather have been without his support. Such a letter might have been written in a spirit so the letter itself would have been appreciated as much as the donation it contained, and the friendly feeling thus created would be of much value even from a business point of view.

More objectionable, however, are such letters as contain sarcasm or unfriendly remarks. At times a correspondent will receive such a letter and will possibly take pleasure in using similar terms for reply, but if such matters are given due consideration it is readily understood that such a letter is always injurious to a business concern as well as to a single individual. It is therefore a safe policy for any correspondent to place letters, which were written when the writer was in an angry mood, on the desk until the following day. They should then be re-read and analyzed and should be re-written if the letter as a whole will not tend toward creating a more friendly feeling between the writer and the addressee. It should be borne in mind that there is nothing which will humiliate the writer of a sarcastic letter more than that of receiving a kind and friendly letter in return.

The volume of business and character of business done by the firm to whom the letter is addressed and even more the individuality of the one who acts on the letter, if such is known, should be important guides for the writer. It at times appeals to the reader if his name is embodied in the letter, as "We believe you are aware, Mr. Smith, that our firm appreciates your business very much, etc." The busy man wants a short letter full of facts and information. The one who receives but few letters will often take time to read a long letter and enjoy it. It is the safest policy, however, to make a business letter brief without sacrificing any of the essentials.

Often a direct question is asked in a letter. It is convenient to the writer to receive the reply to such on the same letter and a request should be made when closing the letter asking that a reply be made on the back of the letter.

The complimentary close mostly adopted by the American business men are such as "Yours truly," and "Yours respectfully." This should be written on the line below the last one of the body of the letter.

The signature should be written plainly so it may readily be read. It should preferably be written in black.

The form letter is often used by the creamery owner for the purpose of furnishing general information to patrons or customers. It is commonly used to acknowledge receipt of a shipment from a new patron. Such a letter will also furnish information in reference to the company's system of paying and other information as is thought desired by the patron. Many general questions are asked which may be answered to greater or less extent through form letters.

For selling goods or purchasing cream the form letter has been an important factor. A series of letters are prepared, one supposed to follow the other at proper intervals. Such letters should be prepared systematically, gradually bringing the receiver up to the point when his desire to do business with the firm becomes strong enough so it leads him to action. Whenever a reply has been received to one of the letters the form has answered its purpose and a personal letter should follow.

When using the form letter it is taken for granted that the same desires exist in the minds of all and that the same arguments will appeal to all alike. A form letter that sells goods and buys goods must contain good arguments presented in an interesting way. When writing a form letter it is well to have several written and to test them out by mailing a certain number of each and noting the per cent of replies obtained from each.

A form letter should not merely contain strong arguments but it should also be neatly written and properly signed so it will not have the appearance of a form letter for if it has it matters not how strong the arguments presented may be, it has be-

come much weaker and many receiving such a letter will not take time to read it.

Filing of correspondence is too often disregarded by the smaller creamery organizations. It is very inconvenient and often quite expensive to any business concern when correspondence has been misplaced. Many legal cases are annually being lost in court due entirely to misplacing or loss of valuable correspondence. Receipted bills are destroyed or misplaced and frequently a second bill is presented for collection and as no receipt is available it means that the bill must be paid again.

To a small creamery the filing of correspondence and bills is a small task. A twenty-five cent file may often be sufficient for the correspondence which is then filed alphabetically. For filing bills and receipted bills three twenty-five cent letter files may be used as follows. A file marked "I" is used for filing alphabetically all invoices of goods purchased. If a special form of requisition blank is used when purchasing, then a copy of same is filed in the same file and invoice when received is pinned to it. When a bill is received at the close of the month it should be checked against invoices from same firm and if found correct a check should be made out, pinned to the bill, and mailed. The invoices are pinned together with notation of when payment was made, amount and number of check and should then be filed in file marked "II." It is kept there until the receipted bill is received which is then pinned to the invoice and filed alphabetically in file marked "III." If a receipted bill is not received then the check returned from the bank will answer the same purpose. File No. III. will possibly hold all receipts and invoices received for one year; whenever it is full it is stored away properly marked with period of bills it contains.

For filing letters the vertical drawer file should be considered as the most convenient. Letters are filed away in folders. Each firm's letters may be filed in a folder or for irregular correspondence letters from several correspondents may be placed in the same folder. For the smaller creamery such folders are filed alphabetically, but in larger plants part of the correspondence is filed both geographically and alphabetically. A creamery

manager selling butter in various towns found it convenient to have the correspondence with all merchants of one town close together. Therefore the main division is geographical and alphabetical in accordance with the names of towns. The folders for the individual customers are filed alphabetically under the main town division.

Another thing I should have mentioned is, that we should always answer letters promptly. Never let that drag. It is a whole lot more difficult to answer a letter two or three or four weeks old than it is a letter which has just come in.

The brief outline of business correspondence which I have here attempted to outline to you is very incomplete and may not furnish you with any new ideas. The importance of a well planned system for our business correspondence should however be emphasized as it has become a big factor in our modern method of conducting business. (Applause.)

CHAIRMAN: Has anyone a question to ask? I want to say it is a very good paper.

I want to announce, while I think of it, to the Committee on Resolutions, Mr. Dodge, Mr. Keppel, and Mr. Hoiberg, that I would like to have them meet in the Secretary's office at seven o'clock this evening, if they will please.

The next number is "The Buttermakers' Business," by Prof. R. M. Washburn of St. Paul, Minnesota.

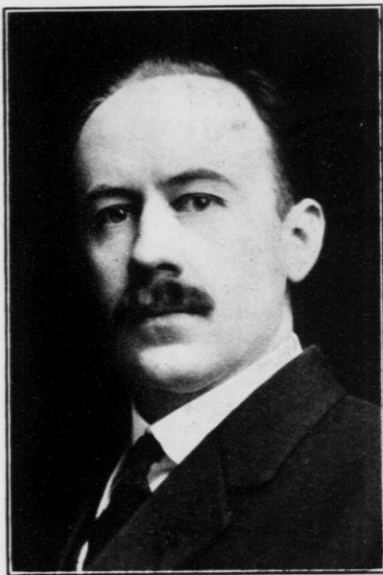
THE BUTTERMAKERS' BUSINESS.

By Prof. R. M. Washburn, St. Paul.

The creamery buttermakers of the United States occupy a very unique position. Forty years ago there were few buttermakers except the housewife who made butter in her own way as she had learned it, and as best she could with the very meagre facilities at hand. The butter produced by each housewife, and in fact at nearly every churning, differed from that produced by other people and in other places. The quality varied tremendously from extremely good to very poor. A unifying of the

quality as well as a rise in the average grade was essential to the growth of the industry.

The buttermaker as a professional man has been built up since 1862 and chiefly since 1890. In fact the buttermaker of so late a date as 1895 would be puzzled in a modern creamery, if indeed, he would be able to proceed at all, until he had relearned



PROF. R. M. WASHBURN

the business. He now occupies a unique position between the farmer and the consumer, and here I would emphasize this fundamental fact. It is not a new principle, but it is one we should remind ourselves of as buttermakers, and ask the question, "Why is a buttermaker?" Ridiculous question you say? No, indeed. The buttermaker is because the machinery of farming affairs can be conducted better and more economically with him than it can without him. The need of concentrating the cream into larger lots and the making of butter by trained men who devote much or all of their time to this work, in short, the

need for the buttermaker created the buttermaker. The buttermaker is an adjunct to the farmer. The creamery is a sort of an extension of the farm buildings and as such I believe most firmly, friends, that we should work upon the plan that the buttermaker should do those things which will assist the man whose need created him and should work to strengthen farming. I have heard buttermakers argue sincerely and zealously for those things which would help the buttermaker but not the farmer. I am not in sympathy with that method because we have no right to exist as buttermakers except to serve the main purpose of aiding farmers feed humanity.

The Unique Position occupied by the buttermaker is one, however, which is very significant. We as a group, especially in this north central country, represent an industry which is not only a vital link in organized farming but an important one in the state's economic affairs. I am often out of patience, Mr. President, with the small insignificant recognition which city newspapers give to the buttermakers' conventions. In Minneapolis only a few weeks ago there were gathered the directors of an industry, the N. C. B. A., which amounts to about \$800,000,000 per year, and you would have had to look in the back pages and obscure places of the newspapers to find any mention of it.

Every year the Minnesota creamery buttermakers meet. They are in reality the directors of the industry which brings forty million dollars per year into the state of Minnesota from outside profits and which represent a total value of about one hundred million. In the matter of total dairy production Wisconsin leads in the United States, Iowa comes second with Minnesota a close third, but these three states stand out in the production of dairy wealth. It was the skill of the creamery man which produced about one-half of the value of the butter which in each of these states was five to seven times the amount of the wealth of the largest gold mine of the world, which produces scarcely seven million dollars per year. The total value of the dairy production of each of these three states is greater in amount than the total gold output of the United States, including

Alaska and about three times as great as the total gold output of Mexico under peaceful conditions. The dairy workers while producing wealth and feeding humanity are at the same time increasing the fertility of the soil, thus making it more powerful to produce everything else. Yet conventions of the dairy men and buttermakers create very little interest to the general public.

The buttermaker is sort of on the firing line between the interests of the farmers, his patrons, and the general consuming public, and for this reason is often blamed by the consumer for conditions that are absolutely not his fault, and on the other hand is expected to render a service that he should not be asked to render. In our classic oleomargarine fight which has been on for more than forty years and is becoming keener this year because of the high price of butter which is due largely to the fact that much is being exported to Europe, the farmers, who are the ones who are going to be benefited by just laws and their honest enforcement, when asked for a contribution to make this fight, often, in fact usually, hold back and the work suffers in consequence. The buttermakers, and not the producers of the fat, are the ones who have had to do most of the fighting, or in other words, the hired man was called upon to defend the business interests of his employer.

What is the Buttermaker's Business? This will vary with the stage of development as well as ability of the man in question. I wish to emphasize to the young buttermakers here that if they have hired as helpers, it is their business to be just as helpful as possible. Don't try to keep the books nor to do the testing, nor yet to jolly the farmers at first, but do those things the manager of the creamery assigns to you, leaving it to his experience to put you to the work for which you are best fitted and which he most needs to have done. In doing this he will appreciate your services and retain you as long as possible. I have had a number of helpers who are wonderfully willing to do the light work, but who studied to avoid being on hand when the ice was to be dug out, the refrigerator box to be filled, the drain to be cleaned, the boiler to be washed, and other similar disagreeable but necessary pieces of work. The business of the

apprentice is to do as he is told and little more, to be on hand in the morning to build the fires rather than to come in just in time to blow the whistle. I had one very funny helper. He was always very punctual at coming around at 6:00 o'clock in the morning to blow the whistle, but he left it to me to be on the job at 3:00 o'clock to get up steam and get the churning out in time for the early delivery of milk. I called him a helper out of courtesy. He was a friend of the proprietor and was put in to learn the business.

The business of the buttermaker as he graduates into that class is to make the most and the best possible butter from the cream he receives and to improve the cream quality as far as possible. If he is tactful and remains long enough to become acquainted, many, or most of the farmers, will receive suggestions for improvement. Sometimes you can talk to them very plainly, with others fine consideration for their feelings is necessary. Diplomacy and courtesy as well as a strong back and trained hands are essential factors to success in buttermaking. I have been much impressed that it does not require many years in a young man's life until he reaches that point where his personal success and achievement rest more largely upon his personality, his ability to impress other people favorably and to influence them to his way of thinking, than it does on his technical ability. There comes a time when the money is paid to the man who cannot only repair the machinery, test accurately, and keep the factory in running condition, but can bring about conditions for a larger success.

The Buttermaker Manager. It is my deep conviction from a life time in this line of work that we should cease to look upon the buttermaker as a type of transient, hired man, or journeyman who will work one season here, another there, and at the end of five or ten years go to farming or into some other line of work. The industry needs experienced men of tact and wisdom, not a never ending procession of beginners. The learner in any line of work is sure to err in judgment and make costly mistakes. The dairy industry has demonstrated itself throughout the world to be a permanent institution and like every other is surrounded

and permeated by vital little facts which cannot be learned in a month, nor in a year. I am looking forward to the time when our buttermakers will enter the profession with better general education, that there will be provided for them dairy schools easy of access, short in duration, and in which all instructors shall be experienced, successful buttermakers; that there will be a system of licensing or accrediting such experienced men so that creamery boards and proprietors will recognize the merit of the group, will choose to employ only such, will pay a living wage, so that the buttermaker may establish his family, educate his children, and live the life of a citizen of the community, being not only head buttermaker but also manager under the board of directors for the successful conduct of the business. We have a number of these buttermaker managers who are recognized and respected citizens, the same as the lawyer, the blacksmith, the merchant, or the doctor.

It is not to take the business out of the farmers' hands that I would see developed the buttermaker manager, but rather to strengthen his hands by means of a manager who knows the details of the work and the business of creamery buttermaking and the machinery. We have among the co-operative creameries of America a very unique example of men attempting to manage manufacturing plants when many of the managers do not know much more than the first principles of the enterprise which has been placed in their hands. In fact, this is now the weakest link in the co-operative chain. I worked in a creamery at one time in which the manager had been elected on the basis of nationality. There was a three cornered fight in the community between the French-Canadian-American, the German-American, and the Yankee-American elements. There had been a Yankee creamery manager, but he was voted out by the French and Germans working together, and almost wholly because of the matter of nationality. In another creamery the fight grew very close and the man who put up the biggest keg of beer won. (Laughter.) It is no laughing matter when a business amounting to \$50,000 to \$100,000 per year to the community is turned over to a man for such a reason.

I am looking forward to the time when the co-operative creamery manager will serve first as buttermaker's apprentice. We know with all our heart that experience is the only thing that will grind the truth into a man. I want the manager to have gone through that mill, and then have graduated into the full fledged buttermaker class, then with maturity, experience, and a demonstration of character become the local manager under the direction of the board. I would let him keep the books and make regular reports to the board, be responsible for the accuracy and fine balance of the affairs with full authority to hire and fire his help. We shall never secure the full benefit of the buttermaker's skill if he is compelled continually to scrub the floors, to dig in the sawdust, to clean the sewers, and do similar pieces of work. He should have done these things, but he should not always have to do them. It takes the spirit out of a man. The average co-operative creamery in Minnesota does an average annual business amounting to about \$30,000. Many of them exceed \$100,000. What private or corporate enterprise could be found entrusting so large a business in the hands of inexperienced, even though well intending man. The point has been reached in Wisconsin, Minnesota, Iowa, and in fact throughout the northern half of the United States when a stronger class of buttermakers is needed. A few of our leading men are now receiving salaries of from \$125 to \$175 per month. I wish there were more in that class and fewer in the \$65 rank.

Our Ideal Buttermaker should be a citizen locally, and a citizen naturally, by which I mean that he should be interested in the schools, roads, civic improvement generally of the community in which he is living, likewise be interested in the larger features of dairying as related to the matter of just laws and the reasonable enforcement thereof. Many of these things do not affect the buttermaker so long as he is a mere hired man, but they do affect the farmer for whose interests he should be working. It seems to be impossible to get the farmers to act for themselves in many of their major matters. You must be their delegate and representatives at such conventions as this and others, to catch the spirit of the fight and to bring to the manager something of

what you have learned and felt, and to transmit as much as possible to the home board that they in turn will stand back of you as buttermaker, and you stand back of the State Association, and the state back of the national and that all of us stand back of the National Dairy Union in its unceasing fight. Each of us who has not done these things has not done all that he should.

Briefly in conclusion, the business of the successful buttermaker is to be a useful helper, a sincere buttermaker, a trustworthy buttermaker manager, a respected resident of the community, and a bringer of the gospel of co-operation and justice and better homes to his patrons.

CHAIRMAN: Gentlemen, please keep your seats. Secretary Benkendorf has a few words to say.

SECRETARY BENKENDORF: Before taking up these various points I want to thank the association for the honor they have put upon me in re-electing me as secretary. I appreciate it is a good deal of work, but I am only too glad to help the organization in any way I can.

I want to call your attention to the fact that if any of you have not got a satisfactory room and will notify Mr. Sim Oakes he will make satisfactory arrangements.

I would also like to announce we have a vaudeville here tonight and that you can get the tickets at the drug store around the corner.

I am still in the game soliciting memberships.

I understand that the President has called the attention of the Resolution Committee to the meeting in my office about 7 o'clock.

I wish all of you who have sent butter to the convention would sign your slips at my office at the Sidney Hotel before 6 o'clock.

We have several letters here that are too long to read, but I will call attention to some of them.

Here is a letter from Louis J. Shields of Clinton, Wisconsin, in which he encloses one dollar for membership.

I have a letter from Daniel Taylor, whom you remember is the traveling man for the Torsion Balance Co. I have a letter here from Mr. S. A. Cook of Neenah that I want to read. (Letter read.)

We have several invitations here. Marshfield, Wisconsin, has sent an invitation and telegrams which I will not read. They want the convention at Marshfield. I have also a letter here from Milwaukee. Milwaukee wants the annual convention next year.

I have a letter from the Chr. Hansen's Laboratory, donating ten dollars to the Premium Fund—such receipts are always welcome and gratefully received.

CHAIRMAN: Gentlemen, we will meet tomorrow at ten o'clock sharp.

I was asked to announce this evening if there are any Masons here who do not wish to attend the vaudeville, there is work for them here.

We will adjourn until tomorrow morning at ten o'clock.

THIRD DAY'S SESSION, THURSDAY MORNING, December 7, 1916.

Meeting called to order at ten o'clock by President Morrison, who presided.

CHAIRMAN: The first number on our program this morning is entitled "The Importance and Proper Method of Ventilating a Creamery," by Prof. F. G. Kraege, Department of Educational Service, James Mfg. Co., Ft. Atkinson.

THE IMPORTANCE AND PROPER METHOD OF VENTILATING A CREAMERY.

By Prof. F. G. Kraege.

Mr. Chairman and Members of the Wisconsin Buttermakers' Association, Ladies and Gentlemen: About two months ago I happened to attend a Dairy Association meeting in the state of Michigan, and at every session by every speaker from Michigan reference was made to the dairy industries of Wisconsin.

sin. In the first week of October I attended the State Dairy Association meeting in Waterloo, Iowa, and again there the speakers that came from Iowa were pointing to Wisconsin as an ideal in the buttermaking and in the making of cheese. Later I attended the National Dairy Association meeting at Springfield, Massachusetts, and there again in addition to such references to these industries in Wisconsin, the United States government had a large chart showing the ranking of the different states in the Union in the dairy business, and I was proud to know that I was a native Badger, because on that chart it showed that Wisconsin



PROF. F. C. KRAEGE

ranked first in the production of butter, first in the production of cheese, and first in the number of dairy cows among all the states in the Union. I have gone to other meetings since and everywhere I go the fame of Wisconsin as a dairy state is known and is pointed to with the idea of spurring on others in the states to follow the example of Wisconsin, and if possible to strive to equal or excel Wisconsin in the dairy business.

This was particularly so in a meeting that was held at Waterloo, Iowa. We will have to keep our eyes on Iowa. They seem very determined to beat Wisconsin.

Some of you gentlemen are responsible for this reputation that Wisconsin has as a buttermaking and cheese making state. You have a right to feel justly proud of the fact. You have helped in some measure toward giving the state this enviable reputation. A great responsibility rests upon all of you, however, in the future to see to it that this ranking that Wisconsin has at the present time shall be maintained, and that as long as there is room for progress in your lines of work that you will progress so rapidly that these other states that are envious of us will not be able to reach the base that you have been passing on.

It took twenty-five years of discussion and thousands of articles in periodicals to convince the general public of the value of ventilating school houses. For years physicians had been studying that problem; experiments had been made and finally a conclusion was arrived at which showed that it was important to ventilate the school houses, for it conserved the health of the children. It made their minds more alert, in other words, it promoted the efficiency of the entire school plant, and that meant that they realized very much more of value from attending school and the patrons for maintaining the school. It was discovered that pupils who were required to sit in ill ventilated school rooms day after day were more likely to take contagious diseases than those pupils that were seated in school rooms that were well ventilated. So thoroughly have people been convinced of this fact that in our state, as well as in many other states of the Union, school houses are required by law to be ventilated. Even the district schools in our state in order to get upon the state aid must have a system of ventilation approved by the State Superintendent.

Following that there began an agitation for the ventilation of dairy barns, and that is still on. In some sections of the country it is a new question. In other sections of the country, like Wisconsin, it is not so new, and yet if you would travel throughout the country as I have, you would be surprised that

after so many years of discussion of this question there are so few barns comparatively that have any ventilation at all. I think I am perfectly in bounds to say that there are not ten per cent of the dairy barns in the Union that have any ventilation today. Wisconsin is taking a step in the lead in that, for I think there is no state in the Union that has so many good barns and so many good houses to live in, so many well-made farm buildings, as Wisconsin has, and yet even in Wisconsin, if you travel through by train, you will be surprised to see how few barns even in this state with its high ranking, have a system of ventilation for the cattle.

Following that agitation for the ventilation of the barn has arisen this idea that the creameries too should have some scheme for ventilation, and in this too Wisconsin is taking the leading part among the states in the Union. So that while in Wisconsin this question is being urged to your attention, I would like you to know that Wisconsin is in the foreground upon this question, and the results of your efforts in this direction will be watched by the people in every state in the Union, as they have been watching you in the matter of making cheese and butter.

Commissioner Wilson of New York state, in an address there, lamented the fact that while New York state had cheese factories, they were shipping cheese into New York from Wisconsin, and he thought that ought not to be. And when I was in Iowa the Commissioner of Agriculture lamented the fact that while they had cheese factories in Iowa, they were shipping cheese into Iowa from Wisconsin; and I had been in a store in one of the Wisconsin towns and I got some cheese and crackers, and I inquired where the cheese came from, and where do you suppose it came from? New York state! What a ridiculous performance this is in management. A state that ranks first among the states of the Union having New York cheese, which is poorer by the way, sold in the stores of Wisconsin, and I presume we could find a great deal of that throughout the country.

The question naturally arises, what is the purpose of ventilating a creamery? I can see three distinct purposes. The first one is to get fresh air into the creamery, and the second one is

to get foul air out. That would necessitate some means of getting fresh air in and some means of getting foul air out. But with reference to a creamery more than any other building the third purpose is of greatest importance, that of removing moisture, for I need not tell you that there is more moisture in the average creamery than will be found in any barn or any residence or any public buildings, hence the purpose of having a ventilating system in a creamery is very important.

There are certain conditions, however, that must be complied with in order that any ventilating system may be successful. There are a large number of ventilating systems. Some are known by one name and some by another. In Wisconsin the most popular seems to be what is called the King system, brought into use by the late Prof. King of our state university. In some modified form that so-called King system is more generally known in the United States than any other system. The other system which I want to call your attention to later may be entirely new to some of you. It is called the Rutherford system or the Canadian system.

I have talked with many men who have a so-called ventilating system and they complain it is not successful, and they condemn the whole proposition of the ventilating subject, and upon investigation I find the trouble is not with the ventilating system but with other things. There is no perfect system of ventilation yet devised, and yet there are more than a dozen ventilating systems which, if properly proportioned and installed and properly managed, will work successfully. But if the system is improperly managed it will no more work successfully than if a churn or a separator is improperly managed. With a system properly installed there are certain conditions which must be complied with in order to obtain the results desired, and if those conditions are not complied with you will not obtain the results, and that is true of any system.

This suggests the idea that the buttermaker in a creamery needs to understand when a creamery is properly ventilated. He needs to understand how to operate the ventilating system if one be installed. He needs to understand how to install a proper

ventilating system. He needs to know that a ventilating system needs adjustment according to weather conditions just as much as our fire does in the home. I find that some people who have trouble with ventilating systems have trouble because of the fact that they have a ventilating system that has been put in there without any method of adjusting it according to weather conditions, the speed of the wind, etc., and I find in other cases where adjustment has been made according to those conditions that the party that operates it is ignoring that fact. He seemingly has adjusted the ventilating system for one weather condition and let it stay there like the old man did his head, "sot" as he said. A ventilating system that is not adjusted according to climatic conditions cannot be a success. It will do something, but it will not be a success as it might be if it was properly adjusted. In this matter of creamery ventilation the man in charge of the creamery plant needs to understand all of those things.

I find in some other cases again where trouble has been found with ventilating buildings that had systems of ventilation that the systems installed are altogether too small for the building. There are figures that I will submit to you a little later that illustrate the capacity of the intakes and the capacity or size of the out-takes. If you have a large building, install in it a ventilating system that is adequate. There is very much more danger in that direction than there is in installing a ventilating system which is too large. I suspect the reason is that it is cheaper, and I suspect too the reason for it is that people have not understood as thoroughly as they ought to the principles underlying the installation and operation of a ventilating system in any kind of a building.

The Rutherford system differs entirely from the King system of ventilation. I shall assume you are familiar with the King system, where the fresh air is taken into a room near the ceiling and the foul air goes out of the room through vents at the floor. That is the point of the King system of ventilation. The Rutherford system is just the opposite. The Rutherford system is named after a scientist in Canada, and as a result of many years experimentation and comparison with other systems of ventila-

tion, it was finally adopted as the best suited for Canadian climatic conditions. In the United States the Rutherford system, or modifications of it, are meeting favor as being especially well adapted to creameries. According to the Rutherford system of ventilation the fresh air is taken in through openings in the side walls near the floor and the foul air or moisture is taken out of the room through outgoing flues in the center of the ceiling. Where this system is installed in barns, in order to make room for the hay fork to pass over the track they have been put at the sides sometimes, but in the case of creameries it is best to have the outgoing flues in the center of the ceiling.

I take as an example a creamery 60 feet long by 30 feet wide. That is pretty near the average, I believe. A creamery like that would need two outgoing shafts if circular is 30 inches in diameter. That means about 706 square inches of outgoing surface to each of those, and for the creamery it would mean two times that 706 square inches of surface that is used for taking the air out of the creamery. The fresh air should come into the creamery, as already stated, near the floor, and it has been found best to have a greater number of small flues, evenly distributed around in the outside walls rather than a few large ones, for that brings the fresh air into nearly all parts of the room. In a creamery 60 feet long the first outgoing flue should be placed about 15 feet from one end of the building. It has been found that outgoing flues 30 inches in diameter will take care of the ventilation in a creamery about 15 feet in each direction from the flue. That would suggest that the outgoing flue at the opposite end of the building should likewise be placed 15 feet from the opposite end of the building. By so doing you will see that each of these outgoing flues will have the opportunity of acting upon the air 15 feet in each direction.

A method of installing this into a building I want to illustrate with this crude kind of an instrument. Assuming this to be the outside wall of the building, and this side of this box the inside wall of the building. In this instance I am assuming that between the outside wall and the inside wall we have 2 x 4's standing vertically. That would leave within here 4 inches of

air space. The method that has been found to be most successful in installing this Rutherford system of ventilation will be illustrated by this. Cut a hole or a strip two inches wide in the outside wall and as long as the distance is between two of these 2×4 's. You see then this 2×4 will serve as a wall for that ventilating shaft; this 2×4 will serve as the wall for that side of this ventilating shaft. The fresh air from the outside of the building will go through this opening that has been cut there two inches wide,—I want to call your attention to this, two inches wide,—and it will get in between these 2×4 's, but you don't want it there. You want it to be there, but you don't want it to be all there with nothing to stop it. It is necessary, just above where this slit is in the wall, to nail a strip of board between these 2×4 's, or a piece of tin is even used very often, at least four inches wide to cover this space, and the length should be as long as the distance between these 2×4 's. In order to get it into the building on the inside wall you cut another slit the same size as the one was cut on the outside wall, the same height from the floor, so that the air that comes into this opening will not be greater than the amount of air that could get through this opening on the inside of the building. But by the Rutherford system as by the King system you don't want these openings to be just opposite, lest you have a circulation of air straight across, or what is called a direct current, as it will sometimes back up in its action. In order to prevent that by the Rutherford system they have a very simple device. They use a sheet of galvanized iron or a strip of board and they nail it onto this board that was placed here to prevent the air from going clear to the ceiling. That is nailed onto this in such a way that when it feeds air it separates this four-inch space into two spaces two inches on each side of the partition. This partition does not go to the bottom or the floor part of this compartment. It goes down to within two inches of the floor, so that you see the fresh air which comes in here is compelled, when it goes in here, to strike this partition and is prevented from going up above, so that its only method of escape is to go under this partition and

then it comes up again on the opposite side and comes into the room from this inner opening.

I wonder if I have made that plain so that you understand it. Before I go on, if I haven't, I wish you would ask me some questions on this, for I would like to clear it up before going onto other features of it.

MEMBER: How far should these openings be from the floor?

PROF. KRAEGE: The Rutherford system, so far as these intakes are concerned, would be just about like the King system is with its out-takes. All the way from six inches to one foot from the floor is recommended as the best distance from the floor to take in the fresh air.

MR. LAURITZ OLSEN: How do you construct that intake in a brick wall?

PROF. KRAEGE: I will show you presently.

MR. S. B. COOK: Wouldn't the intakes at the bottom have a tendency to cool your creamery a great deal?

PROF. KRAEGE: Where the intakes have been constructed as I have indicated here, with such small openings distributed that way they find out it does not do that materially. I am simply reporting to you experiments they have made in Canada during twenty-five years. I raised that same question and they urged, as I have called your attention to that fact, the necessity of having quite a larger number of small openings in preference to having a few large openings for taking in the air. I presume that would have something to do with avoiding too much cold in one part of the room. It distributes the air more equally.

MR. KEPPEL: Wouldn't it be found that the cold air would be all in the outside of the room and the center of the room warm?

PROF. KRAEGE: They don't find it that way. They really didn't find it so.

MR. KEPPEL: If you stand next to a door you will find it very cold at the threshold, but farther away it will be warm. Wouldn't that act the same way?

PROF. KRAEGE: I presume so, yet with a slit so small as this it wouldn't make much difference. Put some smoke in a room and you will find where the air goes. If you stood right next to this wall you probably would feel the effects of it the same way you would with reference to the King system in spite of the fact that they have flues and dampers and registers there to guide its course you do get it there sometimes.

MR. DONNET: How does this system of taking in the air at the ground compare with the King system in taking it in at the ceiling?

PROF. KRAEGE: It is just the opposite.

MR. DONNET: What effect on the creamery?

PROF. KRAEGE: They claim in this instance with reference to creameries that this is particularly well adapted because you have so much moisture in the creamery. Moist air being lighter than dry air, it is always up at the ceiling, and in this way the out-taking flues can care for it more quickly than the King system does.

You know that in ventilating a creamery the main thing is getting rid of the excessive moisture. As a result of those experiments they have made in Canada and those in this country where this system has been installed, they seem to feel that this is very much more efficient in disposing of this moisture. By having the fresh air come in at the floor and being heated it carries the moisture with it up to the ceiling and out of the vent.

MR. KEPPEL: Does it require the same amount of fuel as the King system?

PROF. KRAEGE: I believe they claim it does not take any more fuel than with the King system. I asked several people who were using the Rutherford system and I have not found one that said he noticed any perceptible difference in his fuel bill.

MR. LAURITZ OLSEN: I would like Prof. Kraege's opinion on whether he thinks a flue thirty inches with a suction fan down below would be as good as the way he suggests. We figure on installing a fan to draw the air out instead of having a flue to draw it out.

PROF. KRAEGE: I believe it would be just as good, but it would be more expensive.

MR. LAURITZ OLSEN: Would it be as good as three flues?

PROF. KRAEGE: No, it is not so good to have your air taken out through one flue in a large room. If they have a fan system installed it has got to have such a large opening, a large door, that it is very expensive.

MR. LAURITZ OLSEN: It will create a great suction?

PROF. KRAEGE: Yes, but they find that the farther ends of the room will not be relieved as much as they ought to be, as well as they would be with two or three places for the out-going air.

I may just as well discuss another point that is suggested by this question. One of the strongest reasons for the growing popularity of the Rutherford system is its cheapness of installation and operation and the simplicity of it too. As I have illustrated here, in order to install this in a building you don't have to build in a wooden building any flues on the outside or flues on the inside in order to get the air in there. It is a very expensive thing to install. I have seen some creameries where—this comes to the question of a brick wall—I have seen creameries where they installed it in such buildings and instead of having these slits cut near the wall this way, they made a wooden chamber on the outside with a sliding roof to it and an opening at the top and both sides, and down below they cut an opening into the stone wall through which that air had to go, and on the inside they had another one of those flues built of the same size as this one on the outside and to the same height. That is a little more expensive to install it that way. It operates as successfully and where they have installed it that way I have discovered they had larger openings and a smaller number of them than when they installed the system this way. Of course you could see the purpose of that, that is, a larger opening here instead of having two. It would lessen the expense of putting it in somewhat, and they work upon that basis. That illustrates the method of taking in the fresh air through a wooden wall and also through a brick or a stone wall.

There are some buildings, as you know,, which instead of having 2 x 4's here will have 2 x 6's. In that event the opening on the inside ought to be three inches wide, one-half of the distance between the inside wall and the outside wall. If it should be 2 x 8's that are used, that would mean that the slit here, if it installed this way, should be four inches wide on the outside and likewise on the inside, and that would also mean that this partition which is in between here should be four inches from each side so as to be midway between the two walls. In that way you get practically all of the air into the inside of the building that it is possible to take in through that kind of an opening. That is the only reason why these openings should be of the same size.

I found some of the King systems that were not operating successfully had this difficulty. The shaft for the outgoing flue was not constructed air tight. All systems of ventilation insist upon that point, that the outgoing flue should be air tight. I have seen some constructed so that between the boards that were standing vertically there was a crack that was almost half an inch between two of the boards. That would spoil the operation of any ventilating system. In all ventilating systems we contend that these outgoing flues should be absolutely air tight. In order that they may be so we urge that they should be constructed of at least two thicknesses of matched lumber that will have paper between.

And then there is another point where they sometimes fail in installing a ventilating system, and that is in not constructing this outgoing shaft up to the ventilator on the roof. I found, for instance, in one barn where the man was complaining about his system not working well, the outgoing shaft stopped within four feet of where the ventilator on the roof started. In other words there was a free air space here and of course it could not give the best results. I say the error in that kind of construction was that they did not make a connection between the outgoing flue and the ventilator on the roof, and if that is not done it will lessen the efficiency of any ventilating system.

So with reference to the creamery ventilating system. You should see to it that these outgoing flues are properly distributed in the ceiling, and that there is a properly constructed flue in connection with a ventilator on top of the roof, and if the system is properly installed, it will work all right, provided it is large enough for the building.

Ventilating systems are sometimes condemned in barns because there is moisture on the inside of the walls. That may not be the fault of the ventilating system at all. We need to understand why that moisture is there. Even Prof. King, when he wrote his book upon the ventilating system, suggested that in order to prevent the moisture from forming on a solid stone wall you would have to put some cleats and siding on it and then you could prevent the moisture from forming there. They claim where they have a wall that has an air space between, there will not be that difference in the temperature which will precipitate the moisture in the air. You know when we touch a stone wall 18 inches thick that it is cold to the hand, but you put some cleats there and some boards on the inside of that tight so there is a little air space there, you will not have that difference at all. That difference will not be sufficient to precipitate the moisture as the stone wall would.

As already stated, this Rutherford system of ventilating is easy to install, it is easy to operate and it is very well adapted to all kinds of climatic conditions. Where large intake flues are used there ought to be registers that they might be wholly or partially closed according to the weather conditions. And the same is true with reference to the out-take flues. There ought to be registers with chains or strings attached so that from below one may close them according to weather conditions. And the man in charge of the creamery, where this kind of a system is installed, needs to attend to that part of his duties just as much as to his other daily work. We should remember, as I stated in the beginning, no ventilating system will work successfully if it is put in without some means of adjusting it according to weather conditions, and it will not work successfully unless the operator attends to it. I used to notice, when I was teaching

school, that some school rooms which in the morning had their shades down to keep the sun out, would in the evening still have them down. So in a creamery, if you have a ventilating system in a creamery and you have those radiators, and the weather changes today, the adjustment ought to change accordingly in order to have successful operation.

One point that is strongly commended in the Rutherford system of ventilation as I have explained it to you, by installing a large number of intakes—small ones—you have a better atmospheric condition all over the creamery than if you had large ones there. This is important, gentlemen, for this reason. You know how much has been said about ease with which milk and butter and all dairy products are contaminated with odors and conditions around, so while much has been said and much has been accomplished to get the milk in the barn and in the process of taking it from the barn to the factory, or else taking the cream of the milk and taking that to the factory, it is important to look after the creamery, for a man might have taken good care of his milk in the barn, but with insanitary conditions in the factory all of his good work might be spoiled.

This is not an expensive thing to install in a creamery, this Rutherford system of ventilation. You don't know me personally and my opinion may not be worth anything to you, but I have traveled all through the United States and I believe it is the best thing we have today for creameries, and it is the cheapest thing, the easiest thing to operate, and you ought to be interested in it.

I thank you very much for your attention. (Applause.)

MR. W. J. DEHN: How are you able to tell when it needs adjustment?

PROF. KRAEGE: One can ordinarily tell if he is in the creamery whether the atmospheric conditions are good or not. There is no ventilating system here at all, is there? You have got windows, but that is not a sufficient ventilating system. I think the air can't be very bad without his detecting it.

MR. PETERSON: Where a farmer has a cupola on his barn is it sufficient to draw that flue up to his cupola?

PROF. KRAEGE: Yes, sir, if the connection is made tight between the outgoing shaft and the cupola. Of course if you have a cupola with these slats or louvres on, that cupola may not take out as much air as a cupola that does not have them.

MR. H. E. GRIFFIN: We are having a system installed now in our creamery and I don't see any place in the floor to get the air in.

PROF. KRAEGE: You say they are trying to install the King System?

MR. GRIFFIN: It is a two story building, but there is none at the bottom anywhere or the sides or anywhere.

PROF. KRAEGE: Couldn't they cut holes in the walls? Is it a wooden building?

MR. GRIFFIN: No, we are building a concrete building.

PROF. KRAEGE: How was it on the plans?

MR. GRIFFIN: The company that brought it in didn't have any plans.

PROF. KRAEGE: They didn't understand it. I found in many instances where on the blue print and specifications there was a scientific system of ventilation indicated, some carpenter that was doing the work would knock it or else he will put it in poorly.

MR. GRIFFIN: They sent a blue print where to leave the openings, quite a few of them, in the ceiling, but there is none anywhere else. There are two fans in the system.

PROF. KRAEGE: If it was my proposition I would try to have the openings made at the floor in accordance with this system, and I judge it will still be possible to do that without much expense.

MR. LAURITZ OLSEN: What is the cost of installation in an ordinary creamery? How much would it cost to install a ventilating system like that?

PROF. KRAEGE: I can't give a figure on that on account of the price of lumber varying, and then it depends on what kind of material and ventilators you put in. Indeed I have seen one creamery that had for outgoing shafts some of that corrugated

iron. Prices vary so much, as you can readily see for yourself, the figures must be adapted to your own community.

MR. TOWLE: Will you describe a satisfactory cupola to take care of this outgoing air?

PROF. KRAEGE: I can tell you that there are a large number of them and they are nearly all satisfactory. There are some of those that have a revolving scheme, and of course those who are selling them claim that is the best thing. Ventilators should be as large as the outgoing flue so that air will have an easy access, and also in such a manner as to prevent the rain from driving in.

MR. KEPPEL: I would like to ask—King in his theory advances the idea that foul air drops, the Rutherford system denies that. Is that definitely demonstrated whether that is wrong?

PROF. KRAEGE: Those two systems are absolutely opposed to each other. The Rutherford system argues this way—that is, those who are advocating it—as soon as that cold air gets into that building it gets warm and then warm air rises. That is their theory. The King system says cold air that comes in at the ceiling, passes through the hottest place in the room, and is gradually warmed as it drops.

MR. KEPPEL: Couldn't it be taken out at the ceiling, but wouldn't meet the foul air?

PROF. KRAEGE: If air rises when it gets heated, and we know that it does, if this fresh air is heated there it will be up to the ceiling next, and that is where we want it to go. In the meantime while it is going from the floor to the ceiling it is taking along with it the impurities you are trying to get rid of. The King idea is that the fresh air is taken in at the top, and that the foul air drops to the floor but instead of that it is forced down to the floor and is removed through these outgoing shafts near the floor.

MR. DEHN: Wouldn't that suction in the floor draw the air out?

PROF. KRAEGE: That suction is caused by that very fact, the air in the outgoing shaft being warmer than the air on the

outside near the roof. You can call it suction or forcing, it is the same thing after all.

I am not here speaking to you gentlemen as an advocate of the Rutherford system. The King system, if properly installed and handled, will work all right. I wanted you, however, to know the characteristics of this Rutherford system because I suspect it may be new to a good many of you. It doesn't make any difference to me whether you install that system or the King system. My purpose here has not been to champion either system, but I would like you to understand how the system is installed and what is claimed for it so that when you wish to install a system you can investigate it further. I wouldn't take out a King system for the purpose of putting this in; on the other hand from what I have learned of this system if I had the privilege of installing a system anywhere I would put it in, because I think it is all right. I have been in so many places in Canada and this country too, near the Canadian border, and I have not found a single person who was not very enthusiastic about it. My purpose has not been to be eloquent, but to explain the mere business proposition here and make it plain so you can understand the characteristics of it.

MR. KEPPEL: You stated if you have a 2 x 8 inside the wall you would make your openings four inches. Wouldn't that add or decrease the amount of ventilation? What is the object in making them that size?

PROF. KRAEGE: If I had 2 x 8's here between the two walls I would make these openings here four inches. I wouldn't need as many of them, and I am glad you asked that question for bringing that out. If they were four inches wide I would need just half as many, or else I could make the same number but make them smaller.

MR. KEPPEL: I wanted to know your reason for doing that.

PROF. KRAEGE: The reason for that is that I wanted to make use of this 2 x 4 or the 2 x 6 or 2 x 8 as one side of this shaft, and I wanted this to serve as the opposite side of the shaft, and all I had to put in is the top and the partition. That is the only reason.

MR. KEPPEL: Wouldn't a two-inch opening answer fully as well for a 2 x 6 or a 2 x 8?

PROF. KRAEGE: Surely, only you would have to have more of them.

MR. DUNNING: Does the state accept this system?

PROF. KRAEGE: I don't know. I know that the state is strongly in favor of any ventilating system.

MR. LEE: The rules and regulations of the state specify that the creamery shall be properly ventilated. It doesn't specify any system.

MR. THOMPSON: Do you know whether the law recommends metal or corrugated iron?

MR. LEE: It doesn't recommend either.

MR. THOMPSON: On account of rust?

MR. LEE: I don't know what the reason is. It doesn't recommend either.

PROF. KRAEGE: I would suggest that it is unwise in a creamery to use much metal on account of the moisture.

CHAIRMAN: Immediately following our next paper the butter which is on exhibition up in the hall will be sold in this room before we adjourn.

This afternoon the prizes will be awarded. We would like to have you all present this afternoon and all stay here until the butter is sold off.

The next number on the program is a paper by Prof. Benkendorf, "The Buttermaker's Duty in the Proper Marketing of Creamery Butter."

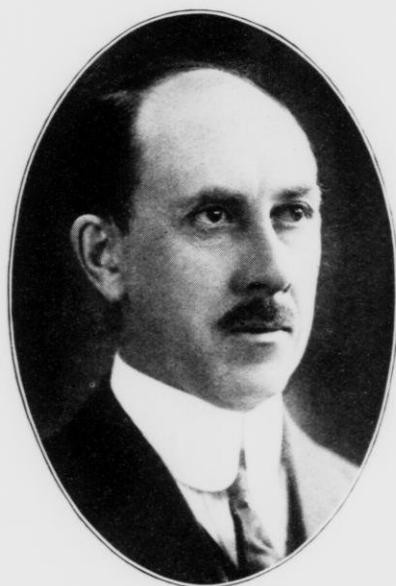
THE BUTTERMAKER'S DUTY IN THE PROPER MARKETING OF CREAMERY BUTTER.

By Prof. Benkendorf.

In order to have a creamery organization that is to be permanently successful there must be active co-operation on the part of the buttermaker, the officers, and the creamery patrons. There are always many problems to be solved. Some can only be worked out by the patrons, some only by the buttermaker and

officers. All the forces must work hand in hand, keeping constantly in mind that unity is essential.

We will not attempt to take up the discussion as to whether or not the buttermaker should be the creamery manager, nor will we discuss the procuring of good cream, nor the manufacture of the same into good, marketable butter. We will confine our remarks to the buttermaker's duty in the proper marketing of the factory's butter.



PROF. G. H. BENKENDORF

It is taken for granted that a buttermaker in the employ of a creamery, no matter whether it is co-operative or whether it is owned by an individual, realizes, that he should constantly work for the interest of the institution that employs him. He appreciates that the marketing of the factory's butter begins with the proper production of the milk and cream on the patron's farm. This in a way may appear to him like the remark made by the great American poet Oliver Wendell Holmes who said that in

order to raise a boy properly you must begin with his grandfather.

Assuming, however, that the butter has been made and is in the churn properly worked and ready for packing into the tubs, what are his duties from that time on?

Before the butter is taken from the churn, it should be sampled and tested for moisture. This, of course, requires a few moments' time, but certainly is very essential. The results obtained should be kept in a permanent book so that, should occasion require, they can be referred to readily. Some buttermakers make moisture tests only occasionally, as they state, to see how the "butter is running." This is a mistake and no well organized creamery will permit such practice. It is too dangerous. During the past year we had several conferences with creamerymen that tested the butter for moisture "occasionally," and were caught when the butter got to the market. A buttermaker has no right to jeopardize the institution for which he is working by being careless about this matter.

The packing of the butter of course should be done so that it will be a credit to the buttermaker. Butter carelessly thrown into a tub and carelessly packed will not make a favorable impression when stripped on the market. Aside from the fact that a pound or two more per tub can be marketed without any additional package expense, it is plainly evident that the large holes frequently found when the tub is stripped, indicate that the buttermaker is either a beginner or is inclined to be careless.

The appearance of the package has much to do with the successful marketing of the butter. It is very true that the quality of the butter is a matter of the greatest importance. Everything else being the same, it is also true that butter that is put up in a neat package has a decided advantage over butter that is put up in an untidy manner.

The matter of using clean, neat, well made tubs is of great importance and the buttermaker should be very careful at all times to see that the tubs which he purchases measure up to the market requirements. When they are delivered to his factory,

he should see that they are stored properly in a clean smelling, clean, dry store.

It is better to prevent the tubs from getting moldy than to try to scrape them afterwards. A buttermaker who is interested in his work will go out to the warehouse occasionally and see whether the tubs are properly cared for; see whether the roof leaks, the floor is dry, etc. Do not allow the tubs to get damp and then blame the supply house if they are getting moldy.

The same remarks apply equally well to the care that the parchment paper receives. It should be stored in a dry, clean place and taken to the churn room in small quantities at a time. Only good quality parchment paper should be used. Owing to the difficulty that the manufacturers of parchment paper are experiencing in getting the raw material, the price of parchment paper has to some extent advanced. A creameryman makes a mistake if he substitutes an inferior grade of parchment paper. The price of butter is so high that none but the best should be used. Many creamerymen are using 40-lb. stock liners, and report splendid satisfaction, especially now since butter is high in price. Certainly with butter bringing \$25.00 per tub, the difference between the cost of a good and a poor tub, and the difference between the cost of lining a tub with a good liner rather than a poor liner, is negligible.

A buttermaker who takes pride in his work always tries to give the tub the proper finish. He is careful to see that the liner does not overlap on the top too much. From three-quarters of an inch to an inch is usually sufficient. Two or three inches give the tub the appearance of having been put up by a careless worker. The butter should be smooth on top. Some buttermakers are weighing each tub and allowing a definite amount for shrinkage. In taking off or adding butter to the tub they sometimes give the top a bad appearance. The use of a straight edge and a little care will easily solve the trouble. The covers of the tubs should be carefully scrubbed before putting them on. If this is not done, it will frequently happen that the tub will have a neat appearance outside while the top of the butter will

be covered with dirt, due to the unclean condition of the inside of the cover.

Tubs should be hauled from the depot in a clean wagon and if necessary the wagon should be cleaned when used. A fifty-dollar-a-month man may think it takes too much time, but you notice that a hundred-dollar man does it.

Another point that is of great importance in the proper marketing of butter is the marking of the butter so that each churning can be identified. This can easily be done by marking on the side of the tub, not on the top, the day on which the tub was churned, for example, January 1 would be marked January 1, January 31, 31; Feb. 1, 32, because it is the thirty-second day of the year; Dec. 7 would be 342, etc. If there is more than one churning for the day, all the tubs from one churning can be marked 342a; the tubs from the next churning can be marked 342b, etc. When butter so marked arrives at the market, it is an easy matter for the buyer to inspect the butter and grade it properly. In case of any dispute as to the moisture control, it will help matters a great deal to have the tubs marked so that the churnings can be identified. If for any reason you think a certain lot of butter is not up to the standard, you can write him to look out for lot 327. Or if the buyer wants to make some comments, he can refer to the definite lot in question. This whole question is just a plain business proposition.

If some butter is off quality write the man who handles your butter to watch out for it. He can by knowing the facts be of help to you. Do not try to "slip it through" for if you do, you are committing the unpardonable sin, that of fooling yourself. To successfully market your product you should co-operate with and have the co-operation of the man who handles your butter at the distant market and who is in a way your business agent.

As a business proposition the creamery man should know how much butter he is making; how much butter he is shipping, and how much he is being paid for. This, of course, requires that he tare each tub before filling it, and put in a definite amount of butter. There, of course, will be a certain amount of shrinkage which is inevitable. Careful work on the part of the butter-

maker co-operating with the buyer will soon show how much this will be.

The best of scales should be used and these scales should be well taken care of. It is very unfortunate, but true, that creamery conditions tend to deteriorate scales very rapidly and therefore great care should be exercised to see that they are always in good condition. If there is any difference in weight, it may be due to other causes than the buyer giving short weights; for example, there is a decided difference in the way butter is made, how it will shrink. Some buttermakers have the habit of loading the tubs with water and then setting the filled tubs in a dry refrigerator for a week before shipping. Such tubs will, of course, dry out to a good extent by the time the butter reaches the market. No doubt, the buttermaker would be surprised at the amount of shrinkage if he should strip a few tubs and weigh the butter before marking shipment.

After all it is largely a question of dealing with reliable business houses and co-operating with them. They will help you in many ways if you will do your part. If after due investigation you are dissatisfied and want to make a change, do not change over to an irresponsible party who happens to send you a circular offering much more than the market warrants.

After the butter has been properly tested for moisture, packed well in clean tubs, properly weighed and marked, the buttermaker should see that it is properly shipped to the market. It is not good practice to ship the butter fresh from the churn, unless absolutely necessary. If possible, the butter should be placed in a cold refrigerator and thoroughly cooled. If this is done, the butter will withstand the trip to the market better. It should, of course, be hauled to the stations in clean wagons and properly covered to prevent the tubs from getting dirty. At most stations there are no facilities for keeping the butter cold until the refrigerator arrives. The way freight may be late and it is good business to telephone to the depot and find out when the train will arrive. If it is too late, proper arrangements accordingly can be made. Frequently a shipment of butter is subjected for hours to high temperatures on the depot platform simply be-

cause the man having charge of the shipping did not do his part. In other words, while one part of the business organization was trying to improve the quality of the butter, another part fell down.

After the shipment has been made, the buyer in the market should be notified at once and a copy of the bill of lading sent him.

Usually at this point the average buttermaker's duty ceases. It is well for him, however, to confer frequently with the manager and between the two they ought to successfully market the butter.

Good team work is one of the essentials of a successful creamery. The patron must do his part. Good cream should be produced and be brought to the creamery in good shape. The buttermaker must do his part. He should handle it in the best possible way. Because he is supposed to be the leader, therefore, his duties are all the more important. These duties mentioned may seem unnecessary to some but are the regular daily practices of the successful creamery men of the country. They have become these successful creamerymen because they have observed these and many more small details in the operation of their plants. (Applause.)

CHAIRMAN: Has anyone a question to ask Prof. Benken-
dorf in reference to the paper he has read?

MR. ALLEN CARSWELL: I wouldn't like to let Prof. Ben-
ken-
dorf go without asking him some questions. One particular
item I am quite a crank about, that is, taking all this care that
Prof. Benken-
dorf mentions, getting good refrigerators, putting
the butter into a dry car, and when they are taken out at the
other end you have got a nice looking bunch of tubs—the cars
are only half iced. I think that is one point that has not been
taken sufficient notice of in the past, and it is a point that is just
as important as the proper refrigeration in the creamery, in fact
more so, because butter that is shipped is only in the refrigerator
for five or six days at the most, and it is in the refrigerator car
longer than that. I believe the only way you can get the railroad
company to furnish clean refrigerator cars to ship these dairy

products in is to have a state law providing for the inspection of these cars by state officials. I believe it could be done, and if the state would prohibit the loading of cars that are not fit to put butter in—it is just as important as to make butter in a sanitary creamery. The car might be clean from a railroad man's standpoint—if he takes a broom and sweeps it down—from his standpoint is a good, clean car. If you get that car you will probably have to scrub it out at your own expense. Why should we be compelled to do this service at the expense of the creamery that should be done at the expense of the railroad companies? We have to pay high freight rates on this and we are not getting fifty per cent of the service we ought to get.

It is only by taking concerted action, state action on this matter, that we will get satisfaction. It is a good deal worse now than it was two or three years ago since they passed that demurrage law, the railroad company has got to pay a per diem rate on the car, and consequently they are not using the cars of the eastern companies. Ninety-five per cent of the cars are not fit to put butter in. If we do not take the matter up we won't get any satisfaction—one creamery cannot do it because railroads will turn you down. You are at the railroad's mercy, and you have got to take what you get. (Applause.)

MR. BENKENDORF: I agree with Mr. Carswell in everything he said. The reason I did not take up that matter in my paper was because it is a big subject in itself. Mr. Carswell I think brought the point out very well, and I am glad that he did.

MR. CHAIRMAN: I agree with Mr. Carswell. One fault with the Wisconsin buttermakers in the past—not insinuating anything—is that members have not got close enough together, and we have got to do it in order to carry out Mr. Carswell's point and get justice as we should.

I want to say here that during the coming year—I have been a little bit in the background in the past year—but I want the buttermakers of this state to know that any time anything comes up I will do all in my power as President of this Association, and will work in conjunction with the Executive Committee on anything along those lines, or any other lines, and with the offi-

cials. Their signature would amount to a good deal more, not that I am a better man than Mr. Carswell, but it is the position we hold.

Gentlemen, Mr. S. B. Shilling, or as some of the boys call him, Sam, has kindly offered his services to sell the butter we have in the room here to the highest bidder, and we will now proceed.

MR. SHILLING: Mr. Chairman and Gentlemen: I will have to correct our Chairman, he said I offered my services; my services were solicited. I feel that I am growing. I yesterday presided during the election of officers, and today I am to act as auctioneer. It was all understood that Mr. Tom Gallagher was to sell this butter but he got up this morning and said he had a cold. (The butter sold to Mr. Jenks of Hunter, Walton & Company for 39½c.)

THURSDAY AFTERNOON SESSION.

Meeting called to order at 2:00 p. m. by the President.

CHAIRMAN: I would like to ask if the Committee on Resolutions is ready to report.

MR. KEPPEL: The Committee is.

CHAIRMAN: We will listen to the Report of the Committee on Resolutions.

The resolutions were read by Mr. Keppel.

CHAIRMAN: Gentlemen, you have heard the Resolutions as read, what is your pleasure?

MEMBER: I move their adoption.

Which motion was duly seconded.

MR. LAURITZ OLSON: I believe something was omitted in the Resolutions which we must put in, we owe it to the man to put it in. Mr. Weigle, our Dairy and Food Commissioner, of Madison, last year and this year donated a gold watch, and I hereby ask the Committee to put it in.

MR. KEPPEL: The Committee wish to say that it was not cognizant of this fact.

CHAIRMAN: I wish to say that was an oversight on my part. I looked over the Resolutions and did not notice the omission. We will go on with our other work and the Committee can complete the Resolutions.

I want to state to the members present that the score cards are in the printer's hands. Mr. Benkendorf just informed me that he had been down to read the proof and as soon as they are out they will be distributed, and the prizes awarded to the winners later.

The first on the program this afternoon is "What the Licensing Law Has Accomplished for the Buttermakers of Wisconsin," by Hon. George J. Weigle, our Dairy and Food Commissioner.

WHAT THE LICENSING LAW HAS ACCOMPLISHED FOR THE BUTTERMAKERS OF WISCONSIN.

By Hon. George J. Weigle.

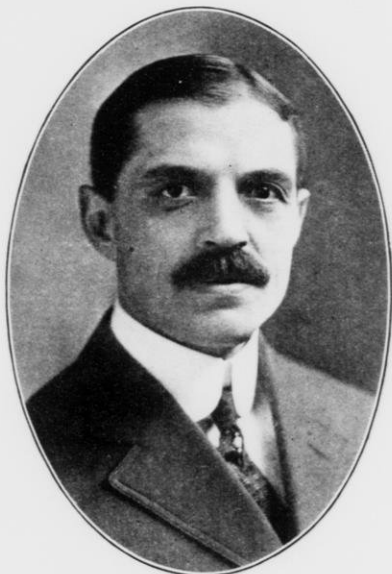
Mr. Chairman, Members of the Association, Ladies and Gentlemen: In my address to you last year at Eau Claire, I told you the object and purpose of the licensing law and stated that it marked the beginning of a new era in the dairy industry of Wisconsin. The object of this law was to bring about better working conditions for the makers, to interest men who had ability and experience, to weed out those who lacked ability and experience, and in so doing, finally to produce a higher standard of quality of dairy products. I know there were many operators and makers who had little faith in the law, and who were skeptical as to its practicability, but as "the proof of the pudding is in the eating," we are now able to judge whether these men were justified in their belief.

What is the law accomplishing? Is it a success?

The licensing law has been in force but a short time, and I want to say that from reports received at our office, it has accomplished more than we had anticipated. In many letters which we receive, we are informed that it has done more for the butter and cheese industry than any dairy law ever enacted. It is con-

structive, and is vital in building up our great industry. The operator and maker have become better acquainted with the dairy laws of the state; it was an education to them both; it brought the dairy and food department into closer touch with every creamery and cheese factory and every maker in the state, and has shown them that we are interested in their problems.

On my inspection trip through a part of the state this summer, I was pleased to see factories that formerly were mere shacks, now replaced by substantial buildings. It is not always necessary that new buildings be erected. I saw some factories



G. J. WEIGLE

that were converted from old, dilapidated buildings, into clean modern factories, which fact demonstrates plainly what a little paint, interest and effort can do to improve work-rooms and premises. I remember in particular one factory in Dodge county where a liberal application of white paint had transformed what formerly was a dreary place into a bright and cheerful work-room. It was a pleasure indeed to go into this factory and note

the complete transformation. When I went through the state about a year ago, I observed some factory premises which were very carelessly kept, old implements, boxes, barrels, cans, and refuse scattered about presenting a most untidy appearance. This reminded me of the old German adage—"By your front yard is your character judged." In some places factory premises such as I have described, were cleaned up, the ground sodded, and flower beds were made. Such yards were a credit to the maker and had a moral effect upon the patron and the community in which the factory was located. It was gratifying to see the splendid conditions of factories, and to note the response on the part of the operators and makers. All whom I visited were proud to keep their factories and utensils clean and sanitary. I defy any state in the Union, without fear of contradiction, to show up cleaner factories than we have here in Wisconsin. I want to congratulate the operators and makers for their untiring efforts to bring about a condition of which the state of Wisconsin may be justly proud. However, this is but the beginning of the good work, and let us continue to improve until we have reached the highest plane of perfection.

One operator in a personal interview said: "I spent \$1500 on my factory to comply with the license law. I think I needed it, and I would not go back to the old method if it cost me double that amount." Another spent \$900, another \$600, and I can mention many instances of a similar nature. All are pleased that Wisconsin has a law of this kind. More progress has been made this year than ever before. It is true, there are some factories and makers that have not complied. It was my unpleasant duty to close some factories and deny licenses to some makers. We were patient, and labored with them a long time. They showed no willingness to respond to our appeals. As I stated in Eau Claire, it was not our purpose to create any unnecessary hardship. All the law required was character, ability and cleanliness. The operator or maker who does not want to comply with the license law is generally a man who is sliding backward, and who himself is greasing the slide. Some men have no conception of cleanliness, and as I said before, are a detriment to the industry

and should be eliminated. They are the ones that are apt to say that a successful maker or operator is so because he is lucky. Fortune *may* find a pot for you, but your own industry and untiring efforts must make it boil. The successful man is the one who gets up from his knees and starts in to help answer his own prayers.

The trouble is we are generally ruled by our habits. It takes more educational power to stop a man from doing what he has been in the habit of doing than to take a new man and train him. As Elbert Hubbard said: "First we form our habits, and then our habits form us. We are what we are on account of what we have thought, said and done. After having done a thing once, there is a tendency in the brain to do it again. If continued we get the habit, that is, we do the thing without thinking as a matter of course. Thus the habits become second nature." We are slaves to habit—willing slaves—not only to bad habits, but to good ones. We cultivate habits; let us be careful that we cultivate good habits. Thinking is habit; as a man thinketh in his heart, so is he. He becomes the actual picture of his own thoughts. When a maker tells me, "Well, my grandfather did this fifty years ago, and no one was ever hurt." That man needs close inspection. The world is not today what it was fifty years ago. We are progressing every day, and it is just as necessary for every buttermaker to keep up with the times as it is for every other business man.

No doubt many of you read the article on carelessness in one of the dairy journals about a month ago. This article in substance stated that the greatest enemy the dairy industry has today is carelessness, and that carelessness in all lines of work has caused more poverty, ruin, and death in the world than the great war in Europe, and is more powerful than the combined armies of the world. Carelessness spares none, rich or poor, young or old, strong or weak. Every man should and must fight carelessness, and fight hard if he wants to be successful.

The license law is but a forerunner of what is going to be asked for by the federal government sooner or later. We must look toward the future, and be prepared to meet these demands.

We will be better prepared if we follow out this law. More will be expected of the buttermakers from year to year. There will be more creameries—larger and better creameries—and more jobs for the buttermakers. The farmer is taking more interest in dairying. He will have more and better cows. One man told me in the office the other day that the farmers in his territory have organized and engaged an expert cattle man to buy cows for his community; so far two carloads of blooded stock had been purchased. Many farmers in this particular county are going out of the tobacco business and are taking up dairying exclusively. You will find others with the same intention. The farmers know that the cow lifts the mortgage from the farm. The cow is a better investment than all the gold mines in the world. With this increased interest on the part of the farmer, there should be increased interest on the part of the buttermaker.

Oleomargarine is forging ahead by leaps and bounds. The sales of this product amounted to over 146,000,000 pounds in the year 1915, of which 3,000,000 pounds were shipped into our own state. The sale of oleomargarine is increasing rapidly. It is true that we are all prospering, but unnaturally so, because of the world war now going on, which is causing the great demand for our products abroad. But when his war is over, and conditions are again normal, competition will again be keen, and it will then be necessary for you to put out a product that will be demanded by the people.

My attention was called to a recent speech made by a state commissioner, in which he criticized Wisconsin for lack of organization—probably justly so. We have organization, but it seems to me that what we need is co-operation within this organization. Whether this is due to lack of leadership I do not know, but I do know that we have just as good men—just as good buttermakers in Wisconsin, as they have in any other part of the United States for that matter.

We must work together! Let us be loyal to ourselves and to our fellow men; let us be loyal to our association and to our industry. In this way only can we hope to accomplish anything,

for in unity there is strength. And in this way only can Wisconsin maintain her supremacy as a dairy state.

So I want to say to you buttermakers,—be loyal to your calling; be loyal to your patrons, and your patrons will be loyal to you. Let us all be loyal to our community, loyal to the state, and loyal to the government. It will result in mutual happiness and prosperity. (Applause.)

CHAIRMAN: Fellow Buttermakers, I most heartily endorse everything Mr. Weigle has said. I know that he has been with us but the trouble is that we have not been with him, that is where the trouble lies. I received a letter from Mr. Weigle, I think, if I remember rightly, it was dated May 29th,—I received it on the 30th day of May or the first day of June,—in which he referred to the coming National Convention to be held at Minneapolis. In that letter he said, "Wisconsin is out for the banner, Wisconsin must have it. Wisconsin will have, Wisconsin, the greatest dairy state in the Union, has never had this honor." He also asked my co-operation in the matter of offering any suggestions as to what was best to do to secure it. I wrote him I knew of no suggestions I could offer at that time. I really believe we are going to have the National in this state the next meeting. We don't want some other state to come in here and take that away.

The next on the program is "The Cause and the Prevention of Mold in the Creamery," by Prof. E. G. Hastings, Madison.

CAUSE AND PREVENTION OF MOLD ON BUTTER.

By Prof. E. G. Hastings, Madison.

As far as I am aware, no data have been collected as to the loss occasioned by moldy butter. The frequent appearance in the dairy press of statements by men in contact with the market, however, would lead one to believe that the trouble is of considerable economic importance. At the recent meeting of the National Creamery Buttermakers' Convention the statement was made that where one complaint on quality had been made during the past season, 1916, ten complaints on mold had been reported.

To the maker who receives a report that his last shipment showed a heavy development of mold and that he has been cut several cents a pound, the monetary side of the question looms large. No matter how large or how small the loss, it is a needless one and one we can and should prevent.

Many misstatements are made in regard to the cause of mold. These misstatements arise from misconceptions in the minds of the writers. I quote from the "Man on the Street" (New York Produce Review)—"It (mold) may come from tubs, liners, damp refrigerators or poor refrigeration in transit."



PROF. E. G. HASTINGS

Again, "A receiver had much trouble with moldy butter from an Iowa Creamery. He wrote the manager about it and soon had a reply that the directors knew it was moldy and that it would probably continue so until the old, musty, damp refrigerator was replaced by a new one that was now being built." So long as we believe that poor refrigerators are the direct cause

of moldy butter, the trouble will probably continue. It is true that low temperatures, both in storage and in transit, tend to restrain the growth of molds, but to say that these conditions are the cause of mold is wide of the mark.

The spores or seeds of the molds are widely distributed and are to be found on or in practically every material. They are to be found in the tubs, on the parchment paper, in the cream, and in the finished product. The number present will depend greatly on conditions. In case the mold spores have been deposited with the dust that has settled onto the tub or paper, the number is certain to be small. If conditions have been such as to permit the growth of the mold on the tub or paper, spores will be numerous. With increasing numbers of spores or with the presence of the vegetative growth itself, the likelihood of trouble is greatly increased. It is probable that conditions that will prevent the germination of the spores, will not restrain the growth of the vegetative cells, as will be discussed later.

Three conditions are necessary before growth of molds can take place, namely the presence of food, moisture, and air. The molds as a rule can use the most varied materials as food, hence they are to be found growing on wood, as in our butter tubs, on paper, as in the case of the parchment used for liners and wrappers, and indeed, on most every material, when sufficient moisture is present. When the air is saturated with water vapor, a condition that frequently obtains in the summer and in our creameries at other periods of the year, enough moisture will be absorbed by wood and paper to permit or mold growth.

An essential condition for the growth of all molds is a certain amount of atmospheric oxygen. Different kinds of molds can grow in varying amounts of air. Due to this requirement of the mold, we find the growth in the case of butter limited to the surface or immediately below the surface.

What are the conditions existing in a tub of butter? Due to the packing, a film of water is forced out of the butter and forms a layer between the tub and the butter. This water is gradually

lost by evaporation and air is drawn in to take its place. We now have all the conditions necessary for mold growth, food material (wood, paper, and butter), moisture, and air. The mold spores will always be present, and the question may be asked, "Why does not all butter mold?" This can be easily answered.

If the tubs and paper have been so stored that no growth of mold has occurred on them, or if the cream has been so handled, that no growth of mold has taken place, there will be no vegetative growth of the mold on the paper, tubs or in the cream. There will be present only the spores that have been deposited with the dust that has settled onto these materials. Under these conditions, it is not likely that *salted* butter will develop mold. This is due to the fact that the brine has a restraining effect on the germination of the mold spores. If growth of mold has recently taken place in any of these materials, even to a very slight extent, it is quite certain that the same amount of salt that would prevent the germination of the mold spores will not stop the further growth of the vegetative cells present on the paper and the tub. This fact emphasizes the need of storage of such materials under dry conditions so that no development of mold is possible on them.

The effect of salt in the prevention of mold can be well illustrated by a comparison of the conduct of salted and unsalted butter on storage. Several months ago some butter, churned in the University creamery, was sampled. A portion was removed before the addition of salt. To the remainder an ordinary amount of salt was added. In every instance the unsalted butter has become moldy, while the salted butter has remained free. The mold in this instance develops just below the surface of the butter. It is thus evident that the maker of unsalted butter is in far greater danger of having mold develop on his product than is the maker of salted butter.

Among the processes used in the prevention of mold are rubbing the tubs with salt or filling the tubs with brine. It is certain that these processes have a restraining effect on the develop-

ment of the mold spores, but they have no destructive effect on the same. Mold spores placed in saturated brine for 48 hours on removal grew as well as though they had not been so treated.

Paraffining tubs does not allow the mold spores on the tub to come in contact with moisture and air, hence they cannot develop. The process, if carefully carried out, should prove effective as far as the tub itself is concerned. It may also prevent trouble from liners due to the fact that water will not be absorbed from the butter, leaving an air space between tub and butter. In the paraffined tub this space remains filled with water, beneath the surface of which molds cannot grow.

Such treatments that tend to prevent the development of mold may be of value, but can never take the place of processes by which the molds on the tub and paper shall be actually destroyed. A number of substances have been suggested and recommended for the destruction of mold spores on tubs and liners. As has been stated, a saturated solution of common salt is not effective. Boric acid has been suggested. A saturated solution two per cent, did not destroy mold spores in 48 hours. Formalin is objectionable on account of its action on the skin and its expense.

Trials were also made with bleaching powder or chloride of lime, as it is frequently called. This contains hypochlorite of lime and when the powder is stirred with water and the insoluble part allowed to settle, a liquid having a greenish color and a pungent odor is obtained. The solution has marked disinfecting properties under certain conditions. Its action on mold spores is given in the following table. The figures given as to strength of solution refer to one part of the dry powder to 3330 parts of water, etc.

Table I.—The Effect of Solutions of Bleaching Powder of Varying Strength on Mold Spores.

Time of exposure	Strength of solution		
	1-3330	1-16,550	1-33,330
3 min.	+	+	+
5 min.	+	+	+
10 min.	—	—	+
15 min.	—	+	+
20 min.	—	+	—
30 min.	—	—	—
60 min.	—	—	—
120 min.	—	—	—

+ = mold spores, not killed

— = mold spores killed

As will be seen from the table, the bleaching powder in the strengths used was effective in destroying the mold spores. Bleaching powder costs about 15 cents per 12-ounce can. If used in such strengths as to be effective in 10 to 20 minutes, the cost per tub would be approximately three-tenths of a cent. If used in such amounts as to be effective in 30 minutes to one hour, the cost per tub would be reduced to 0.03 to 0.06 of a cent. These costs have been calculated on the supposition that each tub would be filled with the solution which would then be thrown away. The use of a vat in which the tubs, loosely nested, could be placed, together with covers and paper, in the solution would reduce the cost very materially.

The mold spores are very easily killed by hot water or steam, far more easily destroyed than is commonly believed. Trials with the same mixture of spores as was used with the bleaching powder were made with results as given in the following table.

Table II.—The Effect of Hot Water on Mold Spores.

Time of exposure	Temperature		
	122°F.	131°F.	140°F.
1 min.	+	—	—
3 min.	+	—	==
5 min.	+	—	—
7 min.	+	—	—
10 min.	+	—	—
15 min.	+	—	==

The results of this work agree with those obtained by Ayers and Thom.

It would seem that the most effective way of destroying the mold and the mold spores present on tubs and liners is to place them in water heated to 150 degrees F. or above for a few moments, just before they are to be filled with butter. A tank 18 inches deep, 18 inches wide, and 8 feet long will take 7 tubs loosely nested. It would seem that such a process would be less expensive, involve no more time and labor than is required in the use of any chemical and be certain in its results. The paper and covers should be treated in like manner. It seems to the writer that the more the buttermaker relies on plenty of hot water steam, and the scrubbing brush in all his work, and the less use he makes of disinfectants, common, well known substances such as bleaching powder, or commercial products, the better he will be off both in pocket and in the quality of his product.

The following summary may be given: Unsalted butter is more likely to develop mold than is salted butter. The cause of the trouble may be vegetative growth or the spores present in the cream, on the tub or on the paper. Treatment of tubs and paper in such a way as to destroy the spores, will not insure freedom from trouble. To the treatment of these materials must be added the pasteurization of the cream.

In the case of salted butter it seems probable that mold usually is the result of vegetative growth present in the cream or on the tub or paper. If only mold spores are present, the salt is likely to prevent their germination. The tubs and paper should

therefore be stored under such conditions that moisture cannot be absorbed and thus opportunity be given for mold growth on these materials. In order to insure still more perfectly against trouble, the tubs and liners should be placed in water heated to a temperature of 150 degrees F. or above for a few moments. And as a still further precaution it is well to pasteurize all cream and thus destroy the mold spores present therein. The maker should not think that because no mold is visible on the paper, that no growth has occurred. The vegetative growth of the mold, i. e., the part that corresponds to the body of a higher plant, is usually colorless and would not be noted on such substances as wood and paper. The color shown by most molds is due to the spores which are produced only after some vegetative growth has taken place. The maker who thinks no treatment of paper or tubs necessary until visible growth is noted, is likely to have trouble. (Applause.)

CHAIRMAN: Are there any questions to ask?

We will now listen to the Report of the Resolution Committee.

MR. KEPPEL: The Resolutions have been amended to read as follows:

RESOLUTIONS.

Resolved that we extend to the Sparta Advancement Association the thanks of our Association for the many courtesies and hearty welcome given us;

Resolved further that we extend our thanks to Mayor F. P. Stiles for his kind address of welcome;

Resolved further that we particularly extend our thanks to Mr. S. E. Oakes for providing conveniences for our meetings and for his untiring efforts for our comfort and pleasure which make us feel that Sparta is one of the finest places in which to hold a convention;

Resolved further that the thanks of the Association be extended to Prof. R. A. Moore, Prof. E. H. Farrington, and to Prof. E. G. Hastings of our state university, and to Hon. G. J.

Weigle, dairy and food commissioner, for the helpful and instructive addresses delivered; we further desire to thank our visiting Minnesota and Iowa professors, R. W. Washburn and M. Mortensen for their courtesies extended our Association by appearing on our program, and to all the speakers on our program for the able manner in which they presented their papers. It is a pleasure to note that every speaker asked to appear was present which fact is duly appreciated by the Association.

Resolved further that we extend the thanks of the Association to the High School pupils who rendered such a pleasant and entertaining program.

Resolved further that the thanks of the Association be extended to the officers of the Association for their able and efficient management of its affairs during the past year, particularly do we extend to Prof. G. H. Benkendorf our thanks for his untiring efforts in promoting the welfare of this Association;

Resolved further that we extend our thanks to the butter judges and the butter superintendent, and also to the dairy press for the publicity given this convention;

Resolved further that we extend the thanks of this Association to the Hon. S. A. Cook of Neenah for his loyalty to our Association and for the four beautiful prizes given by him, and we wish to express our regret that he was not able to be with us;

Resolved further that the thanks of the Association be extended to the Hon. George J. Weigle for his kind donation of a gold watch as a prize;

Resolved further that our thanks be extended to the creamery supply firms for their donations and assistance rendered for the benefit of our organization;

Resolved further that we extend our greetings and sympathy to Mr. A. A. Jennings of Chicago who for so many years has been a familiar figure at all of our conventions; we miss him and regret his inability to be with us at this convention because of a physical disability at this time, but we confidently hope that he will be with us at our next convention.

Resolved further that we fully appreciate the good and efficient work of the National Dairymen's Union and of the Na-

tional Creamery Buttermakers' Association, and we commend these organizations for their untiring efforts to promote honest legislation to protect the dairy industry in all its branches.

Resolved further that we recommend that proper legislation be enacted making it unlawful to manufacture butter from neutralized cream unless such butter when offered for sale be so branded.

Resolved further that the President and the Secretary of this Association be and they are hereby empowered and instructed to use their best efforts to secure proper refrigerating car service for the transportation of dairy products in many instances wholly inadequate.

V. S. KEPPEL,
C. J. DODGE,
HANS HOIBERG

CHAIRMAN: What will you do with these resolutions, Gentlemen?

MR. GRIFFIN: I move they be adopted.

MR. MORAN: I second the motion.

The motion was duly carried.

CHAIRMAN: The next on the program is a discussion, "Is It Advisable for a Creamery to Pasteurize Cream for Butter-making?" We will hear from Mr. Griffin.

DISCUSSION: IS IT ADVISABLE FOR A CREAMERY TO PASTEURIZE CREAM FOR BUTTERMAKING?

Affirmative—Mr. H. E. Griffin, Mt. Horeb.

Ladies and Gentlemen and Fellow Buttermakers: When our Secretary asked me to prepare a paper on Pasteurization of cream in relation to buttermaking, I tried to have him get someone who was better posted along that line. He insisted, however, that I take the affirmative, saying that Mr. Oakes would take the negative, and as Mr. Oakes and I have had some friendly scraps along this line, I consented, knowing it would bring out some discussion even if I did not tell you anything new.

Now to begin with—what is pasteurization? It is merely heating milk or cream to a high enough degree to destroy the bacteria. There are two kinds of pasteurization—the flash and the holding system, and as nearly all of my experience has been with the holding system, it will be to that system that I will refer in my paper. With all improvements come extra work and expense. For example, up until 1895 how little butter was put into lined tubs. The tubs were soaked, the salt was rubbed on and the butter was thrown in. That was less work for the butter-maker and less expense for the creamery, but how long would



H. E. GRIFFIN.

any of us hold our positions if we should say—"I don't believe in lining tubs." If you shipped butter in unlined tubs, you or the secretary would receive a wireless message saying—"Don't ship any more butter without lining." You might argue to the creamery company that it was an unnecessary expense, and they might let you try another firm, with the same result. With this

outcome they would have to get liners and you would have to use them, as the butter keeps better and does not take the tub flavor.

The same is true in heating the milk before skimming at the creamery. How much less labor and expense when we had a steam pipe running into the milk supply pipe and turned on the steam? But along came the milk heater and there was an outlay to the creamery company of from \$100.00 to \$200.00, and extra work for the buttermaker. But the milk heater came to stay as long as there is milk to skim and it is the same way with every improvement that has been made along the dairy line—extra work and expense but the one outcome—better results.

The same with pasteurization of cream for buttermaking. It means more work and I admit most of us have enough to do. It means extra expense to the creamery, but what does the average buttermaker care for extra work? If he did nine-tenths of us would quit the creamery business within six months and go to other lines of work. The average buttermaker does more work than any other kind of workman, for if we worked with the speed of most workmen we would never get our work done. This goes to show that the average buttermaker does not care about the work so long as he can get results. We know we do not receive the price we should for pasteurized butter over the raw product to warrant the extra expense and labor. You will say, "Can you make any better butter by pasteurizing?" I emphatically say, "Yes, I can." I used to be against pasteurization, but for the last seven years I have been doing some pasteurizing and I always find I have a better piece of butter when I pasteurize than when I churn raw cream.

I have filled two jars, one with butter made from raw and the other from pasteurized cream, and at the end of four weeks I could see that the pasteurized butter was holding up better than the raw. It is my opinion that buttermakers who receive a low grade cream would by pasteurizing receive more for their butter. You ask why I am in favor of pasteurizing. My answer is—First, I know I am making more safe food and butter that

will hold up longer. Second, I believe in being a little ahead rather than a little behind, for the time is coming, and that soon when all cream for buttermaking will be pasteurized; and the buttermaker who does not get ready for it will be found wanting. You ask, "Why do you not pasteurize all your cream?" I am working for a salary and do not have all the say, but we expect to start 1917 by pasteurizing everything. Anyone who objects to pasteurizing ask yourself, "Why do I pasteurize my milk for starter making?" After answering this question you will be, I think, on the other side of the fence.

If the farmers know that you are pasteurizing and need sweet cream they will try all the more to furnish it to you and I have noticed that when I told my patrons I was going to pasteurize, I always got my cream earlier; and I don't think the farmers around Mt. Horeb are much different than others.

Let us see what Professor Rosenau has to say: "Bacteria have killed more people in the world's history than bullets. Most wars are preventable—so are most diseases. 'Preparedness' is the watchword to avoid the horrors of war; 'pasteurization' is the master word to avoid the dangers in milk. It is quite as important to guard against invisible germs that may contaminate our food as it is to guard against hostile armies and navies. So far as milk is concerned we have an efficient method of protection in pasteurization. Pasteurization is the simplest, cheapest, and best method of spiking the 42 centimeter guns of the foes found in milk. Therefore, the sanitation naturally connects preparedness and protection with pasteurization."

In looking over the last year's report of the Eau Claire Convention, I have found that nearly all the discussion was in favor of pasteurization. Several eastern butter buyers are advertising for pasteurized butter. Although they do not offer higher prices, they favor pasteurized goods, and I believe that is the way pasteurized butter will be brought about. I believe, too, that as soon as the public know that pasteurized butter is more healthful and will keep its flavor longer, they will not hesitate to pay one or two cents per pound more for it. If we had received only one cent more for our butter last year, it would have meant \$2000.

Allowing a half cent for extra expense would leave us \$1000. I know of creameries that are receiving from three to five cents less for their butter than we are, and I am convinced from past experience that had their butter been pasteurized, they would have received more than enough to pay the extra expense, which proves the advisability of pasteurization. (Applause.)

CHAIRMAN: We will now listen to the other side of the question by Mr. Keppel.

Negative—Mr. V. S. Keppel, Holmen.

Mr. President and Fellow Buttermakers, Ladies and Gentlemen: I have not anything here in manuscript form because I understood the question was to be in the form of a debate. I have taken a few notes from observation.



V. S. KEPPEL

According to this question as it is presented to us here today we have got first to make out that the dairy product needs special attention as against any other food product. Nature has provided in milk a product so well balanced that it can be fed to the

young of all animals and the human race. The infants of the human race and the young of all animals prosper exceptionally well with milk alone. Now comes man and says nature is making blunders. Man has got to come in here to aid and correct what nature has made wrong. Is that true? If in the product of the dairy today there are any impurities, how did they get there? Did nature put them there or did man put them there? Reason that out. If there are any in there they are in there because of neglect on the part of man. Nature has never put in any impurities. If there is a diseased animal and some one should offer milk of that animal, the consumer or authorities have power by law to impose penalties.

I propose to meet these things in the way nature intended they should be met. Use proper care and there will be no occasion for pasteurization. Absolutely none, because nature will never produce anything but what is beneficial, and the nearer we can live to what nature has dictated, the better for man. We cannot offend nature without paying the penalty in one form or another.

It has been demonstrated here that there is bacteria in our water, in our air. It has been demonstrated here this afternoon that the parchment paper, chemically treated and purified is yet susceptible to germs because of conditions of the air. Who is there here who will guarantee to purify the air? Has anybody got that cinch? Anything wrong in that? Conduct yourself to conform with the laws of nature and you never need fear results for your own health or the health of anything else.

It is possible for me to refer back to some of the old pioneers (I see some of them here this afternoon) how they lived in the days of the old log cabin. They were hale and hearty men. They could endure more hardship, perform more work than the generation that followed them, raised in luxury, in well built houses, lacking ventilation. (In the old log houses you could see through the chinks between the logs.) They soon found the error of their ways. Today there isn't a house built but what is provided with ventilation. In this case it is the air that provides all the

bacteria. They can't treat that, it is too big a problem, but the dairy industry can be conveniently handled.

They found out how to put out a set of machinery for mechanical purification. There is a chance for a big business and a big gain. Every creamery will employ more help. We, of the Holmen Creamery cannot get along without one more man, hence cannot help reduce the cost of living.

It requires no more effort on the part of any man to take proper care of his dairy than it does to care for it indifferently. As Mr. Weigle said here today, carelessness is our biggest enemy. Were we more careful we would not have these many expert theories, as they have got to be termed. They can't be called practical because they operate at the wrong end of the problem.

I contend we are going at the wrong end of the problem absolutely. That is the contention I have in this problem of pasteurization. I can see where it is possible that conditions might arise where you might want to pasteurize temporarily, but not permanently, which is the proposition now before us as I understand it.

If you pass such a law, what will be the result? Every man will at once claim that he is pasteurizing. The man that buys will have to pay the price, but where is his protection that he will get the article for which he is paying the added price. The consuming public will have to pay for it.

Take other food products. Go to the grocery stores. All the different kinds of food products are set out there in all kinds of surroundings. You will find fish set out there, and no man ever said they were harmful but they certainly are if milk is. They are shipped in dry and put through the channels of commerce and used as they are shipped. They haven't found a way to mechanically apply a remedial agency to these things.

The dairy product is a different proposition. With that it can be done. But why do they apply themselves to the dairy product alone? If they are so greatly alarmed and excited, why don't they follow it up on other branches of sustenance? it would look more harmonious. It wouldn't look so specialized as

in this case. Until they can go to work and prove that nature has made an error, that to my notion must first be proven true, but they never can. They have never even attempted it. We can see that whatever impurities are in the dairy products are in there as a result of man's activities. They admit, "That is true," but get another man busy and clean up, not correct the first man responsible for it all.

Another question arises. Where is the man that is going to guarantee it to you that it is pasteurized? Where is the one that will say that it has been done? If I go out into the market and buy a raw or a cooked ham, an apple or a potato, the article itself demonstrates that it is cooked. If I want it raw, the article itself demonstrates that.

Show me the man that can tell the pasteurized goods from the other in the butter line. The only time they can tell it is when they make an error in pasteurizing. That is, pasteurization goes wrong. "But it isn't so intended." "The goods were not to be so pasteurized." Does that help you as consumer? None whatever. So the value of that is negligible. It isn't worth the effort in my estimation, because it permits of deception most glaringly.

It is further contended as Mr. Griffin has said here today, that the creamery patrons will bring in a better product if they know it is going to be pasteurized. I doubt if that will be the case. They will reason out that if you can chase out a little of the bacteria you can chase out a lot. It takes just as long to run the milk or cream through the factory. Friends of pasteurization virtually say, what is the use of obeying the law? Be careless, we don't care, so we get the milk. We will go nature one better and treat it mechanically. What is the use of being careful? Bring it over here. We will fix it up for you. Nobody will know the difference. A lot of fellows lack for work and there are a lot of machine men who want to sell their machinery. That is the sum and substance of their argument. Is that a good way of looking at it?

I believe as one in the dairy business—I have been on a farm all my life—from the business end of it my theory is to guard

at the source. That is the big improvement we want to get at. There isn't a man here you cannot convince. He will do better. He will bring you a product that is better, if properly approached. Nature has put a perfect product on the market. No man can substitute for nature in the dairy line or anything else. If man attempts to improve on that in any way he must take nature's course into counsel. That is the method pursued by the men who have improved the production of grain. They didn't try to raise their grain in the house. They put it outdoors where nature intended it to grow. They learned nature's method and helped it along nature's lines. They learned nature's system and assisted her. You never can make a success unless you make nature your accomplice.

It is contended that milk is alright when drawn from the animals but is taken in unwholesome surroundings. The milk is not to blame; man himself is to blame right there. If man survives those surroundings taking care of that milk every day, if he survives and does not come to grief, shall we contend that milk is unwholesome? It is not. Whatever the effort put forth in a commercial article, it must be paid for by the consuming public. If pasteurized goods were worth more, why aren't our dairy journals quoting on this class of goods? They may give you inside quotations. In the quotations given out in the market reports you never see a word about pasteurized products.

To illustrate that milk can be kept an almost indefinite length of time I want to give you two specific instances—H. B. Gurler of Illinois, who sent a sample of milk across the ocean to the Paris Exposition. That milk arrived there—some sixteen days later but received first prize. It wasn't pasteurized—didn't need it. Nature's good article. Another instance is the case of another man, Mr. Hill, who sent a sample of milk across the ocean to Japan. That milk was returned. I saw the man that tested the milk when it came back and he said that it was just as good as any milk in my house, two days old. It took some time to go across to Japan and back. That is what cleanliness will do. Cleanliness will drive away germs. Filth, that is where they prosper.

In the dairy business the three C's are the big actors, clean, cool, cover. Clean to begin with, cool the product immediately and keep it covered. All done as easy as if you would go to work in a careless way, and possibly easier. There is nothing to remove. There is nothing in the way.

It is conceded by the gentleman that took the affirmative on this question, that he did not receive enough additional remuneration to justify the expense. There was a mechanical loss in the first place, and for that reason I see absolutely nothing to justify us in going to work in opposition to nature instead of working with her, and preventing those things from getting in there. When they go to work to cure it mechanically, as they propose to do, they not only destroy the harmful bacteria but the useful as well. When you destroy that useful bacteria you destroy its food value to that extent. You may take a calf or a pig or an infant, give it boiled milk, which is virtually what pasteurization means and what is the result? Is it going to prosper as well? No. The balanced ration to that pig is given different. A certain something is lacking that is necessary for quality.

But on the other hand you don't want to contend that they shall take the milk not well cared for or carelessly handled. We don't want to compare it in that way. We want to compare the pasteurized product with the clean milk. Carelessness in both cases or good care in both cases. Then you have things on an even basis.

This question might be discussed considerably more. I don't know as we can add anything to it. I am perfectly willing to learn. I have given the matter some thought and the longer I have thought the more it has come to me that pasteurization only has its advantages as an emergency just the same as your brakes on a wagon. You wouldn't have them set when going on a road, you would only have them set when going down a hill with a load. I think I have stated that it is a premium on carelessness rather than a prevention and I do believe that it offers a reward for carelessness. Educate and agitate and show these people where they may gain—there will be less trouble and more satisfaction and general well being all along the line.

I thank you for your attention.

CHAIRMAN: We will listen to our Secretary, Mr. Benken-
dorf, read the scores and he will award the prizes.

SECRETARY BENKENDORF: It gives me great pleasure to say that every speaker we had on the program this year responded faithfully and came to Sparta. I think this is quite a record. We had the same record at Eau Claire, and also at Fond du Lac, and also at Madison. This certainly pleases me a great deal.

We will distribute these sheets.

Mr. L. L. Bolstead will get the gold watch contributed by Mr. Weigle. Mr. G. P. Sauer will get the second prize. Mr. H. E. Griffin will get the third, Mr. Paul Mehnert the fourth, and Mr. Alex Larson the fifth.

As I stated before Mr. Cook could not be here but sent us rockers as usual.

There are quite a number of district prizes and those of you who are so fortunate as to win them can get them at my office immediately after the close of the session. According to the rules there must be twelve entries from each district. There are two or three districts that do not have the required number, and so we, according to the rules, put the prizes onto the districts that have the most. The district, of course, that had the most entries was the Fifth district. They responded with twenty-eight entries. They are entitled to seven district prizes. There are a few whose scores are below 90 and they are not published on this list.

We will pass out these prizes, and if Mr. Bolstead is in the room I wish he would personally see Mr. Weigle and get the gold watch from him. I understand Mr. Bolstead has gone home.

CHAIRMAN: Mr. Lee has a few words he would like to say.

MR. LEE: Mr. Dodge just before he left the city made a statement that he wished I would present to the Association something that he has thought about for some time, and that is, the result of the scoring of our State Association butter for several years has fallen to a few men. There is a man in Wisconsin today who has built an addition to his house in order to accom-

modate the chairs he has won. In other words, a good many of the same men in Wisconsin have been on the firing line for years. Mr. Dodge suggested that we have a graduating class and put those in the graduating class who have won a state prize in the past. Let them compete among themselves and let these other fellows have a chance to get one of these chairs.

CHAIRMAN: I believe that is a good suggestion.

SECRETARY BENKENDORF: I think that is a very good thing and will be taken up by the Executive Committee.

CHAIRMAN: I do not know but I am getting a reputation up for a talker here. I do want to thank you members of the Wisconsin State Buttermakers' Association for your attendance at this meeting, and for the courtesies shown me in my duties which I have tried to perform. I also want to thank the occupants of the booths on each side of the hall, I have had to stop a few times but it has not been any trouble at all to keep quiet, and then as a parting injunction to the buttermakers, let us get together. I, as the presiding officer of this Association, am perfectly willing if anything comes up where I can be of any help to you whatever to have you write to me. I am willing to do anything I can and don't claim I can dictate to you regarding butter, but I do claim I may do something for you as the head of the Association. If anything comes up write to me. If I have more influence with your Dairy and Food Commissioner than you have—if you think I have—I will be glad to help you all I can.

Meeting adjourned sine die.

WISCONSIN BUTTERMAKERS' ASSOCIATION
BUTTER JUDGES.



C. E. LEE



WM. SCHNEIDER



O. A. STORVICK

JUDGES' SCORES.**DISTRICT NO. 1.**

Axel L. Larson, Nashotah.....	95.16
John R. Meyer, Slades Corners.....	93.00
F. C. Thompson, Mukwanago, R. 40.....	93.33
C. J. Siepert, Franksville, R. 10.....	93.33
W. J. Clark, Lake Beulah.....	92.00
Harry Nichols, Elkhorn.....	94.66
A. J. Koehn, Edgerton.....	90.33

DISTRICT NO. 2.

Claude O'Dell, Ripon.....	90.00
Jos. J. Bartel, Peebles, R. 37.....	93.33
Louis M. Kohl, Beaver Dam.....	93.00
G. P. Sauer, Cedarburg.....	96.16

DISTRICT NO. 3.

H. E. Griffin, Mount Horeb.....	95.92
Ed. Bolstead, Stoughton.....	91.33
G. M. Stewart, Mazomanie.....	91.66
H. P. Nielsen, Deerfield.....	91.50
W. H. Kubat, Marshall.....	94.16
L. L. Bolstead, Basco.....	96.50
R. J. Else, Helenville.....	94.50
F. M. Werner, Waterloo.....	94.33
Hod Doolan, Marshall.....	95.00
H. J. Herreman, Black Earth.....	91.33
A. N. Newman, Black Earth.....	90.83
Herman Hartwig, Deerfield (Complimentary).....	92.33

DISTRICT NO. 4.

L. W. Turner, Montfort.....	92.00
Olaf Larson, Gays Mills.....	94.66
David R. Donnet, Wonewoc (Valton Cry.).....	92.50
O. C. Hanson, Hazel Green.....	92.16
H. C. Koenig, Plain, R. 1.....	91.66
W. A. Moyes, Ironton.....	92.83
J. H. Quale, Platteville.....	93.66
Ernest Saltwedel, Lime Ridge.....	91.33
John Mogensen, Wyocena.....	92.83
Fred Maso, Jr., Fennimore.....	93.00

DISTRICT NO. 5.

H. B. Hoiberg, Coon Valley.....	91.83
S. E. Oakes, Sparta.....	91.33
Oscar Thompson, Black River Falls.....	91.00
D. L. Buchholz, Kendall.....	90.50
J. D. Simpson, Viroqua.....	94.33
John Fjelstad, Elroy.....	92.33
H. B. Oakes, West Salem.....	91.33
John Rasmussen, Leon.....	92.66
D. F. Wallace, Alma Center.....	92.16
Carl Engel, West Salem.....	92.33
Wm. T. Hansen, Camp Douglas.....	91.50
G. N. Marvin, Black River Falls.....	93.33
J. A. Betthausen, Oakdale.....	90.83
Thomas J. Berge, Northfield.....	92.83
Wm. Sieger, Chaseburg.....	92.16
Frank O'Hearn, Melrose.....	90.83
A. W. Zimmerman, Norwalk.....	92.16
M. Mickelson, Westby.....	94.50
E. G. Rasmussen, Melvina.....	92.00
H. A. Johnson, Westby, R. 2.....	90.83
Julius Kretschmar, New Lisbon.....	93.16
Norman Mayenschein, Hillsboro.....	92.33
Hans Christensen, Tomah.....	92.66
Hans Christensen, Tomah, (Complimentary).....	91.66
Peter Lund, Arkdale.....	92.00
J. H. Bogart, Stoddard.....	92.16
Wm. Mehlus, Bangor.....	92.50

DISTRICT NO. 6.

Odin Christenson, Nelsonville.....	93.16
Christ Christensen, Neillsville.....	94.50
T. J. Warner, Rosholt.....	92.00
Clarence Fostvedt, Wild Rose.....	90.33
George Jensen, Saxeville.....	90.83
Elmer A. Peterson, Poysippi.....	92.16
F. S. Root, Rudolph.....	90.66
Jos. Yager, Thorp.....	92.50
Adam Klonowski, Grand Rapids.....	92.50
Richard Sleyster, Endeavor (Complimentary).....	90.75

DISTRICT NO. 7.

R. H. Banks, Spring Valley.....	91.33
L. C. Olson, Galesville.....	90.83
Paul McCauley, Elmwood.....	93.83
Paul Mehnert, River Falls.....	95.66
Arthur C. Schultz, Arcadia.....	92.66
Grant Winner, Osseo.....	92.83
E. J. Graunke, Emerald.....	93.00
O. E. Peterson, Hersey.....	91.00
Jacob Ringger	90.33

DISTRICT NO. 8.

H. F. Recknagel, Seymour.....	92.00
R. C. Cleaves, Iola.....	91.00
Earl Longteau, Green Bay.....	92.66
Robert S. Anderson, Northland.....	91.66
R. C. Kielmeier, Manitowoc.....	92.50
Theo. R. Peterson, Weyauwega.....	91.50
C. F. Wolzein, Black Creek.....	92.00
C. J. Chapin, Sheridan.....	92.83
H. A. Wheeler, West De Pere.....	93.33
R. J. O'Keefe, West De Pere, R. 1.....	93.83
Lauritz Olsen, West De Pere.....	94.33
Camilla Anderson, Weyauwega	91.16
Hubert Bartel, New Holstein.....	94.16

DISTRICT NO. 9.

Henry A. Paul, So. Superior.....	91.33
H. Enerson, Comstock.....	93.16
Chris. J. Back, Luck.....	93.33
E. A. Danielson, Grantsburg.....	92.16
John E. Mattson, St. Croix Falls.....	94.66
Maurice Hanson, Iron River.....	92.33
Albert Erickson, Amery, R. 4.....	94.16
Wm. Nichols, Centuria.....	93.16
L. G. Rogers, Clear Lake.....	93.33
L. M. Sorenson, Clear Lake.....	92.00
E. R. Eckwright, Bloomer.....	93.16
B. J. Lindvig, Milltown.....	94.16
Homer Townsend, Chetek.....	91.00
Peter Kristensen, Cushing.....	94.83

DISTRICT NO. 10.

Hans Christensen, Rose Lawn.....	91.83
Alfred F. Schulz, Phlox.....	90.66
Alex A. Kriewaldt, Birnamwood.....	90.66
Joel Gilbertson, Medford (Complimentary).....	90.50
Carl Jorgenson, Rose Lawn.....	95.00
Louis Peterson, Bonduel.....	92.16

NON-RESIDENTS.

Axel Madsen, Oregon, Ill. (Complimentary).....	92.66
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STATE PRIZES.

Hon. G. J. Weigle, our new Dairy and Food Commissioner, in order to stimulate an interest among the buttermakers of the state, of his own volition offered either a gentleman's or lady's handsome gold watch to the buttermaker receiving the highest score on butter regularly entered at the convention.

Hon. S. A. Cook, who for so many years has regularly given four handsome chairs as prizes, this year again donated four nice leather chairs to be offered as the association directed.

In order that these state prizes may be distributed as widely as possible it was decided to offer these chairs as second, third, fourth and fifth prizes.

First Prize.....	Gold Watch
Second Prize.....	Leather Chair
Third Prize.....	Leather Chair
Fourth Prize.....	Leather Chair
Fifth Prize.....	Leather Chair

THE STATE PRIZE WINNERS.

- First Prize—L. L. Bolstead, Basco.
- Second Prize—G. P. Sauer, Cedarburg.
- Third Prize—H. E. Griffin, Mt. Horeb.
- Fourth Prize—Paul Mehnert, River Falls.
- Fifth Prize—Alex Larson, Nashotah.

DISTRICT PRIZES.

District prizes were again offered this year under the same rules as governed this contest at previous conventions. As there are ten districts there were thirty prizes offered in all, as follows:

First Prize—A twelve piece set silver knives and forks, best Community silver, Georgian pattern.

Second Prize—Camera—Box type with universal focus lens. Two finders and two tripod sockets. Shutters absolutely automatic, working for time or instantaneous exposures without previous setting. Takes pictures $2\frac{1}{4} \times 3\frac{1}{4}$. Instructions furnished with camera. Offered by the J. B. Ford Co., Wyandotte, Michigan, manufacturers of Dairy-men's Cleaner and Cleanser.

Third Prize—"Universal" Vacuum Thermos bottle, quart size.

THE DISTRICT PRIZE WINNERS.

First District,

First Prize—F. C. Thompson, Mukwanago.
Second Prize—W. J. Clark, Lake Beulah.

Second District,

First Prize—J. J. Bartel, Peebles.
Second Prize—L. M. Kohel, Beaver Dam.

Third District,

First Prize—R. J. Else, Helenville.
Second Prize—F. M. Werner, Waterloo.
Third Prize—H. J. Herreman, Black Earth.
Fourth Prize—A. W. Newman, Black Earth.

Fourth District,

First Prize—Olaf Larson, Gays Mills.
Second Prize—J. H. Quale, Platteville.

Fifth District,

First Prize—M. Mickelson, Westby.
Second Prize—J. D. Simpson, Viroqua.
Third Prize—G. N. Marvin, Black River Falls.
Fourth Prize—Julius Kretzschmar, New Lisbon.
Fifth Prize—J. Rasmussen, Leon.
Sixth Prize—Hans Christensen, Tomah.
Seventh Prize—Wm. Mehlus, Bangor.

Sixth District,

First Prize—Chris. Christensen, Neillsville.
Second Prize—Joseph Yager, Thorp.

Seventh District,

First Prize—Grant Winner, Osseo.

Second Prize—L. C. Olson, Galesville.

Eighth District,

First Prize—Lauritz Olsen, West De Pere.

Second Prize—Hubert Bartel, New Holstein.

Third Prize—H. F. Recknagel, Seymour.

Ninth District,

First Prize—L. G. Rogers, Clear Lake.

Second Prize—L. M. Sorenson, Clear Lake.

Third Prize—Homer Townsend, Chetek.

Fourth Prize—Roy Hayton, Stanley.

Tenth District,

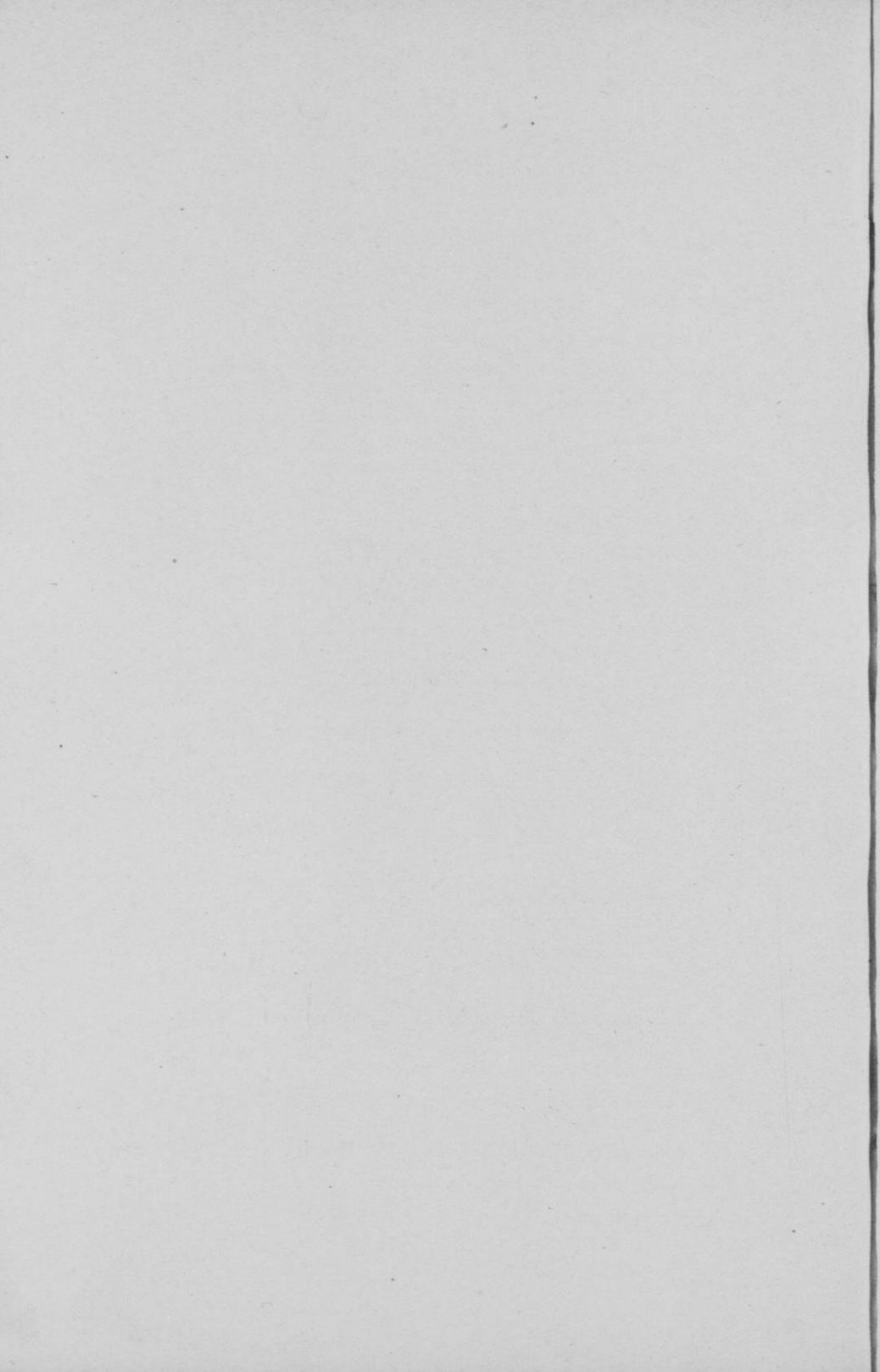
First Prize—Carl Jorgenson, Rose Lawn.

Second Prize—Aug. Lange, Jr., Chelsea.

Special prize to member of the Association securing highest score at Minneapolis—Peder Kristensen, Cushing.

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