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FIFTEENTH ANNUAL MEETING

WISCONSIN BUTTERMAKERS' ASSOCIATION

Held at Eau Claire, Wisconsin

FEBRUARY FIRST TO FEBRUARY THIRD
NINETEEN HUNDRED AND SIXTEEN

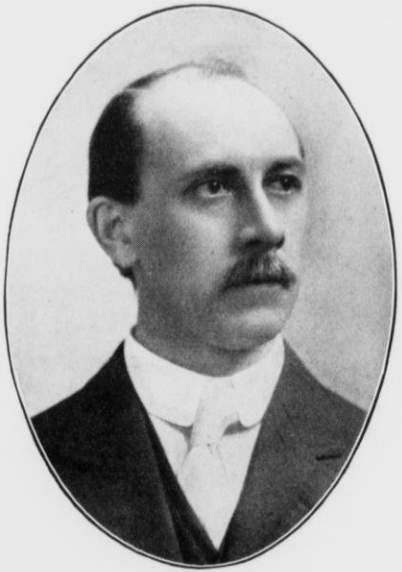
PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING

of the

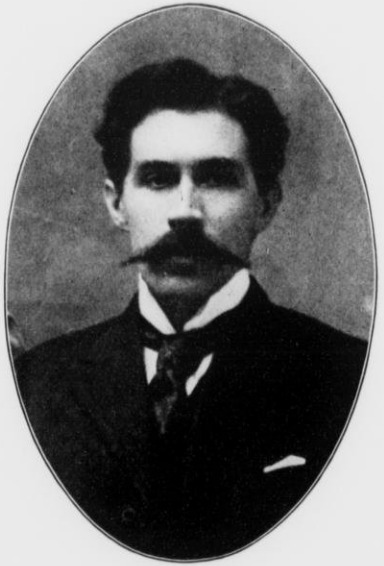
Wisconsin Buttermakers' Association

HELD AT
EAU CLAIRE, WISCONSIN
FEB. 1-3, 1916

Compiled by G. H. BENKENDORF

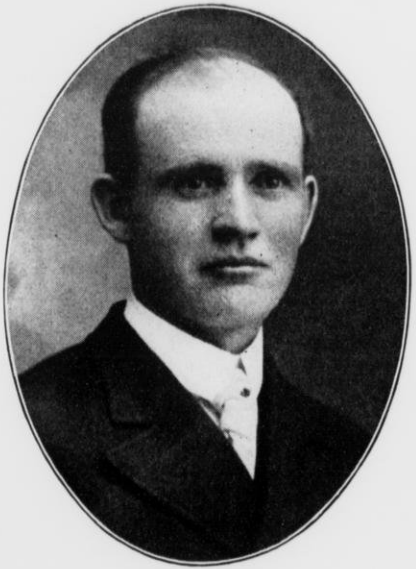


G. H. Benkendorf,
Madison, Secretary.

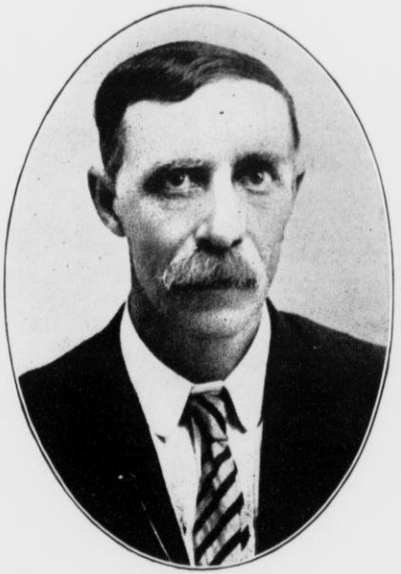


Allan Carswell,
Clear Lake, President.

Quirin Moersch,
Peebles, Vice President.



H. E. Griffin,
Mt. Horeb.



C. J. Dodge,
Windsor.

O. B. Cornish,
Ft. Atkinson.

MEMBERS EXECUTIVE COMMITTEE 1916-1917.

List of Officers 1915-1916.

Allan Carswell, President.....Clear Lake
Quirin Moersch, Vice President.....Peebles
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

List of Officers 1916-1917.

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

LETTER OF TRANSMITTAL.

Office of Secretary Wisconsin Buttermakers' Association, Madison, Wis., 1916.

To the Officers and Members of the Wisconsin Buttermakers' Association: I have the honor to herewith submit the report of the proceedings of the Fifteenth Annual Convention held at Eau Claire, February 1-3, 1916.

Fraternally yours,

G. H. BENKENDORF,

Secretary.

Names of Members of the Wisconsin Buttermakers' Association, 1916

Life Members.

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

Annual Members.

Anderson, Camilla	Weyauwega
Adams, E. L.	Oakfield
Allen, Ford J.	226 W. Jackson, Chicago, Ill.
Angove, Jas.	106 Wisconsin St., Milwaukee
Alexander, C. R.	175 W. Jackson, Chicago, Ill.
Bowen, R. W.	Augusta
Bennett, R. G.	Chippewa Falls, R. 1
Blood, Fred	Chetek
Barber, A. H.	So. Water St., Chicago
Biers, Alvin R.	Shennington
Brennan, P. W.	125 W. S. Water St., Chicago
Boeninkhof, Wm.	Baldwin
Blaschke, A. E.	Fall Creek
Bockelmann, Fred	216 W. S. Water St., Chicago
Buss, A. C.	Ironwood, Mich.
Brown, Frank M.	St. Paul, Minn., c. o. J. G. Cherry Co.
Beam, T. G.	Eau Claire
Burroughs, V. C.	Neillsville
Bowerston Creamery Co.	Bowerston, Ohio
Benkendorf, G. H.	Madison
Borden, W. H.	St. Paul, Minn.
Bennett, E. W.	272 S. Water St., Milwaukee
Borden, S. S.	Chicago
Borst, W. B.	Eau Claire
Bunke, P. F.	379 25th St., Milwaukee
Barlow, C.	1027 Drake St., Madison
Bigham, E. G.	Arcadia
Betthauser, John	Oakdale

List of Members

NAMES	ADDRESSES
Crandall, J. J.	Milwaukee
Christianson, N. P.	Withee
Cole, C. L.	Minneapolis, Minn.
Clegg, J. F.	221 N. 5th Ave., Chicago
Cronholm, J. A.	915 22nd Ave., Minneapolis
Casperson, H. C.	Deer Park
Central Wisconsin Creamery Co.	Reedsburg
Carswell, Robert	539 Menomonie St., St. Paul
Crump, J. L.	St. Paul, Minn.
Carswell, Allan	Clear Lake
Clark, A. V.	Ripon
Campbell, A. W.	Beaver Dam
Cameron, W. P.	St. Paul, Minn.
The Creamery Milk Dealer	Chicago
Corneliuson, Thos.	Dairy Division, Washington, D. C.
Coyne, Geo.	Coyne Bros., Chicago, Ill.
Cornish, O. B.	Ft. Atkinson
Cobb, B. B.	Sun Prairie
Collins, Leslie	Rio
Davis, N. E.	c. o. S. S. Borden Co., Chicago
Dodge, E. C.	Lake Mills
Dufner, Sam	Sparta
Dillon, H. P.	Oshkosh
Dodge, C. J.	Windsor
Day, George E.	Osseo, R. 4
Day, C. A.	Madison
Dillingham, M.	Polley
Ericsson, Elov	St. Paul, Minn.
Eschenbrenner, N. J.	21 Jay St., New York
Elliott, O. A.	Eau Claire
Ekleberry, Henry	Tavera
Farrell, J. J.	St. Paul, Minn.
Peter Fox and Sons Co.	Chicago
Fjelstad, John	Elroy
Fisler, H.	Morton Salt Co., Milwaukee
Farrington, E. H.	Madison
Furber, I. C.	369 Robert St., St. Paul, Minn.
Fossum, John	Meridian
Forster, A. W.	Durand

NAMES	ADDRESSES
Gallagher, Thos. F.	165 W. S. Water St., Chicago
Garlid, Ole	Baldwin
Gilchrist, Geo.	Oconto
Garlid, George	Roberts
Galloway, Geo.	Merrillan
Green, Rollo	Albion
Gordon, N .D.	625 Palace Bldg., Minneapolis, Minn.
General Purification Co.	Madison
Hannan, J. T.	Hudson
Helgaas, Andrew	Madison
Haven, Davis	Bloomingdale, Mich.
High, John	485 Terrace, Janesville
Herman, C. A.	102 Wisconsin St., Milwaukee
Hed, Ed	St. Peter, Minn.
Hanna, J. R.	623 Randolph St., Chicago
Hammer, Geo.	Colfax
Hanson, E. R.	700½ Cramner St., Milwaukee
Hansen, A. P.	Eau Claire
Hinsey, C. A.	431 S. Dearborn, Chicago
Hoffman, A. E.	Waterloo, Iowa
Hart, C. E.	900 Superior St., Milwaukee
Helgeson, Thomas	Holman
Hanan, G. F.	Marston City
Harless, N. A.	Stanley
Houghland, A. C.	28 W. Fairview Ave., St. Paul
Hutchinson, P. J.	Gilmanton
Hass, H. C.	Eagleton
Hanley, Fred	Elroy
Hearst, Wm.	Seymour
Hintz, Wm.	Almond
Harlson, Merritt	Black River Falls
Hastings, R. C.	Marshfield
Haughdahl, Sam	St. Peter, Minn.
Hinz, Arthur R.	221 W. Water St., Chicago
Jackson, E. N.	West Salem
Jarvis, J. D.	DeLaval Separator Co., Chicago
Jenks, G. J.	Chicago
Jorgenson, T. A.	Chippewa Falls, R. 1
Jones, Ira	Marshfield
Jensen, C. J.	Withee
Johnson, Ed.	Strumm

NAMES	ADDRESSES
Jennings, A. A.	175 W. Jackson, Chicago
Jacobs, E. C.	Elk Mound
Kampfer, C. W.	St. Paul, Minn.
Kleist, Ed.	Almond
Kohel, Louis	210 State St., Madison
Karker, W. L.	Jim Falls
Kachel, J. C.	Whitewater
Kieffer, P. H.	21 Jay St., New York
Keppel, V. S.	Holmen
Keller, Frank	1414 Grand Ave., Milwaukee
Kamman, Davis A.	1130 17th St., Milwaukee
Kelly, A. J.	119 W. S. Water St., Chicago
Kolb, F. J.	350 N. Clark St., Chicago
Kinnhell, C. C.	Minneapolis, Minn.
Linn, Geo. W. & Son	Chicago
Lally, W. A.	Merchants & Trust Bldg., Chicago
Lund, A.	Rice Lake
Larson, H. W.	Sayer, Penn.
Lee, C. E.	Madison
Lounsbury, J. M.	Milwaukee
Munshaw, F. A.	c. o. C. H. Weaver Co., Eau Claire
Music, W. G.	916 Pioneer, St. Paul, Minn.
McCluskie, E. J.	Eau Claire
McLaughlin, L. M.	337 W. Madison St., Chicago
Meyer, M. H.	888 44th St., Milwaukee
McVay, J. H.	Madison
Meier, Sam	Mondovi
Middleton, C.	Eau Claire
Melsby, Orvin	Durand
Moran, J. H.	West Salem
McCarthy, John V.	192 N. Clark St., Chicago
Montanye, C. T.	Glenwood City
Mayenschein, Norman	Hillsboro
Miller, J. C.	Augusta
Marks, Andrew C.	Tomahawk
Morrison, E. J.	Chetek
Meier, Geo.	Arcadia
Nelson, O. F.	Owatonna, Minn.
Nichol, Fred	58 W. S. Water St., Chicago

NAMES	ADDRESSES
Nohr, S. C.	Chicago
Nauscawen, F. R.	114 Wisconsin St., Milwaukee
Noble, G. W.	1007 37th St., Milwaukee
Nelson, John N.	Holman
O'Brien, J. P.	Chris. Hansen's Laboratory, Milwaukee
O'Dell, Claude	Wild Rose
Oaks, S. E.	Sparta
Onstein, A. L.	Osseo
Olson, H. P.	Germania Bldg., Milwaukee
Oaks, H. P.	West Salem
Omholt, Carl	Chili
Olson, Peter	Klevenville
Olson, C. W.	c. o. Merrill & Eldredge Co., Chicago
Oxley, H. D.	1114 Corn Exchange, Chicago
Purvis, J. P.	Berlin
Peterson, Louie	Cleghorn
Pockstroh, R. J.	916 Pioneer Bldg., St. Paul, Minn.
Peterson, J. H.	Cashton
Pederson, Hans H.	Warren
Peterson, Elmore O.	Poy Sippi
Pape, James L.	Augusta
Parker, J. J.	Camp Douglas
Peterson, E. O.	Poy Sippi
Price, Ed.	616 Bellingson St., Eau Claire
Prescott, A. G.	Tunnel City
Peterson, Ingvald	Elleva, R. 1
Picott, W. D.	Eau Claire
Rice, H. B.	Minneapolis, Minn.
Roch, F. J.	Chippewa Falls
Refrigerator Sales Co.	Milwaukee
Redeling, H. J.	Jim Falls
Rasmussen, John	Wautoma
Rintz, Henry	Westby
Reckner, Geo. F.	Beaver Dam
Roder, M. P.	Chetek, R. 3
Roecke, W. G.	Durand
Sell, R. O.	Chippewa Falls, R. 8
Schellhorn, W. L.	4 E. 4th St., St. Paul, Minn.
Schager, Emil	Eau Claire

NAMES	ADDRESSES
Smith, Lucius C.	c. o. M. J. Haire Co., Boston, Mass.
Schultz, R. A.	N. Y. Cent. Ry., St. Paul, Minn.
Schwartz, Chas.	Chippewa Falls
Schneider, Wm.	Johnson Creek
Stenger, C. J.	174 W. S. Water, Chicago
Sherwood, M. T.	Sauk City, Box 282
Scheel, Louis	Shopiere
Speirs, Guy	Eau Claire
Swits, Geo.	Ft. Atkinson
Sondegaard, H. T.	3812 12th Ave., S. Minneapolis, Minn.
Shilling, S. B.	136 W. Lake St., Chicago
Seldon, G. W.	Superior, Station D.
Shumway, C. P.	Milwaukee
Scheide, John	Fall Creek
Schulz, Alfred F.	Phlox
Sprecher, J. N.	428 W. Doty, Madison
Strozinsky, H. S.	Menomonie
Solie, H. W.	Osseo
Serrine, D. E.	Eau Claire
Torsion Balance Co.	92 Reade St., New York
Tucker, E. H.	Lodi
Uecke, Fred	Ashland
Vroman, H. E.	222 13th Ave., S. E., Minneapolis, Minn.
Voigt, W. A.	Eau Claire
Voltz, C.	1118 S. Water St., Chicago
Vigels, John	Menomonie
Webber, Richard	LaValle
Waite, E. N.	Nagor
Wellinghof, E. F.	Cry. Package Mfg. Co., Minneapolis, Minn.
Weigle, Geo. J.	Madison
Williams, C. A.	Augusta
Wuethrich, John	Greenwood
Weigle, H. R.	37 13th St., S. Minneapolis, Minn.
Whitmore, E. J.	Owatonna, Minn.
White, E. A.	St. Paul, Minn.
Yonkey, C. C.	Tunnel City
Zander, H. L.	Cross Plains

ANNUAL MEMBERS CONVENTION EXHIBITORS

Andreason, Robt. S. ..... Northland
Anderson, A. N. ..... Antigo
Adams, E. L. ..... Oakfield, R 28
Anderson, Camilla, ... Weyawega

Bolstead, Ed. F. ..... Stoughton, R 2
Brigham, R. J. ..... Whitewater, R 3
Berge, Thos. J. ..... Northfield
Brierly, W. E. ..... Downsville
Banks, R. H. ..... Spring Valley, R 3
Butler, Richard P. ..... Mondovi
Bonefield, Henry ..... New Auburn
Butler, R. A. ..... Amery
Back, Chas. J. ..... Luck
Brennecke, C. F. ..... Antigo
Bolstead, L. L. ..... Basco
Barron, Van ..... Sauk City
Burocker, M. O. ..... New Vienna, Iowa
Bartel, Hubert ..... New Holstein
Bjerking, L. J. ..... Ellsworth
Bragg, B. E. ..... Preston, Iowa
Betthauser, J. A. ..... Oakdale
Bowerston Creamery Co. ..... Bowerston, Ohio

Clark, Walter J. ..... Lake Beulah
Christoph, Geo. ..... Avalon
Christianson, Odin ..... Nelsonville
Christensen, Christ ..... Neillsville
Cross, M. R. ..... Humbird
Colwell, R. P. ..... River Falls
Cartwright, Chas. A. ..... Stanton
Cleaves, R. C. ..... Iola
Chapin, C. J. ..... Sheridan
Christopherson, M. ..... New Franken
Christopherson, J. C. ..... Cadott
Christianson, Hans ..... Rose Lawn
Caucutt, G. S. ..... Taylor
Cobb, B. B. ..... Sun Prairie
Collins, Leslie ..... Rio

Dale, N. E. ..... Blair
Doolan, Hod ..... Marshall
De Golier, H. M. ..... Cambridge
Donner, Henry ..... Dayton
Dehn, W. J. ..... La Valle
Dressler, Val ..... Louisburg
Day, Geo. E. ..... Osseo, R 4

Engebretson, M. ..... Scandanavia
Enerson, Hilbert ..... Comstock
Erickson, Albert ..... Amery R 4
Eckwright, E. R. ..... Bloomer
Esker, Ole ..... Dallas
Else, Rudolph J. ..... Helenville
Edge, H. J. ..... Patch Grove

Fostvedt, Clarence ..... Wild Rose
Feiler, E. A. ..... Osseo
Finstad, A. N. ..... Albertville
Felstad, O ..... Elroy

Geisler, Will ..... Bruce
Griffin, H. E. ..... Mt. Horeb
Gilbertson, Joel ..... Medford
Grande, J. P. ..... Chicago

Halverson, H. J. ..... Eleva
Hass, T. J. ..... Elk Mound
Hanlon, T. J. ..... Prescott
Hanson, H. K. ..... Caryville
Holverson, O. L. ..... Spring Valley
Hayton, Ray ..... Stanley
Hoefke, Albert ..... Waterloo
Hilstad, A. C. ..... Oregon
Herreman, H. J. ..... Black Earth
Hartwig, Herman ..... Deerfield
Hanson, Ole C. ..... Hazel Green
Halliday, E. E. ..... Mauston
Hanson, J. M. ..... Cameron
Hanson, Louis M. ..... Iron River
Heiney, Hugo R. ..... Livingston

Jenson, C. J. ..... Withee
Jenson, Geo. ..... Saxville
Johnson, S. J. ..... Ettrick
Joseph, F. H. ..... Plainfield
Johnson, H. A. ..... Westby, R 2
Jorgenson, Carl ..... Rose Lawn
Janning, Herman ..... Freeport, Minn.
Joslin, J. C. ..... Grove City, Pa.

Kelley, Chas. D. ..... East Troy
Kristensen, Peder ..... Cushing

Kresse, F. F. ..... Plainfield
Krogstad, O. J. ..... Greenwood
Kipp, Henry T. ..... Cambridge
Kuts, Fred C. ..... Johnson Creek
Kubat, W. H. ..... Marshall
Kretzschmar, Julius ..... New Lisbon
Koepsell, M. G. ..... Little Black

Larson, Axel L. ..... Nashotah
Lonteau, Earl ..... Green Bay
Larson, Olaf ..... Fennimore
Lennarts, Theo. ..... Frederic
Laurence, Lewis ..... Ladysmith
Lee, V. D. ..... Neillsville

Mogenson, John ..... Beloit
Meyer, John R. ..... Slades Corner
Mattson, John E. ..... St. Croix Falls
Mathews, F. J. ..... Brill
Magrane, J. S. ..... Fon du Lac
Moyes, W. E. ..... Ironton
Miller, John H. ..... Baraboo
Mortenson, John ..... Camp Douglas
Marvin, Geo. W. ..... Black River Falls
Meisner, Frank ..... Wittenberg
Merryfield, F. V. ..... Mukwonago
McCaulley, Paul ..... Elmwood
Moersch, Quirin ..... Fond du Lac
Mark, Andrew C. ..... Tomahawk

Nichols, Harry D. ..... Elkhorn
Nielson, H. P. ..... Deerfield

O'Keefe, R. J. ..... De Pere, R 1
Olson, Arthur A. ..... Waupun
O'Brien, Chas. M. ..... Augusta
Olson, L. C. ..... Galesville
Olson, H. N. ..... Waupaca
Olsen, Lauritz ..... West De Pere
Olson, L. A. ..... Waupaca
O'Hearn, Frank ..... Melrose

Page, C. W. ..... Elkhorn
Place, Leonard ..... Knapp
Peterson, P. E. ..... Hersey
Peterson, Louis ..... Bonduel
Paulson, W. F. ..... Phillips
Peterson, Theo. R. ..... Weyauwega
Paul, Henry S. ..... S. Superior
Packard, Frank D. ..... Deronda
Pedersen, Hans H. ..... Warren

Quale, H. J. ..... Platteville

Root, F. S. ..... Rudolph
Rivard, A. J. ..... Emerald
Ringger, Jacob W. ..... Durand, R 4
Recknagel, H. F. ..... Seymour
Reif, Henry ..... Weyauwega
Roch, F. J. ..... Chippewa Falls
Remel, Wm. ..... Maribel
Rasmussen, E. G. ..... Melvina, Box 41

Rahbek, Benedick ..... West Salem, R 2
Rasmussen, John ..... Wautoma

Sommers, Theo. ..... Thorp, R 1
Sanford, Chas. M. ..... Amherst Jct. R 2
Schawitzer, Louis ..... Nashotah, R 22
Seager, Arthur W. ..... Cedarburg
Skerhutt, H. ..... Cedarburg
Sauer, G. P. ..... Cedarburg
Sorenson, Carl ..... Meridean
Stolpe, Walter ..... Wheeler
Sorenson, J. P. ..... Milltown
Speich, Abe ..... Berlin, R 2
Sampler, Geo. ..... Clear Lake
Scheel, E. W. ..... Turtle Lake
Sullivan, John W. ..... Chippewa Falls
Sleyster, Richard L. ..... Endeavor
Stewart, G. M. ..... Mazomanie
Smart, E. R. ..... Marshall
Steder, Carl P. ..... Helenville
Shey, Alex. ..... Marshall
Shepherd, Frank ..... Mt. Sterling
Soltwedel, Ernest ..... Lime Ridge
Schwartz, E. D. ..... Lancaster
Sieger, Wm. ..... Chaseburg
Simpson, J. D. ..... Viroqua
Schulz, Alfred F. ..... Phlox

Tenjim, John ..... Windsor
Turner, L. M. ..... Montford
Thompson, Oscar ..... Black River Falls, R 6

Von Liere, Martin ..... Troy Center

Warner, T. J. ..... Rosholt
Winter, L. H. ..... Eau Claire
Winner, Grant ..... Osseo
Wheeler, H. A. ..... West De Pere
Wolzien, C. F. ..... Black Creek
Warnke, Wm. ..... Kingston
Werner, F. M. ..... Waterloo
Winner, C. R. ..... Stitzer
Warnke, Albert ..... Pardeeville
Whiting, H. H. ..... Johnson Creek
Wallace, D. F. ..... Alma Center
Webber, Richard ..... La Valle
Winsor, C. R. ..... Stitzer

Yager, Joseph ..... Thorp

Zabel, R. G. ..... Wausau
Zick, H. O. ..... Tiffany
Zimmerman, A. W. ..... Norwalk
Zander, H. L. ..... Cross Plains

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.

FIFTEENTH ANNUAL MEETING

of The

Wisconsin Buttermakers' Association

Held at Eau Claire, Wisconsin, February 1 to 3, 1916.

OPENING SESSION, TUESDAY EVENING, February 1, 1916.

Meeting was called to order by Vice President Quirin Moersch.

The following address, entitled "Welcome to the City of Eau Claire," was delivered by Hon. John B. Fleming:

Mr. President and Members of the Convention: It gives me great pleasure indeed to have this opportunity of welcoming again to Eau Claire the State Convention of the Wisconsin Buttermakers' Association. I believe the calendar shows that you have been here three times in fifteen years. You have waited too long. Do not wait that long again. We want you to come more frequently. Now, if you take the view of what is progressing in this section of the country in the last fifteen years, you will readily see that you cannot space conventions in Eau Claire five years apart. I have a further reason for urging you to come back. Our people here in order to make adequate provision for this association have decided to give you the only municipal auditorium that Wisconsin may boast of. We are just getting plans and have sites on which we will build the only great auditorium fit to hold conventions of this character in, providing sufficient room and the conveniences to make you comfortable at all times when in Eau Claire. I cannot broach the welcome

adequate to a convention of this kind without being impressed with the necessity for an understanding of the movement of which you gentlemen are such splendid representatives. My welcome is not confined to the people of Eau Claire; I take it upon myself to extend this welcome to you in behalf of the great territory of which Eau Claire is the center.

The citizens of Eau Claire and the citizens of the magnificent territory tributary to this metropolis extend to the Buttermakers' Convention a most cordial welcome. Everybody is extrmely interested in the industry you represent, on account of the fact that prosperity follows its activities and all participate in the results, which dairying brings to the land owner, the farmer, the creamery, the business man, the professional man, the banker, and the manufacturer. No individual, no occupation, but gets a show of the riches which attend the proper and successful development of the country, and we in the city of Eau Claire and in the great rich region which surrounds this center, deeply appreciate the movement for the welfare of this section of the country, exemplified in the work and in the aims of this and similar conventions which work for the promotion of dairying and the production of dairy products. We hope you will have a most successful meeting, and a very delightful stay with us and we wish to assure you that you are welcome to everything we have which will serve your purposes. It is seven years since you were here last and we hope that you will arrange to come more frequently when our new auditorium is built. The good people of the place are so much interested in building up and in leading the efforts to make Northern Wisconsin what it ought to be—the most prosperous section of our great state, that they have voted to expend $85,000.00 in providing a great building for convention and exhibition purposes, so that Eau Claire may do her part in bringing the representative people, and the latest and best in plans and equipments, into the midst of this magnificent empire, and thereby actively and successfully co-operate in the efforts progressive organizations are anxious to put forth for the welfare of every man, woman and child within its limits.

So be sure to come again and come as soon as possible. The latch string is always out and your needs and comforts are the first consideration of a grateful community. (Loud applause.)

A. J. Finstad, of Albertville, then made the following responsive address:

Mr. Chairman, Mayor of Eau Claire, Members of the Wisconsin Buttermakers' Association, Ladies and Gentlemen: We have just listened to a very hearty welcome,—the kind that makes us feel at home. It is seven years since we met in your

A. J. Finstad

city; we are here again today for the same purpose, namely, to renew old acquaintance, exchange ideas, that we may be better fitted to cope with the problem concerning us in our industry. Our association represents one of the largest industries in the state; in importance to the state it stands alone. We are continually growing, and when you get that fine auditorium built which your people have voted to erect we are going to come

again and we are going to show you that we can bring one convention to your city that can make use of every available floor space at your command. It is also more fitting that we should meet in your city, located as you are in the future Dairy Denmark of America—northern Wisconsin; the dairy industry represents a grand total of about $100,000,000 annually and the butter end of this industry amounts to about two-fifths of this amount, so you can readily see that we are growing. Wisconsin ranks first in the production of dairy products; its quality is second to none, and we want to keep it there in spite of all the slanderers that the people of the New York Globe can send over here to make false reports. We will show them up as they deserve to be shown, thanks to the efforts of the "Sherlock Holmes" of your city, Guy Speirs of the Eau Claire Creamery Company. We must admit that we make some poor butter, caused primarily by the gathered cream system and the cutthroat methods employed by some competitive creameries. Butter-making, the making of good butter is not all we must do, we must act together, we must get down to business and co-operate. We have talked about making good butter and getting butter and cream, at every convention, and that is just about as far as we get. We must co-operate and have a good co-operative creamery or else we will always have poor and dissatisfied patrons. We must try to take the farmer and teach him to know on what foot he is standing. Many do not know how their business is running, they mostly guess at results and jump at conclusions. We can to a certain extent help the farmer,—we can offer to do the testing of samples of milk from the various cows in their herds, we can urge them to take these samples, showing them how they can tell whether they are "keeping boarders" or not. There is one other thing that I have done, not to boast of it or anything of that kind, but I got the local school board (by the way, I happened to be a member of it myself) to buy a tester and a pair of good cream scales. They now have their resources whereby they can verify their tests, other than the creamery, and we are striking at the same time at a different point. We

are starting in with the boys and girls, the boys and girls of today, who are going to be our dairymen of tomorrow. You ought to see the eager faces of these little boys and girls when they are working that tester and get those boys and girls to weigh the milk and cream from a certain cow in their yard at home. I suppose you are all aware of the fact that little boys and little girls can ask lots of questions, more questions than some of us old fellows are able to answer, and they are going to cause their father and mother to think, and when these boys and girls grow up, after they have been taught from the time they are small, how to attend to business, they are going to make business farmers, the kind that we are looking for. We should leave each creamery to its own territory, this working for a quantity must cease. During the seven years that I made butter at Albertville we have the first time to go into another local creamery's territory to solicit cream. If we refused to take up cream outside of our own territory, what would happen? I tell you, my fellow buttermakers, it would make the farmer stop to think, it would place him where he would have to know where he is at. He would have to know what grade of cream he is taking to the creamery. He would make more money; what would be the result? Peace and good will would be the lot of dairymen and buttermakers and creamery operators. While I understand that there are several more addresses to be made tonight, and I don't want to take up too much of your time, in closing once more I want to thank the mayor and the people of Eau Claire for the hearty welcome extended to us through them and to assure them that we will not overstep the trust and confidence which they have reposed in us,—that we will have a great meeting here and enjoy their hospitality before us. Ladies and gentlemen, I thank you. (Applause.)

Music by Conrad's Orchestra.

Mr. G. H. Benkendorf, Secretary, then read the following letter and telegram, respectively:

Jacksonport, Wis., Jan. 29, 1916.

Prof. G. H. Benkendorf, Secretary,
Wisconsin Buttermakers' Association,
Eau Claire, Wis.

Dear Secretary and Members of our Wisconsin Buttermakers' Association:

It is with regret that I cannot be with you this year, and probably for some years to come, as I have retired from the field of buttermaking and have gone into dairying. I am now nicely settled on a 200 acre farm, surrounded with plenty of good dairy cows, hogs, chickens, etc., also enjoying the comforts of a new $3,000.00 home. So, from where I now sit, the creamery business has no magnetic effect on me.

Wishing the officers and members of the Wisconsin Buttermakers' Association continued success and an increased membership,

I beg to remain

Yours for better butter,

GEORGE YOUNG.

Madison, Wis., January 31st, 1916.

To R. F. Kaiser,

Secretary Civic and Commerce Ass'n, Eau Claire, Wis.

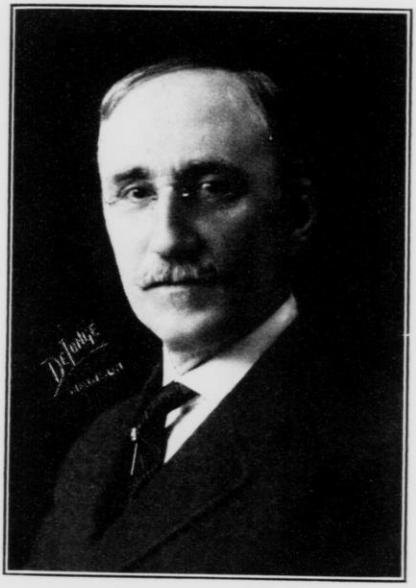
Owing to the fact that it was necessary for me to attend the exercises tendered President Wilson in Milwaukee today, it is necessary for me to be in Madison tomorrow. I regret that I shall therefore have to cancel my engagement for tomorrow evening.

E. L. PHILIPP.

THE DEVELOPMENT OF PASTEURIZING MACHINERY.

By E. H. Farrington.

The machinery used for pasteurizing cream for buttermaking in creameries is somewhat similar in purpose to certain kinds of farm machinery. The farm cultivator and the cream pasteurizer are both machines used for "killing weeds" and for preparing the soil in which it is desired to plant selected pure

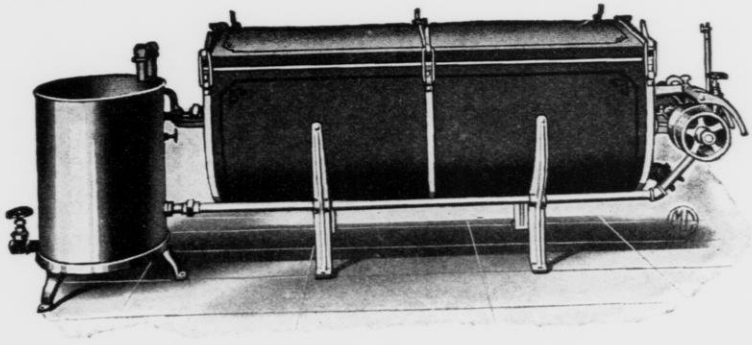


Prof. E. H. Farrington

seed. The pasteurizer, however, is capable of doing much more damage to the bacteria in the cream than is the cultivator to the weeds. A pasteurizer purifies its soil by fire which is one of the most effective weapons of destruction known to man, but the cultivator only tears the weeds out by the roots and this does not always insure complete destruction.

The weeds in the corn field and some of the fermentations in the cream are enemies to the crops which we wish to harvest from the farms and from the creameries and when the purpose of the pasteurizer is well understood there ought to be no opposition from the patrons of a creamery to spending the money necessary to buy one.

Nearly every farmer who milks cows has a cultivator on the farm and he understands the necessity of equipping his farm with this machine. As soon as he learns that the pasteurizer at



A Type of Vat Pasteurizer.

the creamery not only aids the buttermaker in making butter of uniform quality but it also destroys the disease germs which may be spread from one farm to another by the raw skimmilk, the buttermilk and the whey, the creamery and the cheese factory patrons will doubtless become enthusiastic advocates of the introduction of pasteurizers into all the factories of the state.

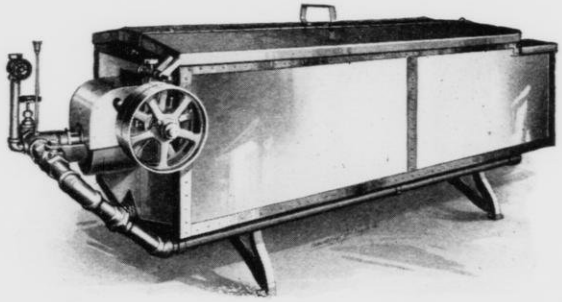
The creamery buttermaker usually favors the use of a pasteurizer because it aids him in making butter of a uniform quality from day to day. He knows that the flavor of the butter is influenced to some extent by the souring of the cream, and if he by using the pasteurizer is able to destroy most of the bacteria present in the cream when he receives it, he can then plant in this cream a pure culture starter and develop the kind of bactria he wants for producing a butter of uniform flavor.

The effect of cream ripening or souring on butter flavor is

easily noticed by comparing the flavor of sweet cream butter with that of sour cream butter and it is still more exaggerated by comparing sweet with rancid butter, which latter shows the effect of excessive souring on the butter flavor.

In sweet cream butter we have a mild flavor which by some is considered rather tasteless and unsatisfactory. In the sour cream butter, especially that which has been ripened with a pure culture starter, we usually have the characteristic butter flavor due to the products formed by the souring process.

This brief explanation may give some buttermakers and some creamery patrons, who have not had any experience in the making of pasteurized cream butter, an idea of the uses of the pasteurizer and what it is supposed to accomplish.



A Cream Ripener and Pasteurizer.

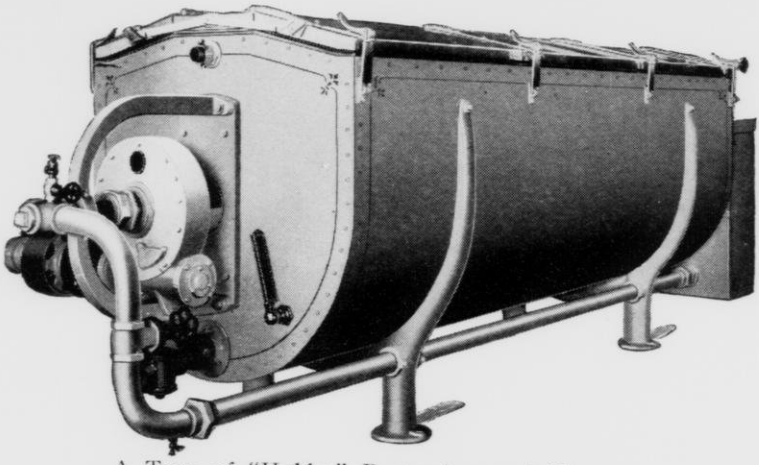
When a pasteurizer was first introduced into creamery buttermaking, nothing but sweet milk or sweet cream was received and the buttermaker could control the richness of the cream because he skimmed the milk himself with his own factory separator. In recent years the situation has become more or less complicated by the skimming of milk on the farm and the holding of cream several days at the farm before delivery to the creamery. This condition of the cream has made it necessary to vary the process of pasteurization to some extent in order to overcome certain difficulties that have arisen from the necessity of handling cream that is more or less sour and that varies in richness from day to day.

A Type of Continuous Pasteurizer.

One of the first things noticed when an attempt was made to pasteurize this farm separated cream at the creameries was the excessive loss of fat in the buttermilk. Repeated observations soon showed that this loss would be reduced somewhat by increasing the richness of the cream, and patrons are now continually urged to skim a richer cream at the farm because it not only gives them more skimmilk but the cream sent to the creamery can be more satisfactorily pasteurized and a better quality of butter made from it than is the case with thin cream.

It has been found that if cream contains thirty per cent fat or more, pasteurization is usually satisfactory even if the cream is sour, but when it tests so low as twenty per cent there is likely to be a large loss in the buttermilk.

Several attempts have been made to explain this loss and ways of overcoming it have been suggested. One of the best explanations offered, up to the present time, is the suggestion that by heating the sour cream, some of the fat globules become



A Type of "Holder" Pasteurizer and Ripener.

enclosed in such a tough covering of curd which is coagulated by the heat when the cream is sour, that these particles of curd enclosing the fat, fail to break and the butter is not churned out of them but passes into the buttermilk.

Expense of the Process.

The making of pasteurized butter is not a difficult piece of work. Nearly every creamery buttermaker can learn how to run the necessary machinery but he must also learn how to make a good starter. These two things, the machine and the starter, will necessarily increase the expenses and the labor connected with the process and in this way pasteurized buttermaking is somewhat different than simply weighing the cream delivered by haulers and after cooling in a vat, running it directly into a churn without the use of a starter or without any attempt to control the ripening process.

The additional cost of labor, machinery, and fuel needed for pasteurizing, is undoubtedly responsible for the slowness with which the process has been introduced into many creameries, but when one considers the important items of destroying disease germs and of making a uniform quality of butter, the advantages are strongly in favor of pasteurization.

Many estimates of the cost of pasteurizing milk and cream have been published in bulletins, text books, and the dairy press. One of the latest is the following taken from the U. S. Department of Agriculture, Bulletin 85.

Tests at Four Creameries.

	Cost per 100 gallons of cream	Cost per 100 lbs of fat in 30% cream
Interest on investment in equipment, including depreciation, repairs, and labor	31c	12.5c
Coal at $5 a ton	4c	1.5c
Water and ice for cooling; water at 50c per 1,000 cubic feet, ice at $1 per ton	10c	4c
Total	45c	18c

When the flash process was used, because of the higher temperature necessary, about seventeen per cent more heat was required for heating the cream than in the holder process and there was a corresponding increase in the quantity of water used for cooling. The cost of pasteurization was therefore somewhat greater.

The proper design and arrangement of the apparatus have much to do with the cost of operations. With poorly arranged apparatus and leaky piping the loss in heat may reach thirty per cent of that required to pasteurize; this of course is an unnecessary waste.

It was found practicable to use exhaust steam from the engine and steam-driven auxiliaries, or water heated by exhaust steam for pasteurizing cream. This lessens the work of the boiler to the extent of about one horse-power for each four hundred pounds of cream pasteurized per hour.

The table given above reveals the fact that in pasteurizing cream the cost of coal and refrigeration is less than one-third the total cost. In a creamery in which the pasteurization is done in the ripener there is no extra investment for machinery, and the depreciation and repairs on the equipment used are but slightly greater than when cream is not pasteurized.

In a creamery equipped with a 300-gallon vat-pasteurizer the total cost of pasteurizing a vat full of cream is about 54 cents, or approximately 0.06 cents per pound of butter. At 45 cents per 100 gallons (the figure given in the table) the cost of pasteurizing 300 gallons of 30 per cent cream would be $1.35, or 0.15 cents per pound of butter manufactured.

The cost of pasteurizing cream, then, varies with local conditions from 0.06 to 0.15 cents for each pound of butter manufactured.

At a creamery whose owners desire to put a first-class product upon the market the cost of pasteurization is negligible.

Types and Names of Pasteurizers.

In recent years a number of names have come into more or less common use by those interested in pasteurizing machinery; they indicate the kind of machine or process used for pasteurizing either milk or cream.

These names may be divided into two classes; first, those that apply to machines that heat milk and cream while it flows through the machine and is therefore necessarily exposed to a heating temperature only a very short time. Such machines are the so-called "continuous" and the "flash" pasteurizers. The second class includes the machines in which milk or cream is "held" and heated by means of a revolving coil which keeps the cream in motion during the heating process, distributing the heat uniformly through the entire quantity. This type of pasteurizer has been given such names as the "intermittent," the "held," or the "vat" machine or process.

In the machines of the continuous type the cream is heated for a short time at a high temperature and in those of the second type the cream is heated a long time, usually twenty minutes or more, at a lower temperature, the object being in both cases to kill as many bacteria as possible in order that those introduced by the starter may have a chance to grow without being retarded or overcome by the great variety of bacteria which are usually present in unpasteurized milk and cream.

Temperature of Heating.

It has been found that there is a relation between the temperature to which cream should be heated and the number of minutes at which it is held at a certain temperature. Milk commissions and boards of health have recommended certain regulations in regard to this point. One of the most recent of these is, that "pasturization of milk should be between the limits of 140 and 155 degrees Fahrenheit; at 140 degrees Fahrenheit the minimum exposure should be 20 minutes; for each degree above 140 degrees F., the time may be reduced by one minute. In no case should the exposure be less than five minutes.

In order to allow a margin of safety under commercial conditions the commission recommends that the minimum temperature during the period of holding should be made 145 degrees F., and the holding time 30 minutes. This standard may be accepted at the present time as sufficient for destroying all disease germs in milk and cream by the pasteurizing method."

No definite regulations are suggested in regard to the operation of the continuous or flash pasteurizers, but it is generally recommended that when these are used the milk or cream ought to be heated to a temperature of about 185 degrees Fahrenheit.

These regulations are just as applicable to cream as to milk and may be used by our creameries in buttermaking. In actual creamery practice several modifications of both the continuous and the holder process have been introduced. These modifications are caused principally by the sourness of the cream pasteurized in some cases and in others by the coldness of the cream which is received in the winter season.

"Forewarming" and "Aeration."

Among the expressions now used at creameries where pasteurization is practiced, the following may be heard. "Forewarming" the cream before pasteurizing by the continuous process and "aeration" of the cream when pasteurized by the holder process.

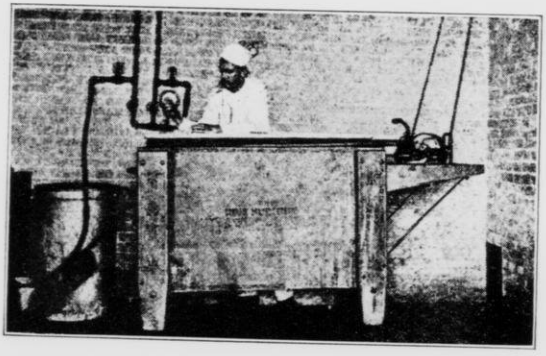
The "forewarming" of cream has been introduced principally in the winter season when cream is near the freezing temperature. It has been found that if an attempt is made to run this cream immediately through a continuous machine with the expectation of heating it to the required temperature of 185 degrees Fahrenheit, the result would not be satisfactory, and in order to use the continuous process in cold weather, the cream is first heated in a vat or "forewarmed" before it is run through the continuous machine.

Another modification, is to "forewarm" the cream with the continuous machine from which it passes into the vat or holder process and by this means less time is required to get the cream up to the required temperature than if either the continuous or holder process alone is used.

The "aeration" of the cream during or after pasteurization has been recommended as a desirable practice and anyone having an opportunity to get the odor that comes from hot cream during pasteurization and especially when air is blown through it at the same time, will become convinced that aeration drives out odors that the consumer would prefer not to have in his butter.

Pasteurization at the University Creamery.

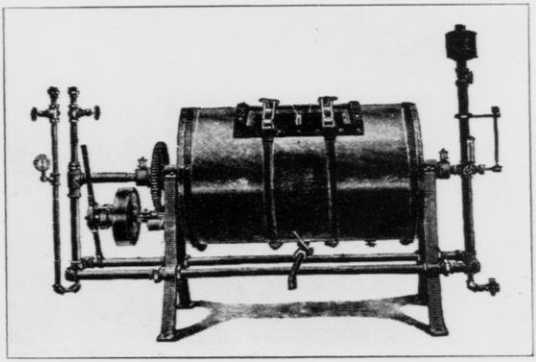
Pasteurizing machines have been in use by the Dairy De-



The First Pasteurizer Used in Wisconsin.

partment of the University of Wisconsin for twenty years. One of the first pieces of work carried on by the writer at the University was summarized and published in 1898 in Bulletin 69 of the Wisconsin Agricultural Experiment Station. The title of this bulletin is "Pasteurization as Applied to Buttermaking."

The bulletin gives a comparison of the results obtained when butter was made from pasteurized cream and from raw cream. The two kinds of butter were sent to commercial judges for an opinion as to the difference in quality. These indicated at that time that the butter made from pasteurized milk or cream had a more uniform, mild, sweet flavor from day to day than the butter made from raw cream. It was also noticed that the pasteurized cream butter had a little better keeping quality than the raw cream butter, and further that there was some difference in the texture of the two lots of butter. The pasteurized was a little closer grained and more inclined to be sticky than that made from raw cream.



The Second Pasteurizer Used in Wisconsin.

Many other observations were made at the time this work was done and were reported in this bulletin. On page eight a picture is given showing the general arrangement of the machinery for pasteurizing at the creamery. At that time milk was received instead of cream and this milk was heated in a continuous pasteurizer to a temperature of 155 degrees Fahrenheit,

this pasteurized both the cream and the skim milk. After separating, the cream was run over a cooler and then conveyed to a vat where it was ripened with a carefully prepared starter.

At the same time these experiments were being carried on we had in the Dairy School creamery another pasteurizing machine used at that time in our city milk and cream trade. This particular machine was one of the intermittent type, now called "holder" process, and I think it was one of the first machines of this kind ever built in this country. It was developed by Dr. Russell and so arranged that the cream could be heated to any desired temperature and held for a given length of time. The temperature used then was 155 degrees Fahrenheit, at which temperature it was held for 20 minutes and then cooled in the same vat.

The following figures are given in that bulletin to show the extent to which the bacteria are destroyed by pasteurizing milk or cream by the "continuous" and by the "holder" methods of heating.

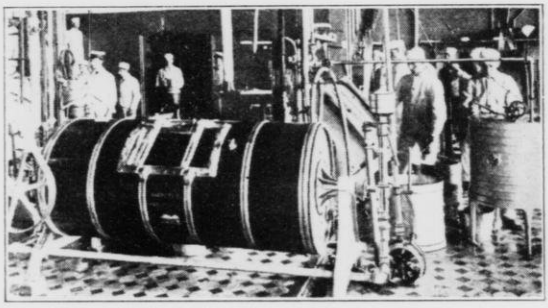
Bacteria killed by continuous and by holder methods of heating.

	No. of Bacteria per c. c.	
	March 17	March 23
Milk before heating	34,603,000	9,781,000
After heating in continuous machine.	2,732,000	661,000
After heating by the holder process..	5,400	6,000

These figures show what is common knowledge now that the holder process kills more bacteria than the continuous heaters when both are operated at the same temperature, but it has since been found that by raising the temperature of heating by the continuous machines to about 185 degrees, it is possible to destroy 99.9 per cent of the bacteria in the milk or cream, or about the same number as are killed by the "holder" process.

Comparison of Pasteurized and Raw Cream Butter.

Another series of experiments on the pasteurization of cream for buttermaking was carried out in 1902 and the results obtained were published in the nineteenth annual report of the



One of the Early Types of Vat Pasteurizers and Ripeners.

Wisconsin Experiment Station. In these experiments, the cream as it came from the separator was passed through a continuous pasteurizer (Farrington Duplex) in which the cream was heated to a temperature of 160 to 180 degrees Fahrenheit. A number of comparisons were made between cream treated in this continuous pasteurizer with cream which was not pasteurized. In most of these experiments about 1,500 pounds of cream was mixed in a large vat as it came from the separator; this was then divided into three lots of about 500 pounds each. One of these lots of cream was churned sweet, another was soured by means of a pure culture starter, and the third was passed through a continuous pasteurizer and then ripened with the same starter that was used in the raw cream. Packages of each lot of butter were sent to market judges for scoring and after they were scored fresh the butter was placed in the butter cellars for several weeks and scored a second time. The comments made on these three kinds of butter will illustrate the general character of the butter made in these different ways.

Comments on the Sweet-Cream Butter.

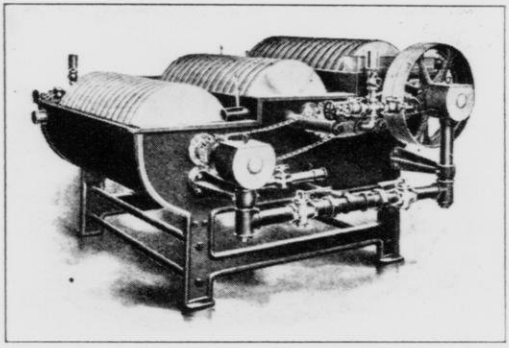
When one day old it had almost no aroma but a fresh, sweet-cream taste. Its texture was more like the pasteurized than the raw-cream butter; very little moisture showed on the surface and it had a close, solid body. After three days, this

butter had a suggestion of age in its aroma but the taste was still sweet. The butter remained in this condition for three weeks, gradually getting a little more defective in aroma but still sweet to the taste. At that time the flavor was decidedly strong, like that of old butter. The flavor did not improve after the first day, but gradually showed its advancing age by becoming a trifle rancid rather than by developing a clean, sour taste.

The sweet-cream butter was at its best when made. It did not improve with age, but rapidly deteriorated, becoming decidedly off-flavor in three weeks' time.

Comments on Pasteurized Cream Butter.

When this butter was one day old it had a clean taste, but not much aroma; it was rather flat but resembled the raw sour-cream butter more than that made from sweet cream.



A Type of Continuous Pasteurizer.

After three days, more aroma developed and this continued to increase until the butter was three weeks old when the aroma changed somewhat, becoming a trifle sour. No other indications of age were shown until the butter was five weeks old when its age began to be slightly noticed. The texture of this butter was close but not smeary, and fully equal to that of raw ripened cream. The butter surface, however, showed almost no brine

but looked dry and smooth, quite different from that of the raw-cream butter. The pasteurized-cream butter was much better than the sweet-cream butter and its flavor improved or became more pronounced until it was five weeks old. After about three weeks the flavor was fully as good as the raw-cream butter and during this time very little if any objection could be made to it.

The body of this butter was not defective at any time. This is contrary to the general impression in this country about pasteurized-cream butter. In the opinion of the writer the method of cooling the cream directly after the heating as practiced in our experiments was responsible for the perfect body which this butter showed.

Comments on the Raw-Cream Butter.

The day after churning the flavor of the raw-cream butter was the highest of the three. The butter aroma increased a trifle each day for about two weeks when the butter began to show age, and in three weeks it was decidedly strong, almost rancid. The texture of this butter was coarser and more open than either that from the sweet or the pasteurized cream, and considerable brine showed in drops on the surface, making the appearance as well as the flavor of this butter decidedly different from that of the others. The raw-cream butter was at its best when first churned. It showed an age flavor when two weeks old.

The results of this work show that at the present time a much more uniform butter can be made by pasteurizing the cream than is the case when butter is made without pasteurizing. The advantages claimed for pasteurizing, briefly stated, are the following:

First. By using the modern pasteurizer for heating and cooling the cream, the former objections to the body of pasteurized-cream butter are overcome.

Second. The flavor of the pasteurized-cream butter may be made much more uniform from day to day than is the case when butter is made without pasteurizing the cream.

Third. The American market will accept butter of a sweet, mild flavor at the present time and it is more sought for than the high, quick flavors which may disappear quickly and deteriorate in quality as in the case of the butter made from the raw cream.

Fourth. Pasteurized butter will keep longer and hold its good qualities better than that made from raw cream. Most of the advantages in flavor may be obtained in pasteurized butter by the skillful use of starters, and the buttermaker is much more sure of obtaining satisfactory results with starters when they are used in pasteurized cream than in raw cream.

Pasteurizing Skim Milk, Buttermilk, and Whey.

It has been repeatedly proved that one easy means of spreading tuberculosis is the feeding of raw skim milk, buttermilk, and whey brought from the creamery and cheese factory to the calves and pigs on the farm.

This is a serious matter and our creameries and cheese factories ought to be eager to provide the necessary pasteurization of these products at the factory.

Several ways of doing this have been suggested:

First. By using exhaust steam from the factory engine.

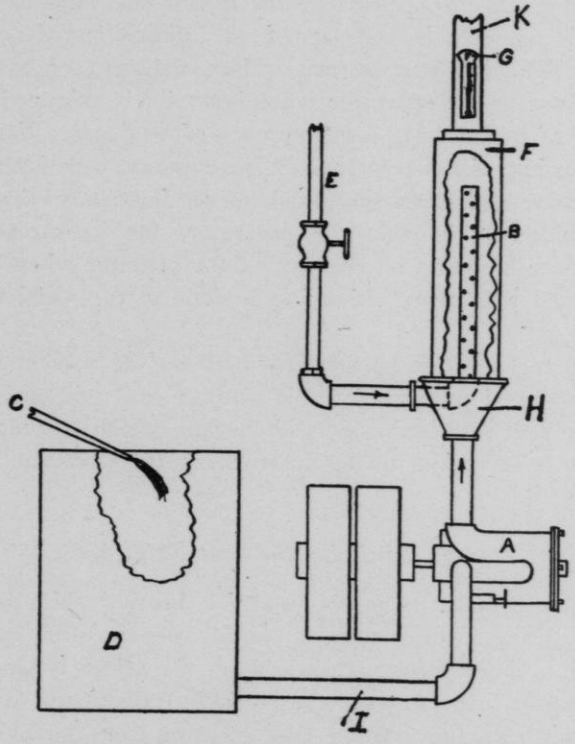
Second. By forcing high pressure steam directly from the boiler into the skim milk or whey.

Third. By passing these by-products over a heated metal surface such as the ordinary milk heater.

Fourth. By pasteurizing the milk before it is skimmed or before it is made into cheese.

Of the four methods suggested, the utilization of exhaust steam of the creamery engine is undoubtedly the most economical. The skim milk is somewhat diluted by the steam and a small amount of cylinder oil from the engine also passes into it; but these additions are of little importance compared with the economy of heating in this way, as neither the small quantities of steam nor the trace of cylinder oil will affect the feeding value of the skim milk to an appreciable extent . It is im-

portant, however, in using the exhaust steam for the pasteurization of the skim milk to make sure that sufficient steam is obtained to heat all the milk to the desired temperature of 176 degrees Fahrenheit.



A Skim Milk Pasteurizer at the Separator.

Forcing the high-pressure steam into skim milk is the easiest and surest method of getting all the milk heated to the required temperature. It is a more expensive way of heating than using exhaust steam, but this is about the only objection that can be made to it.

The use of milk and cream pasteurizers which heat the skim milk as it passes over a metal surface, which is heated either by steam or hot water, protects the skim milk from dilution with

steam, but the machines designed for pasteurizing in this way are somewhat expensive and they require more attention while in operation than the first two methods of heating.

Skimming the whole milk at a temperature of 176 degrees Fahrenheit is also expensive in the use of fuel, and further objection is made to it because of the difficulties of separating milk at this high temperature. More sediment or bowl slime accumulates in the separator when hot milk is skimmed than in the case of milk having a temperature of 80 degrees Fahrenheit. The clogging of the bowl makes it necessary, therefore, to stop the machine and clean the bowl more frequently than when colder milk is skimmed; the separator, for other reasons, requires more attention on the part of the operator when hot milk is skimmed than when skimming is done at the usual temperature.

The regenerative pasteurizers now on the market are both economical and efficient for this purpose and will undoubtedly give excellent satisfaction as milk heaters which pasteurize both the skim milk and cream by pasteurizing the whole milk before skimming it.

Storage Tank for the Hot Skim Milk.

When exhaust steam is used for heating skim milk, the heating arrangement is usually placed over the skim milk storage tank. When direct steam is used, the heater is placed near the separator. In any case the hot skim milk foams badly and often overflows the storage tank, causing considerable trouble on this account.

Several ways of removing the foam have been suggested but none of them are entirely satisfactory.

1. A tightly fitting cover may be put on the skim milk tank, thus making it impossible for the foam to run over.

2. The air may be blown out of the foam by means of a revolving dasher in a half cylinder placed over an opening in the cover of the storage tank. This fan or dasher throws the foam against the walls of the half cylinder in which the fan

revolves, thus enabling the air to escape through an opening in the top of the fan chamber.

3. A float that rises and falls on the surface of the skim milk may be placed in the tank.

4. The pipe delivering the hot skim milk may empty near the bottom of the storage tank.

5. The foam may be sprayed with cold water. This is an efficient means of destroying the foam, but the method has the objection that it dilutes the skim milk with water.

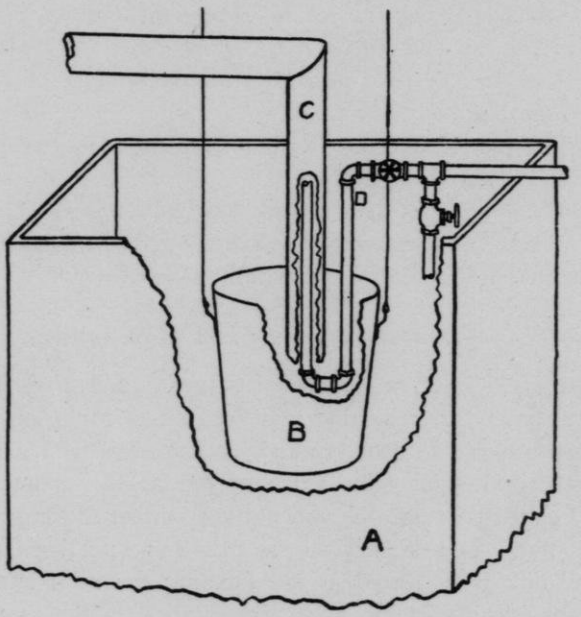
Delivery of Hot Skim Milk.

Pasteurized milk, when cooled to near 50 degrees Fahrenheit, immediately after heating will keep sweet for a longer time than when allowed to cool gradually. Experiments have shown that pasteurized skim milk when cooled at the creamery and delivered cold to the patrons will not keep sweet so long as when delivered hot. This is because the cans have not been sterilizd after the milk is delivered at the factory; the milk left in the empty cans is sufficient to start fermentation in the cooled pasteurized skim milk, no matter how thoroughly this has been pasteurized.

If the skim milk is delivered to the patrons while hot, the rinsings of milk left in the cans are pasteurized by this hot skim milk and if it is then cooled to near 50 degrees Fahrenheit soon after heating it will keep sweet a much longer time than raw skim milk. Cooling the cans of hot skim milk without delay at the farm is an important factor in keeping the milk sweet. It is not sufficient to set the cans of hot skim milk in a small tub of cold water at the farm as this small quantity of water is warmed by the hot milk and unless the water is changed often enough to complete the cooling, the results are unsatisfactory.

The Whole Milk Must be Sweet.

In order to successfully pasteurize skim milk, the whole milk from which it is skimmed must be perfectly sweet; slightly



A Skim Milk Pasteurizer in the Storage Vat.

sour milk is curdled by heat and will clog the pipes through which it passes.

When skim milk is pasteurized, the transportation cans are easily cleaned and freed from the sour milk odor which is so difficult to remove when raw skim milk is allowed to sour in them as is often the case.

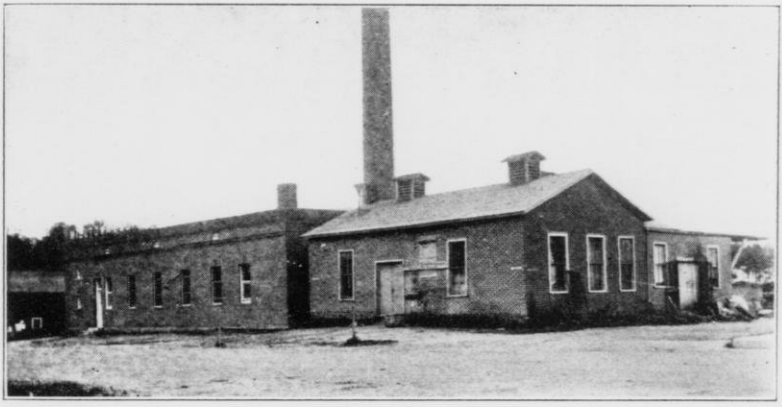
A few observations made at the Wisconsin Dairy School Creamery showed that skim milk is diluted with about ten per cent of water when pasteurized by forcing steam into it. The exhaust steam from an engine contains more water than high-pressure steam and skim milk would be diluted even more than this when exhaust steam is used for this purpose.

No satisfactory way of pasteurizing buttermilk without separating the curd from the whey is known, but when sweet cream is pasteurized before ripening and churning there is no need of pasteurizing the buttermilk.

THE CREAMERY LAUNDRY.

By E. H. Farrington.

At the last meeting of this association I gave some reports I had obtained from two creameries in the state where a laundry was being operated, and also explained the generous offer made by Prof. Henry who had agreed to give a prize of $300 to the first Wisconsin co-operative laundry that should be successfully managed by farmers for one year. I think the full de-



A Creamery-Laundry.

tails of this offer of Prof Henry's are given in my address which was printed in your annual report of last year.

The operating of a laundry in connection with a creamery is something that has been discussed for a great many years, and it is hardly worth while to go over the early history of this movement or explain the ways in which it is supposed to be a benefit to the farmers and the creamery patrons, but since there are two creameries in this state where laundries have been successfully started and are now in operation. I thought it might be worth while for me to give you a brief report of a visit I made last summer to these two creameries. The laundry building in

both cases happens to be entirely separate from the present creamery but located within a few feet of the building. This makes it convenient to supply the laundry with both steam and water, but at the same time an entirely separate labor force is employed in the two lines of work.

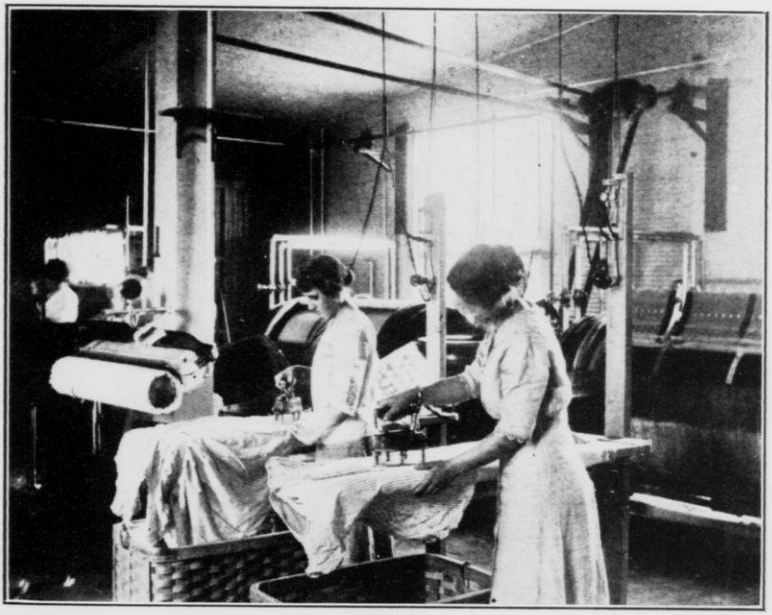
At these two creamery laundries now in operation in the state, it has been found that the steam and the water connections are about the only thing the creamery and the laundry have in common. In each case the laundry work has so rapidly increased that it has been found necessary to employ an entirely separate force of labor for the laundry, and at one of the creameries a separate board of managers for the laundry was insisted on because some of the creamery patrons thought that the new enterprise was bound to be a failure and they did not want the creamery affairs mixed up with a losing venture. This anticipated disaster has not yet materialized as the laundries in both cases are in successful operation, and it is probable that one set of officials will be given entire charge of both the creamery and the laundry at the next annual meeting of the patrons.

Both of these creameries are co-operative and each is patronized by about 200 farmers. One of them is located in a town of 2500 people that is a center of a prosperous farming community and the other is doing business in a town of about 450 people in the midst of a farming community where the co-operative movement has become well established. In this small town the neighboring farmers already have a co-operative store, a telephone company, a bank, and a creamery in successful operation. In such a locality it was not very difficult to start a co-operative laundry in connection with the creamery.

Another thing that was helpful in starting the laundries at both places was the fact that at one of the creameries all the patrons deliver their own cream and it is therefore an easy matter to bring their laundry work at the same time the cream is delivered. At the other creamery there are only three small cream routes and they deliver only about one-third of the total

cream collected. The rest of it is delivered by the patrons coming to the creamery themselves or a few neighbors taking turns in delivering each other's cream.

It has been found that whenever a few farmers change off in delivering the cream and in doing errands for each other on certain days in the week, there is developed a better acquaintance among the households and a more helpful spirit of co-operation in the neighborhood than is the case when one cream wagon does all the collecting from a large number of farmers. It is possible, however, that in cases where it may be necessary



Interior of a Laundry at a Creamery.

the cream gathering wagons on a certain route can also be used for collecting and delivering the laundry work of its farmer patrons.

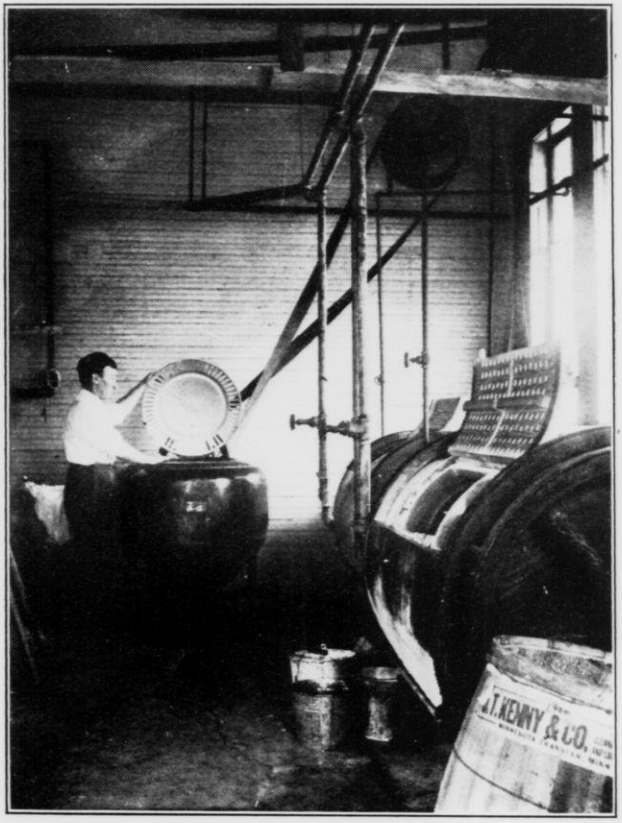
The Organization of the Laundry.

At one of the creameries where the laundry is now in operation a number of the wives of the farmer patrons started the project of a farmers' laundry. It was talked about in their

Receiving and Delivering Laundry at the Creamery.

Home Culture Club and later discussed at meeting of the Village Improvement Association. The money necessary to start the enterprise was raised by circulating a subscription paper for the sale of stock at $10.00 per share. About $3000 was first

raised in this way and later more stock was subscribed so that in August 1915, $5050 had been raised by the sale of stock and this had been bought by 81 farmers whose subscriptions



The Laundry Washer and the Dryer.

amounted to $2150 and by 133 town people who paid $2900 for laundry stock. This co-operative laundry was organized March 27, 1914, and began operations November 9, 1914.

It is natural that most of the laundry work in this particular locality should come from the town people and the record of the first nine months of operation from November 1914 to July 1915 shows that the city patrons paid the laundry about 70 per cent and the farmers 30 per cent of its total receipts. During this time the laundry has been patronized by 614 people, of whom 243 were farmers and 371 city customers. In the month of July the laundry was patronized by 347 people, of whom 142 were farmers and of the 216 patrons of the creamery, 83 or about 40 per cent were bringing their clothes to the laundry. The difference between the two figures, 83 and 142 farmers, is accounted for by the fact that the laundry is patronized by some farmers who do not bring their cream to the creamery. The laundries are organized under the state co-operative law in the same way as the co-operative creamery and cheese factory is organized. This is described in our Wisconsin Agricultural Experiment Station Bulletin No. 244.

The Equipment.

The creamery laundry located in the town of 2500 people is now equipped for doing all kinds of washing and ironing, both the flat and starched goods. The demands of the town people make it necessary to add all the machinery necessary for doing this kind of work.

The following is a list of the machinery and apparatus used at this laundry:

Family Work Department		Bundle Department.	
1 32x30 washer	$115.00	1 electric heated combination ironer	$300.00
1 36x62 washer	205.00	1 electric heated band ironer	75.00
1 26 in. extractor	190.00	1 dip wheel starcher	45.00
1 starch cooker	45.00	1 Shaw shaper	35.00
1 2-section dry room	225.00	1 Shaw edger	5.00
1 60-gallon soap tank	5.00	1 hot tube shaper	25.00
1 100 in. 5-roll mangle	1000.00	1 power seam dampener	50.00
1 36 in. body ironer	175.00	1 band starcher	60.00

The Operating Expenses.

At this laundry the operating expenses for one week in July are given as follows:

Weekly Expense.		Insurance.	
Wages	$80.00	Employees	$1.50
Secretary	5.00	Fire	.94
Horse	3.00	Steam	8.00
Soap, etc.	8.50	6 per cent dividend	6.00
Power	6.00	Interest	1.12
Water	1.25		
			$121.31

The $80.00 per week in wages is paid to the following eight employees; manager, washing machine man, delivery wagon driver, and five girls who mark clothes, do the ironing, put up packages, etc., etc.

One of these laundries was visited by a state official who made a number of suggestions concerning the equipment of the various laundry machines with safety appliances for protecting workmen from injury. This is a point that should be remembered in buying laundry machinery and include a written clause in the order to the effect that all machines and appliances shall be provided with the necessary guards and protections required by the state law.

The Fuel and Water Expenses.

At one creamery the laundry pays $20.00 per month towards the labor of firing the boiler and at the other one dollar per day is charged for this work. The fuel expense at both places is determined by charging the laundry all the excess of coal and wood used over the amount burned the year before the laundry started. At the creamery where wood is burned it was found by trial that five cords of wood were burned per week when both creamery and laundry were in operation. This is about twice as much as before the laundry started. Wood in this locality costs $2.50 per cord and the laundry therefore is charged

$1.00 per day, for steam. This together with $1.00 per day for labor for firing makes a total of $12.00 per week that the laundry pays the creamery for steam and labor.

Firing the creamery boiler for the laundry is objected to somewhat by the creamery operator because the laundry must have steam all the afternoon and if this were not the case the creamery operator could quit at about noon each day, because his work begins very early in the morning and is generally completed much earlier in the afternoon than it is possible to close the laundry.

Receipts.

For the six months ending July 1, 1915, the receipts have exceeded the expenses and there is good indication that the margin will continue to grow so that a dividend may be declared to the co-operative stockholders and employees at the end of the year.

The records show that the work done for the farmer patrons averages about 90 cents per week.

It was stated that in some cases the farm men were favorably inclined to send the weekly washing to the laundry but the women preferred to save the money and do their own washing. An instance was cited in which the farm mother was sick for some time but her recovery was hastened by the father sending their household washing to the creamery and thus relieving the sick woman's mind of the thought of the big washing that might otherwise have accumulated during her illness and had to be done as soon as she was able to be up or at just the time when she ought not to do such heavy work.

All laundry bills are cash and paid at the laundry. The farmers' washing is brought by him each week in a strong cloth bag furnished by the laundry company. Each bag of clothes is weighed and 5c per pound charged for the washing and ironing. This price applies to the so-called "roughdry" and "flat-ironing" work such as sheets, towels, table cloths, overalls, etc., or any work that does not require starching and special ironing.

The prices charged for starched and ironed clothes are a trifle less than the usual city laundry list, such as 2½c for collars, 12½c for plaited shirts, 5c for cuffs, etc., etc. A printed list of prices is furnished for all work not done by the pound.

A one-horse collecting and delivery wagon is used in connection with the town trade but farmers deliver and collect their own bundles when coming to the creamery with cream.

The town patronage is an advantage to the creamery patrons because of the reduced rates for laundry work resulting from the increased business brought by the town people.

Difficulties Encountered.

At both these places the laundry enterprise started out with great enthusiasm as nearly all the patrons claimed to be eager to have their families relieved from this much dreaded work each week. It is claimed, however, that at one of these laundries they had more patronage the first week than it ever been able to obtain since. Both places made the mistake of employing help in the laundry that had little or no experience in laundry work, and the first clothes returned to its patrons were very unsatisfactorily washed. Both white and colored clothes had been put in the same machine so that the colors ran, from one to the other; some pieces were torn; others lost; and many were not washed clean; some farmers' wives declared that if the laundry could not do better than that they would keep their clothes at home.

The management at both places found it difficult to get the type of labor best suited to this new enterprise. At one place it was found necessary to change the help in the laundry seven different times in nine months. The reason why the men employed proved to be unsatisfactory seems to be that in a large city laundry the employees learn to operate only one machine or to do only one part of the laundry work and when one of these men is put in charge of the entire business at even a small laundry, such as these started at the creameries, where several different machines and a variety of work has to be done, it is

difficult to obtain anyone competent to take charge of such work and do it successfully.

The directors of both these laundries, however, had so much money invested and such great hopes for the success of the enterprise they persisted in their efforts to secure a man of the right type to manage this kind of an enterprise. Both have been successful in doing this and now each one of them is running smoothly and the lost patronage is beginning to return.

The experience of these laundries shows that if this enterprise continues to develop at other creameries and cheese factories throughout the state there will be a good opening for persons of the right type to take charge of the daily operation of such a laundry. In fact the creamery buttermaker and the factory cheesemaker, while he might not have time to devote to the laundry work as it comes each day, could very well learn a few necessary points in regard to the operation of the laundry machinery; the marking of the clothes, keeping the records, etc., so that he could direct and superintend the work of both the creamery and the laundry and become a more valuable man than if he confines his attention to his creamery work alone.

The attitude of some buttermakers to this idea is illustrated by the experience which one of these creameries had with its buttermaker. The factory was a large one and required nearly all his time, but for some reason or other he did not seem to take kindly to the laundry proposition and his attitude towards it is described by one of the patrons of the creamery in the following way:

"Our buttermaker is quite a bit of an individualist and not much of a co-operator, so he bucked us all the time we were organizing and also after we had started to operate. He did all in his power to ruin the laundry, both by knocking, shutting off steam, wasting water and everything else that he could, also putting out false reports about the laundry to creamery patrons. One morning while working with a belt, his hand caught and he was knocked down and injured so that he was unable to

work for four months. We then left the creamery in charge of the helpers and from that day there was co-operation in the creamery and laundry. Our old buttermaker is back on the job, and everything is lovely, but it took the kids to prove to the old man and the community that it could work."

The experience of these two laundries during the past year shows that this enterprise can be successfully managed in connection with a creamery and doubtless at a cheese factory also. Both places are supplied with water, steam and labor which may be used to the advantage of the farmers whose milk and cream are made into butter and cheese. The farmer makes regular trips to the factory and is familiar with its management. He naturally considers it a part of his farming business and after a little consideration he will see that it is an appropriate place to do the family washing.

There are many small factories where it may not be advisable to attempt to do so much laundry work as is now being done at the two places here described but by using a power washing machine and a centrifugal dryer only, with possibly a drying room, the cost of these machines and the expense of running them will be trifling compared with the benefits derived from this help to the farm women. The success of the enterprise will of course depend on the kind of management and support given to it.

The meeting was adjourned until February 2nd, 1916, at 10 o'clock A. M.

WEDNESDAY MORNING, FEBRUARY SECOND.

On February 2nd, 1916, at 10:00 o'clock A. M., the meeting was called to order by Vice President Quirin Moersch.

President Allan Carswell then addressed the meeting, as follows:

PRESIDENT'S ADDRESS.

Mr. Chairman, Ladies and Gentlemen: I am certainly pleased to see such a crowd of buttermakers out at this annual meeting. I am also pleased to see so many of the fraternity that patronize Wisconsin conventions as well as they do, we seldom have to show them up here, because they know Wisconsin is a good place to come to. This is where we get the stuff, the good stuff. Probably not as good as it might be, but now we have got this license law I am in hopes that the commission men, especially, will see a noticeable improvement in the quality of Wisconsin butter. I notice we have on our programme the Dairy and Food Commissioner, Hon. George J. Weigle, and also C. E. Lee, who will talk on the license law. I am pretty ignorant, for I have not taken the time to look it up. I hope that every person when the papers come up, will feel free to criticise. Although there are some good points to it there are a good many poor ones. I hope to see these points brought up.

In looking over the past year from the creamery man's and buttermakers' standpoint or view we have reason to be pretty well satisfied,—we have had a prosperous year in the creameries. Of course, as I said last year, I think they have cause to be thankful this year. Although we buttermakers and creamery men know that when cheese gets too high it hits some of us in the neck. I feel there will always be room for the creamery, as well as the cheese factory in the state of Wisconsin, because, take it one year with another, I feel that the creamery makes the best paying investment in the end. Of course, at the present prices it is making it hard sledding for some of the creameries, but the time is coming when the creamery will come back again. Of course, no man can foresee what the coming year will bring, but I think the prospects are good, we will have as good a year as we had in the past. Conditions throughout the United States from an industrial standpoint at least, were never better, although we have got the presidential election coming this year, politics don't seem to be cutting the ice it used to, and I don't

believe it will cut much ice in the business conditions in this state at any rate.

There is one point that I would like to bring up again this morning that I touched on last year, that is the time of holding the convention. Last year as your president I came before you and offered an apology for not being able to be with you at the opening session. Well, I have got to do it again this year. This is a buttermakers' association and it should be run by the buttermakers for the best interests of the buttermakers of the state. As I suggested last year, why not change the time of holding this convention from the first week in February, for the simple reason, the first week in February is, as a rule, the coldest week in the whole year. It is also, to my viewpoint, the worst time of the year to get away from the creamery. Men that have been in the business quite a number of years know there is a terrible risk in going away and leaving the creamery when it is fifteen or twenty below zero. And besides the discomforts of it, how many buttermakers do you catch here today that have their wives or families with them? Very few. It seems to be the idea that we ought not to change it but keep on this same day because we started on this. Now, I would like to see somebody bring it up before the meeting before we adjourn, and put it before the house and take a vote of the buttermakers on it. Don't be afraid, if you have an idea get up and speak it out; we don't want this association to be run by a few men, but by the working buttermakers. I am sure if this meeting was held in November we could get a good deal better attendance. We have a good crowd this morning, but not the crowd we ought to have. You take the legitimate buttermakers in this room and they are a very small percentage, not over twenty per cent of the buttermakers here in this convention; we want to urge the buttermakers, get them out, get them interested to come down here and learn something, and get out at the time of the year when they can get away the best. In February it is a difficult proposition. I would like to see it brought up and see if we can't change this idea. The officers

took it up last fall to see what we could do about it, but the majority of the officers were in favor of continuing the same way. We will see now what the members want. If the majority want the meeting held at this time of the year, well and good, if they don't and want it changed, let it be changed. We haven't as many co-operative creameries as we ought to have in the state of Wisconsin, the majority hold their annual meetings in the first week in February. I couldn't afford to change the time of that meeting. That is the way I make my living. Many others can't get away from the annual meeting in February. I hope somebody will not forget to put it to a vote and see how the members think about it.

There has one important thing come up during the past year that has affected every creamery in the state, and that is the increased rate and license charged on butter to be shipped east, and although Wisconsin doesn't ship as much butter as some of their neighbor states, but still there is a big percentage of the butter that goes east and it has increased, I believe better than something like ten per cent increase east of Chicago, as well as the license charges, make a big difference to the creameries and it is the small creameries that are being hurt the worst. About five months in the year we are able to ship in carload lots. I had a bookkeeper figure the other day how much we saved in shipping in carload lots. It made a difference to our creamery company, a total gain of a little over $600.00 in those five months. That is where we keep the advantage over the small creamery. Ever since the butter was shipped east they have had this same trouble. Of course, I am not able to explain it as well or as fully as I would like to, but I think if we go after them hard enough we are going to get what we want.

There is one feature that I thought I would bring up. It occurred to me as being important, because it hit me right at home. I happened to be in one of our stores the other day, and the man said "You fellows are holding us up on the price of butter." I said, "No, the butter is as reasonable as we can pos-

sibly give it to you. How do you make out you are charged too high?" He said, "Swift's man was here the other day and sold me butter for 30 cents, f. o. b., St. Paul, made in the best creamery in Minnesota." I said "Swift is making a profit on that butter, you fellows must be kind of sticking it into us a little." That is one thing I think, is proper to a creamery company, that selling the butter to the packer and those packers are going around dealing with other creameries in the territory. What does it mean to the big cities in the east? They are going to make the strongest competitors in the creamery business. They are helping them gobble up the creamery. I don't believe it is right. I think it is a serious question, it is up to every creamery and creameryman to stay by his own industry. Swift & Company have got the money. They are not only going to put the small creamery out of business, but also the other centralizers out of business. They are getting a good start. They are keeping still, but building up the business and eventually they are going to control the butter business. It is because of many of the butter men at present that the packers manipulate the butter market to suit their own interests. What is it done for? They are willing to manipulate the butter market to suit their own interests and make the money on oleomargarine that they lose on butter. Butter is only a secondary line at the present time. They are doing it as a leverage to further their oleomargarine. I don't believe there are many creameries in Wisconsin selling butter to the packer. There shouldn't be one. I wouldn't sell a tub of butter to a packer, even if he offered a cent or two more than I could get from anybody else. If we don't sell to them the commission men in Chicago will do it. Well, let them buy it there. I don't believe it is the right principle, or shows the right spirit. I also believe that the icing charge made by the different transportation companies is illegal, and it should be knocked out.

I am not going to take up much of your time. We have a good number on the programme. We have a man from Minnesota, one of the pioneer creamery men, the Dairy and Food

Commissioner of Minnesota, Mr. Farrell. It was said he did not arrive last night, but I believe he is here this morning. I am going to quit and let him have the floor.

In closing I want to thank you for the support you have given me during my term of office. I want you to stay by this association and make it, as it should be, the best and biggest association of buttermakers in the United States. I thank you. (Applause.)

Mr. Farrell not being present, Mr. Clarence A. Day, of Madison, then made the following address, his subject being

THE CARE OF THE CREAMERY CHURN.
By Mr. Clarence A. Day, of Madison.

Mr. President, Ladies, Fellow Creamerymen, and Members of the Wisconsin Buttermakers' Association:

I have the pleasure of discussing with you, "The Care of the Creamery Churn."

The subject may seem to be of little importance, compared with other topics that may be discussed here during this convention, but if you will hear me I will endeavor to give you a few results of my own experience, and you can form your own conclusions.

It is the attention we give to the "little things" about the creamery that make a success of the daily operations. The care and cleanliness of the churn is just as important as any duty we have to perform.

The life of the churn depends not on the number of years in use or the number of pounds of butter made, but on the care it has received while in use. An experienced creameryman stated that a churn should make 3,000,000 to 5,000,000 pounds of butter. If a creamery made 300,000 pounds of butter per year, the churn should have a durability of 10 years with proper care. It is doubtful if the average creamery uses a churn over five years.

We will discuss some of the points to be considered in caring for the churn. When a new churn arrives at the factory, the first step is to read the instruction card and proceed according to instructions. The churn should be located where easy access to the gear end is obtainable, as this part of the churn needs some attention every day.

C. A. Day

The churn should be fastened to the floor by drilling holes in the floor where the castings are to rest and the bolts pushed through the holes in the churn legs into the holes in the floor. Hot babbit or sulphur can be poured around these bolts to make them firm, but this is not necessary.

Extra care should be given to the hoops the first days of use. Be sure they are loosened to avoid warping or any uneven appearance and thus avoid a leaky churn.

Place some cotton waste in the oil cups; use a few drops of oil each day, place your fingers on the boxings, if any heating is

detected, loosen the boxing nuts. The boxings wear down very fast when dry, and a heavy load in the churn causes the cogs to mesh too deep and the result is a noisy churn. If a narrow piece of leather is placed under the boxings which carry the main weight of the churn, a large amount of the weight is removed from the cogs, thus avoiding most of the noise. Eventually rebabbiting of the boxing will have to be done.

The best time to repair the churn is during the winter months when cream receipts are light. Remove all gearing, as cogs, pinions, boxings, etc., and then wash them in gasoline to remove all grease and dirt; note which parts are worn, re-babbit the boxings, write down the number of the worn parts and order from the supply house, or manufacturer. If the buttermaker cannot repair the churn, call the carpenter or machinist.

If you are close to a machine shop, send the worn gearing there for readjustment. A good machinist with a steel lathe can remove all the trouble for about $10.00 to $20.00, by so doing the churn can be used much longer. A churn is not ready to be discarded as long as the inside wood parts are good.

The rolls require repairing or replacing occasionally. The shafts in the ends of the roller are held in place with steel pins, counter sunk into the roll, and wooden pin driven in flush with the roll. To remove the shaft bore cut the wooden plug and drive the steel pin out, and thereby replace the bent or worn shaft with a new one.

The clutch on many churns causes considerable trouble and occasionally they fail to release and the churn does not stop. I have been in factories where the stopping and starting of the churn could not be controlled by the clutch and was regulated by stopping and starting the engine. This condition is very aggravating and should be improved if possible.

The all steel clutch needs to be cleaned and oiled occasionally and the tension regulated with the springs and screws. The wooden clutch is more easily regulated. A clutch is abused by starting and stopping the churn too suddenly. I believe the clutches and gearing on some churns could be simplified by having cut gears running in oil.

The door frame and cover need attention to avoid cream leaking on the floor, thus a needless waste.

A screw driver can be used to remove old cork from the churn door frame and by thirty minutes' work and twenty feet of cork a churn door is as good as new, instead of starting the churn to find leaks and patching up leaks with parchment paper. Door catches, and bolts can be renewed, thus bringing more pressure on the churn door.

Generally the first thing a helper does is to forget to fasten the door to the churn or drops the covers and breaks the casting, and if it is a busy season the churn is not repaired, although enough time is wasted each morning to repair the damaged part; oftentimes a new churn has badly damaged covers and clutch owing to carelessness and accidents.

Washing the Churn.

As soon as the butter is removed from the last churning, turn the churn with lower frames down to allow the brine to pass out. Use 30 to 50 gallons of water at a temperature of about 120 degrees or warm enough to remove the particles of butter adhering to shelves and rolls; revolve the churn on fast gear three minutes; remove this water, add 30 to 50 gallons of water at the boiling point (the hotter the better), add two or three quarts of lime water in a sugar or flour sack to the hot water, revolve churn on slow gear a few times until pressure is released by leaving the vent plug out, close the churn tight and revolve on high gear five minutes more, remove the lime water and rinse churn with a small amount of scalding hot water to remove particles of lime. This last rinsing is not always necessary.

The lime treatment once or twice a week, or every day will keep the churn sweet and clean. The hot lime water can be used for rinsing the floors and drains, thus leaving the factory in a sweeter condition.

The reason for using lime in preference to other alkalies and chemicals is because of the action on the wood. Lime hardens

the wood and closes the pores, thus excluding impurities whereas most alkalies, such as washing powders, are liable to soften the wood and leave the pores open, thus accumulating impurities.

The use of lime in the churn is practised extensively in Denmark, I have been told, and shows a decidedly limy condition and this is considered a point of cleanliness. I hope every buttermaker here will give the use of lime in the churn a trial for one month and convince himself of its merits.

Preparation of Lime Water.

Slack ten pounds of fresh lump lime with about thirty pounds of warm water, add the water slowly and stir the lime briskly. Use care not to burn the lime. After the lime and water become thoroughly mixed and smooth, dilute with thirty pounds more water in the cooler for daily use in the churn and about the factory, to sprinkle about foul odored drains, buttermilk, and skim milk tanks. Lime water is a cheap disinfectant and will serve most purposes about the factory.

The churn should not be rinsed with cold water after washing with hot water as the hot water will not evaporate, causing a water soaked and musty churn. The churn doors should be covered with a two-inch frame and covered with cheese cloth or wire netting. If the churn does not drain well, bore a one-inch hole in the low point of the churn, thus removing all the water.

Many butter taints could be traced to foul churns, caused by not washing all the butter from the churn.

Care of Outside of Churn.

The outside of the churn should be washed often with hot water and soap to remove brine and particles of butter. Salt attacks the metal and soon rust appears. Rinse off the soap water with clean hot water.

The churn should be painted once a year. Remove all loose paint and dirt with strong alkali water, pound the hoops to

loosen rust, apply two coats of white lead paint and one coat of enamel, thus producing a surface very easy to clean. The metal parts can be enameled or painted with carriage paint.

Chrome yellow can be added to the white paint to obtain the desired shade of color.

Trusting my remarks on this subject will be of some benefit to you, I thank you for your kind attention. (Applause).

An open discussion was then called for by the President.

DISCUSSION.

PRESIDENT: Now as to the question of rust. That is one fault that I have always found with the average churn. They use common black pipe, where for fifty cents more they could get it galvanized. The pipe is the first place to rust. In every churn you will see that rust around the bottom. If the manufacturers would spend fifty cents they wouldn't be troubled with that.

C. E. LEE: While I think Mr. Day has given us a good outline of the cleaning of the churn, I wish that Mr. Day had come down to our office and we could have given him a chance to have gone through the inspection blanks in the year 1915 and he could have given actual figures of the buttermakers of the State of Wisconsin who are not operating clean churns. It would surprise you to drop into our office and see the buttermaker's score because he hadn't a clean churn. I stepped into a factory last week and saw a churn that would disgrace the State of Wisconsin. Too many depend on washing churns with water about warm enough to take a bath in . They are in a hurry to wash the churn. The reason why the buttermakers do not take time is because it is the last thing they have to do in the factory and their automobile or a Ford is standing outside waiting for them. They are in a hurry to get through in the factory. I hope that none of the boys here today will lose their licenses because they have a dirty churn.

There is one thing that Mr. Day didn't touch on that I want to call your attention to, because it has come to my atten-

tion on three different occasions since I went into office. Naturally when a man is having trouble he will call upon some one to help him out, and I was called to three different factories in Wisconsin where the man was caught with high moisture butter. As I went into the factory the buttermaker took out of his refrigerator three tubs of butter and put them on the floor. I said to him, "Why do you overwork your butter?" He said, "the churn I have in the factory, I worked this butter fourteen revolutions." He was correct, that is the standard with that make of churn. Then I said that there was something wrong. I said "what have you done to the churn lately, have you had the gearing apart or changed the adjustment of the rollers?" He said he didn't know. I found the inside of the rollers working badly, they were working on high point. There was not space enough for the butter to go through. On three different occasions in Wisconsin I found the reason why they had this high moisture butter was because the churn had been tampered with and it hadn't been put together properly. I went to a factory not long ago where the grain was cracked, and I put the question to him how he was destroying the grain of his butter. When the churn rollers run on high point you can see when those two high points are together they make that kind of a grain. One of those men paid his tax to the government because he didn't know he was doing it and didn't know how to cure it.

MR. WHITING: They have this ground lime; you can get it in sacks; I have found that this is good to wash churns; you can use it as washing powder, it is a good deal like flour. They use it for plaster and all such work, you can add it to the water and it will improve the churn. There are a lot of them don't like to go to work to fix up the preparation that Mr. Day spoke about, but this lime works very nicely.

H. E. GRIFFIN: I would like to know if there is any way of steaming the churn until it is hot and dry?

MR. DAY: My experience has been that if the wood is hard it turns the paint, if the churn is painted well I don't think there would be any objection to that.

MR. GRIFFIN: If you turned the steam on quickly it wouldn't do that.

MR. DAY: If a man handled it properly it wouldn't be any objection. That hydrate of lime that I spoke about is in forty-pound sacks, most of the lumber yards keep it, it is hydrate of lime.

MR. CARSWELL: Personally I believe that if you use the water hot enough there is not much need of steaming the churn; I don't believe it does the churn any harm, but I don't think there is any necessity of it. I believe a creamery should have a covered water tank with pipe connections to its churns. It does not cost very much and with the cover on you always have hot water where you need it.

MR. DAY: Yes, I believe if a man is working under such conditions he could use some steam afterwards.

MR. WHITING: There is another way of heating the water in the churn; you can use a steam pipe right from where you run the water into the churn to wash the butter with; that works nicely.

MR. CARSWELL: I have never tried that myself, but I have heard a good many object to it. If you don't put an elbow in you would very soon have a soft spot in your churn. One man's application would work all right and another man would try it and he wouldn't follow it right and make a bad mess of it.

Hon. John J. Farrell, Dairy and Food Commissioner, of St. Paul, Minnesota, then addressed the meeting, his subject being "The Creamery Manager as a Business Man," as follows:

THE CREAMERY MANAGER AS A BUSINESS MAN.

By Hon. John J. Farrell, of St. Paul.

Mr. Chairman, and Ladies and Gentlemen: I am very much pleased to be with you, although it is a little sudden,—I would like to hear something discussed before I appear before you, but I appear before you as a Minnesota buttermaker and I

wish to bring a message to you in that capacity here in your convention at Eau Claire. I hope your convention will be a profitable one. I did not have the slightest idea I should see so many buttermakers here today, and I am very glad there is such a large assemblage of butter and creamery men here. We have always noticed that Wisconsin had a great many factories—cheese factories and creameries,—on some occasions we have been at a loss to find a large turn out of buttermakers, especially

J. J. Farrell

in some sections of the country where we meet. I see the place to find them is to come right home to Wisconsin where they are living and doing business. It is very pleasant indeed to see so many of you out, especially in such nice cold weather as you have in Wisconsin. We hadn't found it so cold up in St. Paul, because we all dress different, wrap ourselves in a blanket and go out on the streets and pay no attention to the weather. I should have brought some of them with me, I find.

The subject that I was to speak about this morning is

rather an old one, "Creamery Management," and I don't know but what every manager here really knows more about the question than I do. In some communities they say we are lacking in creamery management, and I wonder sometimes how far that really extends. I wonder sometimes if our creameries would make the rapid progress they have if we were lacking in that manner. I am told that the creameries need attention along these particular lines of creamery management. It is true that there is something lacking in some of the managements and some of the factories. This you can readily see by visiting a great many places and you can also determine this from the fact that there is a very great variance from the price of returns to the different creameries and factories; whether it is all due to the management or not I am not prepared to say, but I think the management really has something to do with it. We find in looking up some of the statistics in Wisconsin that while it has traveled along in the last twenty years at quite a rapid pace in creameries and cheese factories, we find it stands in the front rank in amount of production, and perhaps it stands in the front rank in regard to the management of the factory, it must have a bearing, upon factories that have advanced so rapidly in industries. We know that there is no state in the Union that compares with you in production and management of your cheese factories and we are wondering what you do with the cheese you turn out. If you will look over the records in the last thirty years, you people in Wisconsin exported a large amount of cheese and from that time to the present time, when you are making more at the present time than you ever did before, the export business has decreased gradually until it is entirely closed off, and the results are that we are really importing considerable cheese, the fact is that it is higher than just before the war, I have been wondering why this is. In butter I don't know whether you are getting along quite as well or not. You make a large amount of butter; according to some statistics, and according to the federal statistics; I often question the federal department. As I understand it, they have to depend upon you in Wisconsin for

a great deal of this information. I am told at some places that you are milking about 2,000,000 cows in Wisconsin, others 1,500,000. According to the statistics that I find you should be producing a good deal more butter, because it would bring your per capita rather low when we take the last statistics, and yet Wisconsin is getting the reputation of producing the best cows, with the exception of a few instances up in Minnesota, but you are producing a large number of quality cows, and you are producing a large amount, probably 190,000,000 to 200,000,000 pounds of cheese a year and I should say you are producing,— I consider you are producing probably 140,000,000 pounds of butter. It is an enormous product and we find that if we take some authorities and some that are really no authorities at all, that you are going backwards in the progress of making butter. I hesitate of course to state that; it didn't come from me, but from sources we find that you are going backwards in the making of butter in some communities. In other communities that you are forging forward. As a whole the rest of the country has given us to understand that you receive the highest price for the product you are turning out. This brings up the necessity of co-operation among the buttermakers of Wisconsin. It has been stated that in the last few years we are catching up to where we were fifteen years ago, when we were producing a better product under the old hand separator system; it has been shown that the fault has not been so much in the lack of management as it had been in the matter of competition. We have the market scared to death; they think we are careless. If you want something sensational, just go to the press and start something. You have had a recent experience here in Wisconsin. They have been informed in the east that you are working under the rules of the dark ages. We have poor management to some extent, both in Wisconsin and in Minnesota. Occasionally a man is selected as manager who is not fitted for the position of manager. In such cases the buttermaker should be the manager. It was stated that when the price of butter is high the quality should be produced, as the belief seems to be growing

that in the manufacture of the substitutes the process of manufacture is cleaner. The argument is that the managers of creameries should arrive at some uniform grade of butter. When the large creameries ship the product they know what they are to get for it, while in the case of the smaller creameries they trust to luck. Occasionally butter is shipped when it is known to be of an inferior grade, but the chance is taken in hopes that the shipment will pass muster and a topnotch price be received for it. In selecting a manager from a body of men, he should have a thorough knowledge of the business in all its details. There must be a getting together and knowing butter and how to manage a creamery,—get down to a system. There is no reason in the world why every co-operative creamery should not be on one system. Now, in regard to moisture. While milk is 85 and 86 per cent moisture, there is a howl immediately if butter which contains sixteen per cent moisture and rules are such that punishment is meted out. Now there should be co-operation, a getting together among the buttermakers in order that they may protect themselves. There are cases of where they get from 25 to 35 cents, whether they get it on the test end or on the moisture end. Be sure that the farmer don't always catch you on the testing end and the government on the moisture end, that is what you must protect yourself in. The farmer has no recourse, he might do a little cussing and swearing and that would be the end of it; when it comes to the government you have something else to consider. It is wrong gentlemen—that is part of the management. We must get together on this proposition of managing our creameries and turn out a uniform quality of butter, we must have a uniform quality as far as possible of the raw material and we must in this process of managing do away with the claims of our rivals, as it were, for the market. Let us get down to business in this matter and pasteurize our cream and use a starter. These are the things you have to contend with on the market. If you have established this system you will have a uniform quality of butter. The co-operative creameries should have a man to get them together

and have a uniform way of making butter. These are things that the co-operative creameries can do and the co-operatives must do in the near future. I presume you know that it is a question always how much you fellows will stand for in the management of your creameries, how much we can draw on you for. It goes all the way along the line in this respect, it all comes from the management. It is high time for the buttermakers to stand together and secure the enactment of a law defining butter. The big fellow is supposed to know what he is doing, even if moisture is sixteen per cent, but the little fellow looks guilty, they tell him and that he knew he was doing contrary to law. I know that the men that handle butter get frightened and get to the point where they really believe it. One wanted me to go down and interview this notoriety seeker and see if he wasn't sincere in what he said. It behooves us managers of creameries to know all these things and be ready to refute them and show them that our product cannot be improved upon,—that we are making the best the world is producing, and when you have done that they will leave you alone. It would be much better to mankind if the managers of the creameries would get together in the different counties throughout your state and discuss these things. You can't get them to the annual meetings and it is almost impossible to get them to the large meetings. If you won't come to us, we will have to go out to where you are and get the creamery product at least uniform and get the creameries better managed and when we have done that we will get him where he will not be afraid of the attacks of the sensational writers.

I will say in closing that I am very glad to be with you on this occasion. I have never attended many of your meetings, but have met you from time to time on occasional gatherings. I am glad to learn that you are making a lot of butter, and I will be almost pleased, although I may not say it very loud, in our next national gathering, if Wisconsin will come to our national meeting and bring home that splendid banner. I thank you. (Great applause).

BY THE PRESIDENT: Now, we are ready for the discussions, just go on and ask any questions on any subject that you want to.

DISCUSSION.

MR. OLSON: Did I understand that some of the Minnesota creameries were getting from three to six cents above quotations for their butter?

MR. FARRELL: No, but I said from three above to three below.

MR. OLSON: Is it a fact that they are getting three cents above New York quotations?

MR. FARRELL: Some of them are. That isn't anything to be wondered at. I know of some people getting 52 and 54 cents a pound and better. Some of that comes from Minnesota; that isn't anything to be wondered at, they built up the trade on that. I know of some places in Minnesota where a creamery is getting three cents above and the packages and wrappers are furnished.

MR. CARSWELL: I can add that one Minnesota creamery in particular is selling that butter to Swift & Company, and they are selling it for less money than we are getting for our butter here in Wisconsin.

MR. FARRELL: There are some Minnesota creameries that are not responsible for what Swift does. I think that should be taken into consideration with the management. Of course if they could get more money from Swift I suppose they are privileged to sell to him.

MR .CARSWELL: I wouldn't, I never did.

MR. FARRELL: I don't know as there is any use of us talking about Swift, because I don't know of anything in the game that Swift doesn't undertake to do. Can you state what is the normal amount of moisture in butter, off hand, taken from your own experience as a buttermaker, without intending to put any moisture in there?

MR. WALLACE: Thirteen and fourteen and fourteen and a half.

MR. FARRELL: Did you ever make any butter that had more than that?

MR. WALLACE: No, I don't know as I did.

MR. FARRELL: Have you ever tried to put it there; how would you get it there?

MR. WALLACE: It must have got there normally.

MR. FARRELL: When you are asked this question as a buttermaker what is the normal amount of moisture, why do you say thirteen or fourteen?

MR. WALLACE: A big share of the butter made has that.

MR. FARRELL: But there is a whole lot that has more than that, isn't there?

MR. WALLACE: Yes sir.

MR. FARRELL: And without intending to put it in there?

MR. WALLACE: Not every time.

MR. WALLACE: I know I work for more; I think a great many of the buttermakers do too.

C. J. DODGE: You take it in some times of the year and the butter normally has a higher water content than it has at the other time of the year. I believe in the winter usually, without one was very careful, you would find the water content would be lower by perhaps two or three points than in June, or May, or some of those hot months in the summer time.

MR. FARRELL: What would be the normal contents of your butter in the hot days?

MR. DODGE: I should think sixteen, without trying to put it there.

MR. FARRELL: Do you think it would be a just government that would tax you $12,000 for that?

MR. DODGE: No, I don't.

MR. FARRELL: Some buttermakers have testified that when some man got in thirteen or more he did it intentionally, if you took that same buttermaker he would always answer that it was normal.

MR. DODGE: I want to get at the normal and natural contents of this moisture, but I didn't ask the question what was the standard, the rule is 16 and you said over.

MR. FARRELL: We have a law in Minnesota calling for over 16 per cent, but not 16.

MR. GUY SPEIRS: I think that would be the amount of moisture that butter would naturally take up under the best methods of workmanship.

A MEMBER: Is it your idea to change the amount of moisture in butter, isn't sixteen per cent of moisture in butter all right, the way you are looking at it?

MR. FARRELL: My idea is this: That until Congress has defined that particular thing,—I don't mean to say sixteen is not enough, it says "sixteen or over," and in that law it says "abnormal," now, if sixteen is abnormal, let us get a law that will make it fifteen or sixteen, the creamery men are anxious for it, but have to depart from a rule that we as creamery men, men who never aim to give the limit to them, that they would penalize us $600.00 license and then fifty per cent penalties, I claim if we get a law passed defining what natural butter is, over sixteen per cent should be taxed ten cents a pound, that would stop it all. Now the creameries are persecuted, not prosecuted. Ten cents a pound would do away with all this.

MR. SPEIRS: We do think there should be some effort made of defining how sampling should be done. Do you not think the defining should be placed by taking their test from the sample?

MR. FARRELL: I think there is only one way to take a sample of tub butter, is a tryer sample. It will injure the butter as little as possible, and have it tested. I know now the government is dumping this butter out, letting it warm up and taking a "V" shape sample out; this method of handling the butter injures it and should not be tolerated. I think the only way is to have the tryer sample, we could go into the cellar or room where there was 20,000 pounds, and take a sample and put in the jar.

C. J. DODGE: I make a motion that the sense of this meet-

ing is that we ask the Congress of the United States to make a law defining butter.

The motion was seconded, and upon being put to a vote, was carried unanimously.

MR. FARRELL: I would like to add there that the amendment to the Pure Food Law sent to Congressman Haugen, of Iowa, should be sent to other congressmen who are butter men. We have drawn up this amendment, if it passes Congress that will define what butter is. When they get it over sixteen per cent they will treat it as any other food article on the market, which is right. Then they can bring it into court and fine us anything from one cent to two hundred dollars. I think that will be a fair way of handling this food product.

A MEMBER: They will not class us as adulterated butter manufacturers.

Yes, if we go over the limit provided by the bill.

MR. FARRELL: I would suggest that you creamery men do not let your congressmen slip down there at all. As many as possible write to your congressman and ask him to please note this amendment of the Pure Food Law in Representative Haugen's act.

The following letters were then read to the meeting by Secretary Benkendorf:

January 31, 1916.

To the Wisconsin Buttermakers' Association:

Gentlemen:

In behalf of the citizens of the city of Sparta, I extend to you a very cordial invitation to hold your next annual convention in this city.

We trust you will give this matter your serious consideration, and assure you that we will spare no efforts to make your stop with us a pleasure. Sparta is a good town, and we ask for this opportunity to demonstrate this fact to you to your entire satisfaction.

Yours very truly,

C. E. McMILLAN, Mayor.

January 31, 1916.

Wisconsin Buttermakers' Association,
Eau Claire, Wis.

Gentlemen:

This association, with a membership of three hundred, extends to your association an invitation to hold your next Convention in our city.

We have ample hotel facilities, and should you decide to come here, we will do everything in our power to make your visit a pleasant one. Yours very truly,

ADVANCEMENT ASS'N. OF SPARTA,
H. W. Jefferson, Secy.

Eau Claire, Wis., February 2, 1916.

Mr. Guy Speirs,
Eau Claire, Wisconsin.

Dear Mr. Speirs:

I have been advised by the governor's office at Madison, Governor Philipp will be unable to come to this city for the purpose of addressing the dairymen at their meeting now in session here. Late yesterday afternoon I talked with the Governor and he stated if it was possible he would be here today. This morning a message comes from his office saying he is fighting off an attack of grippe and it will be impossible for him to travel. He desires me to express his sincere regrets to the association at his inability to be here.

In the cow and her products the Governor is particularly interested. He is a practical dairyman himself and owns one of the finest herds in the state. He is also interested in the dairy industry as one of the greatest commercial assets of Wisconsin.

You may rest assured he would be with you if it were possible for him to do so.

Trusting your meeting in this city will be beneficial and pleasant in every way, I am Sincerely yours,

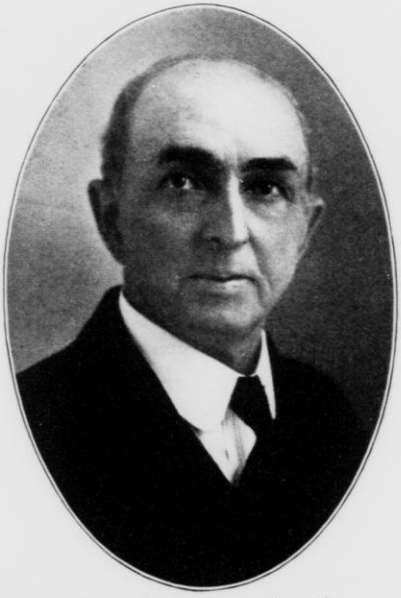
MARSHALL COUSINS.

ELECTION OF OFFICERS.

Mr. Sam Shilling was appointed by the President to act as chairman.

The following nominations were made and seconded for the office of

President: L. L. Bolsted, of Basco; E. J. Morrison, of Chetek; H. H. Whiting, of Johnson Creek; L. H. Winter, of Eau Claire.



E. J. Morrison, Chetek

The following tellers were then appointed:

H. C. Casperson, A. Rivard and Al. Olson.

A vote was then taken by ballot, and the candidates received votes as follows:

L. L. Bolsted, received 37; E. J. Morrison received 71; H. H. Whiting received 19; L. H. Winter received 42.

On motion the rules were suspended and E. J. Morrison was declared elected president of the Wisconsin Buttermakers' Association for the ensuing year.

Carl Jorgenson

The motion was then made and seconded that Carl Jorgenson, of Rose Lawn, be nominated for vice president. No other names being offered it was moved and seconded that the rules be suspended and the secretary be instructed to cast the vote of the convention for Carl Jorgenson for vice president, and Mr. Carl Jorgenson was declared elected by acclamation.

The motion was then made and seconded that G. H. Benkendorf, of Madison, be nominated as secretary for the ensuing year. No other names being offered, moved and seconded that nominations be declared closed and the president be instructed to cast the vote of the convention. This was done and Mr. Benkendorf was declared elected.

Mr. Benkendorf being then called upon for a speech responded as follows:

Gentlemen: I appreciate the honor. This is the seventh time I have been elected to the office of secretary. As secretary I have always had the unanimous support of all the officers. I shall continue to use my best efforts to work for the welfare of the buttermakers and the creamery industry of Wisconsin. (Applause).

F. M. Werner

The name of F. M. Werner, of Waterloo, was then offered as candidate for the office of treasurer for the ensuing year. The motion was seconded. No other nominations being made for the office of treasurer, it was moved and seconded that the nominations be declared closed and the secretary be instructed to cast the ballot of the convention for Mr. Werner as treasurer. This was done and Mr. Werner was declared elected treasurer.

The name of O. B. Cornish, of Fort Atkinson, was offered as a candidate to succeed himself to the office of member of

Executive Committee for the ensuing year. Nomination seconded. No other names being offered in nomination, it was moved and seconded that the nominations be closed and the secretary instructed to cast the vote of the association for Mr. Cornish as a member of the executive committee to succeed himself. Carried by acclamation and Mr. O. B. Cornish was declared elected member of the Executive Committee for the ensuing year.

Mr. Cornish being called upon for a speech responded as follows:

Gentlemen: This is five or six times they have elected me to this office. If they had seen me before I don't think they would have elected me again. When first elected I had hair to part on my head. Anything I can do for the Wisconsin Buttermakers' Association's advancement, I am with you all the time.

Mr. Morrison being called on for a speech responded as follows:

Gentlemen: I want to thank you, and I certainly appreciate the honor you have placed upon me. I will do my best, while trying to discharge the duties of the office, having in mind the interests of the buttermakers of the state.

The report of the secretary was then read, as follows:

REPORT OF SECRETARY.

STATE FUND.

1915.

Feb. 4 Reported at Fond du Lac Convention.....$562.04

EXPENDITURES.

Feb.	4	Salary, C. J. Dodge, Supt. butter Ex.....$	25.00
		Salary, F. M. Werner, Treas. 1914-5.....	25.00
		Salary, G. H. Benkendorf, Sec. 1914-1915	275.00
	6	Whitehead & Hoag Co.	97.31
		H. P. Olsen	30.30
		Theo. F. Dresen, jeweler	77.85
Dec.	8	G. H. Benkendorf, Exp. to Milwaukee.....	8.38
		Stamps for mailing circulars, etc.....	4.00
			$542.84

Balance on hand Feb. 1, 1916		19.20
Allowed by state July 1, 1915		600.00
Total on hand		$ 619.20

BUTTER ACCOUNT FUND FOND DU LAC CONVENTION.

Receipts.

1915.			
Feb. 11	Session Ice Cream Co. (butter tubs)	$ 2.60	
Mar. 12	Hunter, Walton & Co. 4011 lbs. butter @ 32½c	1303.57	
	Total		$1306.17

Expenditures.

1915.			
Feb. 5	F. M. Werner, express on butter	$ 59.43	
11	C. J. Dodge, convention expenses	23.51	
19	John Buechel, Asst. to Mr. Dodge, convention expenses	31.95	
20	E. M. Henwood, convention expenses	19.52	
26	C. E. Lee, Butter Judge, convention expenses	13.14	
4	Complimentary butter (11 exhibits)	53.00	
	Excess butter (10 exhibits)	75.72	
	Transfer to general fund, 178 memberships	178.00	
	Balance	851.90	
			$1306.17

DONATIONS TO PREMIUM FUND EAU CLAIRE CONVENTION.

1915		
Dec. 15	F. C. Christians Co., Johnson Creek	$ 10.00
	Worcester Salt Co., Chicago	10.00
	Diamond Crystal Salt Co., St. Clair, Mich.	10.00
20	Clifford L. Niles Co., Anamosa, Ia.	10.00
	Total	$40.00

SUMMARY PREMIUM FUND.

Undivided Fond du Lac fund	$ 6.84
Net receipts sale of butter (Fond du Lac)	851.90
Donations 1916 fund	40.00
Total on hand Feb. 1, 1916	$898.74

GENERAL FUND.

Receipts.

1915			
Feb.	2	Reported at Fond du Lac Convention	$ 636.10
	5	Coyne Bros., half page Adv.	5.00
	5	Dittman & Co., half page Adv.	5.00
	5	Spangenberg & Co., half page Adv.	5.00
	5	Dairy Record, half page Adv.	5.00
	5	Elgin Butter Tub Co., one page Adv.	10.00
	5	Butter, Cheese & Egg Journal, one page Adv.	10.00
		W. D. Collyer & Co., one page Adv.	10.00
		Marschall Dairy Laboratory, one page Adv.	10.00
		W. J. Haire & Co., half page Adv.	5.00
		Fox River Butter Co., one page Adv.	10.00
		Leserman Bros., half page Adv.	5.00
		Wisconsin Pure Culture Co., one page Adv.	10.00
		J. G. Cherry Co., one page Adv.	10.00
		Standard Oil Co., one page Adv.	10.00
		Louis F. Nafis, half page Adv.	5.00
		Bowman Dairy Co., one page Adv.	10.00
	6	Atlantic & Pacific Tea Co., one page Adv.	10.00
		Union Storage Co., half page Adv.	5.00
		Cudahy Packing Co., half page Adv.	5.00
		H. C. Christians Co., one page Adv.	10.00
		F. E. Boehmcke Co., one page Adv.	10.00
		Gallagher Bros., one page Adv.	10.00
		J. B. Ford Co., one page Adv.	10.00
		Wisconsin Dairy Supply Co., one page Adv.	10.00
		W. J. Young & Co., half page Adv.	5.00
		Hunter, Walton & Co., half page Adv.	5.00
		Vilter Mfg. Co., one page Adv.	10.00
		City of Fond du Lac	100.00
	11	Acorn Refining Co., one page Adv.	10.00
		Elov Ericcson, half page Adv.	5.00
		Geo. W. Linn & Son, half page Adv.	5.00
		Quincy Market & Cold Stor., two page Adv.	20.00
		Torsion Balance Co., one page Adv.	10.00

		Fitch Cornell & Co., one page Adv.	10.00
		Warner-Jenkins Co., half page Adv.	5.00
		International Harvester Co., one page Adv.	10.00
	12	Chicago Mill & Lubr. Co., one page Adv.	10.00
	13	De Laval Separator Co., one page Adv.	15.00
	15	Colonial Salt Co., one page Adv.	10.00
		C. H. Weaver, half page Adv.	5.00
		The Preservaline Mfg. Co., half page Adv.	5.00
	19	Hotel Planters, one page Adv.	10.00
	20	Chr. Hansen's Laboratory, 1½ page Adv.	15.00
		Wells, Richardson Co., one page Adv.	10.00
	26	F. C. Mansfield Co., half page Adv.	5.00
		Geo. C. Mansfield Co., half page Adv.	5.00
		Fairbanks Morse Co., one page Adv.	10.00
Mar.	12	Van Tilberg Oil Co., half page Adv.	5.00
		Dairy Association Co., half page Adv.	5.00
		Lorenz Model Co., half page Adv.	5.00
		H. A. Born Co., one page Adv.	10.00
		Northey Mfg. Co., half page Adv.	5.00
		Creamery Package Mfg. Co., one page Adv.	10.00
		Sanitary Paper Bottle Co., one page Adv.	10.00
	25	Hoard's Dairyman, one page Adv.	10.00
		Refrigerating Sales Co., one page Adv.	10.00
Apr.	7	Germania Publishing Co., one page Adv.	10.00
	30	City of Fond du Lac	92.00
May	18	Memberships:	
		J. G. Moore	7.00
		E. M. Henwood	19.00
		John Buechel	28.00
		G. H. Benkendorf	35.00
		Geo. Young	36.00
		H. E. Griffin	3.00
		H. P. Olsen	7.00
		M. H. Meyers	7.00
		Oscar Cornish	15.00
		P. W. Guse	14.00
		G. J. Jenks	16.00
	25	Sturgis & Burn, one page Adv.	10.00
		Hillmer Com. Co., half page Adv.	5.00
June	5	Milwaukee Cleanser Co., one page Adv.	10.00
		A. H. Barber Cry. Supply Co., one page Adv.	10.00
	27	Wisconsin Coal Co., one page Adv.	10.00
July	10	Hastings Industrial Co. (4 copies 11th Report)	1.00
Feb.	4	178 memberships transferred from butter account	178.00

1916			
Jan.	1	Colonial Salt Co., one page Adv.	10.00
		Galloway Hotel, half page Adv.	5.00
		Chas. Macabe Co., one page Adv.	10.00
		Fitch, Cornell & Co., one page Adv.	10.00
		Gude Bros. Keiffer Co., one page Adv.	10.00
		Heinz & Kennedy Co., half page Adv.	5.00
	20	A. H. Barber Cry. Supply Co., donation	10.00
		D. E. Wood Butter & Egg Co., donation	10.00
	31	Vilter Mfg. Co., one page Adv.	10.00
		Dairy Association Co., half page Adv.	5.00
		Clifford L. Niles Co., one page Adv.	10.00
		Cudahy Packing Co., half page Adv.	5.00
		J. G. Cherry Co., one page Adv.	10.00
		Bowman Dairy Co., one page Adv.	10.00
		Manhattan Refrigerator Co., one page Adv.	10.00
		S. S. Borden & Co., half page Adv.	5.00
		Spangenberg & Co., half page Adv.	5.00
		Standard Oil Co., one page Adv.	10.00
		DaLaval Separator Co., one page Adv.	15.00
		Warner-Jenkinson Co., half page Adv.	5.00
		Bowman & Bull Co., one page Adv.	10.00
		Butter Cheese & Egg Journal, half page Adv.	5.00
		W. D. Collyer Co., one page Adv.	10.00
		Lesserman Bros., half page Adv.	5.00
		Marschall Dairy Laboratory, one page Adv.	10.00
		General Purification Co., one page Adv.	10.00
		Wis. Dairy Supply Co., one page Adv.	10.00
		Elgin Butter Tub Co., one page Adv.	10.00
		Simple Speed Indicator Co., half page Adv.	5.00
		Lorenz Model Co., half page Adv.	5.00
		Louis F. Nafis Co., half page Adv.	5.00
		Dittman Co., half page Adv.	5.00
		Quincy Market & Cold Storage Co., two page Adv.	20.00
		Total	$1989.10

Expenditures.

1915			
Feb.	6	Madison Leather Co.	$ 45.00
	11	F. M. Werner, Treas., convention expenses	16.12
		Ed. Nickel, convention expenses	7.15
		O. B. Cornish, convention expenses	9.39
		F. P. Downing convention expenses	10.64

Feb. 11	V. S. Keppel, convention expenses	13.70
	G. H. Benkendorf, Sec., convention expenses	20.48
	Fond du Lac expenses, G. H. Benkendorf, Sec.	42.50
19	Hoard's Dairyman	85.50
	Carl Jorgenson, convention expenses	7.57
	Allan Carswell, convention expenses	18.45
24	H. P. Olsen, Butter Cheese & Egg Journal	215.30
26	A. W. Zimmerman, convention expenses	10.70
	E. H. Farrington, convention expenses	6.59
	H. E. Griffin, convention expenses	12.06
Mar. 12	B. D. White, convention expenses	7.27
May 21	Germania Publishing Co., 100 Diplomas	14.50
June 5	Louise D. Mason, reporter	73.62
July 10	G. H. Benkendorf, stamps for mailing report	25.00
	P. B. Haber Printing Co.	230.23
Aug. 9	E. H. Henwood	30.00
30	Schwab Stamp & Seal Co.	15.00
Oct. 10	G. H. Benkendorf, office exp. and Icing case, etc.	32.78
19	B. D. White, attending Interstate Commerce Hearing in re Icing Charges	8.20
Dec. 22	Tracy & Eilgore	12.25
1916		
Jan. 1	Louis Otto	5.00
	Total expenditures	$ 975.00
	Balance on hand Eau Claire Convention	1014.10
		$1989.10

SUMMARY.

On hand, State Fund	$ 619.20
On hand, Premium Fund	898.74
On hand, General Fund	1014.10
Total on hand Feb. 1, 1916	$2532.04

G. H. BENKENDORF, Secretary.

On motion the foregoing report was adopted.

The Treasurer's report was then read, which is as follows:

TREASURER'S REPORT.

GENERAL FUND.

On hand Fond du Lac Convention	$ 636.10
Received for advertising 1915 programs	515.00
Sold four copies 1915 reports	1.00

City of Fond du Lac—1915 Convention	192.00
Cash memberships	187.00
Membership transferred from Premium Fund	178.00
Received for advertising 1916 programs	280.00
Total	$1989.10

DISBURSEMENTS.

Orders drawn by Secretary	975.00
Balance	$1014.10

STATE FUND.

On hand Fond du Lac Convention	$ 562.04	
Allowed by state	600.00	
Total		$1162.04

DISBURSEMENTS.

Orders drawn on state	542.84
Balance	$ 619.20

PREMIUM FUND.

On hand Fond du Lac Convention	$ 652.22	
Sale of tubs	2.60	
City of Fond du Lac—1915 Convention	100.00	
Exhibition butter	1303.57	
Donations	40.00	
Total		$2098.39

DISBURSEMENTS.

Pro ratio butter 1915 convention	$ 745.38	
Express on convention butter	59.43	
Complimentary butter	53.00	
Excess butter	75.72	
Exhibition expenses	88.12	
Membership transferred to General Fund	178.00	
Total		$1199.65
Balance		$898.74

General Fund Balance	$1014.10
State Fund Balance	619.20
Premium Fund Balance	898.74
Balance in Treasury	2532.04

F. M. WERNER, Treas.

On motion same was accepted as read.

WEDNESDAY AFTERNOON, 2:00 o'clock.

H. H. Whiting, of Johnson Creek, then addressed the meeting, as follows, his subject being "A Few Words to the Buttermaker."

A FEW WORDS TO THE BUTTERMAKER.

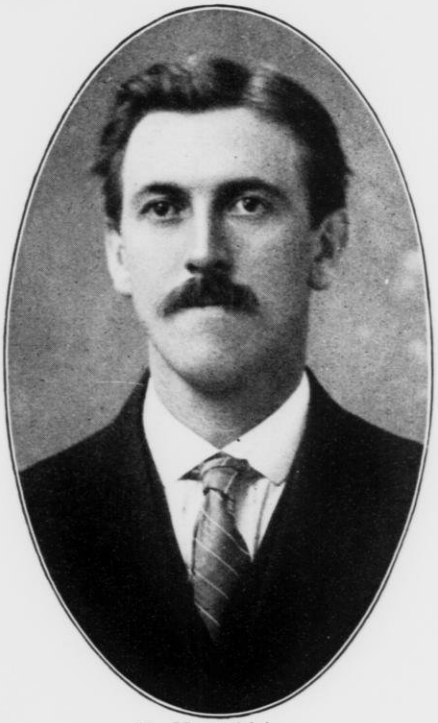
By H. H. Whiting.

Mr. Chairman, Ladies and Gentlemen: When our secretary asked me to write a paper to read at this convention, I felt as if I could handle a butter ladle better than I could a pen. Nevertheless, I shall try, in my humble way, to bring out a few points relating to creamery work, tho' they have been discussed over and over again.

To be a good buttermaker, it is well to consider the training you are to receive, in order to make a success of it. If I were asked to give my opinion as to what is required in the training of a buttermaker, I should say, not less than two years as helper under a good buttermaker in an up-to-date and well equipped creamery; then a term at the Dairy School, and not to go there, simply for a good time, as some do, but to make the best of the chance while there.

A good many take the dairy course, thinking they will be full fledged buttermakers after completing it. Such is not always the case. You should have at least a common school education, besides your work as helper. In order to get the most out of a dairy course, you should be able to run a creamery before taking such a course.

If a student would be required to take some kind of an examination before entering the Dairy School (such as education and previous experience in creamery work), we would have better buttermakers and less failures.



H. H. Whiting

A buttermaker should be of a cheerful disposition, should greet his patrons with a smile, and be accommodating. This will go a long way toward gaining confidence. If any argument arises in regard to tests, as there will occasionally with the best of us, invite the patron to see the testing done; have him save samples from each cow and test this for him, or let him test these samples. In this way you can usually convince the most stubborn patron. Use good judgment and be diplomatic.

Impress upon the patrons the necessity of producing clean, well flavored milk and cream and that the following conditions are necessary: clean, well ventilated barns, clean and healthy cows. The utensils should be clean and free from rust, and the atmosphere surrounding the milk should also be free from any undesirable odors. All milk and cream should also be thoroughly cooled and aerated; warm milk and cream should not be mixed with the cool.

If the patrons deliver unclean milk, one of the best ways to convince them is to use a sediment test while receiving the milk, by testing each patron's milk and putting the little cotton disc, through which you have run a pint of milk, opposite a number on a board which has all the patrons' numbers on. They can see at a glance who has dirty milk, and none of them will want it said that they are delivering dirty milk. By testing the milk in this way occasionally, you will improve the quality of it.

I think you will all agree with me that grading cream, and paying for it according to quality, is the only right and fair method. A patron who furnishes poor cream, should not expect as high prices as the patron who furnishes a good grade. In grading the cream, there should be a difference in the price of butterfat of two cents less for every one per cent acidity over three per cent. There should also be a lower price for cream testing below 25 per cent fat, and a premium paid for cream testing over 25 per cent. This would help you to make a better quality of butter, for then you could add a good starter and a little fresh morning's milk to help improve the flavor.

Our creamery is all whole-milk, and we skim about a 50 per cent cream. A rich cream helps to get away from bad flavors. You can dilute this rich cream with fresh morning's milk before pasteurizing. Do not try to pasteurize cream with over 35 per cent fat, and 30 per cent would be better. It would spoil the grain of your butter, by giving it a mealy texture. Do not attempt to pasteurize, as some do, by heating to 115 or 120 degrees, and call it pasteurizing, for it is not. It is well for all of us to get in line on the pasteurizing proposition, for we surely

will have to before long. If we were compelled by law to pasteurize at the present time, I am afraid it would not be for the good of our butter, as a whole, for the reason that not all of the buttermakers of Wisconsin, and other states, are prepared for it. They do not all understand the principle of it. So, therefore, every buttermaker should qualify himself for the future.

After diluting your cream to the proper richness of fat, heat it in your ripener to 145 degrees Fahrenheit, and hold for 20 minutes; then cool to ripening temperature, about 70 degrees Fahrenheit. If you have cream with over four per cent acidity, use a continuous pasteurizer, as it will break up the particles of curd better. In pasteurizing with such a machine, you will not have as much loss of fat in the buttermilk. When the acidity is so high, heat to 180 or 185 degrees with such a machine. After the cream is pasteurized, run it over a coil to cool, as the more aeration the cream gets, the better for it.

Some may have trouble with their butter getting a metallic or fishy flavor, and many times this can be traced to the ripener the cream is held in, as the tin may be worn off the copper, thus producing it.

After pasteurizing, add a good, clean flavored starter. You will find that no starter at all is better than a poor one. After pasteurizing, use about 20 per cent of starter where the cream will stand it. Ripen the cream to 45 per cent acidity at about 68 to 70 degrees, then cool to churning temperature and hold at least three hours before churning, in order to get a good, firm body in the butter. Over-ripening will often cause a metallic or fishy flavor. If you will use selected, whole morning's milk for making your starter, you will be able to get more of a creamy flavor in your finished product. Try and save your starter milk from a patron who has milk from mostly new milch cows, as it is a little sweeter than from old milkers. The starter milk should be heated to 185 or 190 degrees for 20 minutes, then cooled to about 70 degrees. This temperature to be varied, according to the time of the year. In adding the mother starter, use about one pint for 200 pounds of milk. This will ripen in

about 18 hours if you can hold it at a uniform temperature. The starter should have from 7 to 8 per cent acidity. Do not take your mother starter milk from the big can. Save the milk in quart jars and pasteurize it at least three times before inoculating with the mother starter. A chest made of galvanized iron with partitions in to hold nine quart bottles, and which has a steam and water connection and an overflow pipe, works nicely; any tinner can make one. With this arrangement, while at work at something else, you can be pasteurizing and cooling your mother starter milk. Have the inlet pipe nearly closed, with the opening about the size of an eight penny nail. This will cause the milk to heat and cool slowly. You can make a better starter and carry it longer in this way.

Considerable butter is spoiled by adding a poor starter to the cream. Where the cream has not been pasteurized, and no starter added, the butter would have been of better flavor. With good raw material you can make a quality of butter that will grade extra firsts or better, without using a starter, providing you pasteurize the cream. Do not ripen your cream under this method, but cool immediately to churning temperature.

In churning you will have to use temperatures which will give the best results. You should not churn less than one-half hour, or more than one hour to churn clean, providing your churn is not too full or the cream too thin.

In washing the butter in the winter time, use water that is from 2 to 4 degrees warmer than the buttermilk, and in the summer use water of about the same temperature as the buttermilk.

In salting the butter, there are a great many who waste salt, using from 5 to 10 pounds per 100 pounds of butter. Five pounds of salt, dry salting, will salt and retain as much as 10 pounds by wet salting. On 100,000 pounds of butter, this means a saving of 16 barrels of salt. Care should be taken to distribute the salt over the butter in such a way so it will be uniform throughout.

If, after working your butter, you find you have too much moisture, you can guard against this with the next churning by either draining the wash water more thoroughly, or by not working as much. You can also use colder wash water in washing the butter. These are three important factors in controlling the moisture.

Care should be used in packing the butter and preparing the package, as that goes a long ways toward selling it. One of the nicest ways to put up print butter is in cartons, as it makes a comparatively air tight package and it will keep better than when packed in a wrapper only. All prints should be perfect in shape, should contain no holes, and should be free from finger marks, rust spots and dirt. Do not patch up holes, as it detracts from appearance.

Sixty prints of butter should weigh 61½ pounds with wrappers when fresh, as 60 wet wrappers weigh 14 oz., leaving about 10 oz. for shrinkage.

In filling tubs, you should weigh each tub and then weigh in the butter, allowing one-half to three-fourths of a pound extra for shrinkage. Some butter shrinks more than three-fourths pound to the tub and it is a good idea to let your butter stand in the refrigerator and then strip a few tubs and re-weigh them at time of shipment. In this way you will know whether you are justified in blaming your commission man for short weights.

In nailing the covers on your tubs, lap the tub tins onto the covers about three-fourths inch. It will hold the cover better, and can be opened easier.

You will find a great many buttermakers who do not keep a daily record, so they do not know until the end of the month what they are doing. This is wrong if you expect to be successful in your work. When you keep a daily record of how much milk and cream you receive, and the pounds of butter made, you can tell every night where you are at, and if anything is wrong with your yield, you can more easily locate the trouble.

There are a number of places for losses in a creamery. You should test every can of cream received. To find how much fat

you have in the milk, take a shingle nail and make a puncture in the conductor pipe and save a drip sample. By making these tests daily, you can tell how much fat you have to churn.

Above all, make a uniform grade of butter from day to day; it will help you to demand a better price, and you can hold your market better.

It is a good plan to use a thermometer in connection with your testing. Some will wonder why they cannot get a clear test. This trouble is mostly due to a fault in the strength and temperature of the acid, and also the temperature of the sample to be tested.

I thank you.

President Carswell then called for an open discussion.

DISCUSSION.

MR. CHRISTIANSON: What is your idea in regard to a poor starter that you cannot get any results if you use a poor starter?

MR. WHITING: A poor starter is worse than none at all.

A MEMBER: I wish to say that my opinion is that the helper should work at least three years and that we should have a law in regard to that, just about like they have in Denmark, that requires three years in a creamery. There are so many buttermakers—the majority of them are not good on account of not taking the business course. They should have a three years' course in business in connection with the dairy course.

MR. WHITING: We have a law now, as I understand, that requires two years as helper working in a creamery. I don't think anybody can get too much before they take charge of a creamery. A great many might get through on less than that. I think a business course would be a good thing in connection with it.

MR. MORAN: I would like to know how you would advise in a gathered creamery where it receives from three to four thousand gallons daily and some of a great degree of acidity, how you would advise this pasteurizing process.

MR. WHITING: I have had considerable experience along that line, and of course, the starter proposition there is a way to get good starter milk, even if you have to use powdered milk. I have found there is a difference in pasteurizing in regard to getting good results, exhaustive churning, etc. As I said in my paper, I would prefer personally the continuous machine for pasteurizing this cream and use a high temperature. That has been my experience.

MR. CARSWELL: Does that answer your question, Mr. Moran?

MR. MORAN: Not altogether. I don't see how that would lower my test by adding a starter.

MR. WHITING: What is your average test?

MR. MORAN: It is a trifle up to 25.

MR. WHITING: I believe if you could work with a man in the field it would help a whole lot. I understand some creameries charge the patrons a difference on the percentage of cream they furnish.

MR. MORAN: We charge the hauling up to the patron by the hundred, that has increased the cream considerably, but still it is too low.

MR. WHITING: I think if you could get a man in the field it would help out a whole lot. We have an instructor in the field at the present time. It seems if we could get a higher standard there for our fat standard for cream delivered to creameries it would help the buttermaker and creameries a whole lot by getting a higher percentage of fat. The more fat there is in it, the less chance there is in it to deteriorate, and there is more chance to handle it after it gets to the creamery.

MR. BASKE: I would like to ask Mr. Whiting how he would grade cream on 25 per cent cream and pay two cents difference, whether he wouldn't find any difficulty with these farmers thinking that they were cut below that?

MR. WHITING: Of course, it is quite a task and you have to use a whole lot of tact there and do the best you can under the conditions. It is hard to handle these conditions. You must put up with a whole lot there.

MR. BASKE: Gathering by a cream hauler and the cream hauler taking samples it would make it hard work.

MR. WHITING: I was talking with a buttermaker last night and he said they improved the percentage of fat in their cream by starting the test daily—that the farmer didn't know only once or twice a month whether the cream was tested, if he had a daily report to put before him showing his cream was tested when delivered he knew how the cream was running.

MEMBER: Farmers have delivered cream that tested 13 for six months for cream right around there. It would help a good deal if we had some standard to go by and make every man come up to the standard and inform him every day he missed it by half a point he was below, it is the only chance I see to grade the cream.

MEMBER: You would have to change your way of buying then.

MR. CARSWELL: We have a law compelling cream in Wisconsin to test 18 per cent, but that wouldn't apply to creameries. If you are selling cream as cream to a consumer that law is meant for that and not for the creameries, you can't test fifteen per cent and call it cream,—that is milk. That is how we get around from calling condensed milk condensed cream. I believe it is up to every creamery to work out their own salvation. They have too many laws now.

MEMBER: You spoke about testing every day. In a creamery with about 190 patrons, and doing about $40,000.00 worth of business, away from the railroad, could you afford to test every day? That would mean a regular man.

MR. CARSWELL: Yes, you could afford to test every day If you had an extra man he wouldn't put in all of his time testing. It would pay you and pay you big, and the satisfaction you would get out of it and the efficiency all around, the increased confidence you would have in your plant, and not only that, but your buttermaker—conditions would be much better all around.

MR. WHITING: I was testing in one creamery that had 140 patrons and were testing twice a month. We started in making

the test and I found a difference of about nearly a quarter of a pound, that I could get all through on the yield. Of course in a big run, that would make some difference there. These patrons are not delivering every day, are they?

MEMBER: No, they are not delivering every day; probably three times a week.

MEMBER: I think that the law applies to the cream delivered to the creamery as well as anywhere else, and delivered to the creamery is continually the same, in the eyes of the law.

MR. CARSWELL: It's funny they never enforced the law then. They have those laws, but they don't live up to them.

MEMBER: What would they do in co-operative creameries where the company hired the buttermaker to make butter, how would they prosecute, if you bring them up they would say they hired the buttermaker to make the butter for them,—who would they bring suit against?

MR. CARSWELL: The question is a little behind time. We have with us here Mr. Hanson of the Commercial Club, who wants to say a few words to us.

Mr. Hanson then addressed the meeting as follows:

Mr. Chairman, Ladies and Gentlemen: The Civic and Commerce Association wants to extend to all the buttermakers of the state of Wisconsin a most hearty greeting and welcome, and we are very pleased to have you with us attending this convention in Eau Claire. I just wish to say a few words in regard to these conventions; it would seem from the advancement and the progress that the dairy industry has made in Wisconsin that these conventions show results; I think it means a big advancement for the state of Wisconsin, as well as for the dairying interests, that men who produce or make the butter can get together and discuss these items. I have just listened to the article just read and it interested me very much, to note the instructions and the way the article—the information in the article, where the dairy interests of the state and the making of better butter can be advanced, and the tendency of these con-

ventions or meetings show that the buttermakers are interested in making a better product for Wisconsin, and that it is the main thing, I think, for this interest and the dairy product of this state. It seems Wisconsin is going ahead by leaps and bounds in establishing a good market, as well as a standard for dairying products, and I was very pleased to note the article which was read, which may contradict some of the statements that have been made at conventions trying to cheapen the product and make it more profitable. This argument certainly overcomes that statement that has been made and it would show that is the intention to better the butter as a product and also to better the dairy interests of this state.

I am also informed that the butter that is on exhibition here at this meeting is one of the largest exhibits that has been shown; that alone would indicate that this convention or meeting is a good success and we hope that these conventions in the future will bring as many people and many delegates as we have here at this meeting, and also the good exhibit, which is very encouraging, I think for the dairying interests of Wisconsin.

It was told you last evening, I think ,by the Mayor, that Eau Claire is going to have a new auditorium. We in Eau Claire feel very happy to know that we are going to have it, and as the Mayor told you, the city has plans for the proposed auditorium under way. I just wanted to explain that the getting of this auditorium meant the work, rather, the success, really, the efforts of the Civic and Commerce Association, and we might add that it is the work of the association to demonstrate, and encourage conventions, and it was through the efforts of our association that the auditorium project went through, and we are in hopes that at some future time when the buttermakers should see their way clear to meet at Eau Claire that they will have the opportunity of making one of the finest exhibits in the state, our auditorium will be possibly completed in another year or eighteen months, but it is the effort of the association which I represent, to encourage and to help in whatever way we can in fostering conventions and having them well taken care of when they are here.

Our secretary has offered his services to this convention since it has convened and we are very glad to have you make use of our office, our information bureau, and our secretary will be very glad to meet you and furnish you any information you would like at the office and also assist in helping to greet you here, and we wish to have you all feel at home and have the liberty of calling on our association at its office, and the officers, for any information that is wanted.

Our secretary informed me that he had heard during the time he has been with the convention here that the dairy products of this state, (he told me to mention this, I was very surprised to know it,) that the dairying interests of Wisconsin exceed the gold production of the entire country. That seems a broad statement, but it seems to be a fact, and you probably know more about it than I do; if that is a fact, it is a deep subject to think about and means a great deal to this state.

I hope the dairy interests, as I said before, will continue to progress and bring up the market and the quality, as has been demonstrated in the past.

I might also add that the association feels very proud to know that we have a good dairy organization in this part of Wisconsin, and we think we do, or should, place a great deal of credit to a man we have here in Eau Claire, who is helping to bring about better conditions in the dairying interests and I mention Mr. Guy Speirs, I think he has been very instrumental in keeping up the quality of the product and increasing the better demand for good products in this state. I thank you. (Prolonged applause).

COMMITTEE ON RESOLUTIONS.

The following Committee on Resolutions was then appointed: Loritz Olson, of West Depere; R. P. Colwell, of River Falls, and Albert Erickson, of Amery.

Hon. George J. Weigle, Dairy and Food Commissioner, of Madison, then addressed the meeting, his subject being

THE OBJECT AND PURPOSE OF THE LICENSING LAW.

By Hon. Geo. J. Weigle, of Madison.

Mr. Chairman, Ladies and Gentlemen: The matter of licensing cheese factories is not exactly a new idea, nor is it a new invention of the dairy and food commission. The question of putting the manufacturer of dairy products under a licensing system which would give the state closer supervision, was suggested and advocated sixteen years ago by the Wisconsin Dairymen's Association. A law of this kind was discussed with

Geo. J. Weigle

a great deal of interest and enthusiasm at their annual meetings. Other associations took up the question and the sentiment was all very favorable for such a law, but why a bill of this kind was

never introduced in the legislature, I do not know. Probably no one wanted to take the initiative, for to introduce a bill of this kind meant hard work.

However, your dairy and food department saw the merits of a law of this kind and took steps to have a bill introduced in the legislature which would require manufacturers of butter and cheese, as well as butter and cheese makers, to operate under a state license.

The bill which is now a law was the best we could get and in my opinion is one of the best pieces of construction legislation for the betterment of the dairy industry of Wisconsin ever passed by a legislature.

A New Era in the Dairy Industry.

The new law marks a beginning of a new era in the dairy industry of Wisconsin. It is going to bring out the best that is in us. It creates no hardship. All it demands is character, ability and cleanliness, the three virtues every man who manufactures food for human consumption should have.

The license law is only after one person—the person who conducts a place unfit for the manufacture of a food product. The clean, sanitary factory or operator has nothing to fear from the operation of the new law. The operator of such a factory is protected against the operator of a factory which is turning out a product which is unfit to eat or which is not a credit to this great state.

In the past, we regret to say, some operators have preferred to pay a fine than to turn out a good and wholesome product. Now some fellows can be put out of business by the refusal of the dairy and food commissioner to issue them a license.

Another object of the new law is to bring about a better condition in the cheese and butter industry. It is going to eliminate the undesirable and weed out those that lack experience and ability.

The maker is going to work under better sanitary conditions and in a factory where it is going to be a pleasure to work and where he can produce a better product.

It is the first time in the history of the state that he has been given by the law the title of buttermaker and cheesemaker. Heretofore there was no chance of distinction. Any one could say "I am a buttermaker" or "I am a cheesemaker." But under the new law he must have certain experience and qualifications as prescribed under our rules and regulations. A buttermaker must have twenty-four months' experience or its equivalent, and a cheesemaker twelve months of actual experience or its equivalent. It is going to put your profession upon a higher plane,—recognized by law as a profession.

Enforcement of Law Facilitated.

Another object and purpose of the new law is to facilitate better enforcement of the laws relating to the operation of butter and cheese factories and to the products there manufactured. It is safe to assume that since the bill was signed by the governor, more people have studied the dairy laws than ever before. Too large a number of operators and makers were not familiar with the dairy laws. In some cases they did not know when a violation occurred, or if they read the law it did not go home with sufficient force to make much of an impression.

For ten years the dairy and food commission, the dairy school and other allied interests have done good work. The inspectors work early and late to better conditions. Many prosecutions were made. Some were fined, once, twice, three, yes, four and five times, and yet returned to their places of business no better operator or maker.

Your dairy and food commissioner took notice of the condition existing and in conjunction with the licensing law began to institute an educational campaign, for we believe, first, that the people should be acquainted with the law, and, second, that they should be shown the necessity of the law, and, third, that through an educational campaign we may develop obedience. If after all these violations continue, we shall prosecute without fear or favor. We believe this should be the policy of the dairy and food commissioner.

Our success has been remarkable, for everywhere in the state there has been a hustle and bustle to clean up and we are receiving many letters of encouragement from all over the state and outside of the state. As one man said "Wisconsin will be proud of our cheese factories and creameries and her buttermakers and cheesemakers."

Other states are watching us to see how the law is going to work out, and I can assure you they are going to follow suit very shortly.

The Production of Higher Quality Products, Object.

However, the real primary object and purpose of the law is to produce a better and higher quality of products, to bring about a standardization of Wisconsin butter and cheese, and to establish a Wisconsin brand, an object at which every state is aiming at the present time.

State Brand.

Under the Wisconsin law a state brand is possible and it is one of the features that will be developed in the near future.

At present to the consumer cheese is simply cheese and butter is butter because it was bought at the nearby grocery store. When the good is separated from the inferior article by authority of the state, such a demand will be created for our dairy products that every manufacturer will strive for quality and not quantity .

Future Development.

We must look to the future. Other countries are developing their dairy industry very rapidly. Our western states that heretofore did very little in dairying are now going into that industry very extensively. Take the state of California and the great progress that state has made within the last five years. Foreign countries are competing with our butter everywhere. So, I say, let Wisconsin be prepared to compete with any country in the world in quality.

The purpose of production is consumption. When there is an universal difficulty in disposing of our product, the chief cause is not so much overproduction as underconsumption. There are two reasons for this. One is that men want the product but they cannot in turn dispose of their service and consequently lack purchasing power. The other reason is, and which I consider the main one, that where the product manufactured is not of good quality, the demand for this product immediately ceases. Hence, your underconsumption. If you want to increase the sale of your product you must give people what they want. That is common sense. And when you have established a Wisconsin quality brand you need not fear competition, for you have made an indelible impression with the consumer which cannot easily be erased.

Benefit of the License Law to Makers.

Wisconsin butter and cheese makers do not realize the great benefit derived from the licensing law. If it is known throughout the country that Wisconsin butter and cheese is made under state supervision as to cleanliness and sanitary condition, the demand for our product will be such that it will be impossible to supply it.

The fundamental fact is: What Ought to be Done Can be Done, And we can do it.

We are going to have a convention at Minneapolis next fall; I hope every buttermaker will be there. We want to capture the banner Minnesota has held and bring it with us next fall, and I am sure we can get it if we have determination. Napoleon once said "Determination is what brings you out," but we must have the will. We have the will if we will only use it. Let us crank our engine. We will win. We will make Determination our battle-cry. I thank you. (Great applause).

BY THE PRESIDENT: I don't think we had better take up the time in discussion now, as Mr. Lee's speech is to follow, and as they are on similar lines, we will defer the open discussion until the end of his speech.

C. E. Lee, of Madison, then addressed the meeting, as follows, the subject of his address being "The Future of the Wisconsin Creamery Industry under the License Law."

THE FUTURE OF THE FACTORY INDUSTRY UNDER THE NEW LAW.

By C. E. Lee.

The factory industry of Wisconsin has long since passed the experimental stage. Those present who have watched its progress for a quarter of a century or more can well picture what the future has in store. The dairymen are milking the cows very much the same as when the first factory was built.

C. E. Lee

The same question as to whether or not it is worth while is still being asked by those who have not had an eye on progress. Some of the young men have left the farm because the opportunity in a creamery seemed greater. Others have followed in the footsteps of their fathers and become leaders in an industry that has reached a magnitude beyond expectation.

The landmarks of some twenty years ago are still in existence, and even at the present time there is at least one factory in Wisconsin that has not adopted new methods or even considered whether or not the Babcock test as a means of determining the per cent of fat in cream is practicable. The cream haulers of this factory still stop at the farmer's door and determine the amount of cream by depth in the pail, measured by the yard stick. The value of that product is determined by the oil test method.

The individually owned and the co-operatively managed factories have come and gone and will continue to form a net work over the entire state to handle the product of some 1,700-000 cows.

It is everywhere evident that the farmers have built more substantial homes, their barns and farm buildings are of the modern type and even the garage has become a necessity.

In many communities where these improvements have been made the farmers continue to deliver their milk or cream to a factory operated in a building that has long ago outlived its usefulness. This is true more of the factories owned by the farmers than of those operated by individuals.

The men connected with the Dairy School have for years encouraged the building of more substantial plants. The Dairy and Food Department for some ten years has had its men in the field conducting a campaign for better conditions. In a measure this method has not brought the results that were expected, because no one could authoritatively say to a body of men that the building was not in a suitable condition to receive, manufacture, handle and store human food. The buttermakers who lacked pride in their work and who did not possess the underlying principles of cleanliness, continued in their chosen profession.

A New Beginning.

The year 1916 will go down in history as a mile stone in Wisconsin's creamery and cheese factory industry. This is not

a mere supposition, as it has already made its beginning. Never before has there been such a demand from farmers' organizations, factory owners, local butter and cheese makers' associations for assistance as there has been during the past three months. The call has not been alone for aid in pointing out what changes must be made in the factory in order that it may easily comply with the license rules and regulations, but to outline a policy of action that will reach the home of every milk and cream producer. In January alone one representative of the Dairy and Food Commission addressed five such gatherings. In one community some farmers gathered from a radius of five to eight miles to listen to a discussion dealing with the farmer's relation to the quality of Wisconsin butter and how to get more money for their butter. Something has stirred them to action. In several counties of the state the buttermakers, cheesemakers and milk producers have held several meetings. The question will not be asked—"Is it worth while?"

The License Law.

The Dairy and Food Commissioner, Geo. J. Weigle, has pointed out the merits of the law, its history and reasonableness. In the formulation of the rules and regulations governing the licensing of buttermakers and cheesemakers, and the operators of butter factories and cheese factories, every member of the commission had in mind the problems as they had come up in the past, and to offer such an outline as would tend to place the industry on a higher plane. Before the rules and regulations were adopted by the Commissioner, a conference was called at Madison. This was attended by nearly all the members of the Dairy School, factory owners and delegates from the various state associations. They all gave their endorsement.

Naturally the first rule should deal with the factory and the next fifteen the factory and its equipment, because too often buttermakers have been called upon to work in unsuitable buildings.

Rules one to sixteen are reasonable and the closer they are studied and followed the more fully one becomes impressed with the fact that they will tend to correct existing evils. One factory was inspected at the request of the management and in the presence of the committee it was found that eight charges could be entered against the building, each one of which had to be corrected before a license could be granted. The result of this conference will be the replacement of the old building by an eight or ten thousand dollar modern structure.

Many other illustrations could be given where the inspectors have been called upon to render assistance by planning improvements or in the starting of a new structure.

In letters received at the office men have stated that repairs have been made, of their own volition, or said—"The board at its last meeting voted to build a new factory; may we continue to operate the old plant until the new one is completed?"

Only a few days ago at the close of an address delivered in one creamery community the owner of the neighboring factory requested that an inspection be made of his plant in order that nothing be left undone in complying with the license law.

Rule three calls for the free use of paint or whitewash on walls not finished with tile or glazed material. Heretofore, even if the buttermaker desired to use paint it was rather difficult in a number of cases to secure funds with which to buy it. Rule fourteen deals with the painting and care of factory equipment which is liable to become rusty and with which dairy products do not necessarily come in contact.

Rules four, five and eight deal with the care and cleaning of the factory interior and factory utensils. Why is it necessary that these rules be a part of the license requirement? Mainly because a few men either did not know how to keep the factory and the utensils clean, or else they were grossly careless. Rule eight, for example, came home to some thirty per cent of Wisconsin churns; why, because there are so many buttermakers that do not know how to clean a churn properly.

Rules nine and twelve should be endorsed by every butter-

maker in Wisconsin because it means a better and more convenient place in which to spend ten to sixteen hours a day. Rules six, seven and thirteen are of interest to cheesemakers only, while fifteen will provide facilities for the proper cleaning, care and protection of the factory building, equipment and factory grounds.

Men may travel through our state in 1916 and see factories and factory grounds that are well cared for. Too often the grounds are a dumping place for almost every discarded piece of machinery, boxes, cinders, etc. Lawns and flower beds and shrubbery were unknown to the factory management and the buttermakers. Many factories are so located that with only a small outlay of time and money the grounds can be made a place of beauty and an example that many of the patrons may well follow.

The Dairy and Food Commission feels that wherever a modern factory is erected and the grounds are well kept the value of the farms of such a community has increased more than the total amount of money expended for such improvements.

Disposal of Sewage and Waste.

One can not help but feel that rules seventeen, eighteen and nineteen refer to a condition in factory management that has too often been badly neglected. From the view point of public health the sewage and waste must be under control. The public highway or patrons' pasture is no place for a sewage disposal plant. Rule nineteen states that all drains shall be trapped except such drains as are open from the starting point to a point outside of the building. Too many drains have not been trapped and this was the reason for covering this point in the rules and regulations.

The management of each factory must study their own sewage problem and work out a method that will do the work effectively.

Factory By-Products.

The method of handling the buttermilk and the churned milk at factories is considered in rule twenty to one hundred and twenty-two. It must be admitted that in too many cases this is a problem that was very often overlooked. One may insist that patrons shall deliver good clean milk or cream, but can results be looked for when the factory does not set an example of cleanliness.

It is not unreasonable to expect that the apparatus used in the handling of by-products not intended as food for man, when stationed in the factory, shall be cleaned at least once for each day that butter is manufactured.

Dairy Products or the Raw Material.

The quality of the raw material received at the factory must be the keynote to future success. If every operator and maker will do his part in raising the standard and in educating the producers in the care of their product, a marked improvement in the quality of the butter will soon be noticeable.

Some system of education must be worked out for each community and the leaders in such a movement must not be strangers to the local situation.

In more than one section of Wisconsin one can obtain abundance of evidence as to what has been brought by education. The average cream or milk producer is not slow in picking up new ideas if he is properly approached. Many splendid suggestions can be posted somewhere in the factory. They will create a discussion and result in much good. How many have ever put up a sign in the factory that would attract attention, namely:

Cool the Cream.

These three words printed on a small button to be handed to every school child would not be a bad idea.

Another one for your factory—"The Calves Prefer High

Testing Cream Because It Leaves More Skim Milk in the Feed-Pail."

One factory in Wisconsin for the year 1915 received nearly 600,000 pounds of skim milk because the average test of the cream was 23 in place of 30. This alone made it necessary to operate 220 extra churns. A loss of an extra 1000 pounds of fat in the buttermilk, say nothing about extra fuel, labor, etc.

In one community some of these plain facts were driven home with such force that on some routes the average test of the cream increased eight per cent.

Factory managers and buttermakers must be held responsible for the quality of the raw material received. The cream hauler must be under supervision because the factory operator will be held accountable.

In the past, too, much unfair competition has been waged on account of working for quantity in place of quality. The extension of territory has increased the cost of operation for all competing factories with no gain to the industry.

Cleanliness of Factory Operators and Employes.

Every factory operator should study rules twenty-seven to thirty-one in order that they may have a clear understanding of their responsibility in matters pertaining to cleanliness of factory and all employes.

There should be conveniently located for the use of operators and employes cleansing material and clean towels. This, to many factories is a new thing, but they must discard the old greasy cheese cloths or discarded strainers. Cleanliness in the handling of dairy products is going to advertise the industry. No one can expect results or even make an attempt to induce the farmers to deliver clean flavored milk or cream when the factory employes or even the building and equipment do not furnish a silent example.

An officer of a northern factory remarked—"Since Mr.— took charge of this factory, the building has been remodeled, thoroughly cleaned and painted. The patrons have taken a new interest in dairying and are larger consumers of butter."

Rules thirty-two to thirty-six deal with the assistance that must be given the Dairy and Food Commissioner, his agent or inspector in performing his duties.

The permit or license and rules and regulations and the printed suggestions relating to the proper methods of operating butter or cheese factories shall be conspicuously displayed at the factory.

Violations of any rules and regulations adopted by the Dairy and Food Commissioner relating to the licensing of operators of butter or cheese factories or violation of any law of this state relating to factory premises, utensils, or equipment, or to the product or products there manufactured, will render the license liable to prosecution, revocation, and the closing of his factory.

Rules and Regulations for Makers.

In part a number of these eleven rules and regulations dealing with the makers are the same as those pertaining to the operators. Experience counts in putting the finishing touches on a maker; hence the twenty-four months' experience that a maker must possess before a license is granted will eliminate the untrained man and in the end raise the standard of efficiency.

A maker shall have a creditable record in operating and keeping in sanitary condition any factory or factories in which he may have been employed and in any work which is considered an equivalent for the required experience or part thereof.

Under the license system the makers will become bet er leaders and more efficient makers. (Applause).

BY THE PRESIDENT: Now, gentlemen, open discussions are in order.

MEMBER: Are there any rules as to well lighting and ventilating?

MR. LEE: It is pretty hard to define that.

MEMBER: There seems to be some means provided.

MR. LEE: Yes, but it is pretty hard to put them down as to what it should be, it is simply calling their attention to it.

We have a little booklet that was sent with your permit in which we try to explain as to what we mean by all those things, we try to handle each different phase of the rules and regulations in the little leaflet we are sending out with each man's permit.

MEMBER: Is it necessary to have some system of ventilation?

MR. LEE: Yes, there should be some system of ventilation in every factory.

MEMBER: Should there be a flue through the ceiling?

MR. LEE: It is better to have the extra flues, one at probably each end; have two of them, with an opening at the top and one at the bottom.

Too many factory floors in Wisconsin spoil in the making, they are not put in right in the first place, consequently they have been a source of annoyance for many years. We have factories with cement floors, all cracked up, with no regular system to the gutter and water could get in underneath. I heard a man make a speech some time ago who knew conditions in Wisconsin, that the average cheese maker doesn't think he has got a cheese factory unless the floor stinks. You can't have in the factory openings in the floor where the waste matter goes underneath without having an annoyance of some kind and you get that familiar odor in your factories. The ceiling overhead doesn't apply in that rule and regulation so much to butter factories in Wisconsin, but to cheese factories and largely where a ceiling has not been installed. In one factory between here and Madison the factory was built about three years ago and the ceiling put in, the boards were not dry, and consequently there is a fine opening in each board in the ceiling. The officers said "we will put in a new ceiling," you could easily see any place through the ceiling. (Reads rule 3). I was talking with a man here last night about a certain factory he is interested in in Wisconsin. I dropped into that factory last August; that factory is located in one of our leading towns in Wisconsin, they had turned it over to a man and had not watched it as they should;

when I called their attention to it the owners of the plant were very much surprised that when they walked into the creamery there was one place on the wall where he had put his hands for five years and never made an attempt to remove the spots made. Now, why didn't someone suggest to that buttermaker that he get some one to scrub that wall. (Reads rule 5). The last part of the paragraph, churns shall be cleaned at the close and beginning of each operation. Number six and seven refer to cheese factories. (Reads rule 8). What do we mean by that? It doesn't mean that the churns must be cleaned after you have run out three or four churns in one day, it must be cleaned thoroughly each day.

MEMBER: Does that refer to pumping buttermilk?

MR. LEE: No, it doesn't refer to your buttermilk at all.

MEMBER: What about the skim milk?

MR. LEE: It depends on what it is used for, if it is not used for human food, used to go back to the farm, then that rule does not apply at all.

MEMBER: Is there any objection to a common rotary pump?

MR. LEE: It depends on the construction of the pump as to whether there are smooth surfaces on the inside.

MEMBER: Well, a rotary pump is one that can't be taken apart.

MR. LEE: They must be so they can be taken apart and thoroughly cleaned.

MEMBER: What time would the floor have to be fixed?

MR. LEE: Whenever it is possible to do so. Men have asked if they could defer fixing their cement floor until warmer weather and we have said yes.

MEMBER: There are a great many methods on the market for hardening floors. I would suggest a wash with muriatic acid or else sulphiric acid, wash the floor thoroughly and then wash the acid water off with pure water and then I should sprinkle on the fresh water, just a little fresh cement, sprinkling lightly, about an inch and a half or two inches of cement and dairy salt.

MEMBER: Could you reinforce such a floor?

MEMBER: I don't think that would help you unless you put in this chicken wire, that might help some.

I want to ask if the preparation you speak of could be put over a wood floor?

MEMBER: No, they have a preparation for wood floors, but it is not the same as the cement floor.

MEMBER: How do you want the drain, open or closed up?

MR. LEE: If the drain has been coming from the factory wall it does not need to be trapped, if it is open just outside the building for a short distance, but if the drain leaves the factory at any point and has no outside opening, then it must be trapped within the factory.

MEMBER: Will they be assisted by the inspector to place a proper trap?

MR. LEE: Yes, I will be glad to discuss it with you some time before you leave town. Our department, and also the Dairy School and the Engineering Department in connection with your Experimental Station are willing to assist, that is what we have them in the state for.

MEMBER: As I understand the laws of the state of Wisconsin they forbid us to run our sewage into a stream?

MR. LEE: The laws forbid that.

MR. JACOBS, of Elk Mound: We had the experience of running from a tank out to a cess pool and when the cess pool filled up there didn't seem to be much change in the character of the sewage; we built another cess pool and after a time that filled up, still we didn't get results, but the third cess pool we built solved the problem. I didn't know until then, but since I have found that these cess pools were connected and acted as a dam. The septic tank would work when we got capacity enough. I made up my mind if the tank was large enough it would work.

MR. STORVICK: The creamery sewage tank is quite a problem. I believe if this man here would partition his tank it would probably work better. This man over here spoke of getting action by having more space, therefore he got septic action in his cess pool.

MEMBER: I would like to ask how big a tile we need to run pretty near half a mile?

MR. LEE: I wouldn't put in a tile too small, if the amount of water can be taken care of by a four-inch tile I wouldn't put in a six; it depends on the amount of water, the fall, and everything has to be considered. Most of the men use a six inch tile.

MEMBER: We had some trouble with our buttermilk for some time. At last our officers decided to auctioneer our buttermilk off each year to one man. When once the man comes to take it away we find that gives us as little trouble as any way we can dispose of the buttermilk and we can always clean up the same day.

MEMBER: We tried the same thing, but we couldn't sell the buttermilk, a majority of the farmers wanted the buttermilk back.

MR. LEE: (Reads rule 23).

MEMBER: When it comes to ice, I am putting mine up these days and I find some oily water colors the ice. I don't use ice directly in cream, how should I use that?

MR. LEE: Well, if your ice is not contaminated, use it.

MR. CARSWELL: I will ask the Resolution Committee before they leave the hall to meet at the secretary's table in front and make arrangements for getting together.

The meeting was then adjourned until February 3rd, 1916, at 10 o'clock A. M.

THURSDAY, 10 O'CLOCK A. M.

On February 3rd, 1916, at 10 o'clock A. M. the meeting was called to order by Mr. Carswell, the President.

D. F. Wallace, of Alma Center, then made the following address to the meeting, entitled "My experience in getting patrons to whitewash their barns."

MY EXPERIENCE IN GETTING PATRONS TO WHITE-WASH THEIR BARNS.

By D. F. Wallace, of Alma Center.

Mr. President, Ladies and Gentlemen: At the time I received word from our Secretary, Prof. Benkendorf, requesting that I should prepare and read a paper on "My Experience in Getting Patrons to Whitewash Their Barns," I really felt he had made a very good selection as to the topic, but a very poor selection as to the person, but selecting as he did, I am here to fulfill a part of the bill, at least.

D. F. Wallace

We started about two years ago to get our patrons at Alma Center, to whitewash their barns. But at first it was pretty hard sledding, as most of the farmers thought it an unnecessary expense. But nevertheless, after much persuasion we managed to get about sixteen of the farmers to have the work done, and being satisfied with it, have continued having it done.

Last June, Prof. Lee, of Madison, of whom you all know, was addressing our patrons at one of our creamery meetings, and during his address, he brought up the subject of whitewashing barns, and he asked all the farmers to raise their hands who had their barns whitewashed. As it happened, not one of the sixteen were present. But if that same question were to be asked at a meeting now, there would be a great number of hands raised.

During the summer a little later, I was fortunate enough to secure a whitewash man from a neighboring town to come in and advertise his work in the form of little hand bills. I distributed these bills to our patrons as they brought in their cream. Others I gave out to the cream haulers to distribute on their routes, so in this way we succeeded in getting most of our patrons to whitewash their barns, and many of their other farm buildings also.

As a general rule, the most of the farmers were satisfied with the whitewashing, by this I mean, they had the right idea as to using it for a disinfectant, such as killing lice and disease germs in all forms, also mites among chickens. A good many other farmers considered it just another form of painting as it were, making a little better inside appearance, in this way, they had to give their barns a thorough cleaning where the work was to be done, before the whitewash man would touch them. I might add, that a few of the farmers thought the whitewashing a detriment, but will say here, this occurred mostly among the younger set. Claiming it to rub off on their clothes. And I shouldn't wonder but that would happen when they had to hitch up after dressing especially to spend a Sunday evening with their girl, and who knows but what that little simple thing might cause trouble there.

But will say again, that some of the farmers were afraid of the stock eating the lime off. As to that, no matter how much the stock could get, it could do them no harm, rather the reverse, as lime is extremely beneficial for stock as the disinfectant that is used is absorbed by the lime so as to not produce harm only to insects and insect life.

There were a number of farmers whom we failed to work for. Their reasons were many and varied. Some could not or would not get ready, some thought the prices were too high, some the season not just right, some thought their barns perfectly satisfactory, no disease ever having been in them, and not a few who did not or would not believe in the benefits of whitewashing.

Now, I will say in closing, that I think the idea to impress upon the farmer and the stock owner generally, is a thorough and a complete disinfection, and it has been proven conclusively that lime and a disinfectant with a hardening substance is the best and the cheapest.

I thank you.

The President then invited the members to open discussion.

DISCUSSION.

MEMBER: I would like to ask about a machine to do this whitewashing with.

MR. WALLACE: I would say that our people intended putting on a whitewashing machine, but owing to the fact that we had a whitewash man in a neighboring town that promised to come and do the work, we did not put any on this year, we may next.

MR. CARSWELL: What about the average charge for making whitewash?

MR. WALLACE: His charges vary, according to the barn, ranging from two to nine dollars; he charged according to the feet of work which he did.

MEMBER: At our creamery we have whitewashing machines that are charging fifty cents a barn for machines, and the creamery own machines, and the machines give good results. I couldn't give the size of the machine. They cost between fifty and thirty dollars, everything works good and gives good satisfaction.

MR. CARSWELL: Do you make any charge for it?

MEMBER: We are charging fifty cents a barn, and it works fine.

MR. JACOBS: I would like to add one reason I think would influence farmers to whitewash their barns,—the barn being much lighter the hired men would work longer days.

J. M. Speed, of Milwaukee, then made the following address, the subject being "Cold Facts About Creamery Refrigeration."

COLD FACTS ABOUT CREAMERY REFRIGERATION.

By J. M. Speed, of Milwaukee.

Mr. President, Members of the Wisconsin Buttermakers' Association, Ladies and Gentlemen: Perhaps no single phase of the successful production and marketing of the product in whose manufacture you are so vitally interested, is of as much importance as refrigeration. First because it actively enters into the very making of the product itself, and secondly, because it preserves and keeps in a marketable condition the product after it is made.

It is only in the last few years that the value of Mechanical Refrigeration as applied to your industry, has become an important factor. This was undoubtedly due to some of the early experiments along these lines, which did not prove absolutely successful. However, it has now been several years that the experimental stage has been passed, and so many of you among us have installed equipments that are giving entire satisfaction, that I can safely say that there is no problem in the art of refrigeration, be it large or small, that deals with the dairy interests, that can not be and have not been successfully met by the manufacturers of refrigerating machinery. Many failures have been caused not by lack of adequate equipment, but rather by a misunderstanding as to the application of the equipment.

To my mind, the most necessary requisite for successful operation, lies in the refrigerator itself. Any good machine properly constructed, and with the necessary amount of piping and tanks, will produce the required refrigeration for which it

is figured. It remains therefore, for the refrigerator itself to preserve this refrigeration, to bring it to the food products in the best possible manner, to automatically remove from these food products the gases that arise therefrom, replacing the same by fresh cold air, free from impurity and dampness. This must be done in a natural manner, through means of proper circulation, and adequate insulation. You all know that the tendency of warm air is to rise, and therefore in constructing your refrigerator, you should assist nature's tendency by making the circulating system in such a way that the warm air will be assisted in its tendency to obey nature's laws. In rising, this warm air naturally must be displaced by something else, because under natural conditions, there can be no vacuum, and therefore, as this warm air rises, it must be displaced by cold air coming from above, and in so doing, a natural circulating effect must continuously take place, carrying with it the heat gases and moisture and depositing or absorbing them on or through the cold surfaces of coils, tanks, or ice, from which surfaces they eventually find their way to the outside through the melting or defrosting into the refrigerator drain.

The proper proportion of hot air and cold air flues must be determined in each individual case, and are absolutely controlled by the area and the cubical contents of the space to be cooled, together with a practical application of conditions.

In taking up this subject, I am going to discuss the value of refrigerating machinery, and it occurred to me in surveying the situation, that I could best sum up the advantages, by getting from you who are users of both Mechanical Refrigeration and Ice, your experiences, and your figures of production, power expense, and costs, and to this end, I sent out 150 questionaires, from which I now quote.

Questions Asked of the Users of Ice.

What is the size of your refrigerator?.....
Maximum pounds of cream you cool daily?.....
Do you pasteurize? .....

To what temperature do you cool with water before using ice?..
What is the average temperature of your refrigerator?.....
What power have you?....Motor?....Engine?.... H. P.?...
What was your total power or coal bill last year?.....
What was your ice bill last year?.....
How far is your ice hauled? .....
Do you ship in C. L. lots? .....
If not, how often do you ship?.....
What was your total make last year?.....
What is your average shrinkage per tub?.....
Did your ice ever run out before the hot weather was over?...
If so, where did you get it?.....
How much did it cost per ton?.....
Name of Creamery? .....
Location? .....

Questions Asked of the Users of Mechanical Refrigeration.

What size machine have you?.....How long in use?.....
What is the size of your refrigerator?.....
Maximum pounds of cream you cool daily?.....
Do you pasteurize?.....
To what temperature do you cool with water?.....
At what temperature do you keep your refrigerator?.....
Is your brine tank in the refrigerator?.....
How many ripeners have you? .....
How many churns? .....Capacity?.....
How many separators?.....What capacity?.....
What power have you?.....Motor? .....
Engine? ..... H. P.?.....
What size boiler have you? .....
What steam pressure carried? .....
Have you separate power for Ice Machine?.....
If so, what H. P.?.....
Is power heavy enough to run all machines at one time?.....
Average daily hours of Ice Machine operation?.....
Maximum hours? .....

How is time divided if machines are not all run at once?.....
What was your total power or coal bill last year?.....
What was total power or coal bill before having Ice Machine?..
How much was your ice bill before you had your machine?....
What was your total make in corresponding years?.....
What is the annual upkeep of your ice machine equipment?....
Have you saved in help?.....If so, how much?.....
Have you saved in time?.....If so, how much?.....
Do you now ship in C. L. lots?.....Did you before?.....
What saving in freight rates on account of C. L. shipment?....
Has your shrinkage been less?.....If so, how much?.....
Do you prefer the system to using ice?.....
Did you have trouble in learning how to operate machine?.....
If so, what was the nature of the trouble?.....
Name of Creamery?.....Location?.....

Some of the questions that I have asked were largely for my own records, and do not enter into the results of this tabulation. I have averaged the figures obtained from this information, and will present them to you at this time. The averages for users of natural ice are as follows:

Average number of lbs. of cream cooled per day 4340 lbs.
Average temperature of refrigerator 53.2 F.
Average horse-power 11.6 H. P.
Average cost of power $154.90.
Average cost of ice $124.20.
Average shrinkage .575 lb. per tub.
Average number of 60 lb. tubs of butter made yearly 4516.
Average cost of power and ice per tub 6.2c.

In this average cost of power and ice per tub, I have not taken into consideration, the depreciation of the ice-house, which is ever with us, the cost of handling this ice in your creamery, the cost of sawdust, and the additional work required of your buttermaker and his assistants, or the labor of your patrons who may be hauling this ice for you for nothing.

As against this cost of refrigeration per tub incident to the users of ice, I am showing you the averages for the users of machinery, which have been compiled as follows:

Average tons of refrigeration required 3.8.
Average lbs. of cream cooled daily 4130 lbs.
Average horse-power required to operate creamery 1455.
Average temperature of refrigerator 34 degrees F.
Average cost of power $393.00.
Average shrinkage per tub .3 lb.
Average operating cost per tub 8.9c.
Average number of 60 lb. tubs of butter made yearly 4250.

If you will compare these two sets of averages, you will see that the cost of power and refrigeration per tub, for those using ice is 6.2c, and the cost per tub to those using refrigerating machines is 8.9c, and if we will take again our average creamery producing about 4250 tubs of butter per year, and multiply the total number of tubs produced, by the average cost per tub, you will find an apparent balance in favor of the ice users of $150. But gentlemen, have I not forgotten something? Let us look at the little item of shrinkage. Behold, the ice user acknowledges a shrinkage to him in pounds, of .575 of a pound per tub, and in compiling these figures I have not taken into consideration those whose shrinkage was over three-fourths of a pound per tub. And how many among you do not at some time put a pound to a pound and a half extra over net weight, to take care of this item, and can you wonder at this, when the average temperature of an ice cooled refrigerator is 54 degrees F. No need of me telling you why this shrinkage. The law allows you sixteen per cent of moisture. Why not keep it in your butter? You can,—if you keep your refrigerator at the proper temperature, and have your butter firm and cold when it is packed into your refrigerator cars, from a refrigerator whose average temperature is 34 degrees F. or lower, as my gathered data has shown.

Let us then again sum up the situation. Our average of tonnage required for 4250 tubs is 3.8 tons. Let us give the manufacturer of the ice machine the benefit of the doubt, and be extremely liberal in our estimate of the cost of such an equipment. Assume it costs $1400.00.

	Per year
10 per cent depreciation amounts to	$140.00
6 per cent interest	84.00
Upkeep	7.00
At 8.9c per tub for Mechanical Refrigeration	378.25
Shrinkage of .3 lb. per tub for 4250 tubs = 1275 lbs. at 30c per pound	382.50
	$991.75

So much for Ice Machine users.

Now for the others. We will assume that our average ice house will cost $500.00, liberal enough you will allow.

	Per year
10 per cent depreciation	$ 50.00
6 per cent interest	30.00
Upkeep	10.00
At 6.2c per tub for manufacturing cost	263.50
Shrinkage of .575 lb. per tub for 4250 tubs = 2444 lbs. at 30c per lb.	733.20
Cost for users of ice	$1086.70
Cost for users of Mechanical Refrigeration	$991.75
Difference in favor of Mechanical Refrigeration	$94.95

One-half of those answering our ice machine question blanks are pasteurizing their cream, but I did not receive a single reply from users of ice who were so treating their raw material. Had the same number of ice users pasteurized their product, the cost of manufacturing per tub for them would have been far in excess of the average given, because the additional cooling necessary, would have required twice the operating time and nearly double the ice. And gentlemen, I am of the opinion that you will soon all be obliged to pasteurize your cream, and then in order to keep down your bacterial count, you will have to cool your cream in as short a time as possible after heating.

I have been extremely liberal with the users of ice, in this proposition. If I were to correctly give you their costs, I would have to add the hours and hours of extra time necessary to cool their cream. I would have to add the hours of time and labor put in by the buttermaker and his assistants, and I would have to add a good many dollars for the slop, dirt, and muss that each day will have to be cleaned out, in order that your product may live up to Wisconsin standards.

There is also another question that I can not take up completely at this time, but which affects a material saving to you, and that is by having a refrigerator large enough, and equipment adequate so that you can ship your products in car-load lots instead of locally. But if you will figure these items up for yourselves, you will see how much additional saving they will bring to you each year, and you will undoubtedly agree with me that if your butter can be held for a long time, by means of Mechanical Refrigeration, and be in as good condition during that time as when it was made, that hundreds of dollars per year can be saved on this item alone.

I want to again call this fact to your attention, that whether you are a user of ice or a user of machinery for cooling purposes, the most important part of your equipment lies in your refrigerator. Do not allow yourself to be prejudiced by the fact that you have heard of someone who has a cement cooler which works perfectly, and do not think that saw-dust or mill-shavings under certain conditions can be used for insulating purposes, and that they will be adequate for your requirements. Such is not the case, for good insulation, properly applied, and a scientific construction of your refrigerator to get good circulation, is after all the primary requirement for any kind of successful cooling.

The methods that the different manufacturers of machinery may have for installing their equipment may vary, but the representative companies have standardized their equipment to a considerable extent, and their methods of installation should be very similar.

There is nothing extremely difficult to understand about a refrigerating machine. The compressor is only a pump. The manufacturer who sells this compressor does not manufacture the cold. The cold has been manufactured by Providence during the Winter months, in extracting from the waters over and under the surface, the heat that it has absorbed from the sun and other sources, during the hotter months. All that the compressor does is to transfer the heat that is in your product and the heat that is transmitted through the walls of your refrigerator to the cooling water that runs through the condenser pipes, and in so doing, it gives up its heat gathered from these sources to the condenser water, raising it in temperature, but not in any way changing its character. This heat is brought to the water in gas form, under pressure, by the compressor. The water in the condensor pipes extracts the heat there, and changes the gases to a liquid, still under the same pressure. This liquid then flows to the storage tank or receiver, and from this is allowed to escape through a very fine opening in a valve (called Expansion Valve) into the coils that do the cooling. The small opening allows the liquid to enter the pipes in a spray form and it rapidly evaporates, and in so doing again possesses the power to take up the heat that the water has absorbed in the condenser. The compressor gathers it from the pipes. These pipes are in the room and tanks to be cooled, and in this way the process is a continuous one. The only thing necessary for operation is a supply of cold water, and the power to operate the machine. From time to time the ammonia or other gases used by the machine may have to be renewed, on account of deterioration or leakage, but that amount is so small that it can be neglected. A hundred pounds of ammonia costs but $27.00 and lasts on an average for two or three years. The brine that is in the tanks, and which is pumped through your ripeners to cool the cream, is made of a calcium chloride solution, and stays constant, and ought not to be renewed oftener than once in four or five years.

I could take up your time indefinitely, giving you facts and figures and arguments, as to why every creamery should have

the most modern and up-to-date equipment for refrigeration. However, my time is now up, and I trust that my efforts have not been in vain. I will be glad to answer any and all questions that I can, pertaining to this subject.

I thank you!

An open discussion was then called for by the President.

DISCUSSION.

MEMBER: I will ask in case that the refrigerator machine cools in the same temperature with the refrigerator as with the ice would it cost any more?

MR. SPEED: If you were using a refrigerating machine you wouldn't want to have an average temperature of 52 degrees.

MEMBER: No, but would it cost any more money?

MR. SPEED: I can't answer that. I wouldn't know how to answer it because a refrigerating machine to hold a temperature would cost more money because you wouldn't be getting any advantage of the machine; what advantage would there be if you couldn't hold your temperature lower?

MEMBER: Well, I am comparing the two methods, say, that now you have the refrigerating machine and it costs a little more to run it, but is it not because you could have your refrigerator so much lower temperature that it cost in that way; it isn't so much the proper degree but that you could get more efficiency out of the refrigerating machine. I think it is a point that ought to be considered.

MR. SPEED: Well, I don't grasp your meaning.

MEMBER: For instance, if you cool cream that has been heated to 150 and you want to cool it down to 46 right in the vat, now could you do it with the ice or a refrigerating machine. What costs the most, that is what we want to know. That is what the buttermakers want to know; what costs the most, the ice system or the refrigerating system? Say you have definite degrees 150 down to 46, what in your opinion costs more?

MR. SPEED: It would depend on what your ice cost. Some of the averages I got cost $150.00 for enough ice for the season, some cost $300.00.

MEMBER: You used average to get your price, now use average of the ice users to get that amount of cooling.

MR. SPEED: Well, I should think it would be just about the same proposition and some are using coal and some are using wood, some pay so much for coal and some pay so much for wood, you see the difference. Of course these figures that I have gathered are not my own, they are question blanks sent out and I averaged them up, they are from your own figures, questions sent out in this state and also in Minnesota and Iowa, that I got from different states.

MR. STORVICK: What is the capacity of these creameries; are the pounds of butter about the same?

MR. SPEED: I finally averaged them up, that is, for ice users, 4130 pounds a day.

MR. STORVICK: The pounds of butter made a year, have you got that?

MR. SPEED: No, I have the average.

MR. STORVICK: In a creamery making 150,000 pounds or less do you think the mechanical refrigerating machine is advisable?

MR. SPEED: Well, that depends upon what your ice costs. It depends upon whether you have an ice house that is in good shape where it don't take too much to keep it up. If you have to build an ice house for any creamery your ice proposition would be the largest thing, a well insulated ice house would cost you what the machine would cost. Many of the creameries in this state have an engine running a shaft, even if they want to run a water pump there, the operation saves your coal bill.

MR. STORVICK: That is what I was going to lead up to. I realize your Wisconsin creameries are larger, you have got to make comparisons on like things and the fuel cost is not such a serious problem as it is in other parts of the country, but our experience has been that in the small creameries the refrigeration system is almost out of question.

MEMBER: In small creameries here is from 50 to 150 tubs a week and hold their products for carload shipments.

MR. SPEED: That depends on you. If you are foolish enough to make a lot of butter and the market is steady, of course, if you can hold for a week or two to get a carload shipment, I should think it would pay you, but if the market is fluctuating as it sometimes is you want to get your butter to market as quickly as you can, you would want to ship every day.

MEMBER: What would be the price in putting the machine in an average creamery?

MR. SPEED: The average cost is about $1400.00. You can't average the cost because every refrigeration equipment is an entirely different proposition, one job may require a 4-ton machine and a certain sized tank, another job may require so many more feet of pipe and a different sized tank, of course, they all cost money and you can't tell. I know of jobs that have been put in for $1200.00 and other jobs would cost $1400.00.

MEMBER: How much horse-power does it take to run one?

MR. SPEED: It varies. It depends upon your condensing water and upon the pressure that you carry; if you have got good cold water and lots of it you can run a lot of water through your condensing pressure, your horse power for four tons of refrigeration amounting to about one and four-tenths per ton.

MEMBER: How about the extra water?

MR. SPEED: With water at a temperature of 50 degrees it will take about half a gallon per ton per minute, a four-ton machine, that is about two gallons a minute per four ton.

MEMBER: What do you mean by per ton?

MR. SPEED: A ton of refrigeration is a means of melting 2,000 lbs. in 24 hours at 32 degrees.

MEMBER: We have listened to one of the best papers on mechanical refrigeration I have ever heard; Mr. Speed has given us one of the best discussions on mechanical refrigeration I have ever heard. There is one other question I would like to ask and that is the cooling medium. I understand you recommend brine. There are two systems, I am not satisfied in my own mind which I would rather have.

MR. SPEED: Where you have a coil in your cooling tank you can pretty nearly drain that, you will leave some brine in there, that water will not go back into the tank, so you will lose it, consequently, you will have to do some replenishing. To give you an idea of the cooling proposition. If you take 100 cubic feet of brine it will weigh about 8,000 pounds. Now, from 8,000 pounds of brine, for instance, we will say that the brine is at a temperature of 10 above zero, after doing its cooling it will come back at 20 degrees, you have about ten heat units per pound already taken out.

MEMBER: I would like to know which is the best, to put the butter on the end or on the side of the ice box?

MR. SPEED: You will get a better circulation on an overhead ice box than from the end. The tendency of cold air is to drop. It must be carried over the other side and you have got to get a box mechanically constructed nearly perfect; you can't get good refrigeration without good circulation, you can get better with overhead than on the side.

MEMBER: Isn't there something in making the ice box? Some have them closed up on the side, they should have a return on the opposite side, shouldn't they, to get circulation, they can't get it with one opening?

MR. SPEED: On the bottom?

MEMBER: No, on the top, the cold air would go down here and the hot air come above the ice.

MEMBER: Do you need any other circulation outside?

MR. SPEED: If you have good circulation inside you don't need any other, you want to keep all the refrigeration you have got there. The warm air all passes through your door, you don't want to let it pass through any other place.

MEMBER: There is one point about having the ice on top; it is no doubt correct, but still I find among the creameries that I have seen where the ice is on top you have more or less dampness in the refrigerator. Here is the ice on top, you have the ice underneath the ceiling and you nearly always have the ceiling wet. These conditions I think are serious and should be brought

out. Be sure your refrigerator is dry and that you have good circulation. I believe the ice is safer on the side on that account.

MEMBER: Do you mean then that if you have an inlet into the icebox on top and also in the bottom that the cold air comes into the bottom and goes back into the ice?

MR. SPEED: Yes sir.

O. A. Storvick, Dairy Division, Department of Agriculture Albert Lea, Minn., then addressed the meeting as follows, his subject being "Fuel and Power Efficiency in Creameries."

FUEL AND POWER EFFICIENCY IN CREAMERIES.

By O. A. Storvick, Albert Lea, Minn.

Mr. President, Ladies and Gentlemen: The annual reports from creameries show that the greatest item of expense in the manufacture of butter exclusive of labor is fuel and power. There is no item so variable, thus it would seem that the matter is not

O. A. Storvick

given the attention it deserves otherwise the results would not vary to any considerable extent in plants making the same amount of butter and where the cost of fuel is practically the same. In making comparisons it is found that the fuel item is extremely variable even in creameries devoted exclusively to the manufacture of butter and having practically the same output. To be more specific ten creameries having an output from 100,000 to 150,000 reporting the lowest fuel expense was $0.13 per 100 pounds of butter, while the average cost of the ten creameries having the same output reporting the highest fuel expense was $0.487, that is, it cost about four times as much for fuel in the latter lot of creameries although the output was practically the same. It is therefore apparent that a considerable protion of the creamery men do not realize the importance of an efficient power plant.

The Dairy Division has recently made an investigation of fuel cost in creameries with a view to study the cause for fuel and power waste in creameries and to assist the creamerymen in overcoming these losses which amount to many thousands of dollars annually. Tabulations are now being made of the figures collected which will no doubt determine, what is a reasonable fuel or power cost in a creamery making 100,000, 200-000 or 300,000 pounds of butter annually. Comparisons will also be made with a view to determine which is the cheapest, steam, gas or electric power, and if possible to make other comparisons concerning fuel saving devices such as utilization of exhaust steam for pasteurization of cream, heating feed water for the boiler and washing purposes.

I shall very briefly discuss some of the factors which are the cause for high fuel and power cost and in so doing will treat the subject under three headings as follows, Steam Power, Gas Power, and Electric Power.

Steam Power.

Until very recently steam power was used almost exclusively in creameries and is at the present time considered the

only reliable power by a large number of creamery operators. Such statement however is an admittance that the person in question is not well informed or that he looks at the matter from a personal rather than a commercial point of view. In selecting power the matter of cost must of course be given first consideration, that is purchase cost, operating cost, and maintenance cost. And where the cost of operating varies as much as four hundred per cent it is important that the matter of power efficiency be given more attention than it has in the past. Too many are ignorant of the fact that the ordinary steam plant usually found in creameries is very inefficient. When we come to analyze the results or losses in the average small steam plant, it is found according to Bowen in Circular 209, Bureau of Animal Industry, that our steam plants are extravagant indeed.

	B. T. U.	Per ct.
Heat value contained in one pound of coal	14,000	100
Combined boiler and furnace losses	7,000	50
Heat in steam	7,000	50
Heat equivalent to 1 horsepower hour	2,545	
Heat required to develop 1 horsepower hour (assuming 50 pounds of steam per horse power hour, pressure 80 pounds guage, feed water 60 degrees,	57,900	
Percentage of heat realized as useful work	$\frac{2,545 \times 100}{57.900} =$	4.4
Percentage of heat in coal realized in useful work	$\frac{2,545 \times 0.50 \times 100}{57,900} =$	2.2

While these figures show conclusively the inefficiency of the average steam plant where the exhaust steam is wasted it should not condemn the steam plant entirely, it is useless for us to attempt to operate a creamery without a steam boiler as we need steam for various purposes and it would be impossible to dispense with its use, but an effort should be made to secure the greater efficiency.

Losses due to improper design or installation of boilers.

1. Boiler and engine not of proper size.
2. Boiler and engine improperly installed.
3. Furnace not suited to fuel.
4. Poor draft.
5. Grate area and furnace not properly proportioned.
6. Heating surface not properly proportioned.
7. Breeching and uptake not properly designed.
8. Chimney improperly proportioned.

There are also losses due to improper operation of the plant. It is not to be expected that the buttermaker can give the attention to firing that we would expect in a well managed power plant and yet if the same buttermaker had to pay for the fuel there is no doubt but that better results would be obtained in many of the creameries. One hundred dollars worth of coal wasted is equal to the same loss in overrun, or any other loss, but it is often overlooked. In many of the creameries there is no inventory of supplies made at the end of the year and therefore the management is not in a position to know whether or not their buttermaker is efficient, or whether he is doing his best to look after their interest.

I have seen creamery boilers that bear evidence of not having been cleaned in the present generation and every intelligent creamery operator shrould know that boiler incrustation is one of the most common causes for hard firing boiler, even the slightest coating of scale or lime deposit on the tubes or heating surface seriously reduces the heating efficiency of a boiler.

Losses due to boiler incrustation according to "Hawkins" are as follows:

1-16 in. of scale causes a loss of 13 per cent of fuel.
1-4 in. of scale causes a loss of 38 per cent of fuel.
1-2 in. of scale causes a loss of 60 per cent of fuel.

Thus it can be seen that it is very important that the boiler should be kept clean and entirely free from sediment or scale. The heating efficiency is also seriously effected by accumulation of soot therefore it is very important that the tubes be cleaned every day.

One of the most serious losses in a steam plant is the waste of exhaust steam, we often fail to consider that approximately only 10 per cent of the heat value of steam is recovered by the energy derived from the engine and that about 90 per cent of the heat is lost where the exhaust steam is not utilized. Inasmuch as but a very few of the creameries are equipped to utilize the exhaust steam effectively, it would seem that the manufacture of butter must either be a very profitable business, in order to sustain such loss of fuel, and that the majority of creamerymen are inefficient. It is believed that there are no class of plants using steam that offer more varied opportunities for the utilization of the waste heat in the exhaust steam than those employed in the creameries, and since we have now on the market very efficient exhaust water heaters it is certainly a profitable investment to provide an equipment that will recover as much of this heat as possible and store it up in form of hot water for feeding the boiler as well as ample supply of hot water for washing churns, utensils and floors. It is believed that the enclosed water heater is the most satisfactory for creamery use, one of the round boiler type 30 or 36 in. in diameter 72, 84, or 96 inches long according to the amount of work done by the engine the water is heated by the exhaust steam passing through a set of 8 or 12 coil pipes as need be to recover all the heat from the exhaust steam.

These heaters are connected up so that the cold water enters at the bottom from the supply tank and the hot water is drawn off from the top, as the water warms up it naturally rises to the top and in this way the hottest water is always drawn first, a belt boiler feed pump which consists of a plunger and two check valves is not only the simplest but as efficient as any boiler feed pump, the speed may be regulated so that a constant water level may always be maintained while the engine is operating the other machinery. Every creamery should be equipped with a water tank located on the second story and all the water used for cooling cream, starter, or used for the compressor should be pumped into this tank to be used for boiler feed and

washing purposes, another tank may be used for the water required to wash butter. It must be remembered that it has cost money to pump water from the well and perhaps more than is realized especially where a steam pump is used. A belt driven geared pump having a long stroke will always prove more economical than a steam pump. Where water may be had at a depth of 15 to 20 feet a rotary pump usually furnishes not only a more generous supply of water but at a lower cost than any pump that has come to my notice. The expense of pumping water is greater than most of the creamery men realize and too often is one of the main causes for high fuel or power cost.

Gas Engines.

The gas engine is now used in a number of creameries, and it has been found that especially the kerosene engines furnish economical power, many object to the use of a gas engine in a creamery for fear that the odor may have a tendency to taint the butter. Where proper precaution is taken, I have as yet to find the first instance where the product has been tainted from this source, yet it is well to bear in mind the possibility and therefore the engine should always be placed in a separate room and the exhaust pipe extended to at least six or eight feet above the highest point of creamery building, and the oil supply be kept outside. The operator should of course be careful to wash his hands and not wear any clothing saturated with gas oil while working around cream, butter or anything that will absorb the odor.

The gas engines have now been perfected so that any intelligent creamery operator will have no difficulty in having a dependable power at all times. It is of course in the creameries which are located at a distance from the railroad that the gas engine is most welcome as the hauling of coal long distances is an item of expense to be reckoned with, and therefore we find that the gas engines have many staunch supporters amongst the creamery men. As a matter of fact where coal is used as fuel the gas engine proves more economical than the steam engine.

Electric Power.

Electric power is now available in many localities and where it can be had at a cost of not exceeding five cents per K. W. H. it is not only very convenient but economical power for creamery use. When installing motors it is desirable to have a unit for each machine if possible, this not only reduces the loss of power due to shaft friction which is a waste of power more serious than is generally known. The energy required to run the shafting in a certain creamery was 3.6 H. P. and the power required to run the shafting, separator belts and well pump was 8.9 H. P., thus it can be seen that it is very important to avoid shaft friction whatever power is used. Where it is possible a motor should be used to operate the churn and another for the well pump and ripeners. For a 750 pound churn a 5 H. P. motor will suffice where belted direct, and a 2½ H. P. motor will usually handle the well pump and ripeners.

In larger plants it is of course necessary to have larger units but the thought I desire to leave with you is that too many creameries have larger power plants than is necessary which of course has a tendency to increase the fuel and power cost. The subject of Fuel and Power Efficiency is one that has not been given much attention at our convention, it is only now and then we find a buttermaker that has given the matter any consideration, and it is only by comparison that we may learn where we are at. It is only after a horse has been put on the race track that we know his speed.

In conclusion I wish to impress upon the creamery men the importance of efficient work. The recompense you receive for your work should be in keeping with the results obtained, and if you can demonstrate that you are able to effect a saving in the fuel or power efficiency you are worth that much to your employer. Too often when a request is made of a raise in salary no specific reason is given, it is always well for us to bear in mind that the employer is willing to share the profits with the efficient worker, and I know of no vocation which offers more varied opportunities to show one's skill than is open to the in-

telligent creamery man, nor is a person tied to one certain line of effort. To make a high grade butter shows good work. To obtain a reasonably high overrun shows good work. To secure the best efforts and good will from your patrons shows that you possess good tact, but even if you do all these things but are extravagant in the use of fuel or power you cannot be classed as a complete success, as such would demand efficiency in every detail.

It is to be regretted that one buttermaker shall be obliged to shovel three tons of coal in order to do the same amount of business as his neighboring buttermaker does when shoveling one ton. Likewise it is unfortunate that one employer is obliged to expend six hundred dollars for fuel when his competitor who does the same amount of business has a fuel expense of only two hundred dollars. These are facts, and they are facts that stand in the way of promotions, and better positions. Is it not important that we do all we can to secure greater efficiency from the power plants in the creameries? I have found some very efficient creamery men in your state but how to induce the rank and file of buttermakers to see that they also may be creators of wealth by faithful and efficient work is one of the problems with which we are concerned.

DISCUSSION.

The President then called the meeting to open discussion.

MEMBER: Isn't it a fact that the smoke stacks have a great deal to do with the amount of fuel used in a great many creameries, the height of it?

MR. STORVICK: Yes sir, it has. In order to secure the greatest efficiency from your fire you must have a strong draft and a furnace temperature of at least 3,000 degrees in order to burn the gas from your coal, where the gas is impaired by a low stack it is going to deter you from securing the greatest efficiency from your fuel.

MEMBER: I would like to ask you about your grade of coal, whether that makes any difference or not?

MR. STORVICK: Your grade of coal is also an important item. We should consider coal that evaporates most gallons of water, I find in a great many instances there is a loss because too expensive coal is used.

MEMBER: What is your opinion about the cost of your electric power as compared with steam?

MR. STORVICK: The rate is variable, from 2 to 10 cents per kilowatt hour, so if you get a reasonable charge, say five cents, or even six cents, it would be better than the average results obtained from steam.

MEMBER: You spoke about this coil you have on this boiler for heating our exhaust steam; now is that coil in the tank with an opening out, or does the steam go directly into the water?

MR. STORVICK: No, the steam passes through this coil, the exhaust steam enters at the top of the heater and travels downward.

MEMBER: Will that water run out of the tank?

MR. STORVICK: Yes, then we have a trap where it runs out the lower end. This water is perfectly clean and can be used for washing your churns and your ripener and every purpose in your creamery. In the so called oven water heaters in this state I find many of them are efficient, if you have a real strong tank for them and watch your shaft carefully so that is working and rather than to take the time of separating the oil from the condensed water we find it advisable not to let the exhaust steam come in contact with the water.

MEMBER: We find the tanks don't last more than a year or so, if we put in this pump you speak of we have something that will last there forever nearly. You wouldn't advise using clinkers much, would you?

MR. STORVICK: No. They indicate impurities in the coal. If properly fired the clinkers may be prevented. The fire should never be touched from the top. You should never use the poker on top, if you use it at all use it from the bottom.

MEMBER: Another thing that we are having trouble with some,—we want some water pump we can get water from,—we have a double action pump that works both ways, the cylinder is right in the pump, I think it is a Golden pump, it is a geared pump, and we have a well sixty feet deep and the water comes within eight feet of the top, we start the pump and it pumps the water down and we only get so much water. Is there any pump without having the cylinder in the well that will pump the water at a lower level, or do they all pump at a certain level?

MR. STORVICK: If a vacuum could be created we could get water thirty feet deep, but we are unable to create a perfect vacuum.

MR. CARSWELL: In my opinion, when you get down twenty-five feet or whether you went down fifty feet the flow of the well is practically the same, when he gets down so far all he can get is the flow of the water in the well deeper or put a charge of dynamite in and increase the flow of your water so it would be greater, then you could get all the water, if you have got a good strong well and have a good opening in the bottom of rock or coarse gravel and your water comes up, you can't lower that water at all, it will maintain its own level there, no matter how fast you pump.

MEMBER: Dynamite wouldn't help if the flow wasn't there would it?

MR. CARSWELL: Yes, a big charge of dynamite would open a good chamber.

MEMBER: Your idea would be to pump from a larger storage tank?

MR. STORVICK: Yes, the water can't get into your well fast enough. What kind of a well is it?

MEMBER: Four inch.

MR. STORVICK: Well, four inch is too small a casing to put into the well. I believe an experienced well man could fix that well with very little expense.

MEMBER: I would like to say that we have overcome our fuel expense about one-third by taking our exhaust steam to

pasteurize. We mix our steam in a two inch tee and pasteurize a great deal better that way than in any other.

MR. JACOBS: They use a heater in connection with it, a great many do that too.

MR. STORVICK: It certainly seems folly to run your engine to operate the coil and let the exhaust steam go away and then draw from your boiler the live steam. It seems foolish. This water you could get up probably to 200 degrees.

MR. CARSWELL: What percentage of steam do you get out of the exhaust of that style of heater, say the water was 200 degrees at the upper end and 90 at the lower end, from the exhaust coil?

MR. STORVICK: That would depend on the load that the engine was pulling. It would be hard to give that.

MR. CARSWELL: It would practically take all the heat?

MR. STORVICK: Yes sir, heating, using an exhaust system for heating feed water will save you approximately fifteen per cent of your fuel and your hot water for washing churns, belts, floors and the like, that will be as nearly as I can get at it.

MEMBER: I would like to ask you in regard to supply to gas tanks?

MR. STORVICK: I am working on that; I have a plan for utilizing that equipment.

MEMBER: What would be the cost of the apparatus in a small creamery?

MR. STORVICK: From $80.00 to $120.00.

Mr. Carswell, President, then called for the report of the Committee on Resolutions, but the members of the committee not being present it was held until the afternoon session.

The meeting was then adjourned until 2 o'clock P. M.

THURSDAY AFTERNOON.

At 2 o'clock P. M. the meeting was again called to order by the President.

Committee on Resolutions present.

Lauritz Olson, Chairman of Committee on Resolutions, read the following resolutions:

We the undersigned Resolution Committee beg leave to submit for your adoption or rejection the following resolutions:

RESOLUTIONS.

RESOLVED, That we extend the thanks of this association to the Civic and Commerce Association of Eau Claire for their many courtesies extended to our officers and members of this convention.

RESOLVED, The thanks of this association be extended to Mayor Fleming of Eau Claire for his very cordial welcome tendered us.

RESOLVED, That association tender its thanks to Hon. S. A. Cook for his continued loyalty to our association and for the beautiful chairs donated by him.

RESOLVED, That we tender our thanks to the Dairy and Food Commissioner, Geo. J. Weigle, for the work he has done in the interest of better dairying in the State of Wisconsin, and for the interest shown our association by donating the beautiful gold watch, as a special prize.

RESOLVED, That we extend the thanks of this association to Dairy and Food Commissioner J. J. Farrell of Minnesota for his very instructive address.

RESOLVED, That we tender the thanks of this association to the judges and superintendent of the butter exhibit, and also the speakers on the program who so freely contributed to the instruction and entertainment of this convention.

RESOLVED, That we tender our thanks to the Eau Claire Creamery Co. and Mr. Guy Speirs, for courtesies extended this association, and visitors to this convention.

RESOLVED, That we appreciate the good work done by the Wisconsin Dairy School, also the Dairy and Food Department and the Scoring Contest.

RESOLVED, That we extend to the officers of this association and especially to our efficient Secretary, Mr. Benkendorf,

our appreciation for their able management of its affairs during the past year and for making this convention a success.

RESOLVED, That we extend our thanks to the Dairy Press, and especially to our official organ, the Butter and Cheese Journal, for the extended publicity given our association.

We also desire to extend our thanks to the Supply and Commission men and other allied interests for the loyal support given our association, both financially and otherwise.

WHEREAS, We oppose the present methods of the carriers of dairy products in their practice of making an extra charge of eight cents for ice per hundred pounds of gross weight of dairy products in the eastern classification territory making an excess charge on these products over the legal rate granted by the Interstate Commerce Commission, and inasmuch as the evidence is now pending before the Commission, we pray the Honorable Body will cancel said charges and let the old rate stand as it has been in operation for over twenty-five years. Therefore, Be it

RESOLVED, That we appreciate the splendid efforts put forth by the officers of the National Creamery Buttermakers' Association in fighting this unjust rate.

RESOLVED further, that the dairy and creamery interests of Wisconsin disapprove the ruling of the Internal Revenue Department, classifying our pure creamery products as "adulterated" when containing sixteen per cent of over moisture.

We further disapprove of their methods in attaching penalties and confiscation of butter, holding same for long periods without adjusting and working hardships to our creameries. Through these practices, there is no equity in their basis of settlement.

And be it Further Resolved, that we protest firmly against being classed with the factories making oleomargarine and adulterated butter,

BE IT RESOLVED, the Wisconsin Buttermakers' Association give its support to the National Dairy Union in the legislation now pending before Congress and that we insist on

the line of demarcation being closely drawn between oleomargarine and pure butter.

RESOLVED further, that we most emphatically protest against the methods of some of our public health officials and other notoriety seekers, in their slanderous public utterances and publications against our dairy products. Such attacks are wholly unfounded as our creamery products are noted the country over as being the highest quality of this product that reaches the consumer through any market in the world. Wisconsin is famed for its excellent and strict sanitary laws and it is a well known fact that these sanitary laws are being strictly complied with in this great industry.

RESOLVED, That this association is in favor of a law compelling all creameries to pasteurize all cream made into butter.

RESOLVED, That the members of this association heartily approve of the rules and regulations of the new license law for creameries and butter and cheese makers, and we pledge our moral support towards carrying out said rules and regulations.

WHEREAS, during late years, some butter is being made from whey cream and as this cream has a tendency to lower the quality of Wisconsin butter, Therefore, Be it Resolved, That this association ask the enactment of a law compelling such butter to be labeled as whey butter.

LAURITZ OLSEN,
ALBERT ERICKSON,
R. P. COLWELL.

MEMBER: I ask that the resolution pertaining to compulsory pasteurization by law be taken up for separate action by the convention.

It was then moved and seconded that the section in said resolution pertaining to compulsory pasteurization by law be either voted on separately or stricken out. The motion was carried unanimously.

MEMBER: What is that about sixteen per cent moisture?

The section was then read again by Mr. Olsen.

MEMBER: That would make an adulteration if butter contained over sixteen per cent.

On motion made and seconded the reslutions were accepted as read, except as to the sections in regard to compulsory pasteurization.

The section on compulsory pasteurization law was then again read by Mr. Olsen.

BY THE PRESIDENT: That is an important resolution and I think it ought to be discussed a little before being voted on.

MR. KEPPEL: Mr. President, it is my belief that we are moving along a wrong line. I don't believe we are getting at the root of the evil. I am readily of the opinion that if you are going to attack it direct, attack it at the root. Pasteurization does not aim at the root, it aims at curing the evil after you have contracted it. It is my conviction that we want to aim at the source and that is the raw material, the farm, that is where we have got to put in our educational work. I think it has been tried out in this state, we want to get it by penalization. I think it can be plainly stated that the observation thus far made that it is soured the person in nine cases out of ten, and he has quit business. We don't want to encourage any man to quit the dairy business, if they do, the burden comes on those that remain. In our locality we have attempted to meet that thing in a way that we feel we are going to reach it, because the little effort we have made thus far has borne good results. In our country the creameries have associated themselves together and hired an instructor, I am informed by one of the creameries where he has had his initiative work, and it has raised the score from that creamery three points in the market. If we can accomplish that in an educational way that is the way we want to get at it. This method of pasteurizing appeals to me like galvanizing a corpse, you can't improve it. I feel that our efforts should be towards the source of our supply. Nature's product is milk, it is the most wholesome food nature has provided. Man comes along and says that it isn't wholesome, it has got to go through a mechanical process. When it reaches the market what

guarantee has he got if it has been pasteurized, if pasteurization is good? It isn't a matter of flavor, you can't identify it,—it is impossible, you have got to take the other fellow's word for it, I believe it will not result in good, it will give a man a chance to hold the public up on what he terms pasteurization. I don't believe any dairyman will refuse when he properly understands the situation to furnish a quality article; we have in our vicinity worked along that line and the improvements last year are very gratifying; we had our annual creamery meeting, had a gathering and included ladies as well as stockholders. We feel that is the proper move to make, we have made some improvement this year. Our results obtained are highly gratifying, and I feel that is the proper thing to do if we can get the results and I believe we can get the results.

MR. CARSWELL: We have gone one better on Nature, we haven't taken it for the purpose Nature intended it, it probably needs pasteurizing for that reason.

MEMBER: I believe if the gentleman improved the butter three points without pasteurization, I believe it would help it still more. I pasteurize and they will always pick it out in the Chicago market ahead of the raw material, it keeps better and makes better butter.

MR. OLSEN: I want to say—I want to explain the reason why we thought it would be advisable to put that in the resolution. There was a time when I didn't think this pasteurizing amounted to much, I didn't think it could be improved. I have pasteurized now for about fifteen months and I want to say that I wouldn't want to go back to making butter from raw milk. We are getting more for our butter and it is giving better satisfaction in our markets. Anything that will improve the quality of the Wisconsin butter is a good thing for the state. We come together and find ways and means by which we can improve our products. That is why we wrote these resolutions, in order to help the Wisconsin butter, and wish the association could stand back and vote for the good of Wisconsin butter.

MEMBER: I want to take sides with Mr. Keppel: What does pasteurizing do, what is it intended to do, I would like to

have some of you answer me. If you have snakes in the cream, and you pasteurize it the snakes are there just the same. You have a clean article of milk from the cow, you have got the best article that God ever furnished to man, he furnished it to him from the cradle to the grave and you can't get anything better, you might improve something that has got snakes in it and that is about it. I don't see how you can get a better article than the pure article of milk; if I make a dirty article I would say by all means pasteurize it, and I will agree with him again, and get the man to put a pure article in the market, don't allow him to give you a dirty article.

MR. CARSWELL: That is the great trouble, you can't produce an absolutely pure milk or cream even. Whenever the milk is taken from the cow and is exposed to the air it is contaminated. By exposing it to the air one instant the minute it leaves the cow it is contaminated to a certain extent. Now, in regard to pasteurizing it creates a wrong impression,—leaves snakes in the milk,—what does a doctor do when he uses linen or gets his instruments sterilized, before making an incision, he always sterilizes it, the germs are around there, that is practically pasteurization of the instrument and materials used by the surgeon.

MR. WHITING: Pasteurization has certainly well improved the quality of butter, and given a better quality of butter. It is fine to work with on the market, it will stand up longer, it don't seem to me that we ought to stand still and let other states go ahead of us, when we know that it is going to be for the good of us all. I have had lots of experience in pasteurizing. I don't approve of pasteurizing filthy cream, I believe we can improve on good cream, I know I can improve the poor too. It makes a safe article on the market, safe for human consumption, the market is going to demand that from now on, I believe.

MR. KEPPEL: I am not here to object to pasteurization, I am here to object to compulsory pasteurization, I don't think we ought to go in and compel all the product to be pasteurized, I say, if the market desires it why don't they come on the market and offer inducements; you can't find any trade journal that of-

fers any quotation of giving more for pasteurized butter. I have glanced through the papers for the last year to find if there was a demand. It hasn't been visibly felt if there is a demand the inducement will be offered. I feel that it is their duty if the trade wants it. We ought not to go to work and say we are not going to pasteurize and give the consuming public no chance for protection; they can't see it in the article that is furnished. If I buy a pail of milk and get raw milk the milk indicates itself what I have got, but with the butter you can't tell. I have been told that by experts that it is hard to tell which is the pasteurized and which is the other. A perfect pasteurization, when there is no flavor left with it, that is the one I have reference to. Isn't it true that an unscrupulous man would offer his butter pasteurized when it isn't? Do you expect we are going to have any product free from germs? I will give you this illustration. Take a calf and give it the raw milk and it will do well. You take a calf a pail of that milk and what would it do? You have a good illustration there, the calf wouldn't do well, he doesn't want the milk in that condition, he wants it as Nature prepared it. You put up a healthy article and continue it, we don't need to offer any inducement.

MEMBER: I think there is a little bit of misunderstanding of the object of pasteurization. Pasteurization never was intended to make a poor article pure, it was never intended to cover up the faults by pasteurization and wherever it is employed we find better methods exist. It means a higher class of people to handle it. That one thing works back to the farm community. You go everywhere where there is pasteurization, by pasteurization they get better results, they ultimately get a better market for their products.

MR. WALLACE: I would like to say that there are a good many things in favor of pasteurization, not only from the standpoint of the consumer but from the standpoint of the buttermaker. You can demand of the farmer a pure cream and if he does not bring it you can tell him why you must have it, you have a chance to refuse his cream because you

can't use it, if you pasteurize, you can say the cream must be in at a certain time. I know pasteurization has improved our cream, both in quality and premium.

MR. MORAN: I think the whole difficulty here is that the scientific end of the proposition don't understand our practical end of it. I think if one of these men advocating pasteurization came to us in our territory we could show them that it is almost impossible under present conditions; we are working to improve them, we haven't got them yet. If you pass a compulsory law at the present time you have no idea of the disadvantage it would put us to. We have been trying to see how much more we could get for our pasteurized butter. We have asked how much more would be given for our product, the best we could get him to offer was a cent difference; we know positively it costs us over a cent a pound to pasteurize, under the best management. I see the editor of the Milwaukee paper shaking his head, that is because he don't know anything about conditions. We get cream of such high acidity that it is impossible to pasteurize it. We asked the man who read the paper how to pasteurize it and he wasn't in a position to explain to us. You are going too rapidly in this; it seems to me you ought to go to the communities, we are not ashamed to have any one come into our territory and see the work we are doing. After starting our methods we are as well advanced as the rest of the state. Why don't some of the gentlemen answer our questions and tell us how to handle the position, how are we going to ripen this cream. Our average test in West Salem is 24 9-10 this year, it is the most we have ever had. You are not true friends of the dairymen when you try to force such things on the people.

MR. LEE: I just came into the hall, but I got enough out of what Mr. Moran had to say. I know the condition he has at West Salem, each man has his own situation to deal with in Wisconsin, the situation, as I figured it for the West Salem creamery, that the cream loss on the handling meant nearly $10-000.00. That was put up to the farmers a year ago, but it was a hard matter to get the farmers to listen. I was at Tomah the

other day, they took in 655,000 pounds of skim milk last year, the highest average test of cream was 23 instead of 30. I was over at Baldwin and they took in last year over 600,000 pounds of skim milk, the cream tested a little less than 24 instead of 30; if either of these places under the present situation and all the conditions in Wisconsin were the same as they are at present the pasteurization and the creamery industry of Wisconsin by a compulsory pasteurization would mean a loss of about $3,000-000.00 to the state of Wisconsin. Boscobel pasteurized this summer at our advice. I went to Boscobel and found them pasteurizing and the buttermaker in charge stated that the amount of fat in the buttermilk was large and the actual loss on the churning in that factory was actually one and one-tenth. We want to pasteurize butter in Wisconsin, it is going to come. I admit that Mr. Moran's question wasn't answered yesterday. They have peculiar conditions to deal with, but the time is coming in Wisconsin when we will get a rich cream, when they get 30 per cent cream. If you can tell me a method to get 30 per cent cream we are going to work it out. A gentleman from Wisconsin, that has done as much for the dairying industry as any one individual said to me last year as he left our office at Madison, he said "Lee, I would pasteurize cream in every one of our factories tomorrow if we could." We have those conditions to deal with; it isn't a question of boasting. I have been accused on several occasions by one of our dairy papers of not furthering the pasteurization law. So I worked it and found that you can't take poor milk and doctor it and make good butter out of it, the thing I was after was to get at the bottom of it and get at the raw material and you do that and you will have good butter. We don't want to pasteurize in order to cover up something else, get a richer cream and every creamery will, of its own accord, take up the pasteurization method.

MR. STORVICK: I have been interested in listening to the arguments, pro and con. I felt that I was well satisfied to keep still. I know what pasteurization will do if properly done, I did some of it in 1898 and I have done more or less of ever since.

The pasteurization law just read to you is coming. The time is coming when pasteurization will be done, I don't know just how you are going to get at it to change these conditions, you will have to take some drastic measures to change them if you cannot pasteurize under present conditions. The loss of $10,000 from one creamery is something the dairymen can hardly stand. Some of our men in Minnesota had the same conditions to deal with and until they made the distinction in price they were unable to get a richer cream. There is no doubt but what there is every argument in favor of pasteurization and much good has been done. The winners at this contest or any other contest wouldn't have been the winners if they hadn't used this method of making butter. It makes a safer butter ,a more uniform butter, and a better keeping quality butter. Our silent partner of the east is going to come out some time and have something to say to us about the butter we ship down there. He is paying his cash for it and furnishing the cash to all of us; some time he is coming out here and look after his interests a little. We have got to use our best efforts, and remember this, we can't drift along at all, as a raft would, down the stream, we are going to get out of our geographical location if we do, we have got to take stand and we have got to do something. There is no more unrest in the dairy lines today than there ever was and it is not so much with me, as I said, of a law, as it is of the creamery men and the dairymen to realize, the producers and creamery men will have to look forward to better methods and to adjust their conditions, to change their conditions so as to warrant better methods in the creamery.

MR. CARSWELL: Before putting this to a vote I want to say a few words in regard to the conditions in a good many of the gathered cream plants where they work on the system as at Baldwin and also West Salem and a good many other of the biggest creameries in this state; how they are going to keep putting up with the excessive losses and it comes more directly on the good patrons because the patrons that are furnishing cream that passes from 28 to 35 per cent are standing that loss with the fellows that are only furnishing 16 up to 25 per cent cream.

That is not fair to the patrons delivering to the hauler on the route, and a good article containing a reasonable percentage of butter fat should stand the losses of the other farmer. Just for some peculiar notion that has got into his head you can't induce him to turn in that cream score. Why should one have to stand the loss of the other? We have that same condition, partly because the man at our creamery gets the buttermilk back and don't lose anything by missing a lot of skim milk. I have talked with them and we have tried to induce them to increase the percentage of fat in their cream; 25 per cent was our average test last year. I brought it up at our annual meeting this year. I don't presume I ought to have the authority to compel you farmers to adopt a different system from what you have been doing. It is up to you.

MR. KEPPELL: I think there is one matter in our affair that you don't cover. It is stated that you make a difference to the patrons furnishing high cream or the low testing cream. We have had that for several years in this way, we make a man pay for the cost of hauling 100 pounds of cream, we pay for that cream on the basis of butter fat, so if he furnishes a high testing cream he pays less for the pound of butter fat than the man with the low test, that is penalizing. There are men in our creamery that pay less than one cent and others that pay two.

MR. CARSWELL: What is your average test?

MR. KEPPELL: Last year it was 23, it is moving ahead, we felt when we touch the men's pocket book it would come, it is coming, but not as fast as we expected it would, we have started this matter of education, a campaign of education, I believe we will get the greatest results of any campaign along that line.

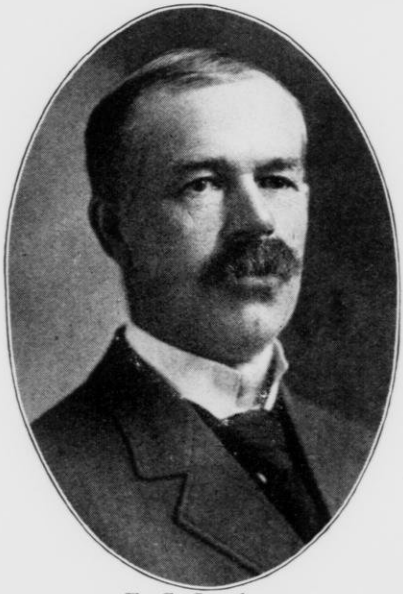
On motion made and seconded a rising vote was taken as to the acceptance or rejection of the resolution covering the compulsory pasteurization of cream, and the resolution was rejected.

E. C. Jacobs, of Elk Mound, then made the following address, entitled "The Relation of the Creamery to the Patron."

THE RELATION OF THE CREAMERY TO THE PATRON

By E. C. Jacobs, Elk Mound.

Mr. Chairman, Ladies and Gentlemen: I have listened with a good deal of attention to the meeting thus far and I have felt that perhaps there was a good deal being done for the farmer that he didn't realize; I am sorry there hasn't been more co-operation in this meeting—that the farmer wasn't present to note the effort that was being made, really, in his behalf; there hasn't been much said about doing things for the farmer for his benefit, it has mostly been along the line of doing things to him.



E. C. Jacobs

Now, in my understanding of this, I want to say at the start, that I am very little of a creamery man and a good deal of a farmer, because I am a farmer all the time and so what I have to say will be from the farmer's standpoint, but I enjoy getting on the other side and looking at it from the creamery-man's standpoint sometimes as well. I believe that is pretty

nearly as important—that the creamery man get over onto the farm and see what the problems there are, and as to the farmer he should get to the creamery meetings and see what effort is being made along that line.

I want to say in behalf of the farmers that I think the creamery business is the best business along the dairy line, dairy farming is the best farming there is. And creamery farming—selling cream from the farm, I believe, in the long run, is the most profitable for the farmer. I know there is a sentiment many times that farmers are influenced by the prices that are obtained by people who sell milk directly to the milk market or the cheese factory. But after seeing their platforms and after observing the conditions I believe that those people are really in accord with the dairyman in Hoard's Dairyman, who says that of all the different classes of farmers the men who were furnishing cream to the creamery were in the long run the most prosperous.

There is an element of future prosperity that we sometimes do not look to with enough importance, the filling up of the herd; the increase in the fertility of the soil that comes from the creamery business is something that should not be passed lightly by. So I think we should give our most loyal support to that creamery. I think that there is a lack of co-operation in this creamery work,—a lack of co-operation between the farmers and the creamery organization, whether that organization is an individual factory or whether it is a co-operative organization entirely.

Now, there are points, there are some places I believe where the individual or stock company may serve better than the co-operative creamery, special markets, special places where city markets can be served, where the individual creamery is probably an idle organization for that point. To make the butter and put it upon the market directly I believe that the co-operative creamery should be organized with as near every patron being a stockholder as possible. The idea in my mind is that every patron should be a member of that organization, he

should feel an affiliation toward that organization and not feel that he can pack up any time and turn all his goods over to somebody else.

Many times we do not look enough on the other side of these questions; I believe that the officers of this co-operative creamery should make every effort to have that farmer understand just what is being done in that factory, in other words, to play the game with the cards face up on the table, so that in his statement that he receives each month there should be noted there the amount of butter overrun and the average tests and the amount received for butter and the amount paid for the different expenses of the creamery and the amount left to be divided among the patrons. And now when the farmer sees that kind of a statement and the confidence of the men who they have elected to serve them, it should at last give him a sense of satisfaction with that organization, because he knows whatever has been brought into that creamery is divided upon an equitable basis. There should be no more reason why that farmer should want to go to another creamery than that he should want to move his farm out of the town in which he lives because the town officers don't suit him. It is his business if that creamery is not up to his ideal, if the business is not being conducted as he thinks it should be, to see to it at the next annual election or meeting that officers should be elected that should fulfill his ideals.

On the other hand, there are certain things that the creamery—that the officers of the creamery should know, that they may make known to the other members, about the way that the farmer conducts his business. When we go into a co-operative enterprise to a certain extent we are giving up some of our independence; the original thirteen colonies had to give up some of their independence in order to form this nation. We must subordinate the state to the national authorities and so when we join a co-operative enterprise, to a certain extent we give up our independence. When we join with our neighbors in pooling our material we have to a certain extent given up our independence as American citizens of producing dirty and filthy milk;

we have no longer any right to do that because other people, not only those who are pooling our milk or cream, but also the consumer, has a right to know what we are doing and so I believe that there is an important factor and an important work with this co-operative organization should undertake. It has been suggested here and I am very glad to know the action that was taken at this Clear Lake creamery of which the people want to be heard. They are willing as a whole to vote for conditions which would bring about better material and I believe that it could be done in the best way in the co-operative creamery, as you will all probably agree with me, the larger part of patrons are producing reasonably clean product and the few of them don't like to get in trouble with their neighbors, they don't find fault with them, but they know certain conditions exist which should not exist.

Now, I believe it is my neighbor's right that is in this organization to know what kind of a product I am producing if I keep putting it with his to sell. I have a right to know, that is, I believe it is the officers duty to find out what conditions exist upon that farm, whether that farm has a clean barn, one fit to put cows in, whether those cows are clean, where that separator stands, whether in a dirty place or not and whether that separator is washed once a day or twice a day or once a week. I believe that we have a right to know that and when we know that the matter is going to cure itself many times. Why isn't it a fair proposition that we should have card indexes in that creamery indicating that condition? When those things are known—when John Jones knows that the world knows, then anybody can see by coming to his place, it is going to be a long step, I believe, toward curing that fault.

Now, brother farmers, I believe you must be all farmers, you look like it anyway, I believe that after listening to the interest that has been taken to elevate our butter, we ought to take some interest in it ourselves, isn't it so? Even whether this creamery means to the creamery man, the owner of the creamery or the officers, whether that is a high-priced product or not, the

creamery has got to pay its expenses, pay the buttermaker, pay a reasonable interest on the capital, whether it is a private owned creamery or not, and that margin has got to be about the same, whether it is a high priced product or not, so even whether it is a good product or not is going to come to your pocket or mine and not to the manager's or the buttermaker's pocket, so it is for our interest that the product be improved. I believe we should take the initiative. I believe we should all work together towards bringing about better conditions.

One of the serious things which in my mind presents itself, is the loss of our interest in this work. When the cream hauler comes to our place and takes up cream and the load goes in, we have no incentive to increase our efforts if we have furnished an excellent quality of product, we get no commendation, if we have put in a very poor one we get no censure. It is pretty hard to expect human nature is going to respond absolutely from a moral and sentimental standpoint in the matter of business; we have got to make that incentive something stronger, even in being a good fellow to do that. So there is one of the hard things to bring about is because of our lack of dignity. In the old days when we made our own butter and took that butter to the kitchen door and met the consumer face to face we were on our honor to make good stuff, there was no dodging responsibility, it was up to us. So that brought us to a higher standard and we made and took care of those things we had an encouragement all along to do that. There was a penalty and a prize to be obtained. We lose a good deal of that in this pooling proposition, but I believe that if we have a report from every farm of those definite conditions it is going to spur us up to want to see our report reasonably good; anyway we don't expect perfect conditions, we don't expect ideal product but we have a right to expect a much better one than we do.

Now, as to washing the separator,—that alone, I believe, would revolutionize almost this cream business, we would find out, I think, a very much higher product if that separator was washed every time it is used and the utensils were washed as

they should be, so I believe that the man today, without anybody's knowing it, without his neighbor's knowing absolutely whether it was being washed out or not, they would not want that report to go in and be on file that they didn't wash, so I believe those things will aid us in getting a better product.

There is another feature that the co-operative creameries are, I think, very lax about, that might help a great deal, that is, co-operation stops so near home. There is no endeavor to co-operate with our neighbors just over the lines of our creamery, over in the next town. They are treating each other a good deal as the Germans and the French are treating each other, there is a warfare, which there should not be. Very many times we are adding a burden to ourselves when we are not co-operating with them, when we are doing the reverse, running our wagons over their territory and forbidding them to run theirs over ours. Very many times our co-operative creameries have plenty of business, but still there is that reaching out into the other man's territory. We are simply making more expense for ourselves, and we are preventing putting into operation better conditions in our own factories, as far as improvement is concerned. Let us look upon that territory as belonging to that creamery, upon that creamery as being ours, and that the only way to get out of it is to sell our farm and move to some other town, if we don't like the one we are in.

I thank you. (Applause).

The President then invited the members to open discussions, but no discussions were made.

Hon. S. A. Cook, of Neenah, then addressed the meeting as follows:

Mr. President, Ladies, Members of the Wisconsin Buttermakers' Association and Farmers: I feel it a great honor to be called before an assemblage of men and women who are interested in the higher development of one of Wisconsin's most important branches of commerce—the manufacture of pure, nutritious butter.

It is a great satisfaction to know that the intelligent discussion of scientific theory, and the application of brawn and brains in practice by the members of this association, have resulted in giving Wisconsin a big area in the world's dairy map, and advancing her to the front column in competition for the finest quality of butter sold in the great markets today.

There is not a dairy region in the world that does not know Wisconsin, is openly in competition with it, through her courageous, industrious, intelligent, and persistent stock raisers, dairymen, and butter and cheese makers, for the blue ribbon of the dairy progress.

But this great industry, of which we are all proud, is in danger from the elements you have to contend with among yourselves. The greatest factor that can be applied to save the butter industry is a more uniform high grade, and more of it, without increasing too greatly the overhead or fixed charges. You cannot remain stationary; you are either going ahead or going backward.

The great industries of Wisconsin, butter and cheese, are so closely connected, each drawing its supply from the same source, that the success or failure of one must necessarily affect the other; so I trust you will permit me to refer to both as I did in the annual convention of the cheese makers a month ago, and if anything I say does not meet your approval, I hope you will consider it in the same kindly spirit for good in which I state it.

As stated, a high standard has been reached by many of you, but you are confronted with the proposition how to hold that position. You must advance, and to do so, you must have with you the support of those who are now content to be let alone. It is the indifferent farmer and careless buttermaker you have most to fear.

The farmer is to blame if he brings his milk to the factory in unclean cans and in condition that would make it a crime to allow the members of his own family to use the contents for food. The buttermaker commits a greater crime in receiving

such milk. He is deceiving the public as to the cleanliness and wholesomeness of his butter, and is wronging every one of the patrons who is bringing to his factory first class milk in first class condition.

The great success, for which your organization contends, can be reached only through education and co-operation of your members for better work in the art of buttermaking, the weeding out of the incompetent, the receiving of milk, and the care and management of the factory by thoroughly competent men only; also a demand for rigid enforcement of such laws as will protect the manufacture of honest dairy products against unjust competition from dangerous filth and deceitful imitations. You cannot tolerate a dishonest man in your organization.

To succeed in life or to be worthy of genuine success, we must carry into our work a thorough knowledge, not merely "I think I understand it," but let the world know that we thoroughly understand our business and have a reserve of knowledge in ourselves more than we are using.

Do not depend on luck, many more have followed it to ruin than to success. Napoleon followed luck under the name of destiny to his ruin, his army of brave men fell around him ,and Waterloo was lost.

It is not work alone that kills, worry is the great factor. It is not movement that destroys machinery, it is friction.

Worry is a disease, it sometimes becomes a crime, many men we meet act as if they were looking out for trouble and something to worry over, and disappointed if they do not find it.

This is an age of concentration and energy. The man or woman who concentrates his energy on a legitimate industry must succeed, and no matter how humble the calling. The success by his own energy makes him a benefactor to his fellowmen and his success is bound to be recognized.

Let us guard well the talent God has given us, be steadfast in our honest efforts for success, and we may succeed, not alone for ourselves, but we may also be a benefit to the country wherein we live and to our state and nation.

The chairs which I have, for some years, been offering to those who secure the highest mark for excellence in butter produce, I hope are of some use in the homes of the winners, but that value is a small part of the good hoped for, namely, that the prizes will be an incentive to stir all the buttermakers of Wisconsin to a pride and determination to have every pound of their butter just as good as the best made in Wisconsin, and appreciation of the fact that the best made in Wisconsin is good enough for any market.

No branch of agriculture in the state has made greater progress than the butter and cheese making industries during the past few years, and still the opportunities for further progress are very great. Those industries are yet almost in their infancy, when we consider the vast area of land suitable for dairy farming yet undeveloped.

The markets of the world are, each year, becoming better acquainted with the high grade of butter and cheese of Wisconsin, and will take all the surplus if the product shall become many times what it is now.

Generally speaking there is no market like a home market and I have in mind the thought that if the Agricultural Department of this nation would open up a bureau of direct information to educate our people to the true value of pure butter and cheese as an every day food product, and not as a luxury, and thereby cause each one of the people to use even the small amount of from three to five pounds more of butter and cheese per year than he is now using, it would mean a home market for from three to five hundred million pounds of each product more than is now being used. The government's report shows that Wisconsin has 1,680,000 cows. There is ample room for several times that number. Is it not worth a concerted effort for a bureau of education? It is very important to thoroughly understand how to produce a first-class article at minimum cost, but it is of vital importance that you have a market for your product. You can not afford to sit down and wait for the market to come to you. But it is your duty to go after the market,

the consumers of your product. There are other methods you might use by concerted action to reach the consumer; the opportunities are yours, and the success rests with you.

The present alone is yours; wasted opportunities may be regretted. There should be no such words as "Can not" among the great body of physically strong, educated men and women in the great agricultural and dairy industry of our state. It is only through perseverance that we are able to overcome the opposition we meet in life; our greatest successes are surrounded by most trying difficulties.

The man who feels he knows all there is to be known about his profession, who does not realize the importance of promptness, honesty, and cleanliness in the factory, the office, or bank, and who does not continue to improve each year, may rightfully be termed a misfit, and the sooner he makes a change, the better.

I see by your annual report of a year ago that you honored me with a life membership in your organization. Your action in the matter is deeply appreciated by me and I hope I may ever be worthy of having my name on your books as a member.

I am perhaps a stranger to some present, and I think it only fair to them and to all of you that you know more of me. In submitting the remarks that I have to you, I do so just as a plain, busy man who believes in trying at all times to do his duty as he sees it to be, and has to do with. Although not born in this country, I am an American citizen by choice and by adoption, the greatest opportunity and most sacred privilege offered to man. We cannot be citizens of two countries at the same time. I have, and grant the same privilege to others to have a kindly feeling for the country that gave us birth, but I love this country better than any other in the world, and I love our flag better than any other flag. It stands for peace and purity and for the protection of all the people in their religious beliefs, political ideas, and legitimate industries. It is the emblem of a great country peopled with the best people on earth. And further, with due regard for the feelings of others, I am a believer in plain talk. I believe in admitting things that are wrong,

when they are wrong, and that a remedy to cure those wrongs be applied without the loss of time.

I believe that this state and nation has been, for some years, overburdened with talk of reform, and that about the only real evidence we have of reform, as talked, is increase in our taxes and the discouragement of men from undertaking the development of enterprises requiring capital, brains, and energy, a condition which has a damaging effect on the working men and on marketing the products of the farm. The seeming effort on the part of agitators to incite class prejudice, and encourage the workingman to feel that every person striving on the farm or in other lines of industry to develop the resources of our state, is an enemy of the working man and a public nuisance, brands their cause as unrighteous and themselves as worthy only of contempt.

I believe in actual reform through honest building up and not by destroying. I believe that honest and fair treatment of our fellow men while living is better than a tombstone placed over their graves, telling of their good traits, after they are dead.

We should each try, while living, to build our monuments in character and have it of that nature that it may redound to our credit while in active life and be of lasting future benefit and usefulness as an example to our fellow men.

This meeting is one of the many that prove to the world that no other nation has the equal of intelligent men, loyal mothers, wives and daughters of this country. Are the mothers wives and daughters getting their share of the benefits that flow from the great help they contribute in carrying their share of the burden necessary for success in your good work? Is the home being made so pleasant and their surroundings such that they prefer that home to any other place on earth?

With a happy home and earnest thoughtful care on your part, success must come, and may He, who controls the destiny of men, bless and prosper you in your every earnest effort. I thank you. (Great applause).

The President then introduced the question of the time of the year in which the annual convention should be held, and stated he would like to hear the views of the different members on that question.

MEMBER: I don't know whether I would do anything or not. I didn't hear the discussion yesterday. I just had the privilege of getting over here today. I am very sorry. I am enthusiastic about a bunch of buttermakers and farmers and so on, at this meeting—I have been to several state conventions, but I don't believe we have a better or more enthusiastic bunch than we have here at this convention.

In regard to holding our annual meeting at the coldest month in the year, here is my condition. I would have been over here with you yesterday only we had one of our furnace pipes burst on us night before last, on account of the cold weather, and that was the condition that held me away. Another condition of mine, our annual meetings are pulled off at this time of the year and we all know that the time of our annual meeting is the busiest time for all of us. We are expected at that time to have our records up to date and have them so that the board of directors and stockholders can see what we as buttermakers have been doing during the past year and I therefore would be very enthusiastic about holding our annual meeting earlier, if possible; I don't see why we couldn't hold them earlier. There are some boys that have helpers and at that time of the year we have two helpers, or one helper. We don't usually have them at this time of the year unless our business permits; if it does, well and good. But you know the agitation starts on our board of directors on the first or fifteenth of December, when you have got to let your helper go. I therefore say that we would be glad to know why we shouldn't hold our convention earlier. The Minnesota boys hold theirs early in November. I believe they can get a better make—make a better piece of butter for their convntion than we can. I therefore, as one, would vote that we hold our annual convention around the last part of November or the first part of December.

SECRETARY BENKENDORF: I think it is a good thing to bring this question up. It has always been agitated more or less; several years ago I tried to have the convention held in the fall, but the other officers were opposed to it. The constitution provides that the officers of the association determine when the convention should be held and where. We had a meeting at Madison. Some of us wanted to hold it in the fall and the rest of them in the spring; they finally voted it down, and since that time the question has never been raised until now, when the President took it up. Personally I think it is a nice thing to have the convention in the fall. I don't think it will be advisable next year, for the simple reason that the national convention will be held early in November at Minneapolis and I don't think it would be advisable to hold a national convention in Minneapolis in November and two weeks later hold our state convention in Wisconsin. I hardly think it would be advisable to hold the two so close together. As I said before, I took the matter up especially about four or five years ago and was gloriously defeated, but if they want to have it in the fall I would be glad to have it. But the officers of the association, according to the constitution, reserve the right to determine when the association shall hold its meeting; no doubt the officers would be glad to welcome any suggestions that the members may make.

LAURITZ OLSEN: It has always been customary to hold the conventions the first week in February. Mr. Secretary speaks of holding the national convention the first week in November. There is more or less objection to holding them around the first or the last of the month, because there is testing and records to be got through; when you hold it the thirty-first or the first you can't go ahead of time to make up your records. Sometimes the secretary of the creamery wants these records. Can't it be held far enough from the first or last of the month to help the boys in figuring up on the cream? In regard to holding the convention in the fall, I suppose if you hold it in the fall I will manage to get there, but the Wisconsin Dairy School starts the first of November and, as a rule, many of the helpers go to the school.

If you have your convention along in November your best helper is gone; it is as broad as it is long; whenever you had it conditions will arise that will interfere with it.

MR. WHITING: Our National Convention is to be about the first of November, or around there, this year, but will it not be so other times?

MR. CARSWELL: Well, I suppose if they hold it in Wisconsin they will probably hold out our date and have it come in February. I understand that the state convention will be practically done away with the year the national convention is held in Wisconsin. It will probably be no more or less than a business meeting. The program will be taken up by the national convention, just hold an evening meeting, elect officers for the ensuing year and business that is necessary to be brought up and the meeting adjourned, and the state convention will probably be called off for that year. I want to say that if we did hold it in the fall it wouldn't cut any ice. How many buttermakers in Wisconsin went to Mason City to the national convention? Not over a dozen, how many more are going to St. Paul or Minneapolis? The real live wires will go to the state and not to the national convention, whenever they can get there.

MR. KEPPELL: I move to bring it before the house that the officers be instructed to call their next convention the first week in December in each year.

MR. CARSWELL: I suggest that they leave it with the officers to hold it in the fall at the most convenient date.

The motion was then made and seconded that the sense of the meeting is that the date of the convention be changed from the winter to some time in the fall, at the discretion of the officers.

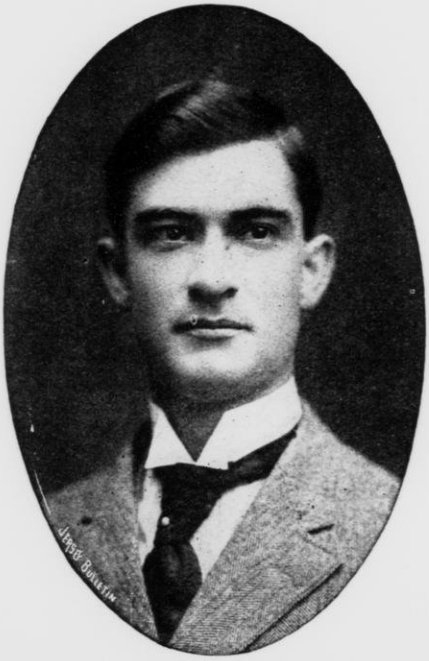
The motion was carried.

Mr. J. D. Jarvis, of the Dairy Department, DeLaval Separator Company, Chicago, then delivered the following address, his subject being "Care of Cream on the Farm."

CARE OF CREAM ON THE FARM.

By J. D. Jarvis, Chicago.

Mr. President, and Ladies and Gentlemen: A person is interested in an article or subject only to the extent that the article or subject will benefit him. The care of cream on the farm will interest you only to the extent of the price you will receive for the butter-fat in your cream. The price you receive for your cream as a rule is determined by the price your creamery receives for its butter. The price the creamery receives for its butter



J. D. Jarvis

depends upon uniform quality butter. It stands to reason that extra quality butter can not be made from poor quality cream. You know, that the best quality bread cannot be made out of poor quality flour or wheat and you sell your wheat according to quality. Your cream buyer knows this to be true and you

and he also know that extra quality butter cannot be made out of second or third grade (quality) cream. So beware of the cream buyer that tells you he would just as soon have old, sour, rotten cream as good, clean, sweet-flavored cream.

Today, competition in many localities is keen among the cream buyers and they force one another to accept anything that looks like cream. When the cream buyer pays your neighbor just as much per pound butter-fat for a can of old, sour, rotten abused cream as he does you for a can of good, clean-flavored, properly kept sweet cream, he is paying the neighbor for something he is not getting and if there is such a thing as under or over reading the Babcock butter-fat test, the chances are that it will be the can of sour cream that will cause the trouble.

According to the Dairy Division of the United States Department of Agriculture,—there is manufactured annually over 627,000,000 pounds of creamery butter and 995,000,000 pounds of farm butter, or a total of over 1,500,000,000 pounds of butter. From reliable information only 15 per cent of this butter grades as extras or best quality butter, while the remaining 85 per cent grades from firsts to packing stock, the poorest quality butter. There is an average range in the market price between extras, firsts and seconds of four cents per pound and between seconds and packing stock of eight cents per pound.

It is prudence to assume that the butter-fat in the packing stock butter was as pure, clean and wholesome as the butter-fat in the extra quality butter when it was drawn from the cow at the time of milking and this difference in quality and price is due to neglect or lack of intelligence in taking proper care of the butter-fat from time of milking until the butter is consumed. Taking the lowest range, four cents per pound, on 1,500,000,000 pounds of butter, the loss due to neglect or ignorance would be $60,000,000.

This large sum of money, if saved, would benefit the farmer, creamery operator and the consuming public because more daily cash money placed into the trade channels will help business in general. For this reason everybody should be inter-

ested in better quality cream and better quality butter. The quality of cream depends to a great extent upon the care cream receives on the farm. There are three chief factors to be considered in taking care of cream on the farm; namely, Cleanliness, Rich Cream and Cold Temperature.

Cleanliness.

The care of cream begins the moment milk is drawn from the udder of the cow and since milk is one of the most delicate and nourishing human foods, it is of utmost importance that it should be produced under proper sanitation and cleanliness. The cows should be kept clean and healthy; they should receive wholesome feed and kind, gentle treatment. The milkers and all who handle the milk or cream should appreciate cleanliness and thoroughly clean the stable and all dairy utensils (pails, strainers, cans, separator bowl and tinware) every time they are used.

A good housewife does not leave the supper dishes stand over night and use them again for breakfast without first washing them. And still, the small amount of food particles left on the supper dishes is far less repulsive and objectionable than the dirty, filthy, often bloody, pus matter that collects as slime in the separator bowl.

The tinware and the separator bowl should be washed as follows: — First, they should be rinsed in luke warm water to remove all milk particles; then, they should be thoroughly scrubbed with a brush in warm water to which a good washing powder has been added; next, they should be immersed for a few minutes in boiling water. After this, they should be inverted and allowed to dry. Tinware when not in use should be placed in pure air and sunlight because these agencies will destroy undesirable germs.

Milk and cream absorb odors like a dry sponge absorbs water. Mainly for this reason do not feed the cows strong flavored feeds, like silage, cabbage, turnips, etc., just before or at milking time. Do not keep cream in musty cellars or near strong smelling vegetables or in the cooking odors of the kitchen. If

you have a milk house do not let the men or boys use it to store their felt boots, overalls, old harness or any other strong smelling material.

Rich Cream.

Rich cream will keep better than thin cream just as thin cream will keep sweet longer than milk. It is also for economic reasons to the cream patron and to the creamery that they should agree upon a cream testing between 30 and 45 per cent butter-fat. Rich or heavy testing cream is more profitable to the creamery patrons than thin cream because:

(1) He has his butter-fat in smaller bulk, needs fewer cream cans and a smaller cooling tank.

(2) His heavy cream will not sour as quickly as thin cream and it requires less ice or cold water to quickly cool.

(3) He takes better care of a smaller amount of cream and thereby produces a better quality cream.

(4) He has less bulk to haul or ship to creamery and thereby saves transportation charges on the same.

(5) He retains a larger amount of wholesome skim milk for feed.

(6) He receives a better grade and hence a better price for his butter-fat.

Rich or heavy testing cream is more profitable to the creamery because:

(1) It reduces the amount of cream to handle, reduces the amount of buttermilk, hence less pounds of butter-fat loss and requires less labor in operating creamery.

(2) It enables the operator to increase the capacity of creamery.

(3) Where cream is pasteurized it prevents the abnormal loss of butter-fat in buttermilk.

(4) It gives a larger overrun, thus reducing cost of manufacture.

(5) It improves the quality of butter by receiving a better quality cream and by permitting the use of a more clean high-flavored starter.

In order to accomplish the best results, it is advisable to have the patrons skim a cream testing from 40 to 45 per cent during the summer months, and from 30 to 35 per cent during the winter months.

Cold Temperature.

During our thirty years' business with farmers and farmers' wives, we have learned that, as a rule, they are willing and anxious to do their best. The principal difficulty is due to lack of facilities or not realizing just what is needed. In order to throw some light on the subject, "Cold Temperature" and to demonstrate to the creamery operator, large or small, as well as to the farmer, just what can be done, the De Laval Department of Dairy Development undertook, in 1913, an extensive experiment on controlling the temperature of cream on the farm by means of well water and a properly insulated tank or cooler.

From experimental data, temperature control is the big factor in assisting or preventing the growth of germ life, (bacteria, yeast, mold, etc.) Two samples of milk were kept at 50 and 70 degrees respectively, and after a period of 24 hours there were five bacteria for every one at the beginning in the milk at 50 degrees, while there were seven hundred fifty bacteria for every one at the beginning in the milk at 70 degrees. Thus a difference of 20 degrees in 24 hours multiplied the number of bacteria in the 70 degree milk by 150 over the number of bacteria in the 50 degree milk.

In most states, the temperature of well water is below 60 degrees and from the above mentioned experiment, bacterial development was very slow below 60 degrees temperature. The thought suggested itself, that if we could keep the cream at the temperature of well water, nine-tenths of our poor quality cream troubles would be over. Some farmers do keep their cream in cans hung in wells or cisterns, but there is a chance for dirt, dust and foreign materials falling into it as well as the cream absorbing the stale, dank odor of the air which is in the bottom of the well.

The thermos bottle and fireless cooker have demonstrated that keeping cold water cold, or hot water hot, is merely a matter of insulation. We, therefore, conceived the idea that a tank, which is perfectly insulated on top, bottom and sides and connected up, so all the water pumped for stock purposes would flow through it, the water would always be at practically the same temperature of well water and a can of cream kept in it would be cold enough to keep it in good condition for several days.

All the available data relating to the heat resisting properties of wood, various metals, felt, charcoal, sawdust, cork, paper, vacuum and various patented materials were considered and the manufacturers of thermos bottles and fireless cookers were consulted. A large number of sample tanks were made and carefully experimented with. A ten gallon can of cream kept in one of these tanks, temperature of water at 54 degrees, and in a room averaging 100 degrees in day time and 85 degrees at night had a temperature of 59½ degrees at the end of the week—a rise of 5½ degrees in that period of time.

In order to prevent the mixing of warm cream with cold cream (cream of older separation), a small two gallon can is used for the warm cream and then lowered into the tank through the small square opening in the back. The can is held down by a convenient latch which engages the square ends of the handle. A cream stirrer can be left in the small can so the cream may be stirred at frequent intervals until thoroughly cooled. The lid to the compartment for the small can is ventilated, thus allowing the animal odors and vapors to escape. Just before the next separation the cream in the small can is emptied into the delivery or shipping can in the large compartment. It is then washed and ready for the next separation. The tank is intended to be set outdoors, where the air is fresh and pure, a place between the well and the stock tank, so all the water pumped daily for stock purposes flows through it. The insulation is so perfect that it is not necessary to have the tank under a roof. Even when it stands in the direct rays of the sun in the hottest

summer or in the sharp cold winds of the coldest winter, the water in it will be within a few degrees of the temperature of the well water, if the water required for six horses or cows flows through it.

During the Spring of 1914 we had fifty of these tanks constructed and we loaned them to patrons of creameries in North and South Dakota, Kansas and Oklahoma. They were put out under the supervision of our Dairy and Creamery advisory experts and the results were very gratifying. Many farmers, who before they used these tanks, were delivering the poorest cream, immediately began furnishing the best cream. Buttermakers were surprised and could hardly believe their own eyes. In one case cream was kept perfectly sweet for over a period of one week during very hot weather. These tanks also gave good service where used during the winter, because if they were able to keep out heat, they were likewise able to keep out cold.

The experiment had the desired result. It attracted attention of creamery-men and cream producers all over the country and the American Association of Creamery Butter Manufacturers and the Dairy Schools took up this movement of better quality cream by recommending the use of tanks similar to those used by us. It is now possbile for those who desire to purchase similar cream tanks to obtain them by writing either the Dairy Supply Houses, the Secretary of the American Association of Creamery Butter Manufacturers, Chicago, Ill., or your local creamery.

The DeLaval Separator Company did not intend to manufacture or market cream tanks. This practical experiment was purely for educational purposes and our sole thought was to show the way for improving the quality of cream by taking better care of the cream on the farm.

In summarizing: the following factors will enable the farmer to produce a better quality of cream on the farm:—

(1) Clean, healthy cows, fed wholesome feed and kept in clean, well lighted and well ventilated stables.

(2 Clean, healthy milkers who appreciate cleanliness.

(3) Clean utensils, pails, strainers, cans, separator bowl and tinware thoroughly cleaned and sterilized every time they are used.

(4) Skim a cream testing between 30 and 45 per cent butter-fat.

(5) Cool cream quickly to temperature of well water and control the temperature of all by use of a well insulated cream tank similar to the aforesaid.

(6) By using cleanliness, rich cream and a properly insulated cream tank, a better quality of cream can be produced on the farms of the United States and the annual 60 million dollar loss will be considerably reduced.

I thank you. (Applause).

The President then called for an open discussion.

DISCUSSION.

MR. WHITING: I would like to know where those tanks may be obtained and at what price?

MR. JARVIS: The tanks are constructed of metal. These tanks we use in this experiment were constructed of heavy galvanized iron and had two inches of cork insulation and the dairy supply houses today are making a tank very nearly that kind, and they are also making a wooden tank. The wooden tank is like a small silo; it is constructed out of two-inch fir and is giving good satisfaction. Prof. Frandzon of the University of Nebraska is carrying on his work with this particular cooler and this winter, with the temperature from 6 to 10 below zero all he placed over that wooden tank was an ordinary blanket and the water in the tank was not frozen in twenty-four hours.

MEMBER: You say nothing about ventilation of the barns, which is now an important subject on the farm.

MR. JARVIS: My subject is the care of cream on the farm. It would take a long time to go into all those other details, covering different points.

MEMBER: What is the expense of the tank?

MR. JARVIS: Twelve dollars for the wooden one.

MEMBER: What size?

MR. JARVIS: It will hold a ten-gallon can or any smaller sized can, from ten gallons down, and the galvanized iron tanks are, I believe, $20.00. These cost in the neighborhood of $35.00 apiece, but we just about give the tanks away to the people to experiment with.

MEMBER: Are the tanks now made by the manufacturers as good as you put it?

MR. JARVIS: As I say, Prof. Frandzon of Nebraska is this winter using the tanks, and, as I said, is getting results by throwing a blanket over the tank with the temperature 6 below the tanks didn't freeze in 24 hours. If you place the water for six horses or six cows, in 24 hours that has never frozen in the water tank, and the same would apply to cream or milk. The tank is so constructed that there is a little patented ventilator installed so that dust cannot blow into it, and the gas can easily escape.

MEMBER: This wooden tank was not insulated?

MR. JARVIS: With two inches of fir.

MEMBER: Have you had any experience with the Winona Fiber Company?

MR. JARVIS: Yes sir, we have had some of that material in some of the tanks, and it gave good satisfaction.

MR. OLSON: I might give you some of my experiences; several years ago, over seventeen years ago, I recommended to my farmers to cut a barrel in two and set a board down two inches from the bottom and pump the water between the board and the side of the barrel, the water would come up around, so it wouldn't sink and put it that way between your pump and your water tank. I fixed it at the creamery so the farmers could see it and they many of them adopted them.

MR. JARVIS: That information isn't new. In the early days, before they had the hand separator, they delivered milk twice a day to the creamery in Wisconsin, today where they use cheese factories they deliver twice a day, but the farmer, like all human beings, wants to follow the lines of the least resist-

ance and if you tell him he can construct a barrel, which he can, if they have to pay for something and it costs them something, they are more interested; that is human nature. You can build this tank yourself if you only have the gumption to go ahead and do so, but if you pay for something it costs you something, you are going to take care of it.

MEMBER: I found more trouble by not caring for it after separation than any other case, the proper care of the cream after it is separated is the great thing.

MR. JACOBS: I hope you didn't tell them they didn't need to wash that separator more than once a day or once a week.

THE WORK OF THE WISCONSIN DEPARTMENT OF AGRICULTURE FOR THE FARMERS OF THE STATE. SPECIAL REFERENCE TO A NEW PLAN FOR THE ESTABLISHMENT OF "TUBERCULOSIS FREE" HERDS.

By C. P. Norgord, Commissioner of Agriculture.

Members of the Wisconsin Buttermakers' Convention. Ladies and Gentlemen: I appreciate the opportunity of speaking before this splendid gathering of the buttermakers of Wisconsin, for I realize that you are in contact with more farmers in the State of Wisconsin than most any other body of men coming together for a convention in this state. I have always had much to do with the farmers of Wisconsin. The subject which I wish to present today I hope is of some value to them, and therefore I hope that through you this message may reach many farmers in the state.

C. P. Norgord

The main theme which I wish to discuss is a new plan for the eradication of bovine tuberculosis in the live stock of the State of Wisconsin which the Live Stock Sanitary Board of the Department of Agriculture is at present putting forth. Before presenting this, however, I wish to tell you briefly of the field and function of the new Department of Agriculture, and what it has to offer the farmers of the state.

The Field and Function of the New Department of Agriculture.

The work of the Department of Agriculture is very closely related to that of the State Experiment Station and College of Agriculture. It is of the type of agricultural improvement work which has been done in the State of Wisconsin for many years, and which, to quite an extent at least, has helped to bring the state of Wisconsin to the advanced position in agriculture which it occupies today. This type of work may be divided into three

main lines. One of these is the experimental work, which has had to do with new discoveries in the line of agricultural science. By means of this line of work, the Babcock milk test was discovered, which has made possible the accurate measurement of the value of milk for the production of butter and cheese, and which has made possible a proper foundation for the marketing of dairy products and for the improvement of dairy herds. By means of this line of work, improved grains, for which the state of Wisconsin is noted, were produced, causing a great increase in the production per acre of farm crops, and their value to the state. By means of this, also, the soils of Wisconsin have been analyzed, and it was discovered that our marshy soils, many of which are lacking in potash and phosphorus, can be improved and brought up to a normal state of cultivation by the addition of potash and phosphorus salts. These and many other valuable discovereies have been made, and this line of work has been effectively carried on by the State Experiment Station and the various sub-experiment stations in Wisconsin.

Another line of work is the teaching, demonstration and extension work for the benefit of the people of Wisconsin. This has been done by the College of Agriculture of the University of Wisconsin and its extension service, the farmers' institutes, and the various secondary schools scattered throughout the state of Wisconsin.

There remains still another line of work, which has, to some extent, been conducted by the State Experiment Station and other agencies, such as the Dairy and Food Commission. I refer to the control or regulatory work along agricultural lines. This line of work is fully as important as the two others mentioned above. The control of the introduction of weed seeds and the eradication of weeds in the state is of this type of work. We have not, until recent years, had control stations of this type. Germany and other foreign countries have long realized the necessity for this type of work, and has had efficient seed-control stations established and in operation. As a consequence, rules and regulations have been adopted and enforced in these

countries so that seeds having certain kinds of weeds in them, as, for instance, quack grass, Canada thistles and morning glories, could not be sold; but since there were no control stations in this country, and no regulations concerning their sale, it has been possible for these seeds, unsalable in other countries, to be introduced here and sold for good prices. For instance, quack grass seed, which closely resembles Brome grass, has often been sold for that kind of seed, and as a consequence this weed has been widely disseminated with the seed through the hay produced therefrom. Canada thistle seed, likewise, has been disseminated in connection with oats, barley and other grains. As a consequence, many of our fields are covered with these dangerous weeds, our crops have been reduced, the labor of handling these crops has been increased, and the value of our lands greatly reduced in price. This type of control work is being effectively done by the Agronomy Department of the Experiment Station.

The control of sanitary conditions on our dairy farms and in our creameries affects the trade in milk, in butter, in cheese and other dairy products, and greatly affects the market in these products. This important line of work is being effectively done by our Dairy and Food Commission.

The main lines of work included in the Department of Agriculture at the present time are of the control type. The work of the Entomology Division is specifically of this type. Under this division comes the inspection of nurseries introducing trees and plants from foreign countries. With these come soil which contain dangerous fungus diseases at present not found in this state. The plants themselves contain diseases and various insects whose presence in this country might cause great damage. Insects which are checked in foreign countries by their natural enemies may find a new home here where their natural enemies are not present, consequently the spread may be tremendous.

The introduction of sparrows into this country from England is an illustration of how a bird held in check in other coun-

tries will increase in number when taken away from that check. The introduction of the San Jose scale came with foreign shipments. The insect is causing great losses all over the United States. The Entomology Division is making a careful study of the situation throughout the state and is eradicating the disease wherever found. A good piece of work along this line was done by Professor Sanders, State Entomologist, in Milwaukee and in other eastern cities of the state. The Gypsy moth and the Brown Tail moth likewise have been introduced in this way and their ravages in eastern Canada and some of our eastern states are well known.

The inspection of nurseries growing and disseminating shrubs and trees likewise comes under the work of this department, so also does the inspection of orchards and shade trees in cities, likewise the control of insect diseases of general farm crops and the insects affecting stored products and domestic animals.

The inspection of bees is also a part of the work of this department. The control of diseases of bee colonies is important to the bee industry of the state. From outside sources there have been introduced into this state the American and the European foul brood diseases which are constantly destroying the brood and killing hundreds of colonies in the state each year. This work is being effectively done by Mr. N. E. France, State Apiary Inspector, who is working in co-operation with Professor Sanders.

The Immigration Division is likewise doing effective work in looking after the interests of the new settlers coming into the northern part of Wisconsin.

The Veterinary Division is particularly a control division. This division has control of the diseases among stock that are dangerous alike to stock and man such as anthrax, glanders, tuberculosis, and rabies as well as other diseases not contagious to man such as hemmorrhagic septicemia and the foot-and-mouth disease. The control of the foot-and-mouth disease by the Veterinary Division in co-operation with the United States

Bureau of Animal Industry, is a good illustration of the value of this division to the state in handling stock diseases. There were two methods by which this disease might have been handled, the quarantine method and the slaughter method. The former method has been used in the countries of Europe, but the latter method is the one which we used in this country and in this state. The results of the former method showed the wisdom of adopting the one we did. Denmark, for instance, in adopting the quarantine method still has the foot-and-mouth disease among its herds in an aggravated form. At the close of the year 1915, Denmark had over 5,000 herds still infected, with a loss of 10 per cent of the milk flow, and from 10 to 15 per cent loss of their young calves and pigs. When we consider that $100,000,000 represents the value of dairy products in this state annually, we can see that a 10 per cent loss of these products to the state would mean a much greater sum than $70,000 which the state paid last year in the eradication of the foot-and-mouth disease. While Europe has been unsuccessfully fighting the disease during the past year the United States has successfully eradicated it from twenty-two states, each of them practically as large as any of the European countries.

Many other lines of work could be presented; but from these instances, you will see that the control and regulatory work of the state of Wisconsin is a line of work which is important and which should be made the main work of one large, thoroughly organized department. It is this line of work which has been adopted as the main field of work of the new Department of Agriculture. Most of our states have agricultural departments in addition to the experiment stations and colleges of agriculture, but in practically all of them, the field of work occupied by this department is the same field of work as that covered by the experiment station and college of agriculture. Such duplication as this could not be tolerated in this state. We have always endeavored to properly organize and systematize our work, so that there should be no duplication of work and consequent duplication of expenditures. The friction which is

certain to come where more than one department occupies the same field of work should be avoided. It has been our policy, in selecting a field of work for the new Department of Agriculture, to choose a field entirely separate from that occupied by the other departments which I have mentioned. The agricultural improvement work of the State of Wisconsin shrould be a unit, and properly organized and correlated, each department co-operating with the other.

In addition to the lines of work which are strictly of the control type of work, a few lines of work have come to the Department of Agriculture by inheritance that differ somewhat from this type, yet being lines of work which are not and could not well be handled by other agencies in the state. I refer to the State Fair Division, the Division of Crop Statistics, and the Immigration Division. One new line of control work which is of much importance to the state is found in the Entomology Division. This includes the inspection of orchards, nurseries, insecticides and fungicides, and the inspection of apiaries throughout the state.

The control division of the Department of Agriculture which is of most interest to the dairymen of the state is the Veterinary Division, which includes the Live Stock Sanitary Board, and which has in charge the eradication of infectious diseases of stock throughout the state. Through this division, in co-operation with the United States Bureau of Animal Industry, the dangerous foot-and-mouth disease was eradicated from the state. The policy pursued by this department in slaughtering all herds infected with this disease has been criticised by the people of the state, and it has been suggested that the animals might have been quarantined until the disease was past. The quarantine method has been used by Denmark and Germany for a number of years. During the past year a severe epidemic of this disease has occurred in Denmark. The result was, in following the quarantine method, that at the end of a year's work Denmark still had 5,000 herds infected with the disease; they have lost from 10 to 12 per cent of their milk flow

and from 10 to 15 per cent of the young calves and pigs have died. When we stop to calculate the loss to the State of Wisconsin, were such percentages of loss to occur, we can quickly realize that the $70,000 spent by the state in paying for herds that were destroyed is but a small amount as compared with the losses which would have resulted had the quarantine method been used. Moreover, we would then probably still have had a large percentage of the herds of the state of Wisconsin infected with the disease.

Veterinary Division and Live-Stock Sanitary Board Controls Live-Stock Diseases.

Among other diseases which this department must endeavor to control and eradicate is that of Bovine Tuberculosis. Effective work has been done by the College of Agriculture and experiment stations in the past, in educating people to the dangers of this disease, and methods of eradicating it. The climax of this work came three years ago, when the compulsory law was passed for the testing of animals to be sold. Unfortunately, the people were not ready for this step at that time, and consequently the law was repealed at the following session of the legislature, and since that time there has been a considerable lull in the work of eradicating tuberculosis from the state. This disease is not only dangerous from the standpoint of financial loss, but is also dangerous because of its relation to the human type of tuberculosis. Practically all scientists agree that the bovine type may be the direct cause of the human type. Some years ago Germany appointed a commsision to examine into the causes of tuberculosis among children. The result of its finding was that 25 per cent of all cases studied could be traced directly to the bovine type coming specifically from the use of unsterilized milk. A similar commission appointed in England found that 23 per cent could be traced to the bovine type, and among 625 special cases cited, it was found that 20 per cent could be traced directly to the infection from the bovine type.

The United States Bureau of Animal Industry, in making a special study on the infection of hogs from the drinking of milk found that out of one lot of young pigs fed tubercular milk for three days, 87 per cent contracted lesions of the intestinal tracts. With another group fed tubercular milk for thirty days, at the end of 50 days the entire group showed tubercular lesions of the intestines. Owing to the similarity of the intestinal tracts of pigs and of humankind, it is easy to draw the conclusion that very similar results must occur in children fed on milk coming from tubercular animals.

The creamery and cheese factories are effective means of disseminating tuberculosis. A special study was made by the College of Agriculture some years ago in creamery districts situated in the south-central part of the state. It was found that in two creamery districts into which tubercular animals were introduced some years ago, the spread of tuberculosis was remarkable. In studying the percentage of tuberculosis in these two creamery districts, in comparison with five or six other adjoining districts, it was found that 30 per cent of all the animals in these two districts were infected with tuberculosis, whereas only eight per cent were found in the adjoining creamery districts—chiefly confined to two. The agencies for spreading tuberculosis from creameries and cheese factories are mainly the by-products of skimmed milk and whey. While no action has been taken by the Live Stock Sanitary Board regarding the sterilization of the by-products of the milk coming to and going from the factories and creameries, it is entirely possible that such measures might be wise.

The result of feeding the by-products of factories to pigs is noticeable in the number of animals coming to our slaughterhouses condemned on account of tuberculosis. One of our larger packing plants has recently reported that 30 per cent of hogs shipped in are affected with tuberculosis in minor or aggravated form. The increase of tubercular animals has corresponded with the growth of the dairy industry and the feeding of by-products. In 1894, the average percentage of pigs in-

fected with tuberculosis was less than two-tenths of one per cent, while in 1898 the estimated percentage ran as high as four-tenths of one per cent—a sixty-fold increase.

The public sale is another agency for the spread of tuberculosis. Many herds known to have been infected have been sold, and the individual tubercular animals introduced into separate herds to become the origin of serious cases of tuberculosis in each herd. It is possible that a law should be enacted requiring the tuberculin testing of all animals sold at public auction.

The rapidity of the spread of tuberculosis from the introduction of a single animal into a herd was forcibly illustrated by a record of a herd recently sent to our office. This herd was tested (no reactions) eighteen months ago. About twelve months ago a sire was placed in the herd, and died in a box-stall of the barn. The owner, not being aware of the disease causing the death of the animal, placed a cow in the stall during freshening-time, and, later, put her back in her place at the upper end of a row of cows. The entire herd was watered in a cement manger, the faucet being at the upper end beside the infected cow. The infected saliva dropping from this cow's mouth was carried by the water to all parts of the manger. As a consequence, this tuberculin test above mentioned showed that the entire sixteen animals in the row, with one exception, were infected.

The discovery of the reacting animals by the tuberculin test, and the removal of these animals, and proper disinfection of the premises has been and is still the only means of eradicating tuberculosis.

There are, in certain sections of the state, incorrect opinions that the tuberculin test is not accurate. This idea is based on two causes; one, that animals found by the tuberculin test were not sufficiently well examined so that all lesions were found, hence were reported as having no lesions. The percentage of animals found by the tuberculin test having no lesions when inspected by our own state inspectors at the Milwaukee

yards is very small indeed. But those inspected at other yards, where we do not have such competent inspectors, are larger.

From 1911-1915, inclusive, 6 1-4 No Lesions.

From 1911-1914, 8 1-10 No Lesions.

During 1915, 3 1-10 No Lesions.

At the R. Gumz Packing Plant, Milwaukee, Wis.

The United States Department of Agriculture, in making a more careful examination of animals reported as having no lesions, have almost invariably found lesions in places that were not carefully examined. In an experiment conducted by the United States Department on 24,784 positive reactors from 1903 to 1908, only 1 1-10 per cent showed no lesions. Dr. Bang of Denmark reports that 96 per cent of all the reactors in that country, from the beginning of the work up to the present time, have showed lesions; and of the reacting animals examined by the State Department from 1911 to 1915, from 96 to 97 per cent showed lesions.

The success of the tuberculin test in discovering the tubercular animals, and the effectiveness of this method for eradicating tuberculosis, are well illustrated in the case of Denmark. Tuberculosis was introduced there from England and Holland early in the Nineteenth Century. When the first tuberculin tests were made in 1890 approximately 35 per cent of the cattle were infected. In 1900 this percentage was reduced to 25, and by 1908, to 8 1-4.

Some time ago, in conversing with a breeder near Baraboo I learned of a milkman delivering milk in a village, who had a splendid reputation for a clean herd and sanitary dairy. This farmer, being a progressive dariyman, wished to further improve his herd by having it tested for tuberculosis. As a result of this test, five animals reacted. The reputation of having tubercular animals in his herd spread much more rapidly than the reputation for removing the animals and cleaning up the herd. Thus, while his neighbors, who probably had fully as much tuberculosis in their herds but who did not test, suffered no loss, the net result of the test conducted by this dairyman

was a loss to him in trade. It occurred to me that it was the duty of the state to help such men reap a benefit from having had the tests made, and it therefore suggested itself to me that we should list all herds thus tested and properly cleaned up as "Tuberculosis Free Herds," and that we should advertise them throughout the state and other states. It may readily be seen that persons wishing to buy dairy cattle would prefer to buy from such accredited tuberculin tested herds, rather than from common herds, and to pay much higher prices. Such an arrangement would naturally be an inducement for farmers in the state to test their herds, clean up and free them from tuberculosis, in order that they might come in on the certified list, thus reaping the benefit and profit therefrom. To the breeders who are selling stock to other states, this would be a special attraction. We are annually selling from one to two million dollars worth of dairy cattle to other states. Under the present arrangement, it has been possible, because of unscrupulous farmers and dealers, to smuggle across the line animals that are infected with tuberculosis. As a consequence of this, there are four states at the present time that will not accept Wisconsin's tests for inter-state shipment. Our State Veterinarian has presented this plan to the veterinarians of a number of states, and has already received assurance from some of these states that if this plan is carried out, and the inspection is made by the inspectors of the Wisconsin Department of Agriculture ,they will admit animals for interstate shipment from the lists of certified clean herds, without the necessity of inspection immediately before shipment. This will avoid a great deal of trouble on the part of the breeders doing interstate shipping, and the closer inspection which it will permit will be a greater safeguard against the introduction of tubercular animals into other states from Wisconsin.

Below is given a brief outline of the plan as it has been finally outlined and adopted by the Live Stock Sanitary Board of the Department of Agriculture.

PLAN OF THE LIVE STOCK SANITARY BOARD OF THE DEPARTMENT OF AGRICULTURE FOR THE ESTABLISHING OF ACCREDITED TUBERCULIN TESTED HERDS.

Note: (This is only a tentative plan, and may be subject to change as defects may be found.)

Herds Eligible.

The owner of any herd of cattle may make application to the Wisconsin Department of Agriculture to have his herd placed on file for preparation to enter the "Accredited Tested Herds" list. It is not required that these herds must have been tested prior to application.

Testing of Herds.

(a) The tuberculin testing of these herds after application has been made shall be by veterinarians in the employ of the Department of Agriculture.

Testing of Herds. Number of Tests.

(b) The number of tests required to be made upon each herd will depend upon:

1st. If any re-actors are found.

2nd. Number of re-actors found on first test.

3rd. Previous history of herd with regard to tuberculosis.

4th. Whether some of the herd have been bought from untested herds or not.

The Herd Must Be Considered Safe.

Number of cattle to be tested by one man at one time.

While testing in this work, the veterinarian shall not test more than fifty head at one time.

Disposition of Re-actors.

Re-actors and other diseased cattle must be removed under the direction and in a manner satisfactory to the Board.

Disinfection of Premises.

If tuberculosis has existed or re-actors are found, the premises shall be disinfected under the direction of the Board.

Introduction of New Animals and Calves.

First. Introduction of adult animals: No adult cattle shall be introduced into these herds unless such cattle are either from accredited tuberculin tested herds or have been tuberculin tested by a graduate veterinarian immediately before entry into the herd.

Second: Calves: Untested calves shall not be placed in these herds when bought from any herd except a herd which is also on the accredited tuberculin tested herds list, and any other calves bought must be segregated until such time as they can be tested.

Third. Nurse cows or other cows introduced temporarily into herds must be on same basis as the above.

Milk for Calves.

Calves in these herds shall not be fed on milk skimmed in public skimming stations or on whey from cheese factories unless such milk or whey has been sterilized by thorough pasteurization or heating, sufficient to kill tubercular germs.

Expense of Test.

The expense of making these tests must be met by the owner of the herd. This shall be as near the actual cost of the work as can be calculated by the Live Stock Sanitary Board. (Actual rates will be established and published later.)

Agreement.

Only breeders who wish to avail themselves of the privileges of the accredited tuberculin tested herds plan of the Live Stock Sanitary Board shall sign an agreement to abide by all the rules and regulations herein enumerated.

1. To co-operate.
2. To furnish all data available to tester.
3. Submit herd to test whenever it is thought necessary by the Board.
4. Furnish sufficient attendants to keep cattle in good condition and to keep barn clean while testing.
5. To provide conveyance and suitable maintenance of Deputy while making tests.
6. To allow examination of any or all animals in the herd at any time.
7. Not to introduce any cattle except as provided by the Board.
8. To comply with orders as to disinfection of premises.
9. To pay to the Live Stock Sanitary Board the amount determined by the Live Stock Sanitary Board.
10. To remove re-actors whenever found.

This plan was brought before the individual meetings of the breeders of all kinds of stock at the "Farmers' Week" at Madison, and was unanimously adopted at a meeting of representatives of all of the breeders. It will be presented to the local breeders' associations at their annual meetings, and from the fact that all of the organizations to which it has thus far been presented have enthusiastically adopted it, it is believed that it will be adopted uniformly by all breeders throughout the state, whether breeders of pure-bred animals or grades. Breeders wishing to have their herds tested for entrance to this list are advised to write the State Veterinarian of the Department of Agriculture. The requests will be listed, schedules will be made out in the various parts of the state, and the herds will be tested as soon as our inspectors can reach them.

I thank you. (Great applause.)

The President then asked for an open discussion.

DISCUSSION.

MEMBER: What is the fee for testing?

MR. NORGORD: Well, we haven't settled on that yet. There

are two things we look out for there, one is, we don't make it so high the farmers can't afford to test and the other is, we don't make it so low that the veterinarians would get at us and take our heads off. But, I may say that our hearts are with the farmers and our skins with the veterinarians.

MEMBER: What system are you using in testing?

MR. NORGORD: We are using different tests, both the injection and the other tests. We will probably subject them to two tests and run the temperatures longer before the injection of the tuberculin and also afterwards, so as to make as careful a test as possible.

MEMBER: What do you consider the best test?

MR. NORGORD: I am not speaking of this from the standpoint of a practical veterinarian, but a combination is better than one alone. I might say that this matter will come up for discussion at the Farmers' Week at the College of Agriculture next week. We want to get at the pros and cons of it, we want to leave it so we have the right plan; if we haven't already got it; we want to get the benefit of what has been done in the other states. We invite the various breeders to send in to us if they think their herd have passed two satisfactory tests. By this plan we are going to encourage farmers to keep trying their herds to see if there are any animals in the herd that have tuberculosis and get rid of those. We will not advertise the fact that a man has got tuberculosis, we will advertise the fact that he hasn't got it, I think it is safer to advertise his successes rather than to advertise his failures. That is the basis.

MEMBER: Can any one receive tuberculin?

MR. NORGORD: You can always buy it from Parke-Davis Company or other companies.

MEMBER: Is there any guarantee that it is pure?

MR. NORGORD: Well, the United States Department of Agriculture, since it got beat in putting out virus is looking out for that. Most of the vacines and viruses you can feel sure are pretty well checked up in these tests.

I remember a herd tested in LaCrosse. He had seventeen

in the herd. When they were taken to the slaughter houses seven were infected and ten were not.

MEMBER: What do you attribute that to?

MR. NORGORD: Well, what that could have been caused by it is difficult to say, but of course, there are so many things to employ in making tests, a person making the test should know all the things they make the test with. That is one question in favor of having the veterinarians make the tests, for they would be able to detect unnatural conditions, whereas, a person who did not have the experience and training wouldn't see those abnormal conditions. The temperature is one of the things that tells the presence of tuberculosis. You all know that before an animal is tested we take a set of tuberculin temperatures and they must be normal, not jumping up and down or too high or too low, they must be uniform. You know an animal that has tuberculosis after the injection there is a gradual rise from 1 2-10 and 1 3-10 and 1 7-10, and one and a fraction, I should say, and then a gradual drop in the same way, not a sudden drop, but a slow rise and drop back. Now, if an animal is feeding in such a way her temperature does not rise, but if she is disturbed and frightened her temperature rises, that is something that might come in to disturb the accuracy of the test, a person would have to be careful and know his conditions, know what conditions may affect the test and how good the test really is. We find in certain cases that animals are all brought to a common center to be tested before being shipped. They are driven in and disturbed and their temperature rises or drops, and you can't make as good an actual test of the animals as the ones in their own barns where people are careful in handling them. We have a good deal of trouble with interstate shipment because the animals are scared. No doubt some disturbance comes in there to vitiate the accuracy of that test. You might say, how do you know that the tuberculin test will actually point out the animals that have the tuberculosis and not kill a lot who don't have it. I might say in the last three years we looked up the record of say 4,000 animlas that came to the state veterinarian's

office as tuberculous, shown by their test, and after those same animals were killed and a post mortem examination was made only two per cent of the animals failed to show lesions some place in the body, now that takes in the year we have the tests made by law and that the United States inspectors were the ones who examined the animals and many of the inspectors were accustomed to simply inspecting animals in slaughter houses and didn't look them over any better than they did in the slaughter houses and consequently most of the tuberculosis and lesions in the animals they didn't find. There is a slaughter house in the state of Wisconsin where we send animals and we haven't the best kind of a man to make the examination and don't get a high percentage of lesions, but we send animals to Milwaukee where we have a special man, a man who has been in that business a good many years and we find much less than one per cent of the animals haven't got lesions.

MEMBER: Has it ever been known of an animal with tuberculosis germs having recovered?

MR. NORGORD: I am not able to answer that question absolutely, but I think not.

MEMBER: Why wouldn't an animal recover if a man would recover?

MR. NORGORD: I suppose that a good many of the men recover simply by the existing of the tuberculosis, we don't have any known cases that I know of where animals have actually recovered from the tuberculosis. I know it wouldn't be safe to try to cure animals which have tuberculosis. I know Dr. Bassy in Denmark doesn't recommend that.

MEMBER: Would it be the ruling of the department in case the department inspect a herd, if they will give the man that owns the herd the privilege of a quarantine until the test has a chance to act?

MR. NORGORD: Yes sir, everybody has an opportunity to decide that for himself. As soon as the herd shows tuberculosis we send a letter to that man and say "Do you wish to have these animals killed or kept in quarantine under the rules and regulations of the board?" and the man decides that for himself.

MEMBER: What was the practice when the law was first in operation?

MR. NORGORD: Not so much, but that practice has increased. The option was there all the time, but it was not emphasized and not many did keep them in quarantine.

Mr. M. H. Meyers, of Milwaukee, then stated as follows:

I have just a few words to say on matters of national importance in which the Wisconsin Buttermakers' Association is interested. There is a bill in the House of Representatives, known as Number H. R. 9674 demanding that butter be limited to three months in cold storage. We as dairymen know that it would be a great hardship on the farmers, the buttermakers and also on the dealers, and because that bill was introduced on January 21st, last month, I wish to read this resolution covering the situation:

He then read the following resolution:

WHEREAS, a Cold Storage Bill, known as H. R. 9674 is introduced in the House of Representatives Jan. 21, 1916, ordered to be printed; demanding limiting butter to three months cold storage, defining butter as cold storage if kept 40 degrees or below, for ten or more days and if such butter be remanded to cold storage plant it is considered adulterated butter, and

WHEREAS, said intended cold storage bill if allowed to become a law would work great hardships on those interested in dairying, the manufacturers thereof, the consumer and the producer,

THEREFORE, Be it resolved that we condemn said Cold Storage Bill H. R. 9674 as an unusual destructive piece of legislation.

And be it further resolved that we request the Secretary to send a copy of this resolution to our representatives and congressmen asking their aid in stopping said Bill H. R. 9674 from becoming a law.

The motion was made and seconded that the resolution be adopted.

Motion carried and the resolution was adopted.

BY THE SECRETARY: I want to call your attention to the good butter you have had a chance to inspect. Some of you haven't had an opportunity of examining this butter, so we have brought it here for you to look at. Before I distribute the scores I want to say that yesterday I was busy outside of the hall and I understand a number of personalities were passed in the meeting. I don't know what they were; I don't care to know, all I know is that I would like to have the authority, if the association so desires, to cut out the personalities from the report. I think it will be well if the association would not allow such things to get into a report.

Motion made and seconded that all personalities be stricken from the report. Motion was carried.

Distribution of prizes then took place.

Mr. Lee presented the gold watch offered by Hon. Geo. J. Weigle to the winner, H. H. Whiting. At the close he commented upon the resolution in regard to pasteurization passed by the convention early in the afternoon. Mr. Lee said:

MR. C. E. LEE: I have sufficient confidence in the Wisconsin Buttermakers' Association as shown in this convention. I regret very much that the resolution went as it did, I hope and believe that the members will go out this year to remedy the reasons why we did not pass such a measure this time, and then will return to the convention a year from now and unanimously pass such a motion.

MR. WHITING: In listening to the last speech in regard to pasteurizing butter, the creameries are pasteurizing a great deal of butter that will stand the test, and it is proven beyond a doubt that these pasteurized goods—why not have them advertised—so it will bring more of the creameries into it?

MR. LEE: Less than fifty creameries in the state of Wisconsin make pasteurized butter.

BY THE PRESIDENT: I would like to say a few words, and I think Mr. Keppel will bear me out. I am sorry it turned out the way it did, because it is generally understood that compulsory pasteurization of butter is not to make a really better ar-

ticle of butter or a better keeping article of butter, it is contended that a piece of butter not pasteurized is as good in every way as the pasteurized. It is not safe; that is the idea, the public demand it pasteurized, because it is safer provided it is pasteurized, in the way it should be, with a temperature that will bring the required result, whatever that might be.

The meeting was then adjourned.

BUTTER JUDGES.

C. E. Lee, Madison.

Wm. Schneider, Johnson Creek

O. A. Storvick, Albert Lea, Minn.

JUDGES' SCORES.

DISTRICT NO. 1.

John Mogenson, Beloit 90.00
Louis Schawitzer, Nashotah, R. 22 ..... 93.66
Martin von Liere, Troy Center 92.00
C. W. Page, Elkhorn 93.33
Axel L. Larson, Nashotah 93.00
H. O. Zick, Tiffany 91.16
Harry D. Nichols, Elkhorn 94.83
John R. Meyer, Slades Corners 94.00
Walter J. Clark, Lake Beulah 92.83
Charles D. Kelley, East Troy 95.16
F. V. Merryfield, Mukwonago 93.83
Geo. Christoph, Avalon 91.00

DISTRICT NO. 2.

Arthur W. Seager, Cedarburg 94.00
H. Skerhutt, Cedarburg 94.33
Hubert Bartel, New Holstein 92.33
Arthur A. Olson, Waupun 96.00
G. P. Sauer, Cedarburg 94.50
J. S. Magrane, Fond du Lac 91.66
Wm. Remel, Maribel 92.50
Albert Hoefke, Waterloo 93.00
Richard L. Sleyster, Endeavor 90.16
Quirin Moersch, Fond du Lac 94.33
Wm. Warnke, Kingston 94.16

DISTRICT NO. 3.

H. P. Nielson, Deerfield 93.33
A. C. Hilstad, Oregon 92.83
G. M. Stewart, Mazomanie 91.50
F. M. Werner, Waterloo 93.40
Hod Doolan, Marshall 92.66
W. H. Kubat, Marshall 95.33
E. R. Smart, Marshall 93.00
Carl P. Steder, Helenville 92.00
Henry T. Kipp, Cambridge 91.66
H. J. Herreman, Black Earth 91.33
H. E. Griffin, Mt. Horeb 94.66
Alex. Shey, Marshall 91.00
Ed. F. Bolstead, Stoughton, R. 2 ..... 92.33
R. J. Brigham, Whitewater, R. 3 ..... 92.83
Rudolph J. Else, Helenville 92.83

John Tenjim, Windsor 90.16
H. M. De Golier, Cambridge 96.33
L. L. Bolstead, Basco 96.66
Fred C. Kuts, Johnson Creek 92.83
Herman Hartwig, Deerfield 95.33
H. H. Whiting, Johnson Creek 97.00

DISTRICT NO. 4.

C. R. Winner, Stitzer 94.16
Albert Warnke, Pardeeville 92.83
Van Barron, Sauk City 90.33
Hugo R. Heiney, Livingston 93.00
Henry Donner, Dayton 93.66
W. E. Moyes, Ironton 92.16
Frank Shepherd, Mt. Sterling 93.33
John H. Miller, Baraboo 93.66
W. J. Dehn, La Valle 91.66
Ernest Soltwedel, Lime Ridge 93.16
H. J. Edge, Patch Grove 92.33
E. D. Schwartz, Lancaster 93.50
H. J. Quale, Platteville 92.33
L. M. Turner, Montfort 92.50
Olaf Larson, Fennimore 95.50
Val Dressler, Louisburg 90.00
Ole C. Hanson, Hazel Green 90.16

DISTRICT NO. 5.

John Mortenson, Camp Douglas 91.00
A. W. Zimmerman, Norwalk 91.16
E.G. Rasmussen, Melvina, Box 41 ..... 91.16
Oscar Thompson, Black River Falls, R. 6 ..... 90.16
Wm. Sieger, Chaseburg 92.83
Frank O'Hearn, Melrose 91.66
Geo. W. Marvin, Black River Falls 90.33
H. A. Johnson, Westby R. 2 ..... 91.16
Benedick Rahbeck, West Salem R. 2 ..... 90.33
Julius Kretschmar, New Lisbon 93.50
J. D. Simpson, Viroqua 92.16
E. E. Haliday, Mauston 90.00
D. F. Wallace, Alma Center 93.66
G. S. Caucutt, Taylor 91.00
Thos. J. Berge, Northfield 91.00
O. Felstad, Elroy 91.00

DISTRICT NO. 6.

C. J. Jenson, Withee 94.10
Geo. Jenson, Saxville 90.66
F. S. Root, Rudolph 91.83
Odin Christianson, Nelsonville 93.50
Joseph Yager, Thorp 92.83
Christ Christensen, Neillsville 94.00
M. R. Cross, Humbird 90.83
V. D. Lee, Neillsville 91.16
Theo. Sommers, Thorp R. 1 ..... 90.66
F. F. Kresse, Plainfield 90.00
O. J. Krogstad, Greenwood 91.83
Clarence Fostvedt, Wild Rose 91.33
Chas. M. Sanford, Amherst Jct. R. 2 ..... 91.66
F. H. Joseph, Plainfield 90.83
T. J. Warner, Rosholt 91.33

DISTRICT NO. 7.

L. H. Winter, Eau Claire 91.50
E. A. Feiler, Osseo 91.16
S. J. Johnson, Ettrick 90.83
Paul McCauley, Elmwood 94.66
Grant Winner, Osseo 93.33
Carl Sorenson, Meridian 92.50
Chas. M. O'Brien, Augusta 93.50
W. E. Brierly, Downsville 93.33
R. P. Colwell, River Falls 94.50
H. J. Halverson, Eleva 91.50
Walter Stolpe, Wheeler 91.83
R. H. Banks, Spring Valley, R. 2 ..... 90.83
T. J. Hass, Elk Mound 91.50
A. J. Rivard, Emerald, R. 1 ..... 94.60
L. C. Olson, Galesville 90.83
N. E. Dale, Blair 92.00
Leonard Place, Knapp 90.16
L. J. Bjerking, Ellsworth 91.16
Richard P. Butler, Mondovi 91.33
T. J. Hanlon, Prescott 91.16
P. E. Peterson, Hersey 90.33
Jacob W. Ringger, Durand, R. 4 ..... 91.00
H. K. Hanson, Caryville 90.33
Chas. A. Cartwright, Stanton 91.66
O. L. Holverson, Spring Valley 92.33

DISTRICT NO. 8.

R. J. O'Keefe, De Pere R. 1 ..... 93.50
R. C. Cleaves, Iola 92.33
H. N. Olson, Waupaca 90.16
H. A. Wheeler, West De Pere 93.66
Lauritz Olsen, West DePere 93.83
Theo. R. Peterson, Weyauwega 91.16
Abe Speich, Berlin, R. 2 ..... 94.33
Earl Longteau, Green Bay 93.83
L. A. Olson, Waupaca 91.00
C. J. Chapin, Sheridan 93.00
H. F. Recknagel, Seymour 91.16
M. Engebretson, Scandinavia 93.33
Henry Reif, Weyauwega 90.00
Robt. S. Andreason, Northland 91.66
M. Christopherson, New Franken 91.00
C. F. Wolzien, Black Creek 91.66

DISTRICT NO. 9.

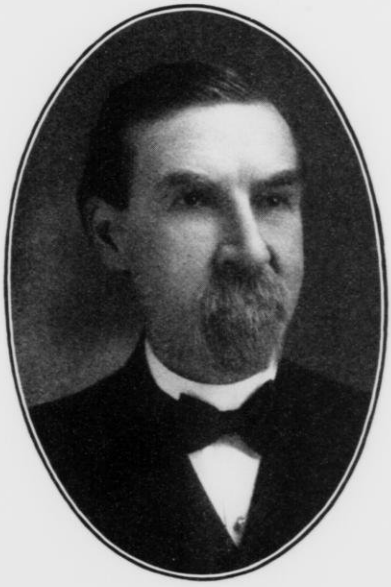
Will Geisler, Bruce 90.66
Ray Hayton, Stanley 92.16
F. J. Mathews, Brill 90.83
Hilbert Enerson, Comstock 94.00
Henry S. Paul, S. Superior 93.50
F. J. Roch, Chippewa Falls 91.83
J. M. Hanson, Cameron 92.00
Geo. Sampler, Clear Lake 91.50
Peder Kristensen, Cushing 94.00
A. N. Finstad, Albertville 91.00
Henry Bonefield, New Auburn 92.83
J. C. Christopherson, Cadott 92.16
Louis M. Hanson, Iron River 90.50
E. W. Scheel, Turtle Lake 93.40
R. W. Butler, Amery 94.00
Albert Erickson, Amery R. 4 ..... 93.00
Frank D. Packard, Deronda 90.83
John W. Sullivan, Chippewa Falls 91.66
Theo. Lennartz, Frederic 92.33
Chas. J. Back, Luck 91.66
Lewis Laurence, Ladysmith 91.50
E. R. Eckwright, Bloomer 91.50
John E. Mattson, St. Croix Falls 93.83
J. P. Sorenson, Milltown 91.33
Ole Esker, Dallas 93.33

DISTRICT NO. 10.

C. F. Brennecke, Antigo 91.83
Louis Peterson, Bonduel 92.33
Carl Jorgenson, Rose Lawn 96.16
Joel Gilbertson, Medford 94.16
Hans Christianson, Rose Lawn 95.00
W. F. Paulson, Phillips 90.50
A. N. Anderson, Antigo 90.83
M. G. Koepsell, Little Black 93.00
R. G. Zabel, Wausau 93.16
Frank Meisner, Wittenberg 92.00

COMPLIMENTARY.

Herman Janning, Freeport, Minn. 93.50
J. P. Grande, Chicago 93.83
M. O. Burocker, New Vienna, Iowa 93.33
T. J. Warner, Rosholt 93.33
B. E. Bragg, Preston, Iowa 93.56



Hon. S. A. Cook.

It was at Hon. S. A. Cook's suggestion that we held one session for the benefit of the patrons. He personally appeared on the program and gave a very enthusiastic and patriotic address. It is needless to say that Mr. Cook's generosity is duly appreciated by the members of the Wisconsin Buttermakers' Association. The cordial reception given him when he appeared before the convention is evidence of the esteem in which he is held.

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.

The following is a list of the exhibitors who were so fortunate as to win the prizes offered by the Association:

First—H. H. Whiting, Johnson Creek.
Second—L. L. Bolstead, Basco.
Third—H. M. De Golier, Cambridge.
Fourth—Carl Jorgenson, Rose Lawn.
Fifth—Arthur A. Olsen, Waupun.

DISTRICT PRIZES.

District prizes were offered this year under the same rules as governed this contest at previous conventions. As there are ten districts there were thirty prizes offered as follows:

First Prize—A twelve piece set silver knives and forks, best Community silver, Georgian pattern.

Second Prize—"Universal" Vacuum Thermos bottle, quart size.

Third Prize—Set Military Brushes in beautiful leather case. Offered by the J. B. Ford Co., Wyandotte, Mich., manufacturers of Dairymen's Cleaner and Cleanser.

THE DISTRICT PRIZE WINNERS.

First District—Waukesha, Milwaukee, Racine, Kenosha, Walworth, Polk.

First—Chas. D. Kelley, East Troy.
Second—F. V. Merryfield, Mukwonago.
Third—Louis Schawitzer, Nashotah.

Second District—Marquette, Fond du Lac, Green Lake, Sheboygan, Ozaukee, Washington, Dodge.

First—Quirin Moersch, Fond du Lac.
Second—Albert Hoefke, Waterloo.
Third—Hubert Bartel, New Holstein.

Third District—Dane, Jefferson.

First—H. E. Griffin, Mt. Horeb.
Second—F. M. Werner, Waterloo.
Third—H. P. Nielson, Deerfield.

Fourth District—Sauk, Richland, Crawford, Grant, Iowa, LaFayette, Columbia, Green.

First—Olaf Larson, Fennimore.
Second—John H. Miller, Baraboo.
Third—Frank Shepherd, Mt. Sterville.

Fifth District—Jackson, Monroe, La Crosse, Vernon, Juneau, Adams.

First—D. F. Wallace, Alma Center.
Second—C. D. Simpson, Viroqua.
Third—Frank O'Hearn, Melrose.

Sixth District—Wood, Portage, Waushara, Clark.

First—C. J. Jenson, Withee.
Second—Christ Christensen, Neillsville.
Third—Joseph Yager, Thorp.

Seventh District—St. Croix, Dunn, Pierce, Pepin, Buffalo, Trempealeau, Eau Claire.

First—A. J. Rivard, Emerald, R. 1.
Second—R. P. Colwell, River Falls.
Third—Chas. M. O'Brien, Augusta.

Eighth District—Waupaca, Outagamie, Winnebago, Calumet, Manitowoc, Brown, Kewaunee.

First—Abe Speich, Berlin,, R. 2.
Second—L. A. Olson, Waupaca.
Third—C. F. Wolzien, Black Creek.

Ninth District—Douglas, Bayfield, Burnett, Washburn, Sawyer, Polk, Barron, Rusk, Chippewa, Ashland.

First—Hilbert Enerson, Comstock.
First—R. W. Butler, Amery.
Second—Henry S. Paul, South Superior.
Third—E. W. Scheel, Turtle Lake.

Tenth District—Iron, Vilas, Forest, Florence, Price, Oneida, Marinette, Taylor, Lincoln, Langlade, Oconto, Marathon, Shawano, Door.

First—Hans Christianson, Rose Lawn.
Second—M. G. Koepsell, Little Black.
Third—Frank Meisner, Wittenberg.

AN ACKNOWLEDGEMENT.

In addition to the state and the district prizes offered by the Association, the following concerns co-operated with our officers in an effort to make the Eau Claire convention a success by offering special prizes:

Two Rivers Plating Co., Two Rivers, Wis.

Van Tilberg Oil Co., Minneapolis, Minn.

The members of the Wisconsin Buttermakers' Association are certainly grateful for the interest manifested in the welfare of the organization by the above named firms.

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P. B. HABER PRINTING CO.,

FOND DU LAC, WIS.

17 Ap 23 Tempas, R J 20 Ap 23
22S28 Larson, H.C. 24S28
28 AUG 1931 Behrens, M. 2 SEPT 1931
28 [illegible] Behrens, M [illegible]
14 APR 1947 Kloos WH 29 [illegible]
17 MAY 1948 W. Bohnhoff 18 MAY 1948
MAR 28 '82