Tenth annual meeting of the Wisconsin Cheese Makers' Association held in the Convention Rooms, Republican House, Milwaukee, Wisconsin, Wednesday, Thursday and Friday, January 8, 9 and 10, 1902. 1902

Wisconsin Cheese Makers' Association
Madison, WI: Democrat Printing Co., State Printer, 1902

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TENTH ANNUAL MEETING

OF THE

WISCONSIN

CHEESE MAKERS' ASSOCIATION

HELD IN THE

Convention Rooms, Republican House, Milwaukee, Wisconsin,
Wednesday, Thursday and Friday, January
8, 9 and 10, 1902.

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

COMPILED BY

U. S. BAER, Secretary.

MRS. A. L. KELLY, Stenographic Reporter.

MADISON, WIS.:
DEMOCRAT PRINTING COMPANY, STATE PRINTER.
1902

LETTER OF TRANSMITTAL.

OFFICE OF THE SECRETARY,
WISCONSIN CHEESE MAKERS' ASSOCIATION,
MADISON, WIS., 1902.

To His Excellency, ROBERT M. LA FOLLETTE,
Governor of the State of Wisconsin:

I have the honor to submit the tenth annual report of the Wisconsin Cheese Makers' Association, showing the receipts and disbursements the past year, also containing the papers, addresses and discussions had at the annual convention held at Milwaukee, January 8-10, 1902.

Respectfully submitted,

U. S. BAER,
Secretary.

OFFICERS, 1902.

President:—

W. C. DICKSON ..... Madison, Wis.

Vice President:—

M. McKINNON ..... Sheboygan Falls, Wis.

Directors:—

Three Years—J. K. POWELL ..... Chippewa Falls, Wis.
Two Years—FRITZ KARLEN ..... Monroe, Wis.
One Year—THOS. JOHNSTON ..... Boaz, Wis.

Treasurer:—

JOHN McCREADY ..... Madison, Wis.

Secretary:—

U. S. BAER ..... Madison, Wis.

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ARTICLES OF INCORPORATION

OF THE

WISCONSIN CHEESE MAKERS' ASSOCIATION.

(Adopted February 2, 1899.)

ARTICLE I.

The undesigned have associated and do hereby associate themselves together for the purpose of forming a corporation under Chapter 86 of the Wisconsin statutes of 1898 and the acts amendatory thereof and supplementary thereto, the business, purpose, and object of which corporation shall be the education of its members for better work in the art of making cheese, the care and management of factories, the sale of their products and the weeding out of incompetency in the business of cheesemaking; the further object of the corporation is to demand a thorough revision and rigid enforcement of such laws as will protect the manufacture of honest dairy products against undue competition from deceitful and dangerous imitations; and to unite the rank and file of its members in instituting a regular crusade against the unjust practice of pooling milk at cheese factories by weight, without regard to the butter fat which it contains.

ARTICLE II.

This corporation shall be known as the "WISCONSIN CHEESE MAKERS' ASSOCIATION," and its principal office and location at Madison, Wisconsin.

ARTICLE III.

The association shall be a corporation without capital stock. Any person who is a practical cheesemaker, and such other persons as are directly or indirectly interested in the manufacture and sale of un-

adulterated cheese may become members of this corporation by paying one dollar annually in advance and signing the roll of membership.

ARTICLE IV.

SECTION 1. The general officers of said association shall consist of a president, vice president, secretary and treasurer, and the board of directors shall consist of three members of the association.

SECTION 2. The term of the officers of the association shall be one year, or until their successors are elected at the next annual meeting following their election, and until such successors qualify. At the first meeting of the members of the association there shall be elected a director for the term of one year, a director for the term of two years, and a director for the term of three years, and thereafter there shall be elected at each annual meeting a director for the term of three years, and each director shall hold his office until his successor is elected and qualifies. The election of officers and directors shall be by ballot, except in case of a single nominee, when election by acclamation may be substituted. A majority of all the votes cast shall decide an election.

ARTICLE V.

SECTION 1. The principal duties of the president shall be to preside at all meetings of the Board of Directors and of the members of the association during his term of office. He shall appoint special committees and sign all orders drawn on the treasurer. He shall appoint a committee on resolutions and a program committee. He shall also povide for suitable medals at the expense of the association.

SECTION 2. The vice president shall assume the duties of the president in the latter's absence.

SECTION 3. The principal duties of the secretary of this association shall be to keep a complete and accurate record of the proceedings of the Board of Directors and of the association and to attend all meetings, keep a correct account of the finances received, pay all moneys into the hands of the treasurer and receive his receipt therefor, and to countersign all orders for money drawn upon the treasurer. He shall keep a record book and suitable blanks for his office He shall make a full and complete report at each annual meeting of the correct state of the finances and standing of the association. He shall also procure certificates of membership, and every person joining the association shall receive one signed by the president and countersigned by the secretary.

SECTION 4. The principal duties of the treasurer shall be to faithfully care for all moneys entrusted to his keeping, paying out the same only on receipt of an order signed by the president and countersigned by the secretary. He shall file with the secretary of the association all bonds required by the articles of incorporation or the by-laws. He shall make at the annual meeting a detailed statement of the finances of the corporation. He must keep a regular book account, and his books shall be open for inspection at any time by any member of the association.

SECTION 5. The Board of Directors shall be the Executive committee and shall audit the accounts of the secretary and treasurer, and present a report of the same at the annual meeting; Executive committee shall procure a place to hold the meeting and make arrangements for Reception committees, hotel rates, halls, and all necessary preliminary arrangements for each and every meeting.

SECTION 6. The committee on programs shall make all arrangements for the proper working of the conventions, assigning all subjects, arranging for speakers, and make the division of time allowed to the discussion of each topic, to determine upon the time for the election of officers, conducting business meetings, and any other matters that may properly come under this division.

SECTION 7. The committee on resolutions shall draw up such resolutions as the exigencies of the time may require and which shall express the sense of the association.

SECTION 8. The said officers shall perform such additional or different duties as shall from time to time be imposed or required by the members of the corporation in annual meeting, or by the Board of Directors, or as may be prescribed from time to time by the by-laws, and any of the duties and powers of the officers may be performed or exercised by such other officers or officer, or such person or committee as the corporation or Board of Directors may authorize.

ARTICLE VI.

The treasurer of this corporation shall give a bond in the sum of one thousand dollars with two sureties, for the faithful performance of his duties.

ARTICLE VII.

These articles may be altered or amended at any regular session of an annual meeting of the members, provided the proposed alterations or amendments shall have been read before the association at least

twenty-four hours previously, and provided also that such alterations or amendments shall receive a two-thirds vote of the members present.

ARTICLE VIII.

The first meeting of this association for the election of officers and directors shall be held on the 3d day of February, 1901, and such corporation shall hold a meeting of its members annually during each calendar year at such time as may be determined by the Board of Directors.

MEMBERSHIP WISCONSIN CHEESE MAKERS' ASSOCIATION, 1902.

A.

Aune, J. G.	Baldwin	Wisconsin
Austin, W. A.	Madison	Wisconsin
Adams, Chas.	Wyoming	Wisconsin
Austin, H. E.	Boscobel	Wisconsin
Andregg, Casper	La Crosse	Wisconsin
Alves, H. E.	Sheboygan Falls	Wisconsin
Austin, Hallie	Rockbridge	Wisconsin
Aderhold, E. L.	Neenah	Wisconsin
Adams, M. J.	Milwaukee	Wisconsin

B.

Bennett, C. H.	Praag	Wisconsin
Bean, C. M.	Winneconne	Wisconsin
Boldt, F. A.	Gibbsville	Wisconsin
Bast, Joseph	Stockridge	Wisconsin
Beck, Geo.	Sheboygan Falls	Wisconsin
Bates, R. M.	Madison	Wisconsin
Berg, Julius	Sevastopol	Wisconsin
Blanck, A. H.	St. Cloud	Wisconsin
Benishek, Anton	Bleser	Wisconsin
Boll, Ernst	Sheboygan Falls	Wisconsin
Bachmann, J. F.	Black Creek	Wisconsin
Buchen, J. J.	Adell	Wisconsin
Burg, Edgar	St. Anna	Wisconsin
Beranek, H.	Yuba	Wisconsin
Bates, R. R.	Madison	Wisconsin
Baer, U. S.	Madison	Wisconsin
Biddulph, J. R.	Providence	Illinois
Boyd & Driscoll	Cambridge City	Indiana
Bamford, H. J.	Plymouth	Wisconsin
Bakerker, R. E.	New London	Wisconsin

C.

Cross, J. W.	Mauston	Wisconsin
Chaplin, H. A.	Plymouth	Wisconsin
Crosby, D. S.	Chicago	Illinois
Conrad, Rudolph	Edwards	Wisconsin
Carswell, J. A.	Lone Rock	Wisconsin
Carswell, F. A.	Lone Rock	Wisconsin
Chalupink, John	Fisk	Wisconsin
Cook, H. W.	Neenah	Wisconsin
Cornish, O. B.	Ft. Atkinson	Wisconsin
Cannon, S. D.	Dale	Wisconsin
Cannon, J. D.	New London	Wisconsin
Cunningham, F. M.	Camp Douglas	Wisconsin

D.

Dickson, W. C.	Madison	Wisconsin
Dickson, C. C.	Lancaster	Wisconsin
Dally, B. H.	Milwaukee	Wisconsin
Davis, Horace	Chicago	Illinois
De Land, A. D.	Sheboygan	Wisconsin
Dana, J. C.	Cedar Grove	Wisconsin
Davis, E. L.	Spring Green	Wisconsin
Decker, A. J.	Fond du Lac	Wisconsin
Darrow, R. R.	Sheboygan Falls	Wisconsin
Deicher, H.	Glen Buehlen	Wisconsin
Donath, Robt.	Scott	Wisconsin
Damrow, O. A.	Sheboygan Falls	Wisconsin
Daughhetee, J. B.	Thorp	Wisconsin
Durst, J. W.	Keyesville	Wisconsin
Dixon, T. H.	Cove	Oregon
Danes, L. E.	Green Bay	Wisconsin
De Haan, Matthew	Lineville	Iowa
Daly, Thomas	Muscoda	Wisconsin

E.

Ennison, W. J.	La Crosse	Wisconsin
Everett, C. H.	Racine	Wisconsin
Erdman, Wm. A.	Sheboygan	Wisconsin
Ellfson, Henry	Spring Green	Wisconsin
Erdman, A. P.	Nero	Wisconsin
Ennison, J. A.	Fond du Lac	Wisconsin
Erf, Oscar	Champaign	Illinois

F.

Fullmer, F. B.	Ettrick	Wisconsin
Failey, Owen	Appleton	Wisconsin
Fleming, G. W.	Chicago	Illinois
Farrington, E. G.	Greenleaf	Wisconsin
Fredericks, H. A.	Reedsville	Wisconsin
Frye, G. F.	Highland	Wisconsin
Flemmng, Chas.	Highland	Wisconsin
Forward, F. L.	Seymour	Wisconsin
Frome, R. L.	Howard	Wisconsin
Fero, Walter	Muscoda	Wisconsin
Frederick, P. E.	Milwaukee	Wisconsin
Fitz Gerald, C. J.	Boaz	Wisconsin

G.

Graskamp, W. H.	Fillmore	Wisconsin
Ganschow, H. F.	Bonduel	Wisconsin
Gartman, W. F.	Sheboygan	Wisconsin
Graskamp, H. H.	Fillmore	Wisconsin
Gartman, Chas.	Sheboygan	Wisconsin
Ganschow, Frank	Bonduel	Wisconsin
Gessart, J. Y.	Plymouth	Wisconsin
Goehring, L. B.	Parnell	Wisconsin
Grootemont, John	Brillion	Wisconsin
Glover, A. J.	Elgin	Illinois
Green, S. F.	Chicago	Illinois
Green, Rollie	Albion	Wisconsin

H.

Hamm, W. P.	Allenton	Wisconsin
Hamilton, C. H.	Twin Bluffs	Wisconsin
Horton, R. A.	Fond du Lac	Wisconsin
Harns, C. T.	Sheboygan	Wisconsin
Hallwacks, E. J.	Howard	Wisconsin
Heckert, C. A.	Chilton	Wisconsin
Hulver, F. J.	Highland	Wisconsin
Helm, R. E.	Oshkosh	Wisconsin
Higgins, C. B.	Charles City	Iowa
Helm, A. B.	Oshkosh.	Wisconsin
Hurley, Bert	Bloomfield	Wisconsin
Hoefler, Geo.	Madison	Wisconsin

Hers, Peter	Spring Green	Wisconsin
Halm, A. A.	Ada	Wisconsin

J.

Joslin, H. C.	Boaz	Wisconsin
Johnston, Thomas	Boaz	Wisconsin

K.

Kliner, Frank.	Welcome	Wisconsin
Kielsmier, F. A.	Hika	Wisconsin
Knickerbocker, S. E.	Wyoming	Wisconsin
Kachel, Thomas	Whitewater	Wisconsin
Koehler, A. C.	Plymouth	Wisconsin
Keyes, E. J.	Cascade	Wisconsin
Keller, Edward	Saukville	Wisconsin
Karlen, Jacob	Monroe	Wisconsin
Karlen, Fritz	Monroe	Wisconsin
Karlen, Jacob, Jr.	Monroe	Wisconsin
Kapelka, John	Cobb	Wisconsin
Kasper, P. H.	Nicholson	Wisconsin
Krnel, G. W.	Highland	Wisconsin
Kirkpatrick, John	Chicago	Illinois

L.

Lang, J. F.	Chicago	Illinois
Loomis, H. F	Sheboygan Falls	Wisconsin
Lindsey, G. H.	Parnell	Wisconsin
Lenrand, Scott	Sheboygan	Wisconsin
Lindow, F. W.	Forest Jct	Wisconsin
Liegal, George	Spring Green	Wisconsin
Lounsburg, J. N.	Watertown	Wisconsin
Lepley, Edgar	West Lima	Wisconsin
Lindner, E. E.	Jericho	Wisconsin
Lagrandner, H. A.	Somerset	Wisconsin

M.

Moore, C. R.	Balmoral	Wisconsin
Marty, Fred.	Browntown	Wisconsin
Marty C.	Edelstein	Illinois
Mason, Peter	Jerpen	Wisconsin
Miller, Chas.	Theresa	Wisconsin
Maedke, E.	Brillion	Wisconsin

Meyer, H. E. ..... Green Leaf .....Wisconsin
Mulvey, Jas. ..... Plymouth .....Wisconsin
Mallmann, James ..... Sheboygan .....Wisconsin
Moor, J. W. ..... Richland City .....Wisconsin
Mickle, Chas. ..... Ithaca .....Wisconsin
Michels, Matthew ..... Garnet .....Wisconsin
Mozley, W. J. ..... Ripon .....Wisconsin
Miller, Henry ..... Sheboygan Falls .....Wisconsin
Meyer, P. H..... Brillion .....Wsconsin
McCraig, J. H. .....Hubbleton .....Wisconsin
McKinnon, M. ..... Sheboygan Falls .....Wisconsin
McKinney, J. H..... Boscobel .....Wisconsin
McCready, John ..... Madison .....Wisconsin

N.

Noyse, H. J..... Muscoda .....Wisconsin
Novy, James ..... Yuba .....Wisconsin
Nelson, B. ..... Dale .....Wisconsin
Nesbit, Hugh ..... Bloom City .....Wisconsin
Nesbit, Wm. ..... Richland Center .....Wisconsin
Ninnemann, H. W..... Cascade .....Wisconsin

P.

Peacock, P. H..... Sheboygan .....Wisconsin
Pickert, G. W. ..... Clintonville .....Wisconsin
Pickard, Chas. ..... Muscoda .....Wisconsin
Parkins, A. W..... Stanton .....Minnesota
Peck, J. C. ..... Waldo .....Wisconsin
Poasch, Wm. ..... Plymouth .....Wisconsin
Powell, J. K. ..... Chippewa Falls .....Wisconsin
Pheatt, H. D..... Milwaukee .....Wisconsin
Parge, H. S. ..... Dorchester .....Wisconsin
Pingel, E. C. ..... Chilton .....Wisconsin
Piper, C. H. ..... Cascade .....Wisconsin

Q.

Quade, Henry ..... Watertown .....Wisconsin

R.

Roemer, J. A. ..... Madison .....Wisconsin
Rohde, Edward ..... Plymouth .....Wisconsin
Ruetten, Peter ..... Twin Bluffs .....Wisconsin

Roys, H. M.	Ironton	Wisconsin
Reineking, F. C.	Franklin	Wisconsin
Roethenback, J.	Ackerville	Wisconsin
Roth, Chris.	Monroe	Wisconsin

S.

Schlimm, H. H.	Hortonville	Wisconsin
Siggelko, Amil	Hika	Wisconsin
Stener, N.	Milwaukee	Wisconsin
Sudendorf, E.	Elgin	Illinois
Sell, R. O.	Watertown	Wisconsin
Stanz, H. B.	Milwaukee	Wisconsin
Slyfield, E. L.	Sheboygan	Wisconsin
Steinhart, O. J.	Muscoda	Wisconsin
Simon, N.	Neenah	Wisconsin
Schmitt, K. J.	St. Kilian	Wisconsin
Southard, Roy	Richland City	Wisconsin
Smith, Archibald	Strathroy	Canada
Schaller, Alex.	Mt. Horeb	Wisconsin
Schultz, H. S.	Cato	Wisconsin
Schley, Henry	Forest Junction	Wisconsin
Schauf, Albert	Plain	Wisconsin
Sweeting, C. W.	Madison	Wisconsin
Schafer, Bruno	Darlington	Wisconsin
Schummay, C. P.	Milwaukee	Wisconsin
Schanen, N. T.	Lake Church	Wisconsin
Steinhaus, W. B.	Madison	Wisconsin
Schmitt, C. J.	Muscoda	Wisconsin
Stanek, A.	Yuba	Wisconsin
Scott, H. M.	Sheboygan Falls	Wisconsin
Schaefer, J. A.	Prairie Farm	Wisconsin
Smith, Robert	Richland Center	Wisconsin
Stewart, W. A.	Eagle	Wisconsin
Sargent, F. N.	Madison	Wisconsin

T.

Taylor, H. E.	Cushing	Wisconsin
Taplin, L. P.	Madison	Wisconsin
Thomas, W. C.	Sheboygan Falls	Wisconsin
Trachrel, A. C.	Monroe	Wisconsin
Thelen, M. G.	West Bend	Wisconsin

U.

Ubbelohde, F. A. ..... Hills Crossing ..... Wisconsin

V.

Viergutz, F. A ..... Chippewa Falls ..... Wisconsin
Vogt, John ..... Orihula ..... Wisconsin

W.

White, C. A. ..... Fond du Lac ..... Wisconsin
Wallington, Frank ..... Denver ..... Colorado
Wheeler & Smith Co..... Sibley ..... Iowa
Waterstreet, Wm. ..... Chicago ..... Illinois
Woelfgram, Otto ..... Dotyville ..... Wisconsin
Wolter, F. S. ..... Lawrenceville ..... Wisconsin
Wunsch, Edward ..... Sheboygan ..... Wisconsin
Wallace, John ..... Algona ..... Iowa
Ward, J. E. ..... Sandusky ..... Wisconsin
Wolfringer, Joseph ..... Dundas ..... Wisconsin
Wallace, P. W. ..... Hortonville ..... Wisconsin
Williams, C. H. ..... New York ..... New York
Werth, A. C. ..... Neenah ..... Wisconsin
Willson, D. W ..... Elgin ..... Illinois
Wienreis, Peter ..... Johnsburg ..... Wisconsin

Z.

Zimmermann, A. H. ..... Mt. Vernon ..... Wisconsin

TRANSACTIONS

WITH

ACCOMPANYING PAPERS AND DISCUSSIONS

OF THE

Wisconsin Cheesemakers' Association.

TENTH ANNUAL MEETING, 1902.

The meeting was called to order at 10 o'clock A. M., January 8th, 1902. President W. C. Dickson in the chair.

The Chairman: The convention will come to order. I hope you. According to our program, the address of welcome was to you will give due attention to the gentleman who is to address have been given us by the Honorable Mayor of the city of Milwaukee, but I have in my hands a letter notifying us that he is unable to be present. However, he has sent a very capable representative in the person of the Hon. John F. Donovan.

ADDRESS OF WELCOME.

Hon. John F. Donovan.

Mr. Chairman and Gentlemen: When Mayor Rose asked me yesterday to come over here and take his place, he expressed his very sincere regret that he is not able to be with you himself. He is to speak at a banquet at Indianapolis, a banquet held by some prominent democrats, and the engagement was made some

months ago, so you may be sure he did not leave because he did not want to address you. You are missing a rare treat in that Mayor Rose is not permitted to talk to you. There is no man in the city that knows Milwaukee as well as he knows Milwaukee, or who is so ambitious for Milwaukee, feeling that it is bound to be the metropolis of the Northwest, and that all the people of Wisconsin shall feel that Milwaukee is the best place in Wisconsin next to their own homes.

I do not know what to say to you. I have not read up in cheese, but I am glad to meet the men that make Swiss cheese, though we are in the habit of thinking we get it from across the water, but we are finding out that a good deal of it comes from Green county. In Milwaukee we consume a great deal of Swiss cheese—of course, you can see I am a German although my name is Donovan. I presume that five nights out of six, before I go to bed, I eat a Swiss cheese sandwich and drink a bottle of beer, and after talking with your boys I have come to the conclusion that I have been eating Wisconsin cheese. It all goes to show what we can do in Wisconsin as well or better as anywhere on the face of the habitable globe. There is no reason why Wisconsin dairymen, with all the advantages that they have, with our splendid climate, with its grand soil, with the experience that they have gotten by keeping in close touch with the advancing conditions of all sorts, in connection with the dairy interests, and with the assistance you are getting from the Wisconsin Experimental Station, and with the ingenuity that seems to be inherent in our soil, and our atmosphere, there is no reason why we cannot make better cheese, develop better cattle, raise better crops and do everything else better than any other place in the world.

The fact that you have come together in convention and that you are throwing all the results of your experience into one pot and sifting it all out and taking the best things out of it, assures us that when you leave this convention and all other conventions that you hold for your mutual betterment, that it will work great good to every individual that attends, to every individual who reads about it, to the end that you may make better prod-

ucts at a cheaper cost, that you may become more successful as time goes on, because it is only by interchange of thought and by trading experiences that men progress in this world.

Now, on behalf of the city of Milwaukee we are more than glad to have you with us, especially as you come from the State of Wisconsin. We want every citizen of Wisconsin to feel that he can come to Milwaukee and find himself at home. We have the most cosmopolitan city in the world; every nation is represented here; we have the broadest liberty that can be found in any large city in the world, with the lowest percentage of crime. Why, do you know, gentlemen, that we have over 300,000 population in Milwaukee, and we have only three police stations in the whole city. We have the largest brewery output in the world and you will find less drunkenness in Milwaukee than in a city of 100,000 inhabitants. We have no professional crooks or criminals; we have 1,700 saloons; some of them never close their doors; they run all the time, and yet it is as orderly as a large village—this beautiful city of Milwaukee. We have theatres, places of amusement; our people love music and they love flowers and they love trees on the streets, and they love their homes, and when you find a people that love these things, you will find that a moral, law-abiding, liberal people. We love our city; we believe we have the best governed city on the face of the globe. Our laboring men in this city in a great measure own their own homes. We have no tenement houses, no tenement districts; we have no dark streets or alleys; we have got a great big village in many respects, a city in all respects, and we are glad to have you with us; we hope you will enjoy yourselves. The city is yours; go where you please, when you please, and at what hour you please, you will find that you will be treated courteously and respectfully, and we trust and hope that your convention will be a magnificent success, and that it will redound not only to the credit and enlarged experience to the people present, but that its influence will be felt throughout the entire State, and that all the people who are in the same line of business, and all Wisconsin will stand out before all the world as the great cheese-making state, as the state that has made the

most progress in the shortest space of time. Gentlemen, again I bid you a very heartfelt welcome.

RESPONSE.

John A. Carswell, Lone Rock, Wis.

Mr. President, Mr. Donovan, Brother Members of this Association: While I fully appreciate the high honor that was conferred on me when requested to make this response, yet, Honorable President, I only deplore my inability to so couch my words and clothe them in the garb of elegance which is befitting this occasion upon our first entry into the Garden City of the State. Yet, in behalf of the Wisconsin Cheese Makers' Association, in behalf of every cheese maker, who now or has ever toiled over the vat, yea, in behalf of every good citizen who takes an interest in the industrial welfare of the state, I stand here before you as the representative of Mayor Rose to thank you. I thank you for this most cordial greeting that you have extended to us, upon this, our tenth anniversary, and upon the first convention ever held within the gates of your most beautiful city.

I think that I voice the sentiments of every member of this association when I say that we feel justly proud to be enrolled upon the membership of this association, which, though young in years, has so far shed its swaddling clothes as to be ranked amongst the first industries of the state, being an industry that brings millions of dollars into her coffers, and furnishes employment for thousands of her honest sons and daughters. And, while we feel under obligations for the magnanimity with which you open wide your gates in hospitality, I wish to state to you that it is our aim that your confidence shall not be misplaced. We are not here bent upon pleasure alone, but we are here for purposes honorable in the eyes of men. We are here in the close comradeship of our association, for the interchange of

knowledge gleaned in the hard school of experience; we are here to more firmly cement the bonds of union of our association and perpetuate the brotherhood of men. After we have listened to the splendid programme prepared here through the almost indefatigable efforts of our worthy secretary and the able staff of officers, I think that every member of this association will go away from here laden with a fund of knowledge that will go far towards lightening his next year's labors and bettering the products of his next year's work.

Gentlemen, we cannot all be kings; in this most beautiful republic of ours of over seventy millions of people, there is but one President, and yet there is power more potent in the vast host greater than Pharaoh's army, of the intelligent, toiling, striving, industrious men who are an honor to the high source from whence they emanate, and we as toiling in this our chosen vocation, can but keep step in this onward march of human progress. And, if it should so happen, after we have done the best we can and after this splendid welcome tendered to us by the Honorable Mr. Donovan, it behooves us, one and all, to exert every God-given faculty that we possess for the betterment of this cause, that it may redound to the future credit of this, one of the glorious states in the sisterhood of the republic, and after we have done all we can, boys,—you are all my friends here; you have all known "Old John" for ten years; he subscribed his name to that membership roll when it was inaugurated ten years ago in the city of Madison, and with no exception he has been with you; I just ask you this: Do all you can do, all you can for the betterment of the cause, and if then, should it so happen that the fickle finger of fortune should point some of us by the wayside as among the "has beens," we will have the consolation when it comes to the grand final wind-up, we will all inherit our six feet two of Mother Earth, and even at the worst, should we have to take it in some dark corner of the potter's field, if we go there, boys, with a clear conscience, well and honorably done, we will sleep as sound, we will waken to as bright a morning as he who lies in a marble sarcophagus.

Friends, for your most cordial greeting to the cheese makers

of Wisconsin, again I beg leave to thank you, and I wish to assure you that the cheese makers of Wisconsin will never misplace your confidence. Thanking you, gentlemen, for the kind attention which you have accorded to me, I bid you good day.

Mr. Powell called to the chair.

ANNUAL ADDRESS.

President W. C. Dickson, of Madison, Wis.

Gentlemen: To be President of the Cheese Makers' Association of the state of Wisconsin means much from an honorary standpoint; yet such honors bestowed does not signify that a president should take up too much of your valuable time in his annual address. More especially is this true on this present occasion when our time is limited.

We have met for the tenth time in this beautiful metropolis of our beautiful state, and in order to combine pleasure with profit we have abandoned the evening sessions, and while I trust that much profit may be the result of our daily deliberations, yet I also hope that our mutual pleasures shall be such as to cause us each and all, to look forward with anxiety to each succeeding meeting, in order that we may fully demonstrate our sincerity by causing our neighbors to join the ranks.

A very pleasing feature of our present meeting is the knowledge that many of our co-workers from the middle and northern counties, have favored us with their presence and we must convince those jolly good fellows that this Association was organized for their benefit as well as ours, and we must work together for mutual good.

We are also favored by the presence of many hard working conscientious cheese buyers; a few cheese factory supply men, some Sabbath School presidents, and quite a number of transportation sharks. To all of them I think I am voicing the sentiment of the Association, when I extend to them a hearty welcome. Not forgetting, however, to remind them all that a con-

tribution from each of them of one dollar per, entitles them to a full year's membership in this grand organization.

Ten years ago a thought originated in the minds of a few enthusiastic cheese men, gathered at Madison, to organize a mutual benefit association and each year since that time we have been pleased to notice the rapid strides the Cheesemakers' Association of Wisconsin has made; so that at this, our tenth annual convention, we find ourselves to be the greatest cheese organization in the United States, if not in the world.

At the time the Cheesemakers' Association was formed, I am free to confess that I, for one, was not very favorably impressed with the idea; nevertheless, I was not so strongly opposed to it that my support was denied, for I freely allowed my name to be enrolled as a charter member, and since that time I have never missed a meeting.

For the second year you have chosen me to preside over your meetings, and I must say that no honor that could be conferred by an intelligent body of men on one of their members, could be any more appreciated than this honor you bestowed on me two years ago, and confirmed at our last meeting, one year ago.

It certainly was gratifying to me to be chosen the successor to such an able predecessor as Mr. Carswell, and it was doubly gratifying to find that my actions had met with such approval as to merit your second endorsement.

The most satisfactory feature of my election and re-election was in the realization that on both occasions there was but one dissenting voice. I ask you, gentlemen, if a man in my position has not the right to feel proud when thinking that his record has been such as to merit the approval of such a large percentage of any organization; and he would certainly be craven-hearted and ungrateful, providing he failed to manifest his gratitude in public.

It is not my intention to weary you by a very lengthy address. There is a two-fold reason for my not doing so. The first is my incapability to do so; and the second is the undesirability to do so, owing to more important business and our limited time.
important business and our limited time.

It may be well for me to suggest to you the advisability of promptness in attending each session; and as each session will be held between sunrise and sunset, let me ask you to so conduct yourselves between sessions in such a manner so that your brains will be intact at all times, enabling you to grasp at all the information which may come within your reach, and at the same time deprive some of our members, who at all times seem disposed to publish to the outside world all our shortcomings, and frequently overstep the boundary of discretion and truthfulness.

You will have occasion to hear papers read by many distinguished men and men who are acknowledged authority on their chosen subjects. And just here let me impress upon you the necessity of your plying those men with as many questions as possible, never forgetting the fact that they are here for your benefit and you are here for their benefit, while this is a mutual benefit the Cheesemakers' Association.

It should be your chief ambition to give and take from your fellow workers all possible knowledge you and they are possessed of, and as you leave this beautiful Garden of Eden, I want you to feel that it is good for you that you were here, and it will be good for not only you, but for your patrons likewise.

In conclusion, let me ask all of you, who have not already done so, to kindly step over to the secretary's chair and enroll your names among the good and true, as it will only cost you one dollar.

President Dickson resumed the chair.

APPOINTMENT OF COMMITTEES.

The following committees were appointed by the chair, assisted by the convention:

On Resolutions:

Hon. John Luchsinger, Monroe, Wis.
E. J. Keyes, Plymouth, Wis.
Julius Berg, Sturgeon Bay, Wis.

On Legislation:

J. F. Bachman, Black Creek, Wis.
M. McKinnon, Sheboygan Falls, Wis.
Tom Kachel, Whitewater, Wis.

The convention adjourned to meet at 2 o'clock P. M.

AFTERNOON SESSION.

The convention met at 2 o'clock P. M.
President Dickson in the chair.

MARKET REQUIREMENTS.

John Kirkpatrick, Chicago.

A few weeks ago I received a book containing the proceedings of your last meeting. I have been reading the speeches and discussions contained therein with much interest, and it certainly must have been the best gathering since your organization was effected.

I must, however, take exception to conclusions reached by a number of your speakers on that occasion who bewailed the fact that the exports on cheese to the United Kingdom has shown a

great falling off, and this was attributed to various iniquities perpetrated by the cheesemakers of Wisconsin, Illinois and New York. I do not think these speakers looked into the true cause for the decline of our exports of cheese. Those of you who keep track of the quotations of Montreal and New York know that the true reason is that Montreal has been the cheapest market and that when New York and other markets of this country were nearer in line with Canadian markets we got our share of the business. The lack of export demand for Wisconsin cheese (the past season at least) has not been an unmixed evil from the cheesemaker's point of view. The keen competition of Chicago and Wisconsin buyers has kept the price of your cheese above an export basis, as much as 1 to 2 cents per pound. Your gain has been the buyer's loss, and I hope the coming year we buyers may receive a fair share of the profits. You are not, however, to have it all your own way this year. The competition of New York in supplying markets that the West has hitherto called its own, will be felt more keenly than ever. Until the past year or two, very few Twins and Daisies and no Young Americas were made in the West. Now things are changed. Western men have gone into New York, and have been able to undersell us in what we consider our own territory. Rates of freight from New York state to the South are less, distance considered, than from Chicago, and this subject I hope will be thoroughly discussed before this meeting ends, namely, rates on freight from say Chicago as compared with New York to the South and West.

With reference to the styles of cheese wanted the coming season, the tendency is altogether for small cheese. Cheddars, Twins and Young Americas are fast losing their position. Cheddars are not wanted at all, except for export; only a few states will take Twins, and the demand for Young Americas is getting smaller each year. To those making Daisies, I would strongly advise making them to weigh exactly twenty pounds each, fifteen days after they are made. This can be easily done by weighing the curd, and will save cuts for short weights after they leave the factory. The question of weight is a serious one and should

be settled ere this meeting adjourns. I was talking lately with one of the largest buyers of cheese in Canada on this very subject. He stated that the factories there had to deliver the cheese to the buyer half a pound over and up balance of the scale, and this rule was adopted by every board of trade in Canada. This would be hard on Wisconsin factories making Daisies, but the buyer certainly ought to receive full weights on the day of arrival in store. Another rule enforced in Canada is the double scale boarding of all cheese; also the trimming down of the boxes flush with the top of the cheese. If the cheesemaker in Canada neglects this the buyer charges the cost of doing so to the factory. In other words, the factory must deliver the cheese to the buyer in good shipping order.

"The question of boxing is a very vexed question. Many shipments reach Chicago in a deplorable condition owing to the poor timber used and the flimsy manner in which they are put together. Boxes too large and not trimmed down is one of the worst causes for breakage.

"Each cheese maker should see that the boxes fit the cheese; just large enough to slip off easily. The Muscoda section used the meanest boxes of any section in the state. Poor timber poorly made, and nails 'like angels' visits, few and far apart.' I trust cheese makers this year will refuse to accept such trash.

"The subject of high acid and sour cheeses will have to be considered by cheesemakers the coming season. The home demand for cheese in the West has kept prices above an export basis, and the market for sour and acidy cheese is extremely limited, peddlers now being the only customers, and only at low prices, say 4 to 5 cents. No matter what fine cheeses are worth, half price is now their value, and you must not grumble if buyers refuse to pay more. But, friends, it would be better for the farmers, factorymen and dealers if the price of cheese this coming season would be kept at least during the summer on an export basis. If this were the case the hot-weather cheese could be exported, and when milk began to shrink in the early fall you would get higher prices for the fall milk. The past season this was reversed, high price in the summer, low price in the fall.

This is an unnatural condition, and sooner or later somebody will get hurt. It is not to be denied, however, that the buyers are largely to blame for this state of affairs."

Mottled cheese are nearly as hard to sell as sour or acidy cheese. I was talking with Mr. Barber a few days ago. I mentioned that one factory's cheese from Mineral Point was mottled. I showed him a sample which was as near being a fancy cheese as any I have seen this season. It was close as a candle, but just a suspicion of whey flavor, which even careful buyers would not detect. Now this lot of cheese was getting mottled, and Mr. Barber asserted that this was caused by too much rennet and showed me photographs of six cheese shown at your meeting last year and stated that the one made with 9 oz. rennet was mottled. This is for the especial benefit of any Mineral Pointers who may be present. Moral: Don't use too much rennet. Your Secretary asked me to read you a paper on the requirements of the cheese market, and I have tried to be plain and concise and outspoken, for it would be unnatural for me to be otherwise. I am often told I am too blunt, but that's Scotch.

To sum up the subject, what does the market want? The answer is good cheese. The day of poor cheese is gone, never to return, I hope. How are we to get them? I refer you to page 64 of the proceedings of this convention of 1899, in which Joe Powell asks the question, "Would it not be well to have a law compelling every cheese maker to have a license?" and I would add, "and then only after serving an apprenticeship of say three years, like any other skilled artisan." By a curious coincidence I refer you also to the same page (64) in the report of your convention of 1900, wherein ex-President Carswell says that the maker must not think because he has had some advantages of dairy schooling and experience that he is "the only pebble on the beach." Prof. Henry, Secretary Baer and the whole University faculty cannot make out of a student "a little tin god on wheels" but have got to turn out good, practical, all-around men, and the good old state of Wisconsin is full of first-class cheese makers, "all wool and a yard wide and warranted to neither rip, ravel or run down at the heel. "Furthermore, when a factory

secures such a man as that, they should treat him as a man and not as a scapegoat or a pack mule." They should furnish him with first-class implements to turn out work with, and each and every patron should furnish him milk that he can make good cheese out of without sweating the life out of him, and they should furnish him with a curing room in which he can obtain a temperature and degree of moisture somewhere within absolute reason, and then if the maker does not do work that gives satisfaction they have some grounds for hauling him over the coals, but I tell you when they put some bright young man into a shed to do business in, which would be a disgrace to a well-bred sheep, and then to expect him to turn out first-class work, and fool away one or two years of the best part of his life, it is a crime against common humanity and should receive the censure of every well balanced mind.

Now, friends, that's what I call good common sense, and I quote his own words, because they express my ideas exactly, only in a better language than I am capable of expressing. I hope that in the discussion which will probably follow, that you will thresh the subject out thoroughly and not let Joe Powell's two year suggestions go to seed.

DISCUSSION.

Mr. Kirkpatrick: I wish to say that one of the finest cheese over in the hall here, which would have easily scored 98 or 99 points, has been cut enough to knock the maker out of a prize some five or six points. It is a fancy cheese in every respect, except that one great fault of check lines.

Mr. De Land: Do you think we could have a market here in the United States for all the cheese we could make in the United States, providing all the cheese were just right?

Mr. Kirkpatrick: I do not believe that it is possible to eat up all the cheese that is made in the United States now. The country west of us has been largely supplied with their own local make. It is not many years ago since we used to ship cheese

out to California, Nebraska, Colorado, Iowa, Minnesota and Kansas. Now those states are being very largely supplied with their own make. In my judgment we have got to export a certain percentage of our cheese.

Mr. Aderhold: What percentage of our cheese have we been exporting during the last two or three years?

Mr. Kirkpatrick: I can't answer the question.

Mr. Aderhold: Only a small percentage. I do not agree with Mr. Kirkpatrick's answer to that question at all. Over in England they eat 18 pounds of cheese per capta a year; in this country it is three pounds, and it is pretty poor stuff, too, and if we would only make it finer, if we would make it from clean milk instead of filthy milk—there are not five cheesemakers in this room that ever saw a vat full of clean milk,—they would soon eat four pounds instead of three, or six, more than we have got, and if they ate five or six pounds, we wouldn't have half enough to go around.

Mr. Kirkpatrick: I think Mr. Aderhold has not looked into that question as deeply as he might. He speaks of the English and Scotch people using 18 pounds per capita.

Mr. Aderhold: They wash it down with whiskey.

Mr. Kirkpatrick: We get away with a little of that ourselves around here.

Mr. Aderhold: I didn't mean to be personal.

Mr. Kirkpatrick: Well, I did. There is a reason, I think, for the small consumption of cheese in this country as compared with England, and that is the high cost of beef over there as compared with the United States. The climate also has a great deal to do with it. Over there they have got a cool, moist climate, they have no extreme temperatures there as we have here, they never get a temperature over there of a 100, 102, 103, like we had up here last summer, and all over this western country. People do not eat cheese in hot weather. Take the southern trade, for instance; it only begins about the 15th of August, when the cotton picking begins, and straggles along during the next two or three months, and then stops pretty near dead short, for the simple reason that the warm weather has come and they

get plenty of vegetables and fruits which are cheap as compared with fruits and vegetables in England. I still hold that in order to have a good fair market in this country and to have a reasonable advance on the fall make of cheese, it is absolutely necessary to create an export demand, and the only way we can do that is to buy the cheese on an export basis.

Mr. McKinnon: A few years ago I made some cheese for Mr. De Land, and they were made expressly for the Cuban market. It seemed to me there might be an opening in that direction to get rid of some of our surplus cheese; how is that, Mr. De Land?

Mr. De Land: Some years ago I sent quite a quantity of cheese to Cuba, I don't want to tell how it was made; at all events, I had from there some Gouda cheese and had it analyzed for fat and in every other way, and we tried to make some Gouda cheese, and until the tariff on cheese we had a market there. Since then I have tried to introduce some cheese. I have sent some to Washington and Secretary of Agriculture Wilson has sent some of it out. I do not think that the United States has much of a cheese trade with Cuba, and I want the makers to realize that we have got a market right at home for all the cheese we can make, in the United States; if we can make cheese that will suit the people, we cannot make enough to supply them. A very small percentage of the cheese made suits the taste of the consumer. Another point, there is an idea prevailing among cheese makers that a home trade cheese is made one way and an export cheese is made another way. A good cheese is a good cheese anywhere, and will go for home trade or export. We don't want pinholey, open cheese for the home trade or any other trade. You make a close, meaty, fine flavored cheese, and it is good in England, and it is good in every state in the Union.

Mr. Buchen: Whose fault is it, Mr. Kirkpatrick, that cheese brings a higher price here, that export cheese, than that for the eastern market?

Mr. Kirkpatrick: I think I answered that question already by stating that I thought it was the buyer's blame entirely.

Mr. Knickerbocker: Mr. Kirkpatrick has bought cheese at

Mineral Point, and the fault of which he speaks is a great fault of those cheese; you cannot keep them without a good many of them becoming mottled, and it has been suggested that the cause of that was the use of too much rennet. Now, I know that is not the trouble at Mineral Point. I bought them at the factory myself as fine as silk, not the least particle of mottle, and inside of four weeks they were mottled. I would like to know the reason.

Mr. Kirkpatrick: You will have to ask the cheesemakers.

Mr. McCready: I know that around the Mineral Point Board of Trade the majority of the cheesemakers are from Canada; I also know that in my experience in Canada in cheese making, where we made large sized cheese, we often held curd over, and I believe that a great deal of that mottle comes from the fact of holding the old curd over and mixing with the new curd the next day. If you get a little more acid one day than the other, you certainly do not have the same color; if that curd is exposed to the air more one day than the other, there is apt to be a little difference.

Mr. Powell: If that was the case, wouldn't it show in less than four weeks? If there is a difference of color it ought to show and would show when you put in the tryer, and if it was a difference in acidity it would show. I don't believe that has anything to do with it at all.

Mr. Knickerbocker: The worst factory we have the maker there makes what he calls "jump" cheese. If he has got any old curd over, he will heat it up and put it all in by itself and work it in that way.

Mr. Noyes: In buying cheese from one of our factories near Muscoda, we found that some of the cheese, when they were a week or ten days old, would show difference in color on the tryer. Where we would pull an inch or an inch and a half, it was comparatively white by the side of the other and they couldn't give any reason why, and after that cheese was held three weeks it was the same color as the other. I think the fault was in the coloring.

Mr. McCready: I think to a certain extent that some of the

mottled cheese is caused by an insufficient stirring after milling. I believe there are too many of our cheesemakers who do not stir their curds enough after milling, and again, if you get one piece of curd that weighs two pounds and another piece that weighs two ounces ,and expect to get the same result as to salting, you will find there is room there for mottling.

Mr. Powell: Do you expect to expel the whey from your curd after the milling or do you do it by the cooking?

Mr. McCready: By the cooking.

Mr. Powell: Don't you actually believe that the greatest cause of mottled cheese is uneven cooking?

Mr. McCready: Yes, I do.

Mr. Powell: Why don't you tell them that?

Mr. McCready: I haven't had time yet.

Mr. McKinnon: Do they have any of our celebrated cheese instructors down at Mineral Point? I believe our cheese instructors are one of the best institutions we have in Wisconsin, and I am greatly in favor of them. Mr. Aderhold has been to our place two or three years; I have to pay him a little, I think it was five dollars.

Mr. Aderhold: Six.

Mr. McKinnon: He came and visited my factory every time he went by, and if my cheesemaker was a little off, he would put him right again. I had a man making cheese for me. He had never attended the Dairy School at Madison, and he had rather a small idea of those graduates from Madison, so I didn't have any cheese instructor there, but I believe that because I did not have Mr. Aderhold to visit my factory this summer that I lost one good hundred dollars. If you haven't had an instructor out there my advice would be to you to have one as soon as you can get one.

Mr. Knickerbocker: I don't make cheese nor I haven't any factories in that section, but as a general thing they don't have an instructor there. Mr. McCready has been there, I think, and Secretary Baer, but no regular instructor, but I can tell you one thing, the very cheese that were mottled the worst were as fine as silk in other respects.

Mr. Aderhold: I don't know that I can help you out very much, but I can give you my reasons for mottled cheese, some of them. One of them is the uneven size of the curd particles when it is salted. Of course, large chunks of curd, while the salt will go clear through them, they haven't got the surface for enough salt to adhere to and they do not get as much salt as the little particles, consequently they retain more whey and the drier the curd is, the higher the color will be.

Another cause is because the drainage is imperfect, the drainage after milling. For instance, if it lies a long time on the bottom of the vat, close to the bottom without being stirred, the whey can't get out and perhaps it will cut the color right there. Nearly every time when I find a mottled cheese, it is because of insufficient stirring when it lies on the tin. We have cases of wavy cheese, very slight, fine little waves, discolorations all through it, and I find that where they pile their curd, mat it on tin instead of on racks and it is turned quite often, but still the face which is down on the tin, never faces up as it does on the racks, because there are little drops of whey that cannot get away and we find little wavy streaks through it. We have sometimes had kaleidescopic waves in cheese, if that is a proper term, and I don't know what is the cause of it. I think some of these colors come from bacteriological sources.

Mr. Smith: Two years ago and three years ago in Canada, we were troubled to a very great extent in the Ingersol district. It was only in manufacturing colored cheese that we had this difficulty, there was no trouble with the white cheese. It was my privilege to examine a great many of those cheese, and some of them had a most peculiar and objectionable flavor. Cheese of that character worked very fast in the process of manufacturing, as a rule, so fast that it was a difficult matter to get the curds cooked firmly in the whey, and I am quite sure that the cause of the mottles in some cases was that the curds were not properly cooked and in dipping them they were not kept apart sufficiently, the whey was not drained out properly, and some of the particles being large and the whey being held in the center, it developed acid and cut the color. Our bacteriologist, Dr. Con-

nells, at the Queen's University, in his investigations found that these mottles were largely the result of bacteriological growth. He visited one or two factories and took samples of slime and dirt from the gutters in the factory that were carrying the whey from the vats to the tanks, and he inoculated pasteurized milk with these germs, and found that it produced the very same discolorations in the cheese, it cut the color, and also produced this objectionable flavor, and he went so far as to become quite confident that that was really the cause of these mottled cheese, the uncleanliness in the factories, the whey gutters not being properly cleaned. The same might be the case by the whey tanks not being properly cleaned, or some sort of filth through which the cans would become contaminated in some way.

Mr. Knickerbocker: Were your cheese mottled on the start or after they cured up?

Mr. Smith: After they cured up some. They did not show the mottle at first.

Mr. De Land: Hon. S. A. Cook, of Neenah, is the former congressman from that district, and a gentleman who has done more for the benefit of the cheesemakers of Wisconsin than any representative that we have ever sent to Washington.

Hon. S. A. Cook, being introduced to the convention, spoke as follows:

Gentlemen of the Cheesemakers' Association:

This is an unexpected honor in being called to come before you in this your convention.

It is quite well understood, at least in my own home, that I am not a public speaker. I am glad that through the courtesy of your President I have the opportunity of enjoying a few hours' visit in this interesting meeting, and while I had the assurance, before coming into this hall, that I would not be called upon for any remarks, yet a good soldier never shirks duty, and it should be the duty of every citizen of our state to assist in the good cause for which you labor.

I am not prepared to say anything that would be interesting to you, and your coming together in convention is too impor-

tant, and the field for facts and figures too great for you to allow anyone to take your time unless they can do you some good.

Had I the facts of the conditions at the present time as I had of the conditions of 1895, in reference to the dairy products of the United States and Canada, I could give you some information that might be useful. I certainly should take issue with some of Mr. Kirkpatrick's statements; I cannot understand his theory, that you should be satisfied with a low price for your cheese in the summer in order to get a higher price in the fall, considering this from a plain business standpoint, and such a cause should interest all fair minded men.

The manufacturer of chees is a manufacturer as well as he who manufactures iron, paper, lumber or flour. Every manufacturer should put forth his best efforts to manufacture a good artcle, and should strive to keep the price at all seasons to where he can afford to manufacture a good, honest article, and I believe that with the great demand there is for good goods in this and other countries, that if the cheesemakers will make a good, pure article of cheese, the very best they can possibly make, there will always be a demand for such goods. First class goods (especially food products) are cheap at any price for which they can be bought, while a poor article is dear at the lowest price for which it can be purchased.

Your organization is doing much good; you are accomplishing a work that any association might be proud of. You have done much in bringing Wisconsin to the front among the dairy states, and in again placing the United States to the front with her dairy products, among the nations of the world.

I want to see your good work go on. I would like to see a law enacted and *enforced*, prohibiting adulteration of all food products, and if, as is claimed by some, that certain articles of food are benefited by adulteration by a mixture of some foreign substance, then let us have a law to oblige the branding of all such adulterated articles of food product so plainly that all who want to purchase that kind of food will know what they are buying; and, in my judgment, no fair minded person could ob-

ject to the rigid enforcement of such a law. A good article of food creates a demand for more, and the market broadens.

Appreciating the complimentary words of Mr. DeLand, permit me to say that whatever assistance I may have rendered while in congress toward bringing the great dairy and agricultural industry up to the high plane to which it belongs, was done on lines of duty. I was there in your employ, and the government, of which you are a part, paid me to work for you with the same energy as for other legitimate industries. You have a right to expect that of any man that is sent to Washington, clothed with authority to represent the people of Wisconsin in our national congress.

You should get after your representatives in congress, get after them strong, ask only what is fair to the great dairy interests, and insist on getting same.

Gentlemen, I thank you for your kind courtesy extended to me.

WHAT CAN THE CHEESE FACTORY DO IN THE PROMOTION OF THE INTERESTS OF ITS PATRONS.

Mathias Michels, Garnett, Wis.

The cheesemaker besides being a number one man at the vat, at judging cheese and at marketing cheese must also be a man who is fully posted on what will be to the best interests of his patrons. Such for example as the proper feeding and selecting of dairy cows, the proper housing and caring for them. One thing more than any other in which the farmers are mistaken is the impression that a Holstein cow can be made to produce Guernsey milk by feeding th proper feeds; this impression is so common in spite of the amount of light which experiment stations have thrown upon this question, that it is safe to say that nine-tenths of the farmers have the mistaken notion

that the quality of milk is affected by different feeds. Right here is where the well informed cheesemaker can be of great value to his patrons, and it is his business to eradicate from the minds of the farmers these misconceptions regarding this question.

The quality of the milk is a characteristic of the breed and of individual cows and can not be modified by any kind of feeding. Now this means that the patron must in the first place have the right breed of cattle and secondly that he must know the means of determining approximately the amount of butter fat which each cow in his herd produces, in order to enable him to get cows that produce him the maximum amount of butter fat. The greater emphasis is to be laid upon the proper selection of cows in the herd. With a Babcock test and a pair of scales this can be very easily accomplished, testing and weighing the milk of each cow for three consecutive days of each month, will give him a very approximate idea of the cows' production for the year. It is the patron's business then to cull out those animals of the lowest production and grade up his herd with those of the highest production.

It may be said here that while it is advisable for every farmer to have a Babcock tester to do the testing himself, the cheesemaker can certainly very well afford to do the testing for him, he can test these samples on his regular test days and figure the amount of cheese each cow is producing.

The following little table will readily show how much the yield of cheese is increased with an increase of the percentage of fat in the milk.

No. of cow.	Wt. of milk.	Test.	Fat.	Cheese.	Value.
1	40	3.5	1.4	3.64	$0.291
2	30	4.0	1.2	3.12	.249
3	35	3.9	1.36	3.53	.282
4	20	4.0	.8	2.08	.166
5	30	5.0	1.7	3.90	.313
6	25	4.5	1.12	2.91	.232

The above are only rough figures. I may say that I have actually found much wider differences in practice, but we find from the above figures that figuring the cheese at an even 8 cts. per lb. there is a difference of 14.6 cts. per day between the best and poorest yield and even a difference of 6 to 8 cts. when figured on an average. This difference is a large one and if actual figures given and explained as above I find that I can easily convince most of the patrons which of their cows are paying the best and which of them they had better get rid of. Applying this difference of 14.6 cts. per day per cow for 200 days we will find the best cow will bring an income of $30 more per year than the poorest. One of my patrons, Mr. J. F. Schley, who received but $19 per cow from my factory about five years ago, has improved his herd so much by properly selecting and feeding his cows that the average income per cow last year was over $63.

By explaining figures in this way and showing how wide the differences actually are in the income of the different cows in the herd I find that the patrons are sufficiently interested to keep me busy on each testing day, testing their cows, and I find that when the annual meetings come that the income of the different cows of the herds of the various patrons is so much over what it had been the year previous that the patrons are entirely satisfied for the year's showing and do not attempt to cut on the price for making cheese.

Now a word as to the feeding of dairy cows.

The progressive dairy man must have a thorough knowledge of the composition of the various feeds and must be posted at all times on the ruling market prices for these feeds, this will enable him sometimes profitably to dispose of some of his farm products and advantageously buy others. No one can teach this business proposition to the patron better then the factory man, for no one certainly will dispute that it is nothing but a plain straight forward business proposition for the patron to know these matters concerning the prices and composition of the different feeds.

The success of the dairy man lies not so much in the number of pounds of butter fat he produces as it does in the economy with which it is produced. The results of actual experiments with ordinary herds of cows shows that the cost of producing one pound of butter fat can be reduced to almost one-half by feeding the proper feed in the proper quantities. The quantity of feed is no less to be considered than the kind of feed, in the economical production of butter fat.

Let us compare a dairy cow with a piece of machinery. It will be readily admitted that to run a machine most economically is to run it at full capacity. Now a cow to produce milk most economically must be fed to her full capacity. A thing too little appreciated is the fact that more than one-half of what the cow has capacity to consume is actually required to maintain that cow, and that the food fed over and above what is required for her maintenance is the food which is converted into milk.

DISCUSSION.

A Member: What would you feed the cow to increase the butter fat?

Mr. Michels: I said in my paper that I did not think there was anything to be fed that would increase the butter fat per hundred pounds, and I don't believe there is.

Mr. Buchen: There seems to be a general impression among the farmers, when they begin to feed corn meal that the test ought to come up, but I have never found that to take place. They may increase the amount of milk, but they can not feed any fat into the milk, that is my experience.

Mr. Michels: That reminds me of a case where feeding corn meal actually did increase the amount of butter fat, but it was in this way, this man was feeding pretty heavily of bran and the bran was pretty high, so he went to feeding corn meal and fed it very heavily, and for the first four days he

actually did raise in the amount of milk, but then it commenced shrinking, and inside of four days more he had shrunk about twenty-five per cent. in his milk, and when it shrank that much, of course, the butter fat was a little higher per cent.

Mr. Everett: The cause of the increase in the per cent. of fat was the feverish condition of the cow. That is the only way in which it is possible to increase the butter content or per cent. of fat in the milk, the cow becoming feverish by overfeeding the corn meal. That is a proposition that you cheesemakers have to contend with among your patrons, that fat can be fed into the milk, and you will have it to contend with for some time. Now, I will tell you an argument that I have used a good many times in meeting this question, and it is one that usually sets the farmer to thinking seriously if he argues that he can feed fat into his milk and increase the butter content by the composition of the food; just simply say to him, "go out and buy some Holstein cows that give sixty pounds of milk a day, and feed fat into that milk," and you have got the theory beaten. He realizes at once that that is an impossibility and gives it up.

A Member: Corn will raise the fat when you first start feeding it, if the cattle are not used to it, but it will go back to normal after a while. The milk will increase, too.

Mr. Michels: I have never found it so long as the milk was increasing. Where the milk decreased, it was different, but I never found anything where the fat did increase per hundred pounds.

Mr. Mason: How much cheese do you consider one pound of butter fat will make under normal conditions?

Mr. Michels: In my paper, I say we figure on about 260 pounds of cheese to the hundred pounds of fat. That may be a trifle high, but I have taken that as a straight figure. I think it is a little above the normal.

Mr. Noyes: I think in a great many of the experiments made by the boys at the Dairy School, where the reports were

sent in, from those reports the average all over this state was from 255 to 260, so Mr. Michels is pretty nearly right. That was the average for three years.

THE BENEFITS OF MUTUAL CO-OPERATION OF CHEESE FACTORIES IN A GIVEN TERRITORY.

William Waterstreet, Chicago, Ill.

Mr. President, Ladies and Gentlemen:

I feel that the subject of Co-operation of Factories which has been assigned me by your worthy secretary is a difficult subject for me to do justice to, as the co-operation of factories in Wisconsin is practically only in its infancy. But its many advantages are being perceived more and more, and cannot be too much emphasized at the present time.

By the term co-operation I do not mean that I would advocate a trust, or the pooling of the product of factories for pecuniary gain. The primary object of co-operating in ths industry is to improve the quality of the output by having the manufacture placed under one head, and thereby reaping benefits which they could not obtain by groping along in the dark alone.

Any one can readily perceive the disadvantages that a factory labors under while working under the old independent system, and it is under this system that nearly all factories in this state have been working until quite recently. One great drawback to the cheese industry in this state, and in other states as well, has been the widespread difference in the quality of cheese manufactured in the different factories.

In order to obtain the best prices for the goods they should not only be of the right color, flavor and texture, but should be put up in neat packages of uniform size and weight. In my estimation too little attention is paid to this point by nearly

all makers. They are careless and indifferent to the appearance of the goods when ready for shipment. Twins often vary from 58 lbs. to 70 lbs. per box in the same shipment by my own observation, and the same is true of Cheddars and Young Americas. All these things count against them in the market.

Another thing: the duties of a cheesemaker are necessarily confining in their nature. He often gets into a rut and not knowing where he fails, he cannot perceive how to remedy his faults, nor how to improve his output. Consequently he must either experiment by himself or go on committing the same errors from day to day. His goods are put on the market and are graded according to a standard he may know nothing of. A cheesemaker cannot always know just what the market demands, consequently he suffers loss, which in many instances could have been avoided.

The question, then, which confronts us at this time, is, how to arrange a system of supervision and controlling of conditions in general in such a way that the manufactured product shall be of uniform and desirable quality.

It might be well for me at this point to commend the work of the Wisconsin Dairy School, which has done more toward the advancement of cheesemaking than the public, or even those connected with the cheese industry have even given it credit for. It has been a most important factor in raising the standard of cheese by training the makers for the work. But experience counts for much, and after a cheesemaker leaves the school and takes charge of a factory alone, conditions arise in every locality which are unforeseen, and with which he is unable to cope.

Hence the necessity of co-operating with other factories under one experienced director. An effort in this direction has been made by Crosby & Meyers, of Chicago, Ill., who own and control a large number of factories in this state. They have instituted a plan of co-operation in their factories that promises to result in much good to the milk producer and all parties concerned. Their method is as follows:

A number of factories in a given territory are placed under the supervision of a skilled cheesemaker, one who is not only experienced in making cheese, but knows exactly what kind of cheese the market demands. Cheesemakers are selected and allotted to the different factories, and the superintendent's duty thereafter is to travel from factory to factory and instruct the force in regard to the cheese manufactured. In the performance of his duty he calls the attention of the different makers to the quality of the cheese demanded and the method of securing it.

By following this method a uniform product is secured and maintained in all the factories under his supervision. If any difficulty is experienced in any of the factories, the instructor can be called immediately to the assistance of the cheesemaker and matters righted in the shortest possible time.

Another advantage not to be overlooked is that many times the cause of poor cheese lies in the quality of the milk, and the opinion of an instructor seems to have more weight with the milk producer than that of the maker, the former being inclined to throw all the blame for inferior cheese on the maker. But the instructor is conceded to be an impartial judge generally and is more likely to have an influence.

It would seem that a wonderful improvement could be brought about in a short time by following this method of procedure. By having a uniform and high grade of product, a good market for the output would be acquired, and the reputation of Wisconsin as a cheesemaking state of high standard be advanced to a considerable degree.

DISCUSSION.

Mr. DeLand: Do you advise that cheesemakers all go in on this plan of co-operation?

Mr. Waterstreet: I don't believe it would be a bad plan.

Mr. DeLand: To whom? To you firm?

Mr. Waterstreet: The way it would be, is for each firm to

control from 100 to 125 factories and they could have instructors, and in that way keep the makers in line.

Mr. McKinnon: I have been thinking for many years that it would be a good plan to have one or two instructors go around and visit every factory as often as possible, and that it would redound greatly to the best interests of the cheese industry, as well as to those who are making the cheese, and everybody concerned. I wish we could put the plan into practical execution.

Mr. DeLand: Co-operation don't mean that a hundred of you are to sell your cheese to me or anybody else. The point is to work in harmony with each other, and you can do that without consulting with any buyer; you can form associations and employ your instructor for, say, twenty-five factories, join together and pay an instructor that you know is competent, who has a certificate that he is a capable cheesemaker from the Dairy School; that is the kind of co-operation you want; but any other way it seems to me is to do away with the work that you should do yourselves. Employ an instructor, keep your makers in line. That is co-operation in the only practical line.

Mr. Aderhold: There is one point in connection with this matter that should be touched upon. Take it in the eastern part of the state, in the cheese districts, the cheesemakers are working so cheap that they cannot do good work, because they cannot furnish a good factory and good equipment. I don't know how it is down at Lone Rock; I understand they get two cents for making there.

Mr. Noyes: No, they don't.

Mr. Aderhold: But in the eastern section, it is on the basis of a cent and a quarter for flats, and a little more for smaller varieties, and it costs more than that to make them. I want to make the statement that on a cent and a quarter you cannot get income enough to furnish a decent factory, and you can't raise the price for making unless you co-operate. If I were to take some professor or some stranger to look into our cheese business, before I got around very far I should be ashamed of myself and ashamed of Wisconsin for the condition that our cheese business is in. I would be much afraid that I could not show

him a decent building, and I know I couldn't show him a decent equipment anywhere in the eastern section of the state. I don't know as I could show him a perfect equipment in any factory in Wisconsin. Our old buildings are dilapidated and the floors and the surroundings are in such a condition, many of them, that the only way they can be thoroughly disinfected is to burn them down.

Mr. Noyes: Would you have them insured first?

Mr. Aderhold: Ought to. Somebody ought to stand it; the maker has stood enough already. That isn't all; we have got factories that stink so that a civilized man cannot stand it five minutes.

Mr. McKinnon: Oh, no.

Mr. Aderhold: We have, we have, and we ought to have some state authority looking after those factories and making the proprietors clean up or shut up. We haven't any factories where we have got anywheres near a perfect equipment. Our vats are not built right, many of them; we are stirring our curd with a rake, and I would like to know how any cheesemakers with a big vat full of milk can do a good job stirring the curd with a little hand rake? We should have agitators that keep the whole thing in a gentle motion all the time. I have not seen an agitator in a Wisconsin factory, and I haven't heard of any Wisconsin factory that has one;—not even that world-renowned institution at Madison, the Wisconsin Dairy School, never had one unless they have got it lately. We are abusing the milk, the curd, and the cheese all the way through the whole process, because our machinery is not right; and we finish it up in a hot curing room, where you can't make a fine cheese; and we have got to have more money in order to get these factories in proper condition, and in order to get that, we must co-operate. You want to charge at least a quarter of a cent more for making, and you want to make patrons understand that they are the ones who have got to stand all the losses and pay for all the mistakes, because of incomplete factories. If you can get them to understand that, maybe they will help the thing along.

Mr. Waterstreet: How are we going to get all these things?

Mr. Aderhold: By co-operation and instruction. This instruction idea is all right; I have had a good taste of it myself. I have been at work for a company that was operating some twenty factories, and they were very closely grouped, and we had nearly absolute control over the patrons. We could say to them, "Here, you mustn't use that can; you must get a new can." And if they refuse to do it, we fix the date, and we say, "You have got to have a new can by that day, or you can't put your milk into our factories." And when the day comes, they have a new can.

Mr. Buchen: I am certainly in favor of the co-operation idea, but I don't see how we are going to co-operate as long as the factories are so plentifully situated as they are, one up almost against the other, and bound to bid against the other. The cheesemakers will work against each other. We all know of factories that will not only take in milk rejected by another factory, but some of them will even pay more in order to influence the patron.

Mr. Wallace: Prof. Russell, a few years ago, invented a remedy, I think, for all this difficulty,—the branch system. The northern part of Wisconsin, it seems to me, now presents a good field for up-to-date methods.

The trouble is principally in your curing rooms. I have operated on the branch system, and it is a perfect success. If some of the wealthy manufacturers in this convention will start the branch system in what is bound to be the great dairy section in this state, it will at least be an object lesson, and I don't believe that they will lose any money by doing so. My idea would be to build a first class, up-to-date factory at a shipping point, with apparatus for either butter or cheese, and an ice machine in the plant for regulating the temperature of the curing room. It does not hurt green cheese to haul it, and the cheap make rooms can be put out in the outside country anywhere within fifteen miles of the central curing room, that is, within a day's drive; and by having first class cheesemakers, a general superintendent in charge, all this cheese will come out of the same quality; you can regulate everything, and it

is a very cheap method of covering a large extent of territory, and the whole state can see the benefits resulting from this method of a central curing room.

Mr. DeLand: We want to take things as we find them. We are not here to get any foreign element in here to start something and buy up the rest of the factories. We are here to take the conditions as we find them. The condition is simply this: You are working against each other, and it need not be so. There is not a community in the state but what can arrange to work harmoniously together, if you will only sit down and work it out. As an instance of this, I want to call your attention to an organization that is just being gotten up in Manitowoc county. They have got tired of making on the pound-for-ten system. They have got tired of this fighting of one factory against another, and they have perfected an organization. I wish Mr. Wolfinger would tell us something about that organization; how many members have you?

Mr. Wolfinger: I think we have about twenty-seven who are stockholders, and we have the signatures of about nineteen or twenty-one. Mr. Mason has a copy of our by-laws.

Mr. Baer: I am sorry to become a disturbing element in this discussion, but at this hour the Eastern Ontario Dairymen's association is holding their first session, and Prof. J. A. Ruddick, who was with us last year at this convention, is in attendance at that convention; also Mr. D. M. McPherson, who was with us three years ago. I thought it would be a nice idea to extend greetings on the part of this association, and this is what I have written, and if it meets with your pleasure, I will go down and telegraph it to the president of that association: "The Wisconsin Cheesemakers assembled at Milwaukee send greetings to the Eastern Ontario Cheesemakers, and predict them a bountiful repast and rousing convention. Secretary U. S. Baer."

On motion of Mr. McKinnon, duly seconded, the secretary was instructed to send such telegram.

Mr. Wallace: To return to this co-operation business, I think we are here to improve conditions, and I think they could

be helped by burning out the old curing rooms and building first class central curing rooms. The chief difficulty in the whole business is with the curing rooms.

Mr. Bachman: The trouble is, most of us own our own factories, and they represent the earnings of a number of years of hard labor. If this gentleman owned a factory worth from $700 to $1,000, and that was all he had, I doubt if he would be willing to burn it down to give somebody else a chance to build another one.

Mr. Wallace: There is no need whatever of your wasting any money, so far as anything except the curing room is concerned, and that is merely the shelving. The rest of the apparatus is necessary to make your cheese. All you would have to do is to make your cheese and haul it to this central curing room, and if you can thereby make cheese that will bring you a cent a pound more, you can afford to sacrifice the shelving in your curing room.

Mr. Mason: The Manitowoc and Calumet County Cheesemakers have met several times with the idea of co-operating, and manufacturing a better article of cheese, and I believe we have struck the right thing. As to this idea of building a central curing room, and having the cheese hauled from all directions, it is a question whether it is practical or not. In our part of the country, the factories are about three miles apart, and the farmers, of course, cannot spend too much time hauling their milk to a great distance; but we are manufacturing cheese on a system that has been ruinous to Manitowoc and Calumet counties—that is, on the onefor-ten system—and we feel that we must get rid of it. We would like to ask the endorsement of the Wisconsin Cheesemakers' association in the work that we are doing up there.

Mr. DeLand: They want to know how you get this thing started.

The President: Is this a co-operation of the factorymen or the farmers?

Mr. Mason: It is the co-operation of the cheese manufact-

urers. At the Manitowoc Dairy Board, the cheesemakers were all making this statement, that they were all behind this year, and I heard some say that if they got within $250 they would consider themselves lucky. Others didn't lose so much, but they all lost too much. Well, one thing brought on another, until we commenced to agitate this, and to say: "What is the sense of us fellows working for nothing, when we could just as well co-operate together and have a uniform price for making cheese and be sure of being decently paid?" Then we could have a call board in Manitowoc and have some system whereby we would be safe, and the farmers would be equally safe, and that is the way the organization was started. That is the ground we took, and it seemed to us it was a reasonable ground.

Mr. Aderhold: Mr. Mason, do you think you can make that plan work unless a majority of the cheese dealers co-operate with you?

Mr. Mason: We are going to ask the cheese dealers to co-operate with us, and as far as I understand, they are willing to do so; because if they do not co-operate with us, it will be a hard matter for us to carry out our end.

A Member: Is this cheese to be sold to one firm?

Mr. Mason: We are going to have a call board, and invite the United States to come and buy.

Mr. DeLand: If you make cheese they want, they will come, and you don't have to ask them to co-operate, or anything of the kind; they will be there.

Mr. Gearin: Suppose we had such a co-operation and would make cheese under that system, how would you keep anybody out of that district, from building another factory after you have gone to the expense of putting up good buildings?

Mr. Aderhold: The buyers would have to boycott the new man, or you couldn't carry out the plan.

Mr. Gearin: That is what I said. How are you going to compete with all the buyers in the United States?

Mr. Aderhold: You don't need them all. You just get the best dealers that buy in our market.

Mr. Gearin: They can ship to any part of the world.

Mr. Aderhold: Yes, but they can't get the prices they can right here.

Mr. Gearin: I am in favor of such an association if it is not intended to harm the farmer. I have my idea that it will benefit any honest farmer, because if we work together and compel them to bring their milk in good condition, we are compelling them to help in the making of a better class of cheese, and as long as they bring poor milk as many factories can be built as they please, and we can't make fine cheese.

Mr. Bachman: I believe if the cheese dealers would co-operate with us along these lines, that this would be one of the greatest blessings to the cheese industry.

Mr. Mason: This is not all that we have in view with our association. We are going to employ an instructor, as far as it is possible, to instruct these cheesemakers and try to make a good, uniform article all the way through. The association is young and it takes quite a bit of money, and we have thought of petitioning our Dairymen's association for an instructor in that dstrict. If we can't have any more than one, we shall be satisfied for at least a time; it will help us some, but it is not near enough.

Mr. Michels: I do not think these cheesemakers need be afraid of the new fellows that will move in, as has been suggested. I don't think there is much danger, and it is only a matter of a very short time that they will be "froze out," even if the cheese buyers don't all go into this co-operation. If they have good cheese instructors, and can arrange things so they will have better and more uniform cheese, they will get a better price for them. If they can't do something better than the next fellow, they oughtn't to get any better price.

A Member: I wish we might have time to take up these by-laws and consider them.

The Chairman: As our time is limited, we must pass on now, but tomorrow we will take this subject up again.

LOCAL PERIODICAL CHEESE CONTESTS.

H. M. Scott, Sheboygan Falls, Wis.

The subject assigned me by our Secretary, "Periodical Contests at Local Boards of Trade," is not a direct question of art or science in cheesemaking, yet I am sure if given a thorough investigation and followed up with practice will prove a means of gaining a greater knowledge of the more valuable papers presented at this meeting.

It has been said, and I think truly, that very few makers are good judges of fine cheese. So we will take up the subject as a feature to teach makers how to score, and define the different points of cheese. If he adopts new methods or tries to improve on old ones, he should be able to judge results closely in these days of sharp competition. When buyers act as judges, they naturally form their opinions from what the trade demands, and it is our business to try and furnish what the trade wants. Let a practical cheesemaker follow the judges through a lot of thirty or more cheese with a good instructor, and he will learn more in actual cheesemaking than he could in years of work in his own factory with no comparisons but his own goods. A buyer said to me last summer: "Why is it a man gets so mad at a buyer when his cheese are bad?" There was only one reasonable answer: the man does not believe his cheese bad. He knows when his goods are pretty good, also when they are very bad, but he has not the comparison of different makes that would teach him the defects a dealer could not overlook on a dull market. So I say, let us have monthly contests and train ourselves to know the wants of the markets. Another thing, it would bring the buyer and maker closer together and create a more friendly feeling than now exists.

At our first contest at the Sheboygan Falls Dairy Board of Trade last fall, we were fortunate enough to get State Instructor E. L. Aderhold for one of our judges. He came back the next week and gave a lecture on our exhibit, and it was voted by all

present to be the best talk on cheesemaking the boys at the Falls had heard for some time. In talking with him later he said that was all right, they had seen the cheese and defects and knew what he was talking about, and I suppose he enjoyed rubbing it into them a little while he had the chance; but he did more: he told us what caused most of the defects and how to remedy them. He brought out the use and abuse of starters, and with the examples of the contest explained them so plainly the dullest could not fail to comprehend his meaning.

And you would find it so at every contest, comparison would bring out features of our work we would not ordinarily think of.

Perhaps some of you older and more experienced men do not need the instruction you would get from these contests, but bring along your fine cheese and teach us lesser lights how you make them. We will repay you by helping to raise and keep the standard of Wisconsin cheese second to none in quality instead as now of making your fine goods sell our poor ones.

Under our present method of selling I do not believe the more expert makers get full credit for their work or goods, and it is not the buyer's fault either.

Just a few words as to how I would conduct a contest. In the first place, I would get the farmers interested; more milk is spoiled by careless lack of interest than any other cause. Let them contribute to the fund for the purchase of a grand trophy to be contested for annually and held for one year by the factory winnng. I would have this part of the contest brought right home to the farmer by factory inspection.

Second, let the board give medals or such other prizes as they see fit for best average scoring cheese for series of contests.

To get the most educational value from these contests, we need a capable instructor to go through cheese with judges, and afterwards meet contestants in the exhibit room and explain the good and bad points found. Have at least one different judge at each contest, as different buyers attack different points in their fault finding, or I might say they all ride hobbies of their own and have a good right to them.

And last, no matter how small your contest may be, lay down a systematic set of rules and stick to them, for someone is sure to find fault; it's natural, you know.

DISCUSSION.

Mr. Mason: Would not that system be a good system to introduce at every board of trade where the cheesemakers could send their cheese in to certain places where the cheese could be scored by the inspector and also by the buyer?

Mr. Scott: That was the idea, to have these on local boards, or as many boards could get together as wished to. If you undertook to have a weekly contest, you would have your hands full.

Mr. Mason: What I meant was, for instance: I have a hundred boxes, another cheesemaker has eighty, another fifty, and so on, and we take them all to the Goodrich dock at Manitowoc, the cheese buyers come there to buy; the cheese buyers score those cheese right in our presence, and tell us what is the matter with them; and we could have an instructor, who could tell us how to overcome that difficulty. We could do that on a certain day of the week.

Mr. Scott: That would be all right. We took up this contest idea with the idea of teaching the maker how to judge his own cheese, by coming to these contests, say once a month, and learning to score himself, so that when he ships a box of cheese out of his factory he knows what that cheese is. I do not believe the majority of cheesemakers know when their cheese leave the factory, whether they are actually in good shape or not. As I said, they know when they are pretty good or very bad.

Mr. Johnson: I think it is a good thing to have an instructor come around once in a while. Most anybody is liable to get careless, and a good many of the cheese only stay in the curing room two weeks or ten days. Another thing: the gentleman is right; there is any amount of cheesemakers who do not know

the condition of their cheese, and a man that don't know when he has made a cheese, whether it is a good one or not, isn't fit to make cheese. I have seen men stand up in a factory and declare their cheese was good, when you wouldn't give them three cents a pound for it. I think ninety-five per cent. of our trouble is in the making; either we don't understand our business, or we get careless.

Mr. Andrich: We cheesemakers are getting it pretty hot. Now, I have seen the time when I had a shipment of cheese and one man would only allow me five cents for it, and another man came in and gave me full price for it. I believe he is the man that understands it better; I am a cheesemaker, and I call that cheese a fair cheese; but still one man said it was worth only five cents. Now, who was right in that case?

The Charman: You being the cheesemaker yourself, you ought to be the best judge.

Mr. Andrich: That is just what I am after. We are not always the ones that are to blame. Here were two men, both claiming to be perfect cheese buyers, and there was a difference of five cents a pound in the price they offered me.

Mr. Scott: Maybe that first party was honest, and maybe he wasn't. This last summer a buyer bought a lot of cheese of me that he said were defective. He said—now, the fact was that he told me so afterwards, that he simply didn't have the market to place that cheese, so he told me the cheese was defective; but he took them, and he came back the next week and said they went all right. The buyers are the cheesemakers friends as a rule; and if they save me an eighth of a cent, they do it every time. In a way, it is a bad thing that buyers will take cheese that are not fine, and pay a good price for them. He tells the maker that they are all right, and the maker hasn't learned the fine points in judging cheese.

Mr. Smith: We have made great strides in our industry, but we want to go right along and make it a more perfect industry, but we don't want to blame only one thing. The buyers won't help us much in improving matters if one man is willing to pay five cents and another ten for the same cheese.

Mr. Aderhold: I don't believe the difference in the price is as big as he thinks it is. Both buyers offered the same price, only one offered it for one pound of cheese, and the other for two pounds.

Mr. Scott: Our idea was to have the cheese scored after an inspector got through with the cheese. Of course it would be impossible for men to judge cheese with a lot of cheesemakers around asking questions. Mr. Aderhold came down on the Sheboygan Falls Board and talked to us about going through these cheese, and the cheesemakers knew a great deal more about what he was talking about than they did before.

A Member: Are the cheesemakers all present when the cheese is inspected?

Mr. Scott: They can go through with it if they wish. Our board meets in the summer time at four o'clock, but we have electric lights, and they can stay as long as they want.

Mr. Buechen: Then the cheesemaker must lose half a day every week.

Mr. Scott: Suppose he does. I would be willing to lose a whole day if I learned enough to save ten or fifteen days. They are all there every week anyway to sell their cheese.

Question: Not the cheesmaker himself?

Mr. Scott: Why, yes. In Sheboygan county, I don't believe there is a half a dozen factories owned by men who do not run their own factories. Of course if they don't get through their work, they have to have someone finish it up for them. They make it a point to be at the board of trade.

Mr. Aderhold: In Sheboygan county they get their milk early in the morning—probably an hour earlier, or an hour and a half earlier, than Mr. Johnson does over here. I have seen a factory there that took 10,000 pounds of milk before six o'clock and most of the factories have it in by seven.

THE CHEESE CONTESTS AT THE PAN-AMERICAN EXPOSITION.

Hon. A. D. DeLand, Sheboygan, Wis.

It is gratifying to see so many cheesemakers interested in trying to learn how to make better cheese. The hundreds of Wisconsin cheesemakers who are absent need the help and instruction this convention offers, more than you do. Many of the absentees will continue to spoil good milk in their ignorant attempt to make good merchantable cheese, and continue to accept the reduced price which cheese buyers must pay them for their poor goods, for the very reason that they will not attend the Wisconsin Dairy School or the many dairy conventions held for their benefit.

The only hope we have is, that the intelligent, up-to-date cheesemakers will drive these negligent, indifferent fellows out of business, which will be a benefit not only to the skilled cheesemakers but will increase the reputation of Wisconsin cheese.

Being one of the original members of the Wisconsin Dairymen's association, I wish to remind you that we were the *"starter"* that made possible the Wisconsin Dairy School, the Buttermakers' association, the Wisconsin Cheesemakers' association, and the several boards of trade in Wisconsin. The *offspring* of the Wisconsin Dairymen's association may be termed the *"startoline,"* and I have no objection to either word when used in this connection. Our organization could not devote all its interest to one or two specialties, and we are very glad that other organizations have been instituted as a result of our work, and we wish you Godspeed in the effort to improve the dairy products of Wisconsin; and while some factories and localities stand high in the estimation of the trade, the majority of the cheesemakers are unable to turn out a desirable product. The contest at the Pan-American Exposition on cheese bears me out in that assertion. The entries from Wisconsin were selections from many factories, and the same was

true with the cheese exhibits from other states and Canada. The judges were not permitted to see the scores after they were made by the three judges, and I have been unable to secure a report of the scores on all the exhibits of cheese made at the Pan-American Exposition last summer. I think the scores on Wisconsin cheese averaged higher than those of any other locality, which was due to the flavor being nearer perfect. The cheese from New York and Canada showed more acid than Wisconsin cheese, some being quite mealy and nearly all acidy to the taste. When cheesemakers realize that it is *taste* that really controls the consumption of cheese, they will be more critical of the milk they receive, more cleanly in their factories and surroundings, and use the best material obtainable in its manufacture.

There is a vast amount of work to be done by cheese instructors, dairy and food commissioners, and patrons of cheese factories if we ever have cleanly factories throughout the state. The law relating to cleanliness of cheese factories does not seem to be enforced.

I do not think that the cheese contest as managed at the Pan-American imparts any very important, available lesson to cheesemakers; you who exhibited know the score of your exhibit and no more.

When cheese contests are public, the exhibitors advised of the time when the cheese will be scored, the cheesemakers present, and the judges explain in each instance the *reason* of their markings or score, then, and in that way only, will such contests be educational and lessons given that will be a great help to makers; and this educational feature should be extended farther, by advising the public that at a certain time the cheese scoring nearest perfect will be cut and given in small quantity to test, thereby teaching the public what a good cheese is.

I would like very much to have the cheese exhbited at this convention scored in this way, and can assure you that it will be a better lesson for you than any you will receive from the cheese contest at the Pan-American Exposition.

DISCUSSION.

Mr. Johnson: How do you like the Canadian cheese as against Wisconsin cheese? Do you think they make a better or finer cheese?

Mr. DeLand: I do not. I think they average in texture as good as Wisconsin cheese, but in flavor they do not, and I have my reasons for their not being so. I don't want to state them.

Mr. Knickerbocker: Do you think that a Canadian could do justice to our cheese in scoring, as compared with theirs? Isn't their cheese made much differently from ours? It hasn't got nearly as nice a texture as ours, has it?

Mr. DeLand: I don't like the texture as well, and I like the transparent color, nothing mealy.

Mr. Knickerbocker: You would not find that in a Canadian cheese, would you?

Mr. DeLand: I did not find it.

Mr. Knickerbocker: Then do you think that a Canadian could score our cheese and do it justly?

Mr. DeLand: I don't want to answer that question, for it would be a reflection.

The Chairman: You must not forget the fact that we have got some Canadians here, and we don't want to seem to be casting reflections.

Mr. Johnson: Do you think a Canadian cheese draws as nice a plug as a Wisconsin cheese? I was over there last summer and I was in several of the best factories, and their cheese was nice, but they don't draw out a real nice plug. You could tell wherever two pieces went together.

Mr. DeLand: I want to say here in regard to the style of cheese, you makers are lacking in that respect. You don't bandage nicely, turning it over so as to lap just so on the surface, and the surface all smooth. You don't take pains enough, and some of the exhibits from Wisconsin were dropped several points on the appearance, and that was one of the things that interfered with the high scoring of the cheese.

Mr. Aderhold: If Mr. DeLand and the other dealers would show by the prices they pay for cheese that they prefer a well dressed cheese to a slovenly looking cheese, they would correct that pretty soon.

Mr. DeLand: Well, every dealer knows that we pay too much for some cheese and not quite enough for others, in comparison.

Mr. Mason: Do you consider that we make a better cheese now than we did three or four years ago when Mr. DeLand was in Madison, and gave us a raking over about our starter business? I think we have reduced the starter from three per cent. to less than one per cent.—at least I have, and I know that I make a better cheese.

Mr. DeLand: Yes, it is better throughout, and I attribute it to that. You are not using starters so promiscuously and so generally as you were at that time, and the result is, we have a finer flavored cheese.

Mr. Noyes: I remember a great many people took exceptions to what Mr. DeLand said at that time; now, three years after, we come around and thank Mr. DeLand; we have got that better result anyway. Now, if we can get better results by calling the Canadians down on this scoring, that may be a good thing too. We haven't anything against our Canadian brothers; they are right here with us, and we enjoy them, and we hope that by working together and questioning each other, we can all get benefit. There is no harm in calling the Canadian down or the American down, if we can benefit the whole body of cheesemakers of Wisconsin.

The Chairman: That is all right, if the Canadian is here to answer back, but not behind his back.

Mr. White: There seems to be a wrong impression about the Canadian cheese. I had the pleasure in June of judging a lot of cheese with a Canadian gentleman, and a more thorough or fairer judge I never saw. I think they know a fine cheese, and a fine cheese is a fine cheese all the world over.

Mr. Aderhold: I have been in Canada a good deal, and I

want to say I believe they could show just as fair a score on our cheese as we would ourselves.

Mr. Everett: I have visited a good many Canadian factories and have met a good many Canadian cheese and buttermakers and dairymen, and have always been led to consider them skilled men in all these lines, as well as in breeding live stock. Now, then, if it is a fact that Canadian cheese is leading Wisconsin cheese in the English market, is it not for the reason that it is better cheese, or is it because we once made filled cheese and lost what reputation we had? I ask that question of Mr. DeLand?

Mr. DeLand: Wisconsin cheese will sell to-day in England for more than Canadian cheese.

Mr. Everett: Good, I am glad of it.

Mr. Kirkpatrick: What authority has Mr. DeLand for that statement?

Mr. DeLand: I am a dealer, and have had men from the other side come into my place and talk.

Mr. Kirkpatrick: Will Mr. DeLand inform us how it is that American cheese are quoted anywhere from two to three shillings a hundred less than Canadian all the time? Not one week, or two weeks, or one month, but every week in the year?

Mr. DeLand: Those quotations are not made up by anybody that is interested in Wisconsin cheese.

Mr. Kirkpatrick: Who makes up those quotations?

Mr. DeLand: We are getting off the question.

Mr. Kirkpatrick: I beg your pardon, I think it is very pertinent. I would like to know who it is that sends those cables over here and whether those cables are authentic.

Mr. DeLand: The subject before the house is in regard to the Pan-American cheese contest.

Mr. Kirkpatrick: Mr. White, can you give us any information on that subject?

Mr. White: I can, but it is not in order.

Mr. Kirkpatrick: Am I in order, Mr. President?

The Chairman: You are not in order, sir.

Mr. Everett: I think we will have to concede that our Canadian brethren have been a little more wise than we have in the matter of legislation, in the matter of keeping out fraudulent products. They have been making fine butter and cheese, and they have been leading us in the foreign markets, we cannot very well get behind that fact, and it is a good lesson for us.

Mr. White: The Canadians, you know, have to depend on the English market for the sale of their butter and cheese, and it is an important item to the people of Canada, amounting to some sixteen or seventeen million dollars a year for the cheese product, and last year some eight or ten millions for butter. This industry is fostered by the Canadian government in the matter of subsidies, and they do everything to help to bring up the make as high as possible, and the consequence is that Canadian butter and cheese in the markets of Great Britain today lead the United States product, for the simple reason that we do not export for those markets; we have our own home market that pays a good deal better than the export markets, and the only cheese which are exported to Great Britain are cheese which are either under price, or have been overkept, and have to be sent to export to get rid of them. Very few fancy cheese to-day are exported to Great Britain except Young Americas, perhaps a dozen cars a year.

Adjourned till 9 o'clock A. M., January 9, 1902.

SECOND DAY'S SESSION.

Thursday Morning, January 9th, 1902, 9 A. M.

The President in the chair.

The Chaiman: Gentlemen, we will come to order. We have a response to the telegram sent yesterday, to the Ontario convention, which I will read: "Whitby, Ontario, January 8th, 1902: To the President, Secretary and Members of the Wisconsin Cheesemakers' Association, Milwaukee: Your kind wishes reciprocated. Your predictions for a rousing meeting are being more than fulfilled. Hoping the dairy interests common to Wisconsin and Ontario may continue to come to the front, we are your co-workers.

S. D. Derbyshire,
Pres. Eastern Ontario Dariymen's Association.

THE PRESENT CONDITION OF WISCONSIN CHEESEMAKERS AND FACTORYMEN.

Nick Simon, Neenah, Wis.

The subject assigned me is one of vast extent and of great importance to this association. It is one of vast extent because it is broad and far reaching, and of great importance because it embraces the faults of the present condition of Wisconsin Cheesemakers and Factory-men, which must be remedied.

Now the primary object of this association is to advance the interests of cheesemakers and anything which will tend to advance their interests should be met with hearty approval.

This association since its organization in 1893, has met every year and to good results in certain lines, but it has yet not touched upon the vital faults of the condition of Wiscon-

sin cheesemakers. In this paper I shall endeavor to discuss them.

Up to the present day the cheesemakers have not made a dollar, but are just as poor as when they started, while on the other hand our neighbors engaged in other lines of business have laid up fortunes. Now what is the cause of this? And I answer *lack of co-operation.* This is the age of co-operation and *we* must *co-operate.* Now while we are open in telling how to make cheese and co-operate in this respect, yet we will compete with each other in many ways.

First: We try to declare best dividends for patrons. One cheesemaker tries to pay patron more than another, and thus raises the price of milk way above actual value, to the detriment of his own profit. While we have worked hard and used our utmost energy and skill to do away with the filled cheese and skimmed cheese, thereby raising the price of full cream cheese and bringing in about $2,500,000 more annually to the patrons, yet we have lost sight of our own welfare.

Second: Some makers have taken unfit milk which perhaps was rejected by some one else. They at times, disregard the Babcock test and buy milk just to get patrons. Now here again the patron gets the advantage and the maker again loses sight of his own welfare.

Third: Cheesemakers frequently underbid each other in the price of making, again working against themselves. Why not have a standard? Why cannot this association have a standard for *making,* based upon the *number of pounds of milk* received at the factory. This will help do away with undue competition and encourage large factories. The patron in this way will work for the interests of a large factory, as he will then be getting his product made up cheaper, even though he has to haul it a greater distance.

Fourth: Makers often times go into some one else's territory, and thus again compete with one another, and then too many factories will be located in a given place for the amount of milk available. There is plenty of room in the undeveloped Northern and Western Wisconsin to start in factories, as

Mr. P. W. Wallace of Hortonville, Wis., brought out last year in his paper on the "Future of Northern Wisconsin."

Besides these faults there are many other ways in which cheeeemakers compete with each other, thereby cutting one another's throats. Now it is this lack of *co-operation* which I deplore and which I hold must be remedied if we wish to make anything.

Now another great help for cheesemakers would be to co-operate with dealers. In the past we have not treated them fairly and they have reciprocated. Now how can we co-operate with them?

This can be done in the first place by doing away with so many local boards as we now have, and establishing only one board. But the question arises, what help will accrue to us by such action? It will help us because it will make the cheese market more steady. So much fluctuation during the week will be done away with. With a steady market we can run a conservative business and do away with much wild speculation. We will know just what to pay out for milk, etc., and can figure a profit for ourselves and be sure of it. Cheese can be sold on the basis of this market from every point in the state. And again this one market will do away with undue competition among the intermediate buyers, who raise the price of cheese way above market value, then being obliged to reject the same, buy them back again way under the market and thus discourage the business with a great loss to us.

This scheme which I now recommend to the Association, is not mere theory but is in actual practice in butter markets. Practically all butter sold in the United States is based on the *Elgin market* and perhaps I am safe in saying that this market rules the world. We never hear of sudden fluctuations in the butter market, but the price is steady and conservative. The buttermakers contract butter on the Elgin market and if grades extras they have no trouble in disposing of their product at full market price, thereby giving satisfaction to all parties concerned. In this way No. 1 cheese will bring No. 1 market, and so on.

Another fault in the present condition is that incompetent salesmen are hired to sell the products of the cheesemaker. Now each cheesemaker certainly ought to be his own salesman as he is the best judge of his own product.

I would also recommend to this Association that the Cheese Instructors of Wisconsin should be appointed by this association and instead of the state appropriating the money to the Dairymen's Association, it should be appropriated to this association and this associaton should employ more instructors than are employed at present. The instructors should be competent judges who can determine the first class and inferior cheese in case that the cheesemaker and buyer cannot agree. This would encourage the cheesemaker to produce a better article, as many buyers many times take undue advantage of the makers.

Now in conclusion let me say that you may think I have judged the situation too harshly but this is not the case, as I have found out from personal experience and investigation.

That the cheese industry of Wisconsin is destined to increase year by year is a certainty and why should we not protect ourselves now? Should we wait until it is too late? Therefore I urge upon you all to fix a definite plan and regulate ourselves accordingly. Then, let us *co-operate* with each other and not only with each other, but with the cheese dealers as well so that we can promote our own welfare. For united we can withstand any unseen calamity that may happen to arise, and in competition we will lose the ground we have already gained.

DISCUSSION.

Mr. McKinnon: While I endorse a very large part of what Mr. Simon has said, there are some points that I do not endorse, and one of the points that I do not endorse is the idea that because I am running a small factory, and accommodating the neighbors around in a circle of a mile or a mile and a half,

that the farmer should have less for his milk in making up that cheese than a factory that has ten, fifteen or twenty thousand pounds. We are aware of the fact that it costs more to make up cheese where you have a small patronage, but the farmers in our part of the country don't want to haul their milk long distances. I have had experience, not only in making up cheese, but in hauling the milk, and it takes a good deal of time to haul long distances.

Mr. Simon: My point is that the cheesemaker is not getting paid for his labor in a small factory as he should be.

If a patron wants to haul his milk two miles and get more money for it, why, that is his privilege, the larger factory can make up the cheese for less money than the small factory. You take a factory that is getting 1,500 to 2,000 pounds of milk and making up the cheese at a cent and a quarter, the cheesemaker isn't making enough to pay for his board; he is simply working for nothing,, and he can't possibly keep up his factory.

Mr. McKinnon: If I understand this gentlemen's idea, a fifteen or twenty-five thousand pound factory, would make at one uniform price. Then a ten thousand pounds factory would have another price to make by, and a five or six thousand pounds still another, and that seems to me to be all wrong. Why should there be discrimination in favor of little or big factories?

Mr. Simon: It was said here yesterday that the consumption demand of this country is not taking all the goods, and that we need an export outlet. Now, the larger factory you have the more milk you have, and you will be more able to make a uniform grade of goods, to be made under one head, where otherwise, you take four or five small factories, the goods will be made under four or five different heads. We find as manufacturers in our business, that the larger factories turn out the finest goods and more uniform goods and have the readiest sale amongst the buyers. Any buyer will pay more for a lot of 100 to 150 boxes than for a small lot, say 30 boxes.

Mr. McKinnon: It is also true that at times a man will

pay as much for 50 boxes as he will pay for 150, simply because he wants just that many, and he will pay perhaps more.

Mr. Luchsinger: Mr. Simon said in his paper that one board was better than a good many local boards, and referred to the Elgin Board of Trade as an example. I would like to have Mr. Simon throw some light upon that. We must not forget that butter is always simply one thing, and in one kind of package, and prepared in one way, if it is creamery butter, and a thing of that kind can be controlled perhaps under one main management, but cheese is quite a different thing, there are so many different varieties, and consequently so many different prices. I am inclined to doubt whether one main board would serve as well in handling the cheese product as it does in the butter product.

Mr. Simon: One large board will certainly make it a bigger market, a steadier market, a more conservative market, and the way the business is being conducted, it don't make any difference how many different grades of cheese you have got you could certainly sell the different grades of cheese on one board as well as to have so many local boards. Besides it will bring the principal buyers together. It will do away with a few cheese being offered on the board, and one buyer screwing up the price against the other. Many buyers go to the board and they put up the cheese and then reject them because they buy them too high. It would hold the prices down on a basis of actual values, and we would have a steadier market for our goods and less trouble for our cheesemakers. There won't be any dissatisfaction the way there is now throughout the country. The Elgin market practically rules the United States. All butter is sold from Minnesota, Dakota, Wisconsin, Iowa, on the basis of this market. If we had one cheese market, you could sell your cheese, no matter where you are, on the basis of this one cheese market. You can contract your cheese according to that market and I find from experience myself among patrons and factorymen in the country, that if they are getting market price, that they are satisfied, no matter if the market is high or low.

Mr. McKinnon: Have you ever sold any butter on the Elgin market?

Mr. Simon: Yes, and bought lots of it.

Mr. McKinnon: Yes, so have I, and I have found out too that buyers very frequently have said to me, "If you will send in your butter to me, I will give you a half a cent above Elgin prices, and many factories contract their butter in this way, to take half a cent below Elgin, while other factories take a cent above, so you see there is variation.

Mr. Simon: I have handled a good deal of butter on the basis of the Elgin market, and I never could find anybody to pay us a half a cent above the Elgin market, unless it was a retailer. We are not in the retail business, we are in the wholesale business. A man that wanted a few tubs, might be willing to pay half a cent above Elgin market. We can't find any factories in Wisconsin or anywhere else that can get even Elgin prices, f. o. b., station.

Mr. Noyes: I know of many sellers selling on the platform in their towns for Elgin prices, good big creameries too.

Mr. Mason: We were told yesterday that we ought to have weekly contests on our local boards. Now, one board in the state of Wisconsin certainly could not score all the cheese in the state. A cheesemaker might come there and tell one poor, innocent fellow his cheese was not good, and buy it for less than the market. We would surely have to have co-operation among the cheesemakers, so we can learn to score our own cheese.

Mr. Alvis: It seems to me with that central board that there is not opposition enough, and opposition is the main thing in business; we all know that. Mr. Simon said something about good cheese being rejected. I have been in business fourteen years, and I never had a good cheese rejected. Now, according to this idea of a central board, who makes the market price? It is simply the factoryman that goes there and sells his goods to the highest bidder, and that is the way it is; no other way at all. Another thing, when we ship our cheese, if there is anything wrong, we cheesemakers, as a general rule, know it, and my principle is to mark that cheese, and tell the buyer

what it is and to do the best he can with it; or I make my own price, and if he does not accept that price, to notify me at once, and it has been working all right. Probably there isn't quite as much money in it for the buyers, but we want to stick up for it for our own benefit, and for our patrons, because that is where we get our living. There are too many boards; there are three boards in Sheboygan county, and probably will be a couple of more after a little while; and one board would be plenty, or possibly two, but with that many I think we can make things more pleasant for our patrons, and that is what we have got to work for.

Mr. Simon: You would get plenty of competition on one board, more than if you had so many; there would be an inducement for buyers to come there from all parts of the country; and with so many little boards around through the country, a cheese dealer has got to just jump from one board to the other to get around. He will buy a few boxes here and a few there, and all of the expense comes out of you fellows and out of your patrons; whereas, if there was one large board that would be an attraction to buyers, you would get full prices for your cheese; they can't buy them less than the market.

Mr. Alvis: Who makes the market price?

Mr. Simon: The demand makes the market.

Mr. Alvis: The demand in Chicago quotes prices lower than we are getting in Shebovgan Falls and Plymouth. Now, who makes the prices in Chicago, or if we should have a central board in Milwaukee, who would make the prices? Why, the buyers.

Mr. Simon: Well, we haven't got any market in Chicago. You can't compare the Chicago market with your Sheboygan market. If this general board was in Milwaukee, or wherever it was, have it in Plymouth or Fond du Lac, you put your cheese on that market exactly the same as you do at Plymouth or Sheboygan.

Mr. Alvis: Suppose the buyers won't be there.

Mr. Simon: They will be there.

Mr. Alvis: But the factorymen cannot be there.

Mr. Simon: A good many of them will be there so as to establish a market. You can list your cheese with the secretary, and say, "I want the market price for my cheese."

Mr. Alvis: What we want is to sell our goods to the man that has got the most money and will bid the highest.

Mr. Simon: That is what you will get, wherever you put your cheese.

Mr. Aderhold: Who makes the market in Elgin? I notice often in the Elgin report there is no butter offered and no goods made, "Market at 24½."

Mr. Kirkpatrick: There is a quotation committee appointed on the Elgin board, which takes into consideration all the conditions of the market.

Mr. Aderhold: The committee then fixes the market on the amount of butter offered there, and the buyers don't cut any figure.

Mr. Kirkpatrick: There is plenty of buyers, it is a buyers' and sellers' market.

Mr. Aderhold: It is not a competitive sale.

Mr. Kirkpatrick: No.

Mr. Bates: I just want to explain to Mr. Aderhold that I have been a member of the Elgin board and was at the time that the quotation committee was appointed, and that committee acts as a sort of governor. The Elgin board is a sort of manufacturers' board, and they got in the habit of running the price too high. They just simply buy and sell to each other and they ran the price too high. They found it absolutely necessary to have a quotation committee, to kind of screw them down on that price. They ran the price too high because every man who sold butter there or bought butter, either one, was a manufacturer, owning anywhere from five to fifty creameries.

Mr. McKinnon: We don't feel as though we wanted to be screwed down in our section of the country.

Mr. Knickerbocker: Do you think, Mr. Simon, that a central board could be established in Wisconsin, in Milwaukee, or any other city that would govern the sale of cheese in the United States?

Mr. Simon: No, I don't believe that could be done, because we have competitors in other states, but we can govern the prices for the western states and Wisconsin. I am positive that if we establish something of the kind, that the cheese industry of Wisconsin will increase rapidly and give better satisfaction than it has in years gone by.

Mr. Noyes: I believe we ought to have a board of trade in different sections where we could support a trade of as high as of 3,000 to 3,500 boxes on our board at one time. Then buyers can afford to come. On our local boards there are so few cheese. The buyers have sent out agents and contracted with this factory and that factory, so that at one time two-thirds of the cheese of our section were contracted for, and of course that hurt our board of trade. It seems to give better satisfaction for the cheese to be sold by contract right in the factories, and a great many of our farmers and factorymen would rather take a little less money and know what they are going to have before the cheese is shipped out of the factory.

Mr. Scott: I believe that where the call boards have gone into use, nobody would go back to the contract system. Our cheese is sold subject to inspection at the factory.

Mr. Buchen: There are three call boards in Sheboygan county, and I am certain that one-third of the cheese made last year was not sold on the call board at all, but contracted to buyers. Of course the board suffers.

Mr. Alvis: I suppose these people are getting the market price.

Mr. Aderhold: Mr. Noyes seems to favor inspection at the factory. Now, conditions are a little different in Muscoda than they are in Sheboygan county. Cheese in Sheboygan county are sold almost altogether to local dealers, and if there is any difficulty about the quality, it is an easy matter to fix it up, because the cheese have not gone far off. On the Muscoda board I understand they have no local dealers; they have to ship them out of the state and that is why they have trouble in fixing up things. I should think that if Mr. Noyes, or some

of those millionaires down there, would start a cheese house at Muscoda, they could help the situation.

Mr. Noyes: We would be wonderfully pleased to have Mr. Aderhold and some of the other millionaires in the northern part of the state come down and help us.

Mr. Luchsinger: We have a board in Monroe, which handles Swiss cheese and brick exclusively. That is why I asked how it could be managed to sell all kinds of cheese on the one board. The gentleman in my rear said something about selling the cheese at home subject to inspection in the county. Who is to do that inspecting, and is the buyer to be bound by it or not?

The Member: The buyer does the inspecting.

Mr. Luchsinger: And he either accepts or rejects right there. Now, if you have a main board and the price is made on that main board, who then is to do the inspecting of a lot of cheese made at a factory a hundred or a hundred and fifty miles away?

Mr. Simon: Why, the man that buys them inspects them. I advocate that all cheese should be inspected at the factory before they leave the factory, and if the cheesemaker and the buyer can't agree, we should have an inspector, or more than one, to go and inspect those cheese and he would settle the question for the buyer and the cheesemaker, and his decision should be final.

Mr. Luchsinger: But, suppose the buyer isn't there; suppose he simply sends in an order on the strength of the market where the main board of trade is located, who is to do the inspection then?

Mr. Simon: If you are willing to send me your fifty boxes of cheese and take your chances on getting full market price for those cheese, that is a deal between you and myself.

Mr. Luchsinger: Suppose I am not willing.

Mr. Simon: Then you must make your trade with the man why buys those cheese, and have the cheese inspected at the factory, or do it yourself.

Mr. Luchsinger: Most of the trouble between the buyer and seller of cheese arises from the fact that there is a difference

of opinion as to the quality of cheese. When the seller ships his cheese he is sure it is all right, even if it has not been inspected. When it arrives the buyer says it is not all right, and simply because some person in authority has not been delegated to inspect that cheese before it left the cheese factory. Now, I would like to know what authority the main board would have to appoint inspectors in a case of that kind, or if it would have any at all, or if the system of buying and selling would not go on just the same as it had before there was any board. There is where the trouble arises.

Mr. Simon: That is a point that would have to be settled up there.

Mr. Luchsinger: Could not a local board do that better than a main board a hundred and fifty miles away? Couldn't the local board appoint an arbitrator or inspector to judge what that cheese is before it is sent out?

Mr. Simon: Well, any way you could fix it; but the proper way and the right way, if we had a main board, for instance: I buy your cheese near Monroe and they had a board here in Milwaukee, and you sell your cheese according to that board here in Milwaukee to me; the question would be then whether I should inspect those cheese at the factory before you ship them, or whether you ship them without inspection. Now, I believe that if I could buy cheese from you and agree upon the price, it is my duty to go and look at those cheese, and accept them at the factory, and settle our difficulties right there on the ground.

Mr. Luchsinger: Suppose you are a buyer in St. Louis or San Francisco, or New Orleans. In that case it would be your duty to appoint somebody to inspect that case for you.

Mr. Simon: You are getting now beyond the cheesemaker and the dealer at home. We are talking about the way our business has been conducted to the present time. We couldn't ask your customer in St. Louis, or St. Jo, or some other place, to come and inspect those cheese here; we take our chances in shipping them.

Mr. Luchsinger: That is just what I want to get at, whether

when a buyer is, say, in San Francisco, he buys a carload of cheese in Monroe, whether or not, according to the rulings of the main board, it would not be his duty either to inspect that cheese himself, or appoint somebody to inspect it for him, and he be compelled to accept according to the report of the inspector. Would that be one of the results of having a main board?

Mr. Simon: Well, now, of course, we have a board in Chicago for butter; they inspect that butter in Chicago, they appoint inspectors. We ship some of the butter across the water; we get an inspection certificate from that board and attach that certificate to the papers and send it along, and that is final; that settles it. Now, this board could appoint inspectors in every section of the country. You could have three or four inspectors appointed in Monroe; some at Fond du Lac, Sheboygan, and so on.

Mr. Luchsinger: Then, in that case, as I understand it, the plan would be to ship your carload of cheese to the buyer, subject to the inspection of the board; that would be the proper way; and if the buyer refused to accept the shipment on those terms, of course there would be no trade; but if he did accept, he must take the goods as they are reported to be when they are shipped, when the inspector's stamp is put on them.

Mr. Alvis: I would like to ask who pay the charges for all this, here in Milwaukee, and in all the counties?

Mr. Simon: Well, that would have to be regulated and agreed on. If we have anything inspected on the market in Chicago, we have to do the paying. That would have to be settled, whether you do the paying or the other fellow does it.

Mr. Luchsinger: I think the man who sells should pay for the inspection if he gets a guaranty.

Mr. Simon: If I bought your cheese and we couldn't agree, and you had to hire somebody to inspect those cheese, of course you would have to pay for it.

A Member: I always could inspect my own cheese, and there are lots of others that can inspect cheese, and if they don't take my inspection, why, of course, I am always willing to look

it over again; probably I made a mistake, that is very easy; but every man that makes cheese ought to know what he has got. We have got to come to that, no matter how long it takes.

Mr. McKinnon: I have just one word more to say, and then nothing can provoke me to say another word. As near as I can find out, the proposition is this: That the cheese shall be inspected in the factory; after it has been inspected in the factory, the price shall be established upon that cheese at some central market. Gentlemen, we did business on very much that style for years, and we didn't like it at all. The buyer would come into the factory and say: "I want your cheese this week; your cheese is all right; I have examined it and I will pay you your price, at the price established at Milwaukee or at the central market;" and then we are going to lap back, are we, ten or fifteen years, just to accommodate a central market, as we did a few years ago? Not by any means will we let our cheese go out of our possession until they have been examined in the county and we know what we are getting for those cheese. Now, this system not only pleases buyers, but in our section of the country it pleases factorymen, and it pleases patrons, and it puts money in their pockets, and it puts money in our pockets, and you won't get us to diverge from that principle for years to come, in my way of thinking.

Mr. Noyes: Mr. Simon brought out the idea that instructors could be appointed as state inspectors to do that work. As far as my knowledge goes, we have good instructors, but when they go out to judge cheese for me or Mr. Simon, they can't do it and give satisfaction. Now, to illustrate that: If Mr. McCready should go into one of our factories and say: "Those cheese are strictly first class cheese, those cheese ought to pass," and that has been done,—I don't say by Mr. McCready. But a number of buyers have followed after the instructors in such cases, and not one of them paid the first class price for those goods, simply because the men buying the cheese for the concern in Chicago have their instructions to buy, and Mr. McCready nor any other instructor cannot know what my orders are, they don't know what Mr. Knickerbocker's orders are, and

for that reason it creates bad feeling between that cheesemaker and myself; and I know that I have been criticised pretty sharply when I was perfectly justified, when I was buying cheese under my orders, and nothing else. Mr. Johnson's orders may be different from my orders, and sometimes we vary perhaps an eighth or a quarter of a cent on certain lots of cheese, simply because we are working under special instructions, and for that reason it would be all right to appoint an instructor from a main board, if he was given authority; but you take a man appointed by the state and he could not inspect cheese for half a dozen buyers, in my opinion.

Mr. Simon: Mr. Noyes, isn't it a fact that that has hurt the cheese industry of Wisconsin, that these instructors have gone around and said, "Those cheese are first class," and then when the buyers come along, they are told that the instructors understand their business and know when a cheese is first class.

Mr. Noyes: Yes. But, now, suppose that my man wants two or three carloads of cheese and he is willing to take a few defects and give the market price for them. He goes where he can find a certain line of cheese; he buys them and pays full market price, though they are not strictly first class, and I tell the factoryman that they are not first class, and Mr. Johnson comes along, and he tells Mr. Johnson they were first class. I have known men to go out and inspect cheese and reject them, and the buyer has followed along the next week and taken those cheese as first class cheese and paid for them.

Mr. Aderhold: Mr. Noyes is right on this question of the difference of the understanding between the buyer and the instructor as to the quality of the cheese. Now, I have been at factories and inspected cheese a good many tims, and I usually find all the fault I can, as an instructor, for two reasons: In the first place, it is my duty to show up the mistakes, and in the second place, I like to find fault. It is natural, I suppose. I know of numerous instances where a man had a particular lot of cheese, where a portion of the cheese were very poor, and I explained it to him very particularly, so that he would be sure to understand what I thought about the quality of those cheese. Then

he would sell them; the buyer would come out and inspect them and attempt to cut him, and he would tell the buyer the instructor said they were all right. That happens a good many times, and in that way this impression has gotten around among dealers to some extent that the instructors don't know the quality of cheese, or have given them a higher quality than they really had, and it has been because of the misrepresentations of the sellers in many instances.

Mr. McCready: I wish to join in my little song with Brother Aderhold; that is a fact that sometimes when the cheesemaker does get into trouble, in order to square himself with his patrons and the rest of the world he claims to them when the state cheese instructor is about fifty miles away, that he said in his last visit that the cheese was all right. But I also agree with my friend Noyes, that we cannot expect the cheese instructor to be an inspector; their business is to instruct. I don't inspect cheese for anybody; it is not my business. I am like Aderhold, I like to criticise, and don't like to be criticised too much; but at the same time I never felt capable of going into a factory and telling a man that his cheese would take the top market price. Another thing: I think there is a difference of opinion sometimes on what a good cheese is, which depends a good deal on whether the market would run up, on the board of trade.

Mr. Powell: I have learned something here today, and that is, that the quality of cheese depends on the buyer who is going to buy them. I had had an idea that a good cheese is a good cheese anywhere, and will bring the top market price from any buyer. You never will get the quality of Wisconsin cheese where it used to be, until there is some system of grading those cheese. It happens nearly every week that buyers buy cheese and pay the same price where there is considerable difference in quality. The man that spends time in putting up a fancy cheese does not get paid for his time any better than his neighbor who makes his cheese just so they will pass. Sometimes, when the market is a little particular, he will get a better price for the better cheese, but during that

time he has been taking less milk to make that cheese and has got a better yield, and so he is ahead anyway. When you get some system of inspecting and grading cheese the same as butter is graded, according to the number of points, then the man with the poorer quality of cheese will have to get to the rear.

Mr. Alvis: Do you see any way of a first class maker coming ahead of the central board? Just as Mr. Powell says, I have seen cases where I have inspected cheese, and I believe any buyer would have agreed with me that they were not worth as much as another lot, but they got the same price. Now, we want to get down to that point that first class cheesemakers will be encouraged to keep making first class cheese, and if we can do it through a central board, that is all right.

Mr. Powell: I believe myself that with one central board you will get great benefit in grading cheese, so that it will be sold according to its value, as butter is now sold. If your butter don't grade extra, you get two cents less for it than the extra grade. A central board would at least establish grades.

SWISS CHEESE INDUSTRY.

Hon. John Luchsinger, Monroe, Wis.

Mr. President, I accepted the invitation of your secretary to speak on this subject with some fear. I say this with all confidence that there is no branch of agriculture that requires so much of the exercise of intelligence and watchfulness as the manufacture of cheese. It requires constant vigilance, constant care, and constant trying to keep up with the latest discoveries and methods, and I know I cannot do justice to the subject.

Wisconsin is the grandest State for the dairyman of any State in the Union, of any section in America; it is preeminently fitted for the dairy business. Perhaps it has not occurred to you that Wisconsin occupies the watershed of this

continent, and that only a little way from here, a little river runs into Lake Michigan and from thence the waters run thousands of miles along to the St. Lawrence and to the Atlantic ocean.

Lake Michigan is 800 feet above the level of the sea. Just a few miles from here near Waukesha is a little stream that runs to the Gulf of Mexico. We are on top. It looks like a level country, and yet all of Wisconsin is from 800 to 1400 feet above the level of the sea, and that in itself is a grand advantage, that elevation.

You have observed, no doubt, that in Europe the oldest and best dairy districts occupy the highest elevations, and we ought to make the most of the advantages nature has given and we can give it.

The State of Wisconsin is not only fitted for the production of one kind of cheese, but from its variety of soil and differences in elevation, it affords great opportunities for making all the varieties, and at the present time a great many different varieties of cheese are made in consequence of those advantages in the State of Wisconsin, and may be made of a good quality. These different varieties have their origin because of the surroundings in which they originated. For instance, in the low flat meadows of Holland, the Limburger cheese had its birth, and when they came to make Limburger cheese in Wisconsin, they found the same kind of locations specially fitted for the production of Limburger cheese, low valleys, abundance of rich grass, plenty of water, the same as in Holland.

Take it on the other hand, the Swiss cheese is a product of a higher elevation, it became what it is because of its circumstances and its surroundings. Those high mountains, no highways, no railroads; it became a necessity in order to dispose of the milk product to make it into a kind of cheese that would bear transportation, have long keeping qualities, keep for years in good condition. When they came to transfer that industry into Wisconsin, they found the same surroundings favorable to its manufacture, and these are surroundings that are

not so well fitted for general farming, where the fields are not cultivated or plowed at all, where the hillsides are so steep that the soil will wash away, and where there are plenty of rock near the surface, especially limestone rock, and where good springs of water abound. There are numbers of such places in Wisconsin, but the greatest body of land lies in southwestern Wisconsin, west of the Rock River, and south of the Mississippi. That tract of country never has been covered by the so-called drift formation, the hills rise in great waves and billows, with narrow valleys between and underlaid with hundreds of feet, layers of limestone, friable and crumbling, and affording the best kind of soil, and that is the home of the Swiss cheese in Wisconsin.

When you leave Milwaukee and go to Janesville, you travel over a comparatively level country, you get to a place called Brodhead, and you don't see any sign of a cheese factory or creameery hardly along there. As you leave Brodhead, the railroad begins to ascend and winds backward and forward among the hills until it reaches Judah, and you reach a country 1200 feet above the level of the sea, and you will find the country dotted with cheese factories. It is that kind of country which is unsuitable for general farming, which is the very best country for the manufacture of Swiss cheese. Not only that, but as you travel along, you will find people getting on at the stations along the road, who speak a different language, and the farther west you get, the more of that you will hear, and you wonder after awhile whether you are in America or Switzerland, just as you wonder sometimes here in Milwaukee whether you are in Germany or in America. Almost all the way to the Mississippi this Swiss industry has grown, and I will in a few words trace to you its origin.

A colony of Swiss settled in Green county in the year 1845; that no doubt accounts for the start of the Swiss cheese industry in Wisconsin, because just as soon as a settler owned a cow, the germ of cheesemaking, which he had brought with him from Switzerland, began to sprout. At first infinitely small

was the growth, a pailful of milk, a copper kettle, and a wooden hoop made from a sapling were the beginnings of this industry. The cheese were so small that they could be held by the hand of a child, they were the ancestors of the 200-pound Swiss cheese that you have seen across the street. The little kettle used for cooking purposes hung in the fireplace of the log cabin and was the predecessor of the cheese factory with all its conveniences of today. The wife and the daughter were the first cheesemakers, because the men could spare no time from the work of clearing and breaking and fencing. They went to work with what poor means were at their command, and so their cheeses became larger and better as the increase in cows and experience came, and a steady and remunerative market was created for what could be spared.

Up to 1870 cheese was not made by any factory system; each buyer purchased only the make produced on one farm. After awhile the cheese factory came, small factories were built by the farmers in various parts of the county, but inexperienced and timid as they were it required no small amount of persuasion to get them to invest the necessary labor and money, so year after year more factories, in ever widening circles were put up and the result now is a uniformity in the products and an increased market not attained under the old system.

That was the little beginning of the Swiss cheese industry in Wisconsin. Today there are in Green county over two hundred cheese factories, seven-eighths of which manufacture Swiss cheese and this industry has extended into adjoining counties and even down into Illinois; this industry is continually increasing. There is a wide tract of country through there running clear up north that is specially fitted for this industry and I have no doubt that in coming years we shall see Swiss settlers filling up that country.

At least 15,000,000 pounds of Swiss cheese are made in Wisconsin at the present time and this matter has become one of importance in this state. I believe it is a good thing for this convention and the state generally to encourage Swiss

cheese, to encourage every kind of cheese making because the more variety we have the better the market will be. People's tastes vary about cheese; for one week or one month they will like a certain kind of cheese, then they get tired of it and if they have no other kind to change to, they stop eating cheese. If they have another kind they keep on consuming cheese, which is what we are after. It is a good thing for people to devote themselves to the manufacture of the kind of cheese that their natural conditions and their experience favor. For instance, it would be almost impossible to produce a good quality of Swiss cheese in this lake region where you produce such excellent Cheddar cheese. It is a matter of soil and water, the kind of milk and other circumstances.

Now, our people make lots of brick cheese and when they want something specially excellent for favored customers they send to Dodge county for it. There is something in the soil, the spring water and the grasses there that is specially favorable to the making of brick cheese. Limburger and other varieties also require special conditions. Therefore it is wise when a certain knd of cheese has been successful in one locality not to try to change.

There is room for a great deal of improvement in the manufacture of Swiss cheese. Our Swiss cheesemakers have had thirty or forty years' experience in a smaller or greater way in Wisconsin, but it has been dearly bought experience. They have made cheese as their fathers made it before them in the old country. They have not had the assistance of men of science, of the dairy schools and universities and we are hoping that our instructors and the scientific men at Madison will take a greater interest in our manufacture than they have taken heretofore. A school of instruction has now been started at Madison in the making of Swiss, Limburger and brick cheese under competent instructors and that is one step in the right direction and we hope now that when trouble arises in conditions, our state chemists and professors will help us to find out what the matter is and how to remedy the trouble.

It may seem to be a strange statement to make, but it is true that of the 400 or 500 Swiss cheesemakers in Wisconsin, not one per cent. are Americans. In Switzerland there is a dairy school, cheesemakers get a theoretical as well as a practical education. The school sends out young men fully equipped and they come over here to get positions because of their knowledge and because Wisconsin and America offer opportunities for trained cheesemakers. We hope that this condition of things will be changed in the future and that our bright American cheesemakers will have an opportunity to learn to make all kinds of cheese, so that no matter where they may find themselves they can make that cheese to which their locality is fitted and the market demands. Our cheesemakers are good men, make good citizens, they come over here to get larger wages and to better their conditions and our own people should have a chance to meet them.

Like all cheesemakers we have our troubles, we have troubles in the matter of transportation, we have the same troubles as the rest of you, as between buyer and seller as the discussion here has shown, because of the lack of system, the lack of uniformity, and we are looking for some action by this association which will help that trouble. There is no good reason why a man when he has a lot of cheese to sell, should not get his cash for it as soon as he delivers it, just as well as when he delivers a load of wheat, a load of hogs or a drove of cattle. A farmer would laugh at you if he brought his hogs or his cattle to market and you told him that you would pay him in thirty days or that you would discount him one per cent. I am sure there is no reason why that abuse should not be done away with, no reason why when a buyer comes to your factory and selects his cheese and they are weighed off to him, no reason why he should not pay his cash upon delivery, no reason why, when your cheese has been inspected at your factory before shipping and marked with its quality, why the buyer should not be compelled to take it even if he has refused to be present or to send a representative to be there at the inspection and the weighing. An individual is helpless in such

matters but an association is powerful to compel reform, to compel fairness between buyer and seller.

Of course every honest factory man (and they are all honest), if he has a lot of inferior cheese wants to get rid of it first and some will even go so far as to mix them up in the one package thinking that the buyer may possibly overlook them or won't care anything about one or two poor cheese being among a lot of ten or twelve, but as a rule the buyer finds it out and makes the seller pay for it. Under a proper system of inspection, dishonesty both on the part of the seller and the buyer would be done away with, and that would avoid nearly all the trouble that arises in those transactions. Mr. Simon has said that the cheesemakers are poorer today than they were years ago and perhaps that is true in a measure but I have noticed that those cheese dealers and cheesemakers who have made it a rule to be absolutely honest in their dealings are not as poor, a good many of them.

Now in conclusion I will say just one word in respect to the general effect of the Swiss cheese industry and all other successful dairy business, the general effect on the country and its inhabitants. You will inevitably notice as you leave the country in which there are no dairies and get into the dairy country, you will find the farms better equipped, in more comfortable condition, fences in better shape, buildings larger and more comfortable both for the cattle and for the people, you will find schools and churches, business places, banks,—and here is the reason for it. The dairy business is such that it requires constant everyday attention, not only in the summer time during the growing season, but in the winter time. Now, when our boys are brought up under such surroundings and know that every day and every hour brings its duty, that they must to use a much quoted expression, live strenuous lives, if they leave the dairy business and go into other branches they have acquired the habit of constant attention to their business, doing everything at the proper time, and I believe that if there is one class of young men more than another

who has a chance of success in any business it is those who have been brought up on a dairy farm.

ADDRESS.

Wilmer Seig, Milwaukee, Wis., President Citizens' Business League.

Mr. President and Gentlemen:

As president of the Citizens' Business League of this city, the pleasant duty of welcoming you has been assigned to me; and it is with a great deal of pleasure that I welcome you to Milwaukee, the Cream City, and express the hope that this may be but the forerunner of many more visits, and that you may go home with the kindest of feelings for Milwaukee and her citizens.

A Milwaukeean has the right to be filled with pardonable pride in his city, because it is fast becomng one of the great metropolises of the country. It is built on a substantial basis, its prosperity is apparent, and its continued growth is not even subject to a doubt. With three hundred thousand people at present, we can safely predict five hundred thousand within the next few years, and we ask you to join with us in our efforts to make your metropolis one of the great cities of this country. We want to meet you here face to face. We want you to see the evidence of our prosperity, and we know that your pride in your state will prompt your best efforts in all that might concern the future advancements of Milwaukee, because her progress means much to you.

Representing, as you do, a factor in the immense dairy interests of this great state, you are doubly welcome. Your convention is assembled with a view of still further stimulating your interest. Wisconsin has been made famous by the general excellence of her dairy products, and in promoting

the dairy interests of the state, we are going a long ways towards making this a greater commonwealth.

In bidding you a hearty welcome, I want to go a little further than this, and suggest to you some plans, which in my opinion, might tend towards further progressiveness of your interests, and bring better conditions and better financial results.

As a dealer in dairy products, and a large handler of cheese, I take an especial interest in your convention and your welfare. I had the pleasure of appearing before the Nat'l Creamery Butter Makers during their convention at St. Paul, I know the benefits of these gatherings, and while, perhaps, results are not obtained at once, the seeds are sown that bring results later.

That your association has been ably officered is proved amply by your success, and the importance of your meetings is proved by the excellent report issued by you each year. This report is worth to you a vast sum, as every paper read, and every discussion engaged in tends towards the advancement of your interests, and in their compiled form, you have an abundant chance to read, re-read and profit by them.

I will confine my remarks largely to the manner of marketing your product, because it is the marketing of this product that means the life of your industry. Making is one branch, marketing is another. The maker is not always the best marketer; the marketing is a science, as well as the making.

The immense development of the dairy interests of this state, specifically the cheese interest, is creating widespread comment, and this comment is extending way beyond the boundaries of our own state.

The possibilities of the cheese industry of this state are so enormous, and will bear such a close relationship to the other mercantile industries of the state that the citizens and business men of the state should lend the development of the cheese industry their personal support, and all the encouragement in their power. The cheese business is becoming such a paramount issue, with a product which now reaches in value

a sum total in excess of six million dollars per year,- that it will become necessary to adopt some measures for leading this volume of business into channels whereby this industry may develop unhindered, and it will be necessary to lend this industry our fullest measure of support and co-operation.

Up to the present time the industry has developed in a natural and on strictly healthful lines without much outside aid or encouragement. It is a natural development which has taken place, and been stimulated by the natural climatic conditions, the rich virgin soil, and the push, energy and industrious integrity of the cheesemakers of the state.

Wisconsin has forged to the front, and is now one of the greatest factors in the cheese production of the world, and is destined to maintain its supremacy as the greatest cheese state. The influence of this industry upon the markets is going to make itself more manifest in the future. The little rivulet has swollen to a mighty stream, and in order that this stream may expand and grow in the future, it is going to be necessary to guide this immense volume of business into the right path and channels, and to obviate any obstructions or hindrances that might arise in its path in the future.

The competition, which we have created through the increased production, is going to be seriously resented by other cheese producing sections throughout the country. Therefore in order to be able to expand succesfully better systems and more modern plans for marketing this immense volume of product must be inaugurated; and in order to expand successfully all selfish and personal motives must be sacrificed among those that are directly interested in the manufacture and marketing of cheese; and it no doubt would be a step in the right direction to enlist the support and co-operation, and to thoroughly arouse the interest of every citizen of the state.

The main issue now confronting the industry is, how can perfect harmony of purposes be acomplished?

There are, I believe, close to eighteen hundred cheese factories in the state of Wisconsin, marketing their product through about forty-three local cheese boards. As each one

of these local boards is governed entirely by local conditions, what uniformity can exist, and what assurance can be offered to the buyers of your product that they are buying the right goods, at the right prices that would keep them within the range of competition? I believe that the answer to this question is one that is going to be solved through your organization. I am a great believer in organizations when they are founded on proper lines, not to be used as a cudgel to right imaginary wrongs, but when they are used as a means of fully protecting the interests of their individual members.

The time is coming when in order to obtain the best financial results from the bound-to-be increased output, your product will have to be centralized, and when a central market for the disposition of your product will be an assured fact. The cheesemaking territory of our state covers a wide area, and matters of freight rates and other conveniences will have to be taken into consideration in the selection of your central point.

I believe that the time is coming when in order to obtain the best values, you will also have to individualize your product. Wisconsin's food laws are stringent. They offer a surety to the buyer which makes the Wisconsin cheese sought for, and you should take advantage of the inducements, which your state Pure Food Laws offer the buyers, and thoroughly absolve yourself from outside competition.

Your cheese, as handled today, loses its individuality the moment it leaves your hand. It is bought on your local board according to the buyers' grading; it is shipped to Chicago, New York or some other concentration market, and then reshipped to the consuming markets proper.

The only competition Wisconsin has on cheese is the competition she creates for herself by the present method of marketing her product. Centralization means that your cheese will retain its identity. It means that you can give the buyer the assurance that he is obtaining the genuine Wisconsin product. You could create a demand from home and abroad, and from all sections that wanted Wisconsin cheese, a demand that could

be depended upon the moment you give to the buyer the assurance that he is able to obtain the genuine Wisconsin product, at a price governed, of course, by market conditions, but uniform throughout according to the grades established, and thoroughly to be depended upon.

That a move of this kind would be antagonized by the present local buyer is certain, and why shouldn't he antagonize it? He has been buying your cheese for years on his plan, and not yours. He has, in a large measure, been able to govern local conditions. He has fought away competitive buyers, rather than encouraged them, and he has exacted the toll. The present unwholesome system is injurious to buyer as well as seller, and creates a lack of confidence. The antagonism of the local buyer simply makes the fact more evident that concentration would be a vast benefit to the seller, and again proves that the present system of marketing is wrong.

The local boards, as established all over the state, have up to the present time been the medium through which the cheese business has been transacted, but these boards acting independently one from the other have outlived their usefulness. The prices as established on these boards were brought about by local conditions entirely, and in consequence, the prices on these boards throughout the state have been at great variance on the same grade of goods. You have no doubt watched the variations with great interest, and much wonderment, but above all, these existing evils undermine the confidence of the buyer and the trade in general. If the present system is to be maintained, it means that you will soon have a hundred cheese boards, in place of the forty-three now existing, and then what will the effect of the competition be?

No firm can afford to put buyers in each section. More local men will spring into the field, and you will pay the expenses of their education. More competition means less surety to the buyer. Less surety means less interest, and unless you can maintain the interest of the buyer by surrounding him with proper safeguards, your interests are bound to suffer.

It would therefore be a decided step in the interest of the

cheese business to bring these various boards throughout the state under one head; and if this idea should generally prevail among those that are interested, it would be an easy matter to solve this question. An exchange or cheese board could be established in some common center that would no doubt be easily accessible to the traders, buyers and manufacturers from all parts of the country; and if the cheese manufacturers of the state are willing to lend their aid and support to a move in this direction, the fullest measure of co-operation and support would, no doubt, be readily obtained.

The initial movement in a deal of this charcter would have to come from your association, but you could depend fully on the full co-operation of the business interest in any central point you might select. You could depend, as well, upon the railroad companies to put into effect such concentration rates as would minimize your charges to your central depot.

Your members have undoubtedly studied carefully the market conditions that surround them at present, and are forced to ask themselves questions regarding the conditions of the future. Your association is strong enough to act. Supervising the marketing of your product would make you strong financially as well, and at the same time you would not only minimize the expense, per capita, of handling cheese, but would place your product on a higher plane, and in line for better values. Instead of many local boards, you would have one, properly officered by men in whom you could place the utmost confidence. You could elect your Board of Arbitration, whose decisions would have to be final. You could elect your official inspectors, men well versed in the art of cheesemaking, who could classify your goods into grades, according to their knowledge, not the knowledge of the buyer; and I want to say now that a uniform inspection would create a uniform standard of a higher quality, without an increased expense, because every manufacturer, knowing that his cheese would be judged according to its merits, and not according to market conditions, would take a keener interest in the production of the best grades, and add further laurels to Wisconsin's fame as a cheese state.

In making these suggestions, it would be weakness on my part not to offer you some facilities towards the consummation of the plan proposed, and to assure you at the outset that if your judgment prompted the selection of Milwaukee as a concentration point, you could expect from Milwaukee the heartiest support and the fullest measure of co-operation and necessary capital.

For the advancement of Milwaukee, we have well organized associations, composed of the most progressive of her business element. Particularly would I refer to the Chamber of Commerce, the Produce & Fruit Exchange, the Merchants & Manufacturers' Association, and the Citizens' Business League.

Our latchstring is always out, our hospitality a well-known fact, and our concentration of efforts in the furtherance of all matters that tend towards the advancement of our city and our state has been well proven.

I pledge to your association the heartiest support of our organizations, and would urge upon you to appoint a committee that could enter fully into the merits of this matter, and confer with such a committee as should be selected here to represent our business interest.

If you can select the merits, I want your association to take the initial action, and Milwaukee will prove her "Open Door" policy and welcome you with open arms.

I thank you for the attention given to me. I thank your officers for their kindness in placing me on your programme, and, in saying good bye, sincerely hope to have the pleasure of meeting you again in Milwaukee another season.

DISCUSSION.

Mr. Carswell: As an ex-president of this association I wish to thank the gentleman for the words he has given to us today. This is a most important subject and touches the vitality of the cheese industry in the state of Wisconsin. We can

go to Chicago, to St. Louis, to St. Joe, to almost any city in the country in the stock industry, and we have a government inspection, and no man dare go behind it. We can just as well have an arbitration board on our cheese industry as we can on our meat industry, and we ought to have it.

H. K. Downing, Milwaukee, Wis.: I would like the privilege of speaking for a minute or two in support of Mr. Seig's proposition, and I can even go a little farther than he went and say that with my knowledge I believe that such a central board as has been talked of would be helpful. There was a lot of talk here yesterday and this morning of what good will result to the cheesemaker from such a central board. The cheesemaker is not a fool in his line of business any more than any other man is a fool in his line; if he is a fool he is not a successful man. The cheesemaker must realize that the cow pays for it all. That either directly or indirectly the man who makes the cheese is compelled to pay the expenses of the buyer and of his help in going to so many scattered places. We all know that when a buyer has to go from one place to another and be gone for nearly a week buying cheese, his expenses will run up into scores of dollars, and who is paying for it? Nearly all our cheese must come through Milwaukee on their way south or east, and the cost of freight from Mineral Point or Fond du Lac or Sheboygan Falls is added; those figures have all got to come out of somebody, and the buyer figures on getting his expenses because he is not in business for his health. He also figures that he is going to make a profit from somebody and he has got to buy cheese at a little less because of the long distance.

There are certain expenses that necessarily follow the buying of cheese by a buyer. I have known in more cases than one where if two or three thousand boxes of cheese could be bought at a minimum expense the buyer could afford to pay considerable difference in the price providing the quality was there, because he doesn't have to go to such expenses.

Now, my idea of the central market is this: that the cheese be shipped here and subjected to as close an examination as

they could be subjected to in any factory; that the judgment on the cheese remain in the hands of the salesman, who shall be a properly qualified person. The statement was made here yesterday that there was not one cheesemaker in a dozen who was fit to judge cheese. Even the state instructors acknowledge that when they say that cheese are all right, very often the buyer comes along and says they are not. My idea is that the cheese be sent subject to inspection there. Now, then, that board determines that the market shall be eight cents. If a man does not receive eight cents for his cheese, then he knows that something is wrong with his cheese, because the man that is selling them is supposed to be as competent as the man that is buying them, so that there are two sharpened experts, one against the other,—one to look out for the interests of the seller, and the other to see that he buys right. Now, if they are sold right and they are bought right and the price isn't up to the market, there is something wrong with the cheese. I think that such a system would do more for the upbuilding of the local cheese market in Wisconsin than even these local tests. Every other product in Wisconsin is sold in that way. Elgin is still doing business, and all the butter that is bought and sold is sold on the basis of Elgin,—providing your goods are right, as good as the rest. I know of no reason why cheese cannot be bought and sold in the same way. I think it was Prof. Ruddock who told us last year that the reason that New Zealand cheese occupies such a prominent position in the British markets is because the government has appointed inspectors and all the cheese are graded, numbers one, two, and three. Now, if a man who is posing as a cheesemaker goes into the market, and week after week his cheese comes up as number three grade it stands to reason that that man is not a competent person, and the factory owner is justified in firing him. I believe that if you folks will thoroughly consider the matter, you will be assured that a central market is the best thing for the cheese business, you will realize that it will minimize expenses and concentrate the product in one place so that

instead of three buyers going to your little boards up here, one good buyer can attend the central market.

Mr. Carswell: I want the cheese boys of the state of Wisconsin to have every chance in the world and I believe that this thing has got to come, so that the business will be regulated as the stock business is.

Mr. Alvis: The gentleman spoke of the fact that with a central board just one buyer could do all the work. That may all be true, but simply some buyer goes there and he contracts his cheese and there is no use for any other buyer to go there because he can't get any. This man goes there and makes the market price. Now, do you believe that where there is no opposition that this man will pay more than he has to or as much as where there are more buyers?

Mr. Downing: Mineral Point has been spoken of here. I don't know whether there are any contracts made on the Mineral Point board or not. Mr. Knickerbocker says not. I think you will find, according to Mr. Knickerbocker's paper last year, that the trouble was with the shipment and the bills of lading.

Mr. Knickerbocker: I will say in regard to the contracting of cheese at Mineral Point there never have been any contracts at Mineral Point that I know of and I have been there ten years and over.

Mr. McKinnon: I want to tell you how we are doing business up there in Sheboygan Falls, and when you folks suggest anything that is superior to our way of doing business we will embrace it with both arms. We meet together there, and we place our cheese upon the board and then it is to be sold at that call board and it won't be sold in the street or anywhere else. Now, a few years ago such a condition of affairs did not exist for us; a large share of the cheese was contracted, and when the buyers came into our board they realized that there was a very small fraction of the cheese in Sheboygan county that would be sold at that board. Now they know that all the cheese is to be sold, and sometimes we have run up as high as

5,000 boxes and every cheese on the board is sold, and therefore we do not lack for buyers.

Mr. Carswell: Gentlemen, why can't we come to the position where we can have our goods inspected fairly and squarely? The other industries of this state are perfectly organized, and we want this industry brought into line too.

The Chairman: We have with us at the present time men who buy the cheese products of the state of Wisconsin, and we would like to hear from them with regard to this question because it is important to hear all sides. I notice Mr. White of Fond du Lac, who ought to be an authority and is an authority, and we would like to hear from him.

Mr. White: We would be strongly in favor of having a central board in Milwaukee, as we could no doubt buy our product a good deal cheaper right here in Milwaukee than by going all over the country to local boards. We did that when we tried it here before.

Mr. Seig: We certainly want to give Mr. White all the goods he wants at a very moderate price because he is undoubtedly good for all he can purchase, but he is holding up to ridicule this proposition in a way that is absolutely unfair and unjust. You started a cheese board here a few years ago with a completely disorganized effort. If this matter can be properly organized in a way to control the cheese output of Wisconsin, Milwaukee would be open to the buyers of the world. Whether or not Mr. White could buy any cheaper than he can on the individual boards is more than doubtful. I believe you gentlemen are strong enough to lead such a movement, and of course you would not do it without a great deal of consideration and of course you would put it into the hands of men who would conserve your business interests, and there is no reason why you should not control the output of the whole state and not be obliged to ship to Chicago and New York and have to fill up with half skim goods. Gentlemen, you cannot send buyers to one hundred boards in this state. From present appearances there are going to be one hundred boards working under one hundred local conditions without any uniformity

of price or market. A man goes to one board on Monday, but he concludes to wait until Wednesday before he buys, and so it goes; the system is wrong, and I consider the remark of the gentleman unfair and unjust to the system now proposed.

Mr. White: I had no idea of holding up to ridicule this idea, but it is a simple fact. We are in business to buy up the product where we can buy it cheap, and it is my honest belief that under the conditions that the gentleman sets forth,—that is, to have the cheese factories in the state of Wisconsin send their cheese in here every week and to have them sold on board—that it would be detrimental to the interests of the patrons of the various factories throughout Wisconsin. I don't believe the thing could be done myself, although I would like to see it. It would be easier for me. If you had a board down here I could come down myself and buy cheese and know exactly what I was getting and how much I could pay, but I don't see how it can be done. In the first place, the salesman would have to come a long distance to Milwaukee; perhaps it would cost from $10 to $15 car fare besides expenses while here. In addition to that, if they sent the cheese in here there would be the exposure of the cheese to all the weather conditions in hot weather and in cold weather. You would have to be at the expense of maintaining a central depot here, you have to employ a corps of men to attend to the cheese, show them to the various buyers, and your cheese would have to be plugged perhaps four or five times. Your cheese would be absolutely spoiled unless it was marketed right away. I think the idea is all right, I like it,—but I offer these suggestions.

Mr. Buchan: There is another point about this. There is a great deal of cheese sold not far from the factory. If we are obliged to send our cheese here to Milwaukee to be sold on the board and they were to be used in our own territory, they certainly would have to be reshipped right back, and in that case the central place for selling would certainly not be the most profitable for us. Still, I can understand that there would be many times when we cannot get to the board ourselves

when it would be a good thing to be able to notify the secretary to sell, although I have done that on our board when the secretary didn't know whether to let them go or not. I, for one, am in favor of the local call boards, though I think we have too many. I do not believe that the central place of sale will be the most profitable for the cheesemakers or the farmers.

Mr. White: I want to remind the chairman that I did not take part in this discussion until I was compelled to by being called upon.

Mr. Luchsinger: This is a very important matter, too important for the few minutes' time we have before dinner. I believe we all want to be informed on the matter before we take any action, if we take any at all; and I would like to move that we make this matter a special matter for discussion tomorrow morning.

Motion seconded, put to the house and carried.

Convention took recess until 2 o'clock P. M.

The Convention met at 2 o'clock Thursday, January 9, 1902. President Dickson in the chair.

SOME RECENT EXPERIMENTS IN CHEESE-MAKING.

Archibald Smith, Strathroy, Ont., Superintendent Western Dairy School.

Mr. President and Gentlemen: It gives me a great deal of pleasure to be here with you at this time, and to be able to take part in your discussions, having listened to you with a great deal of interest and pleasure. I find that the difficulties that you have to contend with are somewhat similar to our own, especially along the line of disposing of your cheese. That is one of the subjects that is being discussed very strongly at our

conventions and we consider it one of the most difficult questions that we have to deal with.

The experiments to which I wish to call your attention are of a thoroughly practical nature, such as could be carried on by any ordinary maker in his factory. In Canada nearly all of our experiments were carried on during recent years at the Dairy schools, and while some of them are of considerable value, a great many of them are practically useless from the maker's standpoint, because they are carried on under conditions so different from those existing in the ordinary factory and with such small quantities of milk that they were of no practical value to the makers.

Two years ago the Western Ontario Dairymen's Association took charge of the Milverton cheese factory and converted it into an illustration and experimental station for the purpose of establishing a place where experiments could be carried on on the factory system with large quantities of milk, and also to illustrate the best methods of making cheese to all makers who might care to visit the station during the summer, and I may say these different makers were allowed to carry on experiments themselves, or to suggest experiments which would be carried on for their benefit, and also to examine all the experimental cheese, etc., for themselves, and to study the different methods of making, which was much appreciated.

I find since coming over here and attending your conventions that here in Wisconsin as well as in Canada you have a great number of small factories which are unsuitable for the work for which they were intended, their sanitary condition, their equipment and the construction of the building being of rather ancient design.

Now we have spent a great deal of time and money in the past in an endeavor to educate the farmers and the makers in the best methods of producing and caring for milk and making the very finest quality of cheese. I might say that ever since the cheese and butter associations have been organized, ever since we have had Agricultural or Dairy boards, the farmers have been preached to regarding the care of their milk and the

necessity of greater knowledge, and the result of all of that writing is, that today in the older dairy districts in our country it is a more difficult matter to get a good quality of milk or to produce a fine flavored cheese than it formerly was. Now why that is so, it is possibly difficult to understand; whether it is caused by the fact that the soil surrounding these stables, these milking yards, or the places where the cows are kept or the milk is kept or the surroundings of our cheese factories where the by-products of milk or water has saturated the soil through leaky floors or gutters and the soil has become saturated with injurious forms of germ life,—whether that is so, or that the farmers are growing more careless or the tastes of the consumers more fastidious; I do not know, but it is certainly a serious question to consider and one that demands our careful attention. We have a very practical illustration of that in our Canadian North-West and in Manitoba. A few years ago when dairying was first started, the farmers produced milk that would keep sweet and in good condition from five to seven days, and produce the finest quality of goods, for which we got the highest market price; but we find today the tables have turned, we find it more difficult to make good cheese there than we do in Ontario. That is supposed to be caused by the changed conditions at the farmer's home and at the factory.

We also find that each year we are having more and greater difficulties to contend with, that competition is daily becoming keener, especially with the increase in production; the tastes of the consumer are more fastidious, they are demanding a better quality of goods, and I may say that I think this twentieth century will be characterized by a struggle for the survival of the fittest, and only those of us who are the most capable of performing the work satisfactorily and getting the best results will be able to accomplish very much.

One of the greatest difficulties that we have experienced in our country is in reaching the farmers in educating them in the most approved methods of carrying on their work, especially those farmers who do not attend dairy meetings or conventions of this kind, who do not read dairy or agricultural literature,

and yet who are to a very large extent responsible for the quality of the goods.

In order to overcome these difficulties, we have adopted the plan during the past year of having all the instructors of the association call meetings of the farmers at the various factories that they visited. I might say that the work of the instructor was to carefully examine all the milk as it was received at the factory in the morning, to make a curd or fermentation test of it, and then in the evening when the farmers assembled they were in a position to discuss with them in an intelligent way the condition of the milk as it was delivered at the factory, the effect of it on the quality of the cheese, the state of the equipment of the factory, the sanitation, the advisability of renovating the building and the best methods of doing it, and the requirements of the market and also the profits and losses of dairying.

Now, wherever dairying was carried on extensively, wherever the production of milk was the chief source of revenue of the farmer, we had no difficulty whatever in getting a good attendance; they turned out in large numbers, because it was to them a matter of dollars and cents. As far as my experience goes, it is not of very much use to keep preaching to the consciences of the farmers to change their methods; I have found that the only effective way is to preach to their pockets. If you can demonstrate to a farmer that his present methods are the means of losing him a good deal of money, and that by changing his methods he may make his business much more remunerative, he is much more likely to do so, and that is about the only way he can be induced to change.

The makers appreciate this plan very much and are very anxious that it be carried on in the future.

Again, it seems that the farmers as a rule are more willing to listen to a stranger coming in among them who has some reputation in his line of work, than they are to listen to the maker himself.

One other reason for converting this Milverton cheese factory into an Experimental Station was this: it was one of the

oldest cheese factories in the province and they wished to demonstrate to the factory men the best methods of converting an old factory, not suitable for carrying on the work, into an up-to-date, well equipped cheese factory; and also, I might say, that by the judicious expenditure of less than $500, they got the factory in good condition, cement floors replaced wooden ones wherever possible, inside and outside the factory was painted and whitewashed, and the whole equipment was renovated; also a system of disposing of the sewage in a very effective way was put in, and it has given very good satisfaction.

I might say that the milk used for experimental purposes was that delivered in the ordinary way by farmers. It was first put into a large vat holding 6,000 pounds, in order to mix it thoroughly. It was afterwards weighed out into smaller vats holding 2,000 pounds each. One of the first experiments we carried on was in the early part of the season when the farmers were beginning to send their milk to the factory. We found there are always a few patrons who will furnish their milk before it is quite old enough, too soon after parturition. I secured a number of samples of new milk from milkings before it became normal, and we noted the effect on the quality of the cheese. In each case we took a vat of milk that was supposed to be of good quality, and we took another vat of the same kind and added this new milk to it, and we found in the case of the new milk that in every case the curds were of a slimy, rough texture. They worked faster than the curd from ordinary milk, and they were inclined to lose too much butter. You see there was a very high percentage of albumen which would not incorporate or hold the fat properly, and those curds would not stand nearly as much acid. We found we had to run the whey off at the first indication of acid, we had to mill them much earlier, and also salt earlier. In judging this cheese, we found that there was very little difference in the flavor of the cheese from new milk as compared with that of the milk that was supposed to be all right, but there was quite a difference in texture; there was, on an average, three to four points difference in texture, and one point in color. We found that

the cheese made from good milk had very much better keeping qualites, and that made from the new milk deteriorated rapidly after it was one month old.

During the last three or four years in Canada we have adopted a system of washing our curds,—that is, rinsing them with water after milling them. That system is adopted by nearly all the best makers in Canada at the present time.

I carried on quite a number of experiments to illustrate the results of washing curds at different temperatures, and the effect on the quality of the cheese washed as compared with the unwashed goods. We found that by washing the curds we could make cheese of more uniform quality and better keeping quality; they were somewhat better in flavor, and considerably better in texture and in color; the color was usually brighter and more transparent. Where the curds were working fast and were inclined to be soft, we could make a better yield of cheese from a given quantity of milk by washing the curds than by leaving them unwashed, as there was less loss of fat, and the cheese seemed to stand more heat in the curing room. I have frequently noticed in different factories where there were both washed and unwashed cheese on the shelves, that when these cheese became heated and open and were afterwards subjected to lower temperatures, the cheese that had been washed would close perfectly close, you would never know they had been opened, whereas, those that had not been washed would not close nearly as well. Our system of judging cheese, that is our score cards, are similar to those used here, the cheese are all judged at the end of four weeks, and at the end of eight weeks by buyers and various makers that visit the factory and the average of their scores made up. We found that in washing curds after milling, with water at a temperature of 94 to 98, that at the end of two weeks, there was a difference of half a point in flavor and one point in texture, at the end of four weeks there was a difference of two points in flavor and one in texture, and at the end of eight weeks there was a difference of three and a half points in flavor and one in texture, in favor of the washed curds in each instance. We also tried a num-

ber of experiments with temperatures from 94 to 105 in order to note the difference in the quality and the yield of cheese. I might say that there was practically no difference in the quality of the cheese in washing the curds at these different temperatures and there was a very slight difference in the yield, when we washed at a temperature of 98 there was a slightly greater loss of fat. I might say that between the milling and the salting that the curds that were washed matured much earlier than those that were not washed, from one-half to one hour earlier. We find that these curds that are washed have a smooth, silky texture when they begin to mature, and there is danger of makers mistaking that for being in a perfectly matured condition and salting too early, that is something you must guard against.

We also tried a number of experiments in washing curds immediately after dipping them. We found that where the curds are working off fast and are inclined to be soft when they are dipped, that it was of considerable benefit to wash them, it had a tendency to firm them up, to brighten the color, and expel that sour whey, and improve the flavor of the cheese somewhat, but where the curds were perfectly cooked in the whey, where they were firm and in good condition, there was no apparent benefit in washing them at that time.

I might say when the curds are washed after dipping, that the acid will develop just as quickly before milling as if they had not been washed. Mr. Aderhold, one of your instructors, referred yesterday to the fact that in a number of your Wisconsin factories the makers were still using the little old hay rakes which are very rough and hard on the curds. He also stated that it was in his opinion a difficult matter to get the best results from handling curds in that way. I made a few experiments along that line, because we have the same difficulty to contend with in our factories. I took 2,000 pounds of milk and put it in each vat, one was handled as carefully as we could, and the other was handled quite roughly. We found there was a considerable difference in the yield of cheese, and also in the quality. There was no difference in

the flavor of the cheese practically, but there was a difference of two pounds in the thousand pounds of milk in favor of handling them carefully, there was a difference of one point in color and three points in texture. Now, the curds that were carefully handled made a better quality of cheese, and you will see that the extra yield would more than pay the difference n the salary of a good maker as compared with a careless one. I think that should illustrate to the farmers that when they are engaging a maker, it is not a question of salary, it is a question of whether he can do the work or not. If some of the farmers had the privilege of visiting various factories as we have and noting the manner in which these makers perform their work, they would hardly credit the difference in the amount of money gotten out of milk by a careful, skilful maker as compared with a careless, ignorant one.

In reference to these small hand rakes, I will also say that we made a few experiments in the use of those rakes as compared with long-toothed McPherson rakes, some call them "agitators," with four long, flat teeth. We find that makers are able to handle milk in the vat much easier, and heat it up better, and the curd is broken up less and there is a slightly greater yield in the amount of cheese.

Now, I think possibly the experiments that will be most interesting and instructive to the majority of the farmers are those we made in connection with the flavor of the milk, the effect of cleanliness and carefulness, or rather of uncleanliness and carelessness on the part of the farmers on the quality of the cheese. Over in our country we are not troubled much in this matter of handling whey as you seem to be.

At quite a number of the largest and best factories it is not returned to farmers, it is fed at the factory or sold, and we believe that the return of sour whey in the can is a source of great injury to the flavor and the quality of our cheese and the source of a great deal of trouble to makers. During the last two years I have seen about as much trouble caused by sour whey flavors as from any other cause. The effect of sour whey on the cans is that the acid in the whey eats the tin

from the iron, the cans soon become rusty and it matters not how clean or careful the farmer's wife may be, it is impossible for her to clean a rusty can properly, she cannot possibly do it. When farmers have these old cans, the only thing to do is to discard them.

Now, in order to demonstrate to the farmers the necessity of washing their cans immediately after they return and making them just as clean as possible, we carried on a few experiments with reference to this whey question. We took some milk as it was delivered at the factory, and pasteurizing it, destroyed all germ life, in order to make it as pure and clean as it was possible to get it, and into some of that milk we put a very small quantity of sour whey in the same condition as it was sent back to the farmers. This was allowed to stay in the can over night and a small quantity of that milk was used as a starter the next morning. I will say that on examination of that milk in the morning, it was a very difficult matter to detect any objectionable flavor on it, the curds were of a fairly good flavor and a maker would not be liable to discern anything out of the ordinary with them. When the cheese made from this milk were two weeks old, they were scored by some of the buyers, and the first scoring resulted in 42 points out of 45 for flavor, 29 for texture. At the end of four weeks they scored 38 points for flavor, 28 for texture and at the end of eight weeks, they scored 33 points for flavor and 28 for texture.

We also made a few other experiments to demonstrate to the farmers the effects of uncleanliness in allowing their milk to set in unclean places, exposed to injurious forms of germ life, and the resuls of not properly taking care of it. We took samples of milk in the same way, pasteurized them to render them free from germ life. We took about as much as would be given by four or five cows, put it in small cans and allowed each to set in an unclean place, such as near pig pens, cow stables, etc., where the atmosphere was saturated with filth germs, as is frequently done at the farmer's home. This milk was allowed to stay there over night, and in the morning it was carefully ex-

amined, and on account of its being reduced to the temperature of the atmosphere it was a difficult matter to detect any injurious flavor. Then the cheese were made in the ordinary way, and at the end of two weeks they were scored by the various buyers. The average score at the end of two weeks was 42 for flavor; at the end of four weeks they scored 34, and at the end of eight weeks they scored 27. Now, as you see at our first scoring they were of fairly good flavor, they would have been accepted by any buyer, and would have received the highest market price; but at the end of four weeks the character of the cheese was altogether different; these sour, acidy germs from the whey, these filth germs from these unclean places were in the milk, and it only required time and suitable conditions for their growth and development. As they were subjected to the heat of the curing room, the conditions became more favorable for the growth of these germs, and at the end of four weeks they would not have been accepted by any buyer, at least without a reduction of one or two cents a pound. Now, the question comes in here: Who should be responsible for that loss, the farmers who furnished the milk or the maker who took it in? None of the milk was of such a strong or objectionable flavor that it would not have been accepted by the ordinary maker, and if the maker is unable to detect these flavors, then certainly he should not be held responsible for the quality of the goods; it would be most unfair to ask him to be. If those cheese had been disposed of when they were two weeks old and had gone into immediate consumption, you would possibly never have heard of them again; they would have gone off as being all right; but if they had been held longer by the buyer and after two weeks they had deteriorated—as they would have been sure to do—he would certainly lose a very large amount, and if he ever dealt with you again it would be for the purpose of getting even with you and making up the loss that he sustained. Again, if the cheese had been held in the factory to the end of eight weeks, they would have been of very little value; they would have been a decided injury to the reputation of the maker, and also to the dairy reputation of the state.

The cheese made from the milk to which none of this unclean milk was added, sold for 11¼ cents a pound, and the cheese made from the milk to which these germs were added, sold for five cents a pound on the London market, which was the most that we could get for them. Gentlemen, I think these experiments show that our cheesemakers are sometimes made to suffer very severe losses, both of money and reputation, when they are not in any way responsible.

Another experiment we made was in the use of too much starter. That has been the cause of a great deal of trouble and deterioration in the quality of our cheese. A very important question arises: what is too much starter? I look at it in this way: It requires a certain length of time from the setting of the vat to the dipping, in order to get the curd sufficiently cooked and firm enough; and if there is sufficient starter used to work it off in less time, then that is too much. We found that in every case where there was too much starter used, that it was impossible to cook the curds properly, because the milk worked too fast; there was an excess of loss of fat from the curds, they were very much slower in maturing—that is, between the time of milling and salting—than if they had worked slower in the whey and had been firmed better. The cheese were not of as good quality or nearly as good a texture. When you work them too quickly, it is impossible to expel the whey properly, that they went on developing acid, and it injured the color and the texture of the cheese and the flavor as well.

We have had a great deal of difficulty during the last two or three years with the flavor of our cheese; in fact, it is claimed that the reputation of Canadian cheese in the British market has received a very serious set-back, and the cause of these flavors is very difficult to ascertain. We have had bacteriologists working for the past two years, and whether the results of their work will be of any material benefit to the makers or not, we do not yet know; but we do know that there has been a decided change in the character of the cheese. Formerly we made a firm, hard cheese, that would keep for an indefinite length of

time. Of course, you understand that nearly all of our cheese is exported and is made on the cheddar system; we only make one quality of cheese in Canada, and we endeavor to make that to suit the requirements of the market and the tastes of the consumers. Now, we find that the market demands a cheese of softer nature, of a more meaty texture, although they must be silky and close. In order to make cheese of that description, some makers seem to think that it is very necessary to leave a little more whey in the curds, not to cook them quite so firmly and work them off faster. To my mind, that is a very great mistake, and I think the results of our experiments have proved it so, and I think that handling curds in that way has resulted in a lot of this bitter flavor that we hear of on the British market, and the mealy texture. In order to make a close, meaty cheese of a silky texture, I think it is necessary to set the milk early, in sufficient time to firm the curds as thoroughly as possible in the whey. They will then stand more acid. I may say I advise using a sufficient quantity of rennet, from 3¼ to 4 ounces, and would mill them early and mature sufficiently before salting, but not too much, and not salt them very heavily. My idea of making a close, silky cheese is to cook it thoroughly, use plenty of rennet and very little salt.

Now, we found that the flavor and character of our cheese has been affected to a very great extent through the makers maturing their curds in some cases too much before salting. The results of our experiments along that line are this: that when the curd is salted at the right time, when it is only matured sufficiently, that the cheese still have good keeping qualities after they are thoroughly cured, they will hold their flavor for an indefinite length of time. Curds that are allowed to mature too much have very poor keeping qualities after the cheese is once cured. I think if we are going to improve the quality of our cheese, we must encourage the farmers to make a specialty of dairying instead of a side issue. I believe for my own part that dairying is the hope of the farmer for the future. It is the only method by which he can carry on mixed farming to any extent and at the same time maintain or increase the fer-

tility of his soil and hand his farm down to posterity in a better state of cultivation than at the present time. Where dairying is carried on most extensively, there is the least poverty, the farmers are wealthy and there is more work. We must devise some effective means of reaching the farmers and inducing them to improve on their methods of caring for their milk and delivering it to the factory, so that the maker will be enabled to handle it to the very best possible advantage. We must illustrate to them the enormous losses sustained by them and their neighbors, by following their present methods. We must renovate the old buildings, build better curing rooms and improve the equipments and sanitary conditions. We must employ better makers and better salesmen, encourage the manufacture of one kind of cheese only, and make that to suit the requirements of the market. Try to induce every cheesemaker to take a course at the Dairy School, and also, to join these Cheese Associations, attend conventions, and profit by whatever suggestions and instruction that may be offered.

Makers should unite to protect themselves and the farmers who produce good milk against those who do not. I think for my own part that the improving of the quality of the milk rests very largely in the hands of the makers, more so than in the hands of the farmers. If these makers would consider their own best interests, they would refuse to accept milk from farmers where it had been refused at other factories. If such were the case, all it would be necessary to do would be to tell the farmer: "You have simply got to take better care of your milk," and he would have to do it, there would be no getting out of it; so I think all this talk on the care of milk is very largely wasted, especially in connection with the farmers, because the makers have the remedy in their own hands, if they will only apply it.

We must discourage the increase in the number of small factories and encourage the building of larger ones; we must study carefully the profits of dairying and the best methods of carrying on the work, both from the farmers' and makers' standpoint, and must encourage more local contests.

A sufficient number of instructors should be engaged to visit every factory in the state as frequently during the season as is necessary to insure a uniform and good quality of cheese, and they should be given authority to enforce better sanitary conditions and report the work of incapable and careless makers.

More time should be spent in using the curd test to detect bad flavors, and in addressing farmers' meetings and in illustrating to them in a practical way the condition of the milk as delivered to the factory, and its effect on the quality of cheese, and the necessity of greater knowledge in the production and care of milk, and the requirements of the market.

Practice to a greater extent the doctrine of co-operation, which, I think, means that each work for the benefit of all and all work for the accomplishment of one object: the improvement of the quality of your cheese, in order that you may compete successfully with the dairy products of other states and other countries, and that your dairymen and farmers may receive the greatest possible revenue from their work and encourage them to engage more extensively in the business.

Conventions of this kind are organized for the benefit of those engaged in the business. They should be the means of developing intelligence through the advice and instruction offered you by others; and they should be the means of increasing your practical ability by noting the experience of others and the manner in which they perform their work, and in promoting co-operation, by studying the requirements of the trade, the difficulties with which you have to contend, and the best methods of overcoming them; by attending conventions of this kind and receiving the experience and advice of others, by reading the reports and other dairy and agricultural literature; thus you will be enabled to carry on your work more intelligently and more successfully, and if I have been able this afternoon to offer you any suggestions that will serve as a basis for discussion I will be very glad indeed.

I wish to thank you, gentlemen, very much, for the very patient hearing you have given me, and for the very kind attention.

DISCUSSION.

Mr. Noyes: What do you call light salting?

Mr. Smith: Not more than two pounds and a half, say, from two to two and a half; two in the early spring, and more later on.

Mr. Noyes: We call that good salting here.

Mr. Smith: Of course you are making cheese for the local market. We make for the export trade.

Mr. Knickerbocker: How much have you been using in making these cheese in the heat of the summer?

Mr. Smith: From two and a half to three pounds.

Dr. Russell: In those cases of tainted milk, did you use the curd test?

Mr. Smith: Yes, we did in some cases, and it showed up fairly well, but not nearly as much as the cheese themselves at the end of four weeks. You could detect by the use of the curd test that that flavor existed in the milk, but in many cases you could not discern the exact cause of it if you had not known.

Mr. Buchen: What temperature would you have the water in washing the curd after milling?

Mr. Smith: I don't think it is necessary to wash above a temperature of 98.

Mr. Buchen: Don't you think that colder water would be better for gassy curds?

Mr. Smith: Oh, no, decidedly not; by all means use warmer water in handling a gassy curd. You want to keep up the temperature, maintain all the heat you have and develop the acid quickly. By washing with cold water, you reduce the temperature and stop the development of acid.

Mr. Alvis: How do the cans appear where no whey is taken home in them?

Mr. Smith: At the factories where the whey is not sent home, the cans are thoroughly washed and steamed at the factory and sent home perfectly clean. I have seen cans fifteen years old yet in a good state.

Mr. Mason: What do you consider the most serious time in cheese making?

Mr. Smith: I think at dipping, possibly.

Mr. Mason: If your curd is well started and things working right, is it necessary to wash the curd?

Mr. Smith: Where the curds are of good flavor and working normally in good condition, there is no great benefit in washing them, no.

Mr. Aderhold: You mean right after dipping.

Mr. Smith: Well, at any time. We find we can make our cheese more uniform by washing. While you can make good cheese by not washing, our experience is we can make it more uniform by washing.

Mr. Aderhold: I advocate rinsing, not washing. I would like to have you describe your system of washing.

Mr. Smith: I think our system of washing is your system of rinsing. I was discussing that with Mr. Nisbet, and I find he refers to it as rinsing where we refer to it as washing, that is, pouring eight or ten pails of water on the curd, say from 6,000 pounds of milk, after milling, after the curd was once turned over.

Mr. Aderhold: That was not my plan. My plan was to rinse it immediately before salting, and simply to clean the curd for the press and get rid of any white whey or loose fat at a temperature all the way from 96 to 105, and in real hot water. I use it considerably colder sometimes when I want to lower the temperature.

Mr. Alvis: Do you rinse your curd always just before salting, or do you make an exception on curds?

Mr. Aderhold: If you have got something in there that you want to wash out, that is different.

Mr. Alvis: I thought you didn't wash your curd.

Mr. Aderhold: I do wash a bad curd, certainly.

Mr. Cannon: We have practiced washing curds for seven years with very good success, with water at all the way from 100 degrees to 120.

Mr. Smith: I am not referring to putting water on the curds and allowing the water to remain on there for some stated time, we never practice that. Your method of rinsing curds is our method of washing curds.

Mr. Aderhold: Is that curd greasy when you salt it?

Mr. Smith: No; we found by washing it immediately after milling that the curd is not as greasy when you come to salt it, and we can expel that sour, white whey to better advantage than by washing it afterwards when the curd has heeled over some.

Mr. Mason: Have you ever experimented with the difference in stirring the curd very dry when you dip it? I have practiced that considerably during the last two years and very little white whey runs from the curd after it is salted, or any time after it is milled, if you stir that curd so that it feels practically dry to your hands, and I find that in that way I can make quite a bit more cheese to the hundred pounds than if I was a little careless about stirring the curd after it was dipped and washed. I believe if you put a little more elbow grease on the curd at the time you dip, you would get a little better flavor.

Mr. Smith: I think the elbow grease should be used to a greater extent before the dipping, and get the curd so firm at the time of dipping that it will require but very little stirring, because the less stirring you can give it, providing it is firm enough, the less you bruise your curd or break it up, the better will be the texture of your cheese and the color.

Mr. Aderhold: Is your curd on the racks at that time?

Mr. Smith: On the racks.

Mr. Baer: Some few years ago, at the Wisconsin Dairy School, we carried out an extensive series of experiments along this line of washing curds, and we did it at different temperatures of water and with different results. We began using water at a temperature of 90, I think that was the lowest. The curds were cut very fine after being quite thoroughly coagulated, then one application of water at a temperature of 90 was used, which washed out part of the whey and the curds were salted and put to press. Then that series was carried up

until four applications of water were used at that temperature, and then we did that with temperatures ranging from 90, 94, 98, 102, up to 105, from one to five applications of water, and in every instance when we washed curds in that manner, our flavor was very much impaired, and with those curds that were washed four times at low temperatures of water, the flavors were something awful that were developed in those cheese, and the cheese practically never cured; they simply stood up there in a curdy condition just as they came from the hoop, for months, before there was any signs of the cheese breaking down or any curing. We found that the less we washed, the more curing had taken place and the better the flavor, but in every instance the flavor and the curing were impaired when we added water, or attempted to firm the curds in water.

Dr. Russell: It may be of interest to know something about the bacteriological life in those cheese. The attempt was made to remove the sugar in order to change the bacteriological life, the digesting, the liquefying bacteria were more abundant, and this gave us a strong clew as to what is the real nature of that flavor, where they come from in cheese. In these conditions the ordinary flavors were not produced, but an extremely offensive odor, which was due to these digesting bacteria, which is permitted through the removal of the sugar. If the sugar is normal in the curds, these lactic acid organisms are the ones that become most abundant, but if the sugar is removed, it completely changes the nature and the kind of organisms which are found in the cheese. These results were interesting in comparison with the practical results that were obtained, where, of course, the extent of washing is by no means so great.

Mr. McKinnon: Then you would infer from that that the least washing we can put upon our curds, the better it will be for the cheese?

Dr. Russell: That is a question I am interested in. Our results showed that the curd we washed produced the worst flavors we got. The question is whether a slight washing would be a benefit. We found that by washing the curds to some extent, we removed these gas organisms and the sugar on which

they fed. Now, that can be carried altogether too far, I am convinced.

Mr. Aderhold: At what stage did you wash there?

Mr. Baer: Immediately after cutting the curd, we firmed them in the water, cut the curds, drew off all the whey we could get off, and then added the water immediately.

Mr. Aderhold: I would like to hear from Mr. Smith in regard to the power curd agitators.

Mr. Smith: Nearly all our best factories are fitted with them, and they save a great deal of work, they are very easy on the curd and otherwise of great benefit. I strongly advocate the use of them. In reference to this washing the curds, of course the experiment carried on by Mr. Baer was under altogether different conditions than the ordinary washing of curds. We never attempted to cook the curd and remove the whey in water and all that sort of thing, but we do practice the washing of the curds immediately after milling, all the best makers in Canada have adopted that plan, and the buyers approve of it very much.

Mr. Aderhold: As I said yesterday, I found in traveling through the factories of the state, that they are all using these little hand rakes, and some of them are using them altogether with too much power, and in quite a number of instances, where I stepped in and used it very carefully, I increased the yield of cheese two per cent., but I know that nobody can do a perfect job with a rake, and I think the yield could have been increased still more in those instances with one of those power agitators. In our Dairy School we never have a cheese vat, the vats there were so small we couldn't show the students how to use a rake, nor how they could abuse the curd with a rake. They had never seen one of these power agitators. Those agitators will do the work better than you can do it by hand, you will cook the curd more uniformly and break it up less, and if that is true I don't see the use of these little rakes, and I wish that at our Dairy School we could persuade them to get a cheese vat and put in a power agitator, so that the students can see how a curd ought to be handled.

Mr. Buchen: What is the price of those agitators?

Mr. Smith: At one time they were quite expensive, costing as high as $50 each, but the patents have run out in Canada, and you can get them made now for $25 a set. In a large factory you can get along with one man less, one man can heat up four or five or six vats. You can use them in any ordinary vat.

Mr. Aderhold: How high has the ceiling got to be in order to admit of using them?

Mr. Smith: Well, the ceiling has got to be high enough for a man to stand up properly.

Mr. Aderhold: I can't do that in some of our factories.

Mr. Luchsinger: Mr. Smith said something about inspectors inspecting factories. When they do so and find bad conditions, what authority have they to compel an improvement of those conditions?

Mr. Smith: That is one of the great grievances we have, we have no authority. I don't know whether you have in your state. If you have clothed your instructors with that authority, you are ahead of the Canadians. We are asking for that. Men who have made a study of this business should be in the position to enforce better conditions and to report the work of careless or incapable makers.

Mr. Aderhold: Does it require much power to run these agitators?

Mr. Smith: No; I have seen a little four-horse power engine running five sets of agitators and they seemed to work very easily.

Mr. Aderhold: Can they use the exhaust steam for that purpose?

Mr. Smith: They could, but it would not be practical to extend it to all the vats. You can easily extend to one vat.

Mr. Buchen: Mr. Smith said that some farmers in Canada did not take their whey home, but it was fed to the hogs. How near to the factory are those hogs?

Mr. Smith: They should be so far that you would not know they were there, that you could not discern their presence by either the sense of smell or seeing them.

Mr. McKinnon: What do you think of a cheesemaker who would have hogs under the factory?

Mr. Smith: That would be one of the cases for an instructor to remedy when he visited that factory, if he had the power.

A Member: How much starter do you use?

Mr. Smith: Well, the per cent. of starter to use is a difficult question to answer. I would never use more than enough starter to give the curd at least three hours from the time you set it to dipping, give it plenty of time. I believe one per be governed by te conditions of your milk.
cent. or less is usually enough starter, but you would have to be governed by the conditions of your milk.

Mr. Aderhold: How much time do you use from milling to salting?

Mr. Smith: In our Canadian factories we usually take from three to four hours.

Mr. Waterstreet: Would the acidity of the starter make a difference?

Mr. Smith: A great difference. We found that when the starters developed more than about .8 acid, that we did not get nearly as good results. It is quite safe to develop that much. We use a graduated cylinder, not a small bottle. I am speaking of the Farrington test.

Mr. Aderhold: Is not .8 acid about the point of thickening?

Mr. Smith: Yes, it is fully sour.

Mr. Luchsinger: Is it your practice to use some preparation of rennet extract, or do you make your own extract of rennet, from the rennets themselves.

Mr. Smith: At the present time we buy the rennet extracts from dealers. Years ago, before my time, cheesemakers used to make their own rennets, but they never do at the present time in our country; we find we can buy it just as cheap and it is of a more uniform strength.

Mr. Aderhold: When we get a real good address on skillful cheesemaking, we usually get it from some Canadian. They

go into the details deeper than we do, for the reason that their dealers will grade the cheese closer than our dealers will. Our dealers will pay just as much for cheese that scores 90 points as for cheese that scores 98 points, and that is the reason why we do not go into details as deeply as they do, we don't have to in order to make a cheese that brings the market price, and we will get a little bigger yield if we will just give all the whey the buyers will take without kicking. Now, when this report comes out next year, you will all learn a great deal if you will take it and study those points that Mr. Smith has brought out.

Mr. Noyes: What flavor was there on that milk from cows fresh in milk?

Mr. Smith: Well, the flavor was not different from the old milk until after the cheese was about a month old, and then it seemed to get of a mealy, acidy nature.

Mr. Mason: In preparing a starter, if you found your starter was developing too much acid, would it be advisable to reduce it by adding, say, a third clear, cold water?

Mr. Smith: If I found that my starter was too acid, too old, I wouldn't like to use it at all. You can reduce it by reducing the temperature. It is necessary to use water, of course, in making a starter, in order to prevent it becoming too thick, to break it up properly. I prefer using a pasteurized starter, of either whole milk or skim milk; of course, in a cheese factory you have to use whole milk. I would pasteurize it, cool it to about 70 or 75, use a little of the previous day's starter. I would use commercial starter to start with, but we have factories in Canada that are using a starter over one year old. Whenever the starter goes wrong, I would dispose of that and get a commercial starter and start again. I prefer adding the water before pasteurizing it if it is not perfectly clean. We heat up the milk to 165, and leave it at that temperature about twenty minutes. I think it would be as well to run it up to 200 if you are troubled much with gas germs.

Mr. Michaels: Couldn't you put in a steam hose?

Mr. Smith: That would not be advisable. Put the steam hose in the water surrounding the can.

Mr. Michaels: How do you heat your milk?

Mr. Smith: By the use of steam underneath, in some cases dry, and in some cases in the water surrounding the vat. Of course in the summer it doesn't require a great deal of heating.

Mr. Michaels: What objection have you to turning the steam directly into the can or the vat of milk, so long as the boilers are kept clean and no boiler compound or oil is used?

Mr. Smith: It is my experience in going through the factories that it is not safe to stay in a factory where they do not use some boiler compound or something else. Certainly some flavor is imparted to the milk, and it is not advisable to turn the steam into the milk.

Mr. Michaels: That would be unorganized water, wouldn't it?

Mr. Smith: It would be a volatile flavor, but it would injure your milk.

Mr. Michaels: I have done it for years.

Mr. Smith: You must have very clean boilers. It is not a good plan to advocate.

A Member: Do you use a starter every day of the season?

Mr. Smith: I would only use a starter when you can't possibly get along without one. If you can make cheese without the use of a starter, by all means do so.

A Member: How do you know to use the starter?

Mr. Smith: By the condition of your milk.

Question: Suppose you get in milk to-day and it doesn't work right then, what will you do then?

Mr. Smith: You can better that tomorrow.

The Member: But you are one day out of pocket?

Mr. Smith: It doesn't change so rapidly as all that, it usually changes gradually to these different conditions. You can be guided by circumstances.

Mr. Aderhold: We have had lots of trouble here in hot weather in the last few years, and particularly in the northern part of the State where the country is not half as old as it is in the old cheese section, and the maker comes to expect to get poorer milk every day in hot weather. Under those circum-

stances, don't you think it is advisable that the milk shall be cooled down so cold that a good starter can be used right in the summertime, and perhaps prevent undesirable ferments after it arrives at the factory?

Mr. Smith: That is a very good system, but I think myself that if the farmers would practice greater cleanliness and care in the handling of the milk, there would not be so much need of cooling it, but you can sometimes prevent the growth of these undesirable germs by cooling, and if so, by all means cool it, and then a starter is used for the purpose of developing the acid and controlling the flavor.

COLD CURING OF CHEESE.

Drs. S. M. Babcock and H. L. Russell, Wisconsin Experiment Station, Madison, Wis.

Mr. President and Gentlemen:

I regret very much more than you possibly can that Dr. Babcock cannot be here with us to-day in order to present that part of our work which we had agreed upon. I am very glad to say that he is recovering from a very severe attack of pneumonia, which he has had for the last two weeks, and unless some new complications set in, in all probability he will recover.

Now, the work which I have to report this afternoon is practically a continuation of the work which was presented to your body a year ago.

We have been working upon the curing of cheese to determine if in some way we cannot improve the quality of cheese by varying in one way or another the method by which it is cured. Cheese differs from butter in that when it comes from the vat it is practically a worthless substance, and it only receives its value from a commercial point of view, after a lapse

of a certain period of time during which those profound changes occur that characterize the ripening process.

The experiments which we have been making have been with reference to the use of very much lowe r temperatures than those heretofore employed.

In making these experiments a large mass of milk was taken and from this a number of cheese were made under exactly the same conditions. These cheese were all made in one vat, so as to secure uniform conditions with reference to manufacture, and then they were placed at various ripening temperatures ranging from 15 degrees Fah. up to 50 degrees Fah. Under those conditions if we secure a very marked difference in the product it ought to be attributed to the ripening temperature, inasmuch as the manufacture was the same throughout.

Our experience has demonstrated that the quality of the product which was secured under these temperature conditions, was generally better, the lower the temperature at which the cheese was cured, with the exception of those kept below the freezing point. In these cases in spite of the fact that the cheese was kept below the freezing point, they were of fairly good quality when properly handled after they were taken from the cold room. The cheese which we have found to be the best, were those which were cured at a temperature ranging from 35 to 40, or thereabouts; these were better than those at 50; those kept at 50 were better than those at 60. This leads us to believe that much lower temperatures than have heretofore been considered advisable may be used with very considerable success in ripening Cheddar cheese.

There are just a few points with reference to these cold cured cheese that I wish to call your attention to. In the first place, there is the question of flavor. The flavor of these cheese cured at these abnormally low temperatures is very mild. It is a good, clean flavor in every way in spite of the fact that there is a popular opinion, I believe, that cheese cured at what we might call cold storage temperatures, very frequently have a bitter flavor. We have never found these

cheese cured at temperatures ranging from 35 to 50 degrees to possess a flavor which was abnormal. The flavor is mild, but it is generally perfectly clean.

With reference to the texture of these cheese, in many respects they were practically perfect, as Mr. Baer, who judged them, put it. They were thoroughly broken down so that the texture was as satisfactory as could be asked for.

It is noteworthy that a comparison of the cheese from a physical point of view in connection with the chemical analysis shows that they had not broken down chemically, as far as their physical appearance would indicate.

With reference to the body of the cheese, they were close and meaty, except in those cases where excessive quantities of rennet were employed. We have used in these experiments two or three times the quantity of rennet ordinarily used, say, six or nine ounces, and in those cases, the cheese, as they increased in age, had a tendency to become slightly open or loose. We have, I believe, the right explanation of this looseness, that it is due to the shrinking of the curd, due to the action of the rennet itself, the rennet causing a continual and slow but constant shrinking of the caseine mass and therefore, when these larger quantities were employed, there is a tendency of the curd to continue to shrink, and, of course, as it increases in age, this has a tendency to make it slightly open.

With reference to the color of the cheese, they were perfectly even in color, except in those instances where the body of the cheese was a little loose, in which case the color was cut around these openings. This, I should say, only happens in the case of cheese made with increased quantities of rennet.

There is one other characteristic of these cheese which is quite remarkable, not only from the practical point of view, but at the same time from a scientific point of view. In cheese cured at 40 degrees or below, there appears throughout the entire mass of cheese very small, almost microscopic white specks. The nature of these I need not go into here in connection with this subject, for that is a matter that is still under

investigation. These white specks are not apparent when the cheese is in the cold storage room, but when a cheese is taken out and warmed up, they become apparent. At first we thought this was a serious defect, a handicap upon the appearance, and that they would injure the sale a good deal, but Mr. Baer, in his work throughout the state, has had occasion to examine cheese kept in cold storage in different portions of the state, and he has found that the presence of these white specks is not at all uncommon, that in fact, in most of the storage goods which he examined, they were quite evident. They are not readily noticed in the early stages of curing, in fact, we recognized them upon the photographic plate before we did with the unaided eye, but afterwards we found upon very close examination that they were present in all of our product kept at low temperature. They have absolutely no effect upon the flavor of the cheese and do not injure it in any way, except, of course, where they might be present to such an extent that it would cause a question in the mind of the consumer as to what they were. From the fact, however, that they appear in all cold storage goods, and they have not, so far as we know, occasioned any concern in the market, that is, buyers buy these goods and do not pay any attention to it, we are led to believe that the matter is entirely inconsequential. Indeed this appearance might constitute as it were a trade mark for a cheese cured according to this method, because they do not appear in cheese which is cured above 40 degrees, but are almost invariably present in cheese cured at 40 or below.

Now, the quality of the cheese as found in the flavor, the texture, the body, and the color is on the whole better than that of cheese cured at higher temperatures. These cheese have been examined by our own experts and by cheese experts who knew nothing whatever of the way in which they had been handled. Not only have Wisconsin judges, but Canadian and Eastern experts pronounced them an exceedingly fine product, a good deal better than the market ordinarily produces. Of course, in one sense, we are aware that it is

rather unsafe to judge of the market value of goods in this class in comparison with the general market, but so far as it is possible for us to give a commercial score to these cheese in comparison with a standard score, they have not infrequently ranked, from a half to three quarters of a cent, and sometimes, a cent a pound more than the regular product.

Not only has it been found that the quality of the individual cheese itself was improved, over those ripened at higher temperatures, but there are other advantages which come from the use of this system. Take, for instance, the matter of flavor. I said that the flavor produced in these lower temperature cured cheese is exceedingly mild although the texture is broken down and frequently it gives you a soft, mellow cheese with a mild flavor even though the cheese may have considerable age. It is possible to intensify the flavor of these cheese in a very simple manner. If these cheese, after they have been thoroughly ripened, physically entirely broken down, still have a perfectly mild flavor, if they are then taken out and brought into a higher curing temperature, say 60 degrees or thereabouts, you can intensify the flavor to almost any degree you desire. In that way it becomes possible with well matured cheese, to get rid of these sharp twangy flavors so liable to occur in the ordinary product. This is desirable, I believe. You may have a very mild, thoroughly broken down cheese or you may intensify that flavor by this secondary curing.

Then again, the question of uniformity comes in. It is possible to make a more uniform product. The daily fluctuations in character of the product are often so great as to practically in some instances, defeat the skill of the cheesemaker. With these lower temperatures it is possible to produce a very much more uniform product.

Then again, there is the factor of the keeping quality of these cheese. They are slower in ripening, but they are a great deal longer in passing through what we may call the commercial period, so that instead of the cheese reaching its best and then soon declining, these cheese are marketable for a

longer period of time. This, of course, is an advantage which is very evident.

Again, we have the matter of the diminution of losses, in the ripening of cheese under usual factory conditions. Not only is the question of quality important,—flavor, texture, etc., but there is always some loss due to the drying out of the cheese. This is much less with cheese cured at lower temperatures than with those cured at 60 or above.

Again, we have the matter of abnormal taints. We have found that where milks are slightly tainted to begin with that the taint was not nearly so pronounced in the cheese if cured at 40 degrees as if it was cured at 60 or thereabouts. This is particularly true where there is a tendency for the cheese to puff, due to the development of gas forming bacteria.

Then, one more factor is the matter of moulding?

The moulding of cheese is, of course, a biological phenomenon due to the development of mould spores on the surface of the cheese—a condition brought about by the proper temperature and moisture. Mould will invariably occur when the degree of saturation in the atmosphere reaches the maximum point, and under these conditions at ordinary temperatures at which cheese is ripened you have more or less trouble from moulding of the cheese. We find that when cheese is cured at 40 degrees or thereabouts, these moulds will not develop. They cannot grow to any considerable extent because the temperature is too low for them to develop, so that those losses are to a large extent obviated by the use of these lower curing temperatures.

Now, there is a matter of expense to be considered in this process, because in order to be able to cure cheese at 40 degrees, it becomes necessary to use other than ordinary methods. There is increased equipment and there is also the factor of time to be taken into consideration. The ripening process is slow under such conditions, therefore, the factor of interest comes in. It has been found that it is possible to diminish this extra time by the use of higher amounts of rennet, and

that under these conditions you do not experience the bad effects which come from the use of large quantitites of rennet under ordinary conditions. The use of six or nine ounces of rennet ripened under ordinary conditions gives a very sharp flavor; these cheese made with extra rennet and cured at 35, 40, and 50, do not have that sharp and undesirable flavor that usually characterizes high rennet cheese; at the same time the increased rennet hastens the ripening process, so that the time element is not of so much importance, because the system permits of the use of larger quantities of rennet under conditions where the disadvantages are not marked. While it is possible that it will take somewhat longer time to cure cheese at these low temperatures than under ordinary conditions, yet that time is not very greatly increased. I have here a cheese ripened for 7 months at 40 degrees, and I think you will find it of excellent quality.

This cheese was made with three ounces of rennet and two and a half pounds of salt, and is now seven months old. We went to Mr. Noyes' factory, down in Grant County, and there secured the output of a whole day. These experiments were not experiments under laboratory conditions, where a mass of milk has been taken and worked up under experimental conditions. They have been made on what you might call a commercial scale and we have somewhere in the neighborhood of forty or fifty thousand pounds of milk which has been handled in this way, so that the conclusions which have been derived from these series of experiments which now cover a period of something like four years, are entitled to more value than they would be if they had been confined to laboratory conditions. There will be an opportunity to test this cheese and you can see for yourselves perhaps better than I can tell you whether the quality of the cheese which has been cured under these conditions is satisfactory or not.

Now, with your permission, I think the few words I have to say with reference to the other subject had perhaps better come in here before we cut the cheese.

RELATIVE ADVANTAGES OF CONSOLIDATED COLD CURING STATIONS FOR CHEESE.

Drs. S. M. Babcock and H. L. Russell, Wisconsin Experiment Station, Madison, Wis.

The experiments to which I have referred lead us to believe that if we use lower temperatures than have heretofore been employed, we can secure better results, not only as to quality of cheese, but we can diminish materially the losses, which would otherwise occur, and at the same time materially improve the value of the cheese in other ways, so that from the dollars and cents point of view it is well worth considering.

Of course, however, it is manifestly out of the question for each cheese factory to go to work and construct a curing room in which the insulation is perfect enough to enable the cheese to be kept economically at a temperature of 40 degrees or thereabouts.

Some years ago the proposition was made by us at the State Dairymen's Convention to install centralized curing stations for the ripening of cheese. It would seem that if this low-temperature curing process is a success, that in place of each factory building its own curing room and putting $500 or more into a sub-earth duct, or some other sort of improvement to reduce temperatures, that it is a great deal more economical to combine the curing rooms for several factories, to establish co-operation in such a way as to secure maximum results with minimum expense; it is possible to ship cheese from different factories to some central point at which a properly constructed curing room can be made where the entire output can be handled so that the quality of cheese will be much improved thereby. In this way, not only may the flavor be improved, but the ordinary losses considerably lessened. There are other advantages which would accrue from this production of cheese in large lines so that buyers could easily contract for considerable quantities at

one time. In this way it is possible, through the use of this consolidated cold curing station where cheese is shipped from various points to be cured, to produce cheese of best quality at the minimum of expense.

The experiment has been tried of shipping cheese from Iowa to Canada and from Canada back to Iowa, in order to see whether they would stand the journey without impairment in quality, and those cheese, sent eight hundred or a thousand miles have been placed under these curing conditions and came out A No. 1 cheese, so that the question of distance is no factor whatever in this matter.

Now there is a possibility for not only the consolidation of factories under one management, but the system is equally applicable to co-operative effort in any locality where the cheese industry is important. For example, here are twelve, fifteen or twenty factories, receiving milk in a contiguous territory, and in place of each one building an independent curing room and ripening the cheese themselves often under adverse conditions, these cheese can just as well be sent to a central station, where they can be handled better and with more economy, and it seems to us that with the inauguration of this cold-curing system of cheese ripening that the cheese industry of Wisconsin can be given a forward impetus that will be of greatest value.

DISCUSSION.

Mr. Aderhold: How about the rinds on those low-cured cheese, as to whether they will stand up?

Dr. Russell: There is rind enough so they stand up and hold their shape in good shape, even though they are put in directly from the press. This cheese was put in direct from the press. It was brought from Muscoda, about twenty-four hours on the road, and placed immediately at a temperature of 40 degrees. The flavor can be considerably intensified in this kind of cheese, but the important point is that you get the broken

down condition and the mild flavor, and then you can intensify that flavor by further development at a somewhat slightly higher temperature. In that way there is no liability of huffing.

Mr. Michaels: Was there any color put in that cheese?

Dr. Russell: No, this is an uncolored product.

Mr. Mason: Could you cure that in less than seven months?

Dr. Russell: I don't think that you could get much farther along in much less time. What do you think, Mr. Baer?

Mr. Baer: I think not less than six months.

Dr. Russell: There were three ounces of rennet to the thousand pounds of milk used here. Now, you can hurry the ripening process by doubling the quantity of rennet and you can do it in perfect safety, as you get no bad flavor in this way. Six or even nine ounces of rennet can be used with safety, as we have done in our experimental work.

The following announcement of the report of the Judges on Cheese was made:

Mr. Chairman, Gentlemen of the Convention:—

As Chairman of the Committee on Cheese Judging I will say that in our work we had a critic who followed us and made notes which, no doubt, you will all hear of later. The cheese scores are as follows:

American Cheese.

Name of Exhibitor.	Post Office.	State.	Flavor. 45	Texture. 30	Color. 15	Make-up. 10	Total. 100
Kielsmier, F. A.	Hika	Wis...	44¼	29	14¼	8½	96
Gartman, Chas	Sheboygan	Wis...	43	29	14	8½	94½
Hamm, W. P	Allenton	Wis...	41	26½	14	7½	89
De Hann, Mathew	Lineville	Iowa..	41	27	15	9½	92½
Taylor, H. E	Cushing	Mich.	39½	10	11½	7	68
Viergutz, F. A	Chippewa Falls..	Wis...	44	29	15	9	97
Lindner, E. E.	Jericho	Wis...	44	28¾	15	6½	94¼
Wallace, P. W	Hortonville	Wis...	44	29	15	9¼	97¼
Nesbit, Hugh	Bloom City	Wis...	44	29½	15	9	97½
Boll, E. C	Sheboygan Falls.	Wis...	44	29	15	9	97
Scott, H. M.	Sheboygan Falls.	Wis...	44	27¾	15	9½	95¾
Alves, H. C	Sheboygan Falls.	Wis...	43¾	28¾	15	9½	97
Johnston, Thomas	Boaz	Wis...	43¾	29	14½	8¾	96
Weinreis, Peter	Chilton	Wis...	44	28¾	15	8¾	96½
Kasper, P. H	Nicholson	Wis...	41	29½	15	9½	95
Simon & Co., N.	Neenah	Wis..	44	29¼	15	9¾	98
Vogt, John	Orihula	Wis...	44¼	29	15	9¾	98
Boyd & Drischel	Cambridge City..	Ind ...	42½	28¼	14	8½	93¼
Dixon, Thomas	Chippewa Falls..	Wis...	43¾	29¾	15	9½	97½
Vogt, John	Orihula	Wis ..	44	29¼	15	9	96¼
Lepley, Edgar	West Lima	Wis...	44¼	30	15	9½	98¾
Berg, Julius	Sevastopol	Wis...	42¼	28	15	9¾	95
Perkins, A. W	Stanton	Minn.	43½	28	15	9	95½
Simon & Co., N.	Neenah	Wis...	44¼	29½	15	9¾	98½
Higgins, C. B	Charles City.	Iowa..	44	29¾	15	9	97¾
Fero, Walter	Muscoda	Wis...	43	29	15	9½	96½
*Daley, Thomas	Muscoda	Wis...	43	29	15	9½	96½
Buchen, Geo. J	Adell	Wis...	42½	29	15	8¾	95¼
Kapelka, J. A.	Cobb	Wis...	44½	29¾	15	9¾	99
Stewart, W. A	Monroe	Wis...	44	29	15	8½	96½
Schaefer, J. A	Sheridan	Wis...	42½	29	15	9¾	96¼
*Cross, J. W	Muston	Wis...	43½	29½	15	10	98
Durst, J. W.	Plain	Wis...	42½	28	15	9	94½
La Crosse C. & B. Co.	La Crosse	Wis...	42	28½	15	9¼	94¾
Wolter, F. L.	Lawrenceville	Wis...	43¼	28½	12½	9	93¼
Aune, J. G	Baldwin	Wis...	44	29¾	15	9	97¾
Austin, H. E	Boscobel	Wis...	42¼	29¾	15	8½	94½
Graskamp, W. H	Fillmore	Wis...	41½	25	13	7¼	86¾
Bachmann, J. F	Black Creek	Wis...	43¾	29	14	8¾	95
Mulvey, S. J	Plymouth	Wis...	44	29	15	9¾	97¾
Biddulph, J. R	Providence	Ill ...	41	27	13	8½	89½
Moscript, Joseph	Boaz	Wis...	43	28¼	15	9¼	95½
Anderson, John	Sheboygan	Wis...	42½	29	15	9¾	96¼
Anderson, H	Sheboygan	Wis..	41½	29½	15	9¼	95

Neufchatel Cheese.

Name of Exhibitor.	Post Office.	State.	Flavor. 45	Texture. 30	Color. 15	Make-up. 10	Total. 100
Stewart, W. A.	Monroe	Wis...	42½	29¾	15	10	97¾

Cream Cheese.

Name of Exhibitor.	Post Office.	State.	Flavor. 45	Texture. 30	Color. 15	Make-up. 10	Total. 100
Stewart, W. A.....	Monroe..... ...	Wis...	42	29	15	10	96

Brick Cheese.

Name of Exhibitor.	Post Office.	State.	Flavor. 40	Texture. 30	Color. 15	Make-up. 15	Total. 100
Ganschow, Frank	Bonduel	Wis.	20	10	15	15	60
Schaller, Alex.....	Mt. Horeb.....	Wis...	35	30	10	15	90
Karlen and Sons ..	Monroe.....	Wis...	40	25	15	15	95

Limburger Cheese.

Name of Exhibitor.	Post Office.	State.	Flavor. 40	Texture. 30	Color 15	Make-up. 15	Total. 100
Schaller, Alex.....	Mt. Horeb.....	Wis...	30	30	5	15	80
Karlen and Sons.....	Monroe.....	Wis...	39½	30	15	15	99½

Swiss Cheese.

Name of Exhibitor.	Post Office.	State	Flavor. 30	Holes. 25	Texture. 20	Color. 10	Salt. 10	Style. 5	Total. 100
Karlen and Sons.....	Monroe.....	Wis.	30	20	18	10	10	4	92
Marty, Jacob.....	Browntown	Wis.	30	15	20	10	10	2½	87½
*Marty, Fred.....	Browntown	Wis.	30	25	20	10	10	5	100

* Entries were not in competition for premiums; given complimentary scores only.

J. A. Kapelka, Cobb, Wis., won first premium, gold medal, on Cheddar cheese.

Jacob Karlen and Sons, Monroe, Wis., won first premium, gold medal, on Swiss cheese.

Jacob Karlen and Sons, Monroe, Wis., won first premium, gold medal, on brick cheese.

Jacob Karlen and Sons, Monroe, Wis., won first premium, gold medal, on Limburger cheese.

Edgar Lepley, West Lima, Wis., won second premium, silver medal, on Cheddar cheese.

Jacob Marty, Browntown, Wis., won second premium, silver medal, on Swiss cheese.

Alex Scaller, Mount Horeb, Wis., won second premium, silver medal, on brick cheese.

Alex Schaller, Mount Horeb, Wis., won second premium, silver medal, on Limburger cheese.

To all exhibitors scoring 90 points or over the Association will give bronze medals, properly engraved.

The $150.00 cash premium fund will be awarded on the excess pro rata plan to all entries scoring 90 or more points.

Every exhibitor whose cheese scores 85 points or above, will receive a diploma, signed by the Judges and verified by the President and Secretary, setting forth the score of the cheese, the highest score, the lowest score, and the average score of all cheese exhibited at this meeting.

Instructor E. L. Aderhold will write you from the data and notes he secured from following up the Judges in their work.

Respectfully submitted,

John Kirkpatrick, Chicago, Ill.,
I. F. Laing, Chicago, Ill.,
Jos. Steiner, Milwaukee, Wis.,
Judges.
J. W. Cross, Mauston, Wis.,
Superintendent.
E. L. Aderhold, Neenah, Wis.,
Critic.

The convention adjourned to meet at 7:30 P. M.

The convention met pursuant to adjournment, at 7:30 P. M. President Dickinson in the chair.

BUSINESS SESSION.

The report of the Board of Directors was submitted by Mr. J. K. Powell, as follows:

Gentlemen:—

A meeting of the dirrectors and officers of the Wisconsin Cheesemakers' Association was held at the Republican House in the city of Milwaukee on the 12th day of September, 1901. Present, Directors J. K. Powell and Thomas Johnston, President W. C. Dickson, Vice President John McCready, Secretary U. S. Baer.

R. B. Watrous, Secretary of the Citizens' Business League of Milwaukee, was present, and asked on behalf of the business men and citizens of the city that the next convention be held in Milwaukee. The result of the conference with Mr. Watrous and others was the unanimous vote in favor of holding the next convention in Milwaukee, and fixed the dates of same for January 8, 9, 10, 1902.

By a vote it was decided to donate to Secretary U. S. Baer the sum of $75.00 as a token of our appreciation of his services as Secretary of this Association.

November 6th a meeting of the directors and officers was called at Madison, and Secretary U. S. Baer was instructed to go to Milwaukee and arrange for headquarters, halls, etc.

We have examined the accounts and vouchers of the Secretary and Treasurer and find them correct.

(Signed) J. K. Powell.
Thos. Johnston.
Fritz J. Karlen.

On motion of Mr. Carswell, duly seconded, the report was accepted and adopted.

The report of the Secretary was submitted as follows and adopted, with the exception of the resignation of the Secretary.

SECRETARY'S REPORT.

U. S. Baer.

Mr. President and Members of the Association:—

I have the honor to report upon the work of this office for the year ending January 8th, 1902.

It is gratifying to note that the year just closed has been the most successful one in the history of this organization. No branch of agriculture in the state has made greater progress than the cheesemaking industry during the past year.

Cheese making is rapidly becoming the specialty of districts of wide area in Northern Wisconsin. It is now regarded as among the most progressive and highly developed forms of farming in the state.

The cheese product of Wisconsin today is superior to that made in any former period in the history of the industry. Wisconsin produces more than one-fourth of the entire cheese product of the United States. Our 1,540 cheese factories produced 45,000,000 pounds of Cheddar, and 15,000,000 pounds of Swiss, brick and Limburger cheese last year. Our total output of cheese at this time is valued at $6,000,000 annually.

We can safely congratulate ourselves on the fact that of all the several diversified interests of agriculture none have prospered, or afforded the people of the state more substantial returns than the cheese business the past season.

Beginning with the earliest days of the association, its officers and members interested themselves in the education of the cheesemakers of the state for better work in the art of making cheese, the care and management of factories, the sale of their products, the weeding out of incompetency in the business of cheese making, and up to the present time have always stood united as one man for the rigid enforcement of such laws as would protect the manufacturer of honest dairy products against undue competition from deceitful and dangerous imitations.

The state appropriation of $400.00 annually to help us carry out our work has proven an investment. It has made direct

returns by adding to the wealth of the state. These annual meetings gather facts, and through the distribution of its annual reports spreads information. Much has been added yearly to the profits of our dairymen and others through the educational nature of our work. The educational cheese contest, the short papers and speeches on the art of practical cheese making, with the discussions which invariably follow the presentation of each subject tends to brighten us by contact with others of our kind. We get new ideas, lose some old ones, and thus keep abreast of the times.

This work will grow and expand from the foundations laid so wisely and well in the past by our far-seeing early officers until the power of this Association will greatly exceed anything with which we are now familiar, and place within the reach of our rapidly increasing population in Northern Wisconsin the necessaries and luxuries of the life that has distinguished us as a people in the past.

In Northern Wisconsin there is a vast area of agricultural lands eminently suited to the production of fine cheese. The abundance of grasses, the pure water and the mild summer temperature form a combination which cannot be excelled in the United States.

This is our great work. If all interested will only work to the common end there will soon be hundreds of new cheese factories in the north, each turning out cheese of high quality. Northern Wisconsin should produce $10,000,000 worth of cheese annually, and every pound of it would find a market in America if foreign trade does not care for it.

During the past year new markets in the South and West have been opened up to our product, while the export demand is increasing and large shipments of Wisconsin cheese are now being forwarded into Porto Rico, Cuba and Mexico.

Although Canada was again at the front in the cheese competition at the Pan-American Exposition, there are a few lessons that we should learn from these contests. While Wisconsin and New York, which were the only states competing in the export classes, did not make as numerous exhibits as Canada did, yet in

our average score we were not far behind. It was not so in the international competitions at Chicago in 1893. Canada's average score at the World's Fair was away ahead of that of any state in the Union.

Whether Canadian cheese has made any advancement in quality or not since 1893, it is quite evident that Wisconsin cheese has made very great improvement. It is interesting to note, judging from the entries at the Pan-American, at least four makers from New York and Wisconsin are making for the home trade as against one for the export trade. In other words, our home trade is four times as important to us as the export trade is.

With this ratio of progress as between Canadian and Wisconsin cheese, why should not we win first place at the St. Louis Exposition in 1903, and establish the reputation as making the finest quality of cheese of any cheese-producing country in the world.

Permit me to suggest that this Association appoint at this meeting a committee of three, whose duties shall be to look after Wisconsin cheese interest at the St. Louis Exposition. Such a committee could awaken an interest among the cheese producers of the state, and would be in a position to confer with the dairy officials of the Exposition, thus insuring a commendable showing of Wisconsin cheese at St. Louis in 1903.

Notwithstanding that this Association is representative of the cheese interests of this state, the organization was wholly ignored by those having charge of Wisconsin's dairy interests at the Pan-American. No representative appeared before the convention at Madison last January, and no letter of invitation was ever received from any source whatever by any of the officers of this Association inviting the cheesemakers of Wisconsin to exhibit at Buffalo. You all know the result, and many of the members have expressed themselves to me as thoroughly disgusted with the entire arrangement, and gave the facts as stated as their reason for not exhibiting at Buffalo.

Let us profit by past mistakes and put forth every effort to

maintain our proud position as a cheese producing state at the big competition of 1903.

The Swiss, brick and Limburger cheese industry of this state has grown to be of such commercial importance that it commands attention and justifies all reasonable provisions for guarding its interests.

Through the liberality of our Legislature and the earnest efforts of Dean W. A. Henry, of our Agricultural College, the equipment at the Dairy School at Madison has been enlarged so that instruction in the process of making these foreign cheeses has been given to students for the first time, during the present term of the Dairy School.

It is a source of pride and much satisfaction to know that all those of our people who desire instruction in the art of foreign cheese making will, with these improvements, hereafter enjoy the same privileges that have been granted in the past to persons interested in Cheddar cheese making.

Our treasurer's financial statement will show the sources from which all moneys paid into the treasurer's hands were received, and the disbursements paid on orders received from this office, which he holds as vouchers, for the year beginning January 22nd, 1901, and ending January 8th, 1902.

I feel obliged to say that I am very much pressed for time to arrange and successfully carry out my business affairs in connection with our State Dairy School and must at this time resign my position as Secretary of this Association.

Assuring you that I shall never be found wanting when I can be of any service to the success of the Association, I desire to express my high appreciation and heartfelt thanks for the confidence reposed in me for the six terms I have served as your Secretary, which has ever been extended to me on every occasion, as opportunity offered, by all members of this Association.

The report of the Treasurer was submitted as follows and adopted:

TREASURER'S FINANCIAL REPORT FOR 1901.

Mr. President and Members of the Association:

The following itemized report is made, showing the source from which all moneys paid into the Treasurer's hands were received, and the disbursements paid on order from the Secretary, which I hold as vouchers:

Receipts.

1901.		
Jan. 22	Balance in hands of treasurer	$10 51
Jan. 25	Memberships	159 00
Feb. 20	From state treasurer	400 00
Nov. 30	A. H. Barber & Co., Chicago, Ill	10 00
Nov. 30	G. F. Hummel & Co., Chicago, Ill	5 00
Nov. 30	M. Uhlman & Co., Chicago, Ill	1 00
Nov. 30	P. H. Bolton & Co., Chicago, Ill	2 00
Dec. 3	Wisconsin Dairy Supply Co., Whitewater, Wis	15 00
Dec. 3	Diamond Crystal Salt Co., St. Clair, Mich	10 00
Dec. 5	Republican House, Milwaukee, Wis	10 00
Dec. 5	A. H. Barber M'f'g Co., Chicago, Ill	15 00
Dec. 5	C. E. Udell & Co., Chicago, Ill	5 00
Dec. 5	A. C. Dow & Co., Chicago, Ill	5 00
Dec. 5	Creamery Package M'f'g Co., Chicago, Ill	25 00
Dec. 5	John Muir, Chicago, Ill	10 00
Dec. 5	Francis D. Moulton & Co., Chicago, Ill	5 00
Dec. 5	Worcester Salt Co., New York City	10 00
Dec. 5	Genesee Salt Co., New York City	10 00
Dec. 6	Crosby & Meyer, Chicago, Ill	5 00
Dec. 7	E. A. Roser & Co., Chicago, Ill	10 00
Dec. 9	Muscoda Dairy Board of Trade, Muscoda, Wis	15 00
Dec. 28	N. Simon & Co., Neenah, Wis	10 00
1902.		
Jan. 5	David Muir & White, Fond du Lac, Wis	25 00
Jan. 7	Merchants Dispatch Trans. Co., Milwaukee, Wis	5 00
Jan. 7	A. Gussenbach & Co., Milwaukee, Wis	10 00
Jan. 7	E. R. Godfrey & Sons, Milwaukee, Wis	5 00
Jan. 7	J. and M. Steiner, Milwaukee, Wis	5 00
Jan. 7	B. Steiner, Milwaukee, Wis	5 00
Jan. 7	Fietzner & Thomsen, Milwaukee, Wis	3 00
Jan. 7	Geo. Geiger & Co., Milwaukee, Wis	3 00
Jan. 7	American Pkg. Transit Co., Milwaukee, Wis	5 00
Jan. 7	Star Union Line, Milwaukee, Wis	5 00
Jan. 7	Milwaukee Cold Storage Co., Milwaukee, Wis	10 00
		$828 51

Disbursements.

1901.		
Jan. 25	U. S. Express Co	$6 60
Jan. 25	American Express Co.	6 70
Jan. 25	Illinois Central R. R. Co	1 21
Jan. 25	Hotel bills of speakers at convention	35 70
Jan. 25	Prof. J. A. Ruddick, lecture and expenses	87 34
Jan. 25	E. L. Aderhold, expenses attending convention	18 20
Jan. 25	Rent of Turner Hall	15 00
Jan. 25	J. M. Cross, expenses attending convention	9 41
Jan. 25	Walter Mayer, printing	1 50
Jan. 25	Juergens & Anderson, medals	70 00
Jan. 25	Anna Moore, typewriting	1 85
Jan. 25	Averbeck Jewelry Co., engraving medals	3 10
Jan. 25	Nitschke's orchestra, music	25 00
Jan. 25	J. K. Powell, expense attending convention	19 00
Jan. 29	Anna Moore, typewriting	7 85
Feb. 4	Postage on letters	2 00
Feb. 7	R. A. Horton, expenses attending convention	6 78
Feb. 7	Anna Moore, typewriting	1 20
Feb. 9	Averbeck Jewelry Co., bronze medals	11 50
Feb. 9	Walter Mayer, printing	6 25
Feb. 9	Postage on reports	4 00
Feb. 9	Mrs. A. L. Kelly, reporting meeting	98 19
Feb. 15	Contribution to premium fund	14 18
Feb. 22	H. E. Austin, treasurer, postage	3 50
Feb. 22	H. E. Austin, expenses attending convention	5 30
Feb. 26	U. S. Baer, secretary, postage	1 00
Feb. 28	U. S. Express Co	1 50
Mar. 2	U. S. Baer, secretary, postage	1 00
Mar. 4	Anna Moore, typewriting	2 15
Mar. 8	Averbeck Jewelry Co., 1 bronze medal	1 75
Mar. 10	Thomas Johnston, expenses attending convention	4 24
June 26	U. S. Baer, secretary, postage	1 00
June 28	W. C. Dickson, traveling expenses	13 50
Sept. 28	Secretary's salary	75 00
Nov. 23	Walter Mayer, printing	4 50
Dec. 30	Postage mailing annual report	48 76
Dec. 30	Boxing, freight and express on reports	14 61
Dec. 30	Capital City Paper Co	1 74
Dec. 30	Walter Mayer, printing	6 40
Dec. 30	Western Passenger Association, special agent	11 00
Dec. 30	Effie Clost, typewriting	8 50
Dec. 30	Postage on 422 letters	8 44

1902.			
Jan.	7	Postage on programs	12 70
Jan.	7	Express on badges	70
Jan.	7	Express on cheese and reports	1 00
		Total disbursements	$680 85
		Balance in hands of treasurer	147 66
			$828 51

Respectfully submitted,

S. E. Knickerbocker,
Treasurer.

ELECTION OF OFFICERS.

The first business under this heading was the election of a director to take the place of J. K. Powell.

The president called for nominations and J. K. Powell was nominated to succeed himself.

On motion, duly seconded, there being no other nomination the rules were suspended and Mr. Powell elected by acclamation and declared the duly elected director of the association for the ensuing three years.

Nominations for president were next in order and the following nominations were made: Mr. M. McKinnon was nominated by Mr. Mason, duly seconded.

Mr. Dickson, the present incumbent, was nominated by Mr. Buchan, duly seconded.

Mr. McCready was nominated by Mr. McKinnon, duly seconded.

No further nominations being made, the nominations were closed and Messrs. Johnson, Knickerbocker and Noyes appointed as tellers.

Mr. Powell was called to the chair and the ballot declared closed and the ballots counted.

The tellers announced that the ballot resulted as follows: McKinnon, 18; McCready, 8; Dickson, 49; N. Simon, 1.

Mr. McKinnon moved, seconded by Mr. McCready, that Mr. Dickson be declared the unanimous choice of this convention.

Motion put to the house and carried unanimously, and Mr. Dickson declared the duly elected president of the association for the ensuing year.

On being called on for a speech, President Dickson said:

I am elected for the third term, gentlemen of the convention, and this is the first time I have ever been called upon to make a speech. I don't know that I can, but I'll try. I don't know how I can keep the tears from flowing in my enthusiasm over my own success. I assure the gentlemen from the eastern portion of the state, who thought it nothing but right that they should have representation, that I belong to them as well as those of the western portion of the state. I am one of those poor unfortunates who can hang his coat on Mr. Luchsinger's fence and feel myself at home, and go over to Tom Johnson's at Boaz and hang my coat on his fence—although I am afraid he might steal it. I don't think it is necessary to take up your time and my time in oratorical effort, but if you want me to tomorrow I will prepare a speech and deliver it in the best way I know how. I thank you most heartily for your kindness in electing me, and under existing circumstances I will accept your election.

The president resumes the chair.

Nominations for vice president were next called for.

Mr. Aderhold, duly seconded, nominated Mr. McCready of Boaz.

Mr. Buchan nominated Mr. McKinnon of Sheboygan Falls. Duly seconded.

There being no other nominations, the tellers distributed the ballots, the ballot was taken, declared closed, counted, and showed the following result:

McKinnon, 37; McCready, 34, and Mr. McKinnon was declared the duly elected vice president of the association for the ensuing year.

Mr. McKinnon: Mr. President and gentlemen of the conven-

tion: You have heard me so many times during this convention that I have become fearful of becoming a bore. I like to be heard and duly appreciated in any audience where I may be, but I am afraid you have overestimated me in electing me to this position. However, allow me to thank you very kindly for the honor conferred.

Nominations for secretary were then called for.

Mr. Buchan moved that it be the unanimous choice of the convention to place Mr. U. S. Baer in the position of secretary of this association, seconded by Mr. Kirkpatrick, and carried unanimously by a rising vote.

Messrs. Noyes and Aderhold were appointed a committee to wait upon Mr. Baer who was not in the room, and bring him to convention hall.

Nominations for treasurer were then called for and the following nominations were made:

Mr. Buchan, duly seconded, nominated Mr. Mason of Manitowoc.

Mr. Powell nominated M. Michaels. Duly seconded.

Mr. Johnson nominated Mr. Knickerbocker. Seconded.

Mr. Knickerbocker nominated Mr. John McCready. Seconded.

The nominations were closed and the ballot taken, result as follows: Mason, 9; Knickerbocker, 6; Michaels, 13, Carswell, 1; McCready, 37.

Mr. John McCready was declared the duly elected treasurer of the association for the coming year.

On motion of Mr. Aderhold, duly seconded, the secretary was authorized to employ assistants to further the interests of the association at the expense of the association..

REPORT OF THE COMMITTEE ON RESOLUTIONS.

Your committee reports for consideration the following resolutions:

Be it resolved, That this association gives its sincere endorsement and approval to the pure food legislation now pending in congress, and especially to such legislation as will best protect the consumer from imposition by counterfeit foods of all kinds.

It is further resolved, That the secretary of this association be instructed to send a copy of these resolutions to each senator and member of congress.

Resolved further, That we endorse and approve the action of the regents of the University in enlarging and extending the facilities for giving more and better instruction to the students in the dairy school, and especially approve their active determination to give instruction on all branches of dairying suitable in our state, and we congratulate them and ourselves that an agricultural hall worthy of our great farming interests is now in process of construction.

We recommend that the legislature enact laws giving to the State Traveling Cheese and Butter Instructors authority to compel the observance of sanitary conditions about cheese factories, creameries and the source of milk supply.

Resolved further, That we extend our sincere thanks to all who by their presence, words or aid have contributed so greatly to the success of this convention, especially to Prof. Archibald Smith of Ontario and Dr. H. L. Russell of the State University for their interesting addresses, so freely giving the results of their experiments and investigations in the line of improvement in our business.

That we extend our sincere sympathy to Dr. S. M. Babcock in his recent dangerous illness and hope for his speedy and complete recovery.

Resolved, That we heartily endorse the appointment of Mr. E. Sudendorf for superintendent of the Dairy department at

the St. Louis World's Fair, and that the secretary send a copy of this resolution to the president of the St. Louis World's Fair.

Resolved further, That we heartily appreciate the earnest and constant efforts of Secretary U. S. Baer in his active work of attending to the many details of his position, and that it is owing to his work and ability, and to the tact and good judgment of President Dickson that the arrangement for and conduct of this convention have brought about so great a success, and that they richly deserve our thanks.

Resolved further, That this convention highly and gratefully esteems the many kindnesses and favors granted by the citizens of Milwaukee through their officers and the Citizens' Business League.

(Signed)

JOHN LUCHSINGER,
Monroe, Wis.

E. Y. KEYES,
Plymouth, Wis.

JULIUS BERG,
Sevastopol, Wis.

The following resolutions offered by the committee on Legislation were adopted:

RESOLUTIONS.

Resolved, That this convention regards the present freight rate of 33 cts. per hundred pounds on cheese from Southern Wisconsin points to Chicago as unjust, burdensome and out of proportion to the rate on articles of like character and of more than double the value.

Resolved further, That a committee of three be appointed to devise ways and means to cause a reduction of said freight rate to a just amount.

Resolved, by the Wisconsin Cheesemakers' Association, That our representatives in congress, both senators and representatives, be urgently requested to use their best efforts to secure

the passage of the Amended Laws on Interstate Commerce to make the decision of the commission effective, and that the secretary be directed to write to every one.

Resolved, That this association endorses the movement by the Manitowoc and Calumet county cheesemakers of forming an association for protecting and furthering their interests.

The committee on Legislation heartily approves and endorses the resolution offered by the committee on Resolutions recommending that he state traveling cheese instructors have the general supervision of the sanitary conditions of cheese factories and the milk product delivered at cheese factories.

And be it further Resolved, That we favor a suitable appropriation from the state to make a proper exhibit of the dairy industry of the state of Wisconsin at the St. Louis World's Fair in 1903. (Signed)

J. F. BACHMAN,
Black Creek, Wis.
M. MCKINNON,
Sheboygan Falls, Wis.
THOMAS KACHEL,
Whitewater Wis.

The convention adjourned to meet at 10 o'clock the next day.

The convention met pursuant to adjournment at 10 o'clock A. M. January 10th, 1902.

MILK PRODUCTION.

A. J. Glover, Elgin, Ills.

There has been much discussion of late in the large cities like Chicago, as to how people can be furnished with better milk, that is, cleaner and purer milk. It is an index that the people are beginning to realize how carelessly much of our milk is produced. I welcome this awakening. I hope it will be extended to every person engaged in milk production that the people are demanding cleaner methods in the handling of milk. The Cheesemakers' Association now assembled, I believe has done more than any other organization of its kind to get the farmers to produce more wholesome milk. There is a great work before us to get the dairymen to be more cleanly in milking, and take better care of their milk.

Let me give to you the method that H. B. Gurler of DeKalb, Illinois, has adopted for the production of clean milk. The milker must dress in a white jacket and white pants, and wear a cap; his hands must be clean before he starts to milk; the cow's udder is washed before she is milked; the milk pail is covered with two layers of cheesecloth with a layer of absorbent cotton between them, and the milk must pass through these thicknesses into the pail. The pail is entirely covered so there is no possible chance for hair, or anything else, to get into it. Every utensil that is used about the dairy is sterilized every day. When milk is produced in this way it will keep sweet for days. Mr. Gurler during the Paris Exposition, shipped a case of his bottled milk across the ocean to Paris, and it was sweet for three days after it arrived there; used no preservative; cleanliness and cooling is his method.

The condensing factories around Elgin, Illinois, have done much to improve the sanitary milk production in that vicinity.

They have not asked, but demanded, that barns be whitewashed, well ventilated and cleaned; that the cows whose milk is sold be healthy and be kept clean. The object of such methods is obvious to us engaged in dairy work. The cheesemakers of this convention are looking for milk that is produced in this manner. You are looking for milk free from injurious bacteria, so you will have fermentation under your control.

But how are you going to get such milk? In the first place, we must get the farmers to realize what it means to them if they produce absolutely clean milk, and to do this, I believe that it means inspectors going from farm to farm and instructing patrons of cheese factories how to milk, and to care for it after it is milked.

Only a few farmers realize how much milk is improved by aerating and cooling.

In the next place we must get cheesemakers who are clean and tidy about their factory. There is no use to try to get patrons to be careful, when the cheesemaker and the cheese factory are dirty. When a patron sees that the general conditions about the factory are bad, it stimulates him to be dirty; but if the factory is clean and wholesome, it encourages him to be better. We are talking a great deal at the present time about the use of commercial starters to overcome the undesired fermentation that has gotten into our milk.

Let us go a step farther, and teach the farmer the necessity of keeping out these undesired ferments. I was asked a year ago, at Hamilton, North Dakota, to judge a cow, and when she was brought before me I could hardly see her for the manure that was hanging to her hair. I asked the owner of the cow if this was his family cow. He answered: "Yes, and she gives fine milk, too." I tried to find her milk wells and feel of her udder, but it was almost impossible for the filth about her. There are hundreds of cows in this country just like her, and we are trying to overcome the appalling ignorance of cleanliness of the owners, by the use of starters.

Let us go to the farms and see that the cows are kept clean,

by proper bedding and grooming; give them a bath if necessary, and while we are at it, we may find it necessary, in some cases, to give the owner a bath himself, and possibly his whole family. Let it be our aim to clean up these dirty places, and replace them with clean, well ventilated and well lighted barns; fill them with clean cows and clean men to care for them. When we can get all good milk to our cheese factories, cheesemaking, as it has been said, "will be comparatively smooth sailing." I think cheesmakers should not forget the economic side of milk production. He should encourage his patrons, in every way possible, to improve his dairy cows; encourage them to buy full blooded sires that have come from a family of good milkers. Help them and teach them how to weed out their poor cows.

The work I am doing at the present time in Illinois is to get the farmers interested in the improvement of their dairy herds. It is not much work for them. We only ask them every seventh week to weigh and sample accurately each mess of milk from each cow in their herd for fourteen consecutive milkings. When the weighing and sampling of the milk is completed, I visit their places and test the composite samples of milk. I am able, with the weights and test, to determine the amount of milk and butter fat that each cow in the herd has produced during the week that her milk is weighed and sampled. I estimate, from these weights and tests, the amount of milk and butter fat that she has produced three weeks before the period of weighing and sampling, and the three weeks following. You can readily see that there is but little work for the dairyman to do, in order for him to know approximately how much milk and butter fat each cow in his herd has produced during the year.

The object of this work is to improve dairy conditions, by getting dairymen to see better methods of breeding, feeding, and caring for their cows; by getting them to select better sires for their herds; by getting them to select better cows, and to sell their poor ones; by getting them to build better lighted and

better ventilated barns and by getting them to produce cleaner and better milk.

Let us look for a moment and see what Mr. Kinsley, who was sent out by Hoard's Dairyman, found in the state of Iowa. The total number of herds that he investigated was 100, and contained 982 cows, and the milk from them was sold to creameries. "There four herds that ranged from $2.11 to $2.30 for every dollar's worth of feed expended. There were 61 besides, out of the 100, that averaged from $1.00 upward for every dollar's worth of feed consumed. The highest being $1.90, the lowest $1.00, of these 12 returned from $1.50 to $1.90; 23 herds from $1.20 to $1.50; 26 herds returned from $1.00 to $1.20 for every dollar's worth of feed expended. Now, we come to the dark side of the picture. Thirty-five of these patrons, out of the 100, received less than $1.00 from the creamery for every dollar they spent in feed, and the loss ran all the way from 2 cents to 66 cents. The extreme contrast is: one man receiving $2.30, and another $.44. Now, was it the creamery or the patron who is responsible for this difference?"

I believe it is the duty of every cheesemaker to arm himself with a few facts of this kind, and present them to his patrons. I feel that the knowledge of dairying that the Agricultural Experiment Stations have acquired far surpasses that which is practiced by the majority of dairymen throughout the country. I believe one of the ways of getting this knowledge to the patrons of factories is through the cheesemaker. You must go to their homes and show them how and what to do, in order to produce clean milk, and how to make dairying profitable.

We do not find the poor, careless dairyman in the convention hall, but we must go to their farms and teach them the improved methods of dairying as we know them, help them to see that they need better cows, and encourage them to better feed and care for their herds and get them to produce milk that is pure and wholesome.

Mr. Powell called to the chair.

DISCUSSION.

Mr. Aderhold: I would like to ask Mr. Glover if he has ever seen a vat of really clean milk in a factory.

Mr. Glover: I don't think I ever did. I have seen a small vat full of what I called clean milk. That was at Mr. Gurler's place.

Mr. McKinnon: I ask that that be stricken from the record.

Mr. Aderhold: That was not in relation to Wisconsin. Mr. Glover has been a factory inspector in Minnesota.

Mr. Glover: I never have seen but one vat of milk in Wisconsin.

Mr. Aderhold: We can't learn anything by bragging about those things which we have accomplished, or think we have accomplished. The only way we can improve is to stop making mistakes. I heard Mr. Gurler at a convention last winter talk on a high grade milk,—and Mr. Gurler does produce pure, high grade milk and clean milk,—and Mr. Gurler said that if we received perfect milk in our factories, when we came to scoring our cheese we would have to have a new score card. I want to say that the cheese here that scored 98 and 99, if they had been made from such milk as Mr. Gurler speaks of, they would have scored at least 105.

Mr. Glover: I would like to speak of a little experience in the Elgin district a few years ago. They could not take all the milk at the condensing factories and they made cheese out of some of this milk and the man did not use any rennet test to see whether the milk was of the proper ripeness, but proceeded in the old way to make his cheese and he was there until nine or ten o'clock at night and still had no acid on the curd and he didn't know what the trouble was. They went to work and made up a good commercial starter and made fine cheese, but the first day they couldn't get any acid on it because it was produced so much better, in so much better shape than the average milk throughout the country is produced.

Mr. Alvis: What would you advise to bring the farmer where we want him.

Mr. Glover: You can do a great deal at the factory door when you receive the milk. I think the cheesemaker should receive the milk himself and keep acquainted with his patrons. If they don't deliver good milk on the start I don't believe in antagonizing them, telling them that their milk is rotten or anything like that, but show them quietly; you can usually find enough dirt around the top of the cans and cover to show them and then you can go to their farms and show them how they can arrange their tanks close to the wind-mill, put their milk in a better place and make little suggestions. I have shown them how to wash their cans, I have ordered brushes for them and showed them how to get around the seams and it has worked very well, although there are always some that it has seemed almost impossible to do anything with. I think if the cheesemaker arms himself with a few facts about the cows and other things in connection with the business and he gets the farmer's sympathy and interest he can do a great deal. Go out and take supper with the farmer, talk about the farm with him, don't find too much fault, but at the same time present your methods to him. I went down in the Elgin district last year; I came around with a white collar on and they thought I didn't know anything about cows, but I had a herd of about 80 myself. One man thought he would get the best of me, he didn't believe I could milk, he wanted to go away one night and he had 18 cows to milk. I hadn't milked since 1894, but I sat down and milked 8 while the rest were milking 10 and I have been a good fellow ever since down there, and they will take almost any suggestion I make.

Mr. Alvis: Don't you think it is a nice idea to make a curd test and show the farmer just how it works?

Mr. Glover: Yes, that is a very good idea.

Mr. Alvis: I have found milk where it looked nice and clean in the can and it turned out to be the worst I had in the factory.

Mr. Glover: Yes, you don't need to make a complete curd

test sometimes, but set it in bottles and keep it warm and you will often show up many things that way.

Mr. Hecker: Aren't there some cans that no brush will clean?

Mr. Glover: I confess that there are lots of cans that are pretty hard to get at. But I would advise getting rid of those.

Mr. Hecker: We have so many farmers who go to some hardware store where they don't know how to make them, and buy them. They don't solder up the seams and the covers.

Mr. Glover: Yes, that is true. I like these big cans, open covers, old style.

Mr. Buchan: Do you like those big cans like those across the street? I thought they were too big in circumference, I prefer a can to hold not over 120 lbs. of milk.

Mr. Glover: If I am going to have those small top cans I would rather have the eight gallon cans holding 70 lbs. I found in Minnesota that the best milk came in the big hoodoo cans. The patrons can see them clear to the bottom and there are not as many seams to get dirty and the covers come out and can be cleaned more easily.

Mr. Alvis: The trouble about the solder question is when they want to solder up the seam thoroughly it makes a rough surface. I do not think there is a tinsmith can make a smooth surface if he solders up the seams, and this roughness will always bother; I would prefer to have the seams filled up, but it is hard to get them to do that, it don't look nice. They say it isn't a good job.

Mr. McKinnon: I want to tell Mr. Glover how I have been taking care of milk for the last three years and see if he will tear my theory to pieces. You know we have been taught at these dairy conventions and by everybody that writes anything on the dairy industry to thoroughly aerate our milk, to stir it and thoroughly expose it to the air and all that sort of thing. Now, I have been working on a different plan. I have found that you may expose your milk to the air as much as you are a mind to and oftentimes the more you expose it the more objectionable that milk becomes. A few years ago I had to work

for me one of the best cheesemakers in the state of Wisconsin, a man highly respected wherever known, not only for his ability as a cheesemaker but for his intelligence and merit as a man, that was Chris Ranecke. He has lately left us, gone to his long home, and I think I may say there is not a person engaged in the cheese industry in the county of Sheboygan but what misses him. I was making butter at that time and I was working upon the submerged plan, and we were allowed at that time to make skim cheese and I carried this milk to the cheese factory and had it made up into part skim cheese, and Mr. Ranecke tested this milk as he tested the other milk and when the other milk was full of pin holes and gases in the test tube, these bottles were wholly free from anything of the kind, so I arrived at the conclusion that this idea of aerated milk was all wrong and I have been working upon that plan for the last three years, and I find that when I can get my patrons to thoroughly take care of and cool their milk without aerating it, to cover it up and exclude all the air they can, that I will have no pin holes or Swiss holes to bother me or my cheesemaker. I insist, of course, upon my patrons putting their cans in a suitable reservoir holding a sufficient amount of water, and as the man milks and gets a pail of milk he immediately takes it from the stable and puts it into that can. Then he stirs it occasionally as he puts it into the can. But when he has done milking he has done taking care of the milk. I ask him to close it up tightly, and if I could have my way I would have it sealed; the sooner it has gone from the cow and is submerged the better it would be for the milk in my way of thinking. I do not think that the aerating affects the milk a bit. I believe the milk is pure when it comes from the cow and if we can get it into the vat pure and free from objectionable germs we have overcome a large amount of the injurious gases that work upon our cheese. I would like to hear what Mr. Glover thinks on this point.

Mr. Glover: I don't agree with Mr. McKinnon. It is contrary to my actual experience and my theory and to the experience of the big condensing factories of our country. They require the farmers to milk as cleanly as possible and they put

that milk immediately into ice water, then they give it a long stir in order to get out the animal heat and to cool the whole quickly. They do not take it out and pour it backwards and forwards but give it a thorough stirring. Of course there is a great difference according to the place in which milk is stirred. Some men will take their milk out near a pig pen or where odors are blowing from a hog yard or a barn yard; of course that hurts the milk more than the aerating helps it. The object, as I understand it, of aerating, is to get a hold of the oxygen. These injurious germs cannot develop where there is plenty of oxygen.

I might tell you, we have a new kind of aerator manufactured in Elgin. They pump up a big tank full of air, then they open a stop cock, let the air into the milk, and bubble up through it. I believe it is a good thing, although of course I don't know. It looks so reasonable that we could improve milk in that way because it is the oxygen that we are after. I do thoroughly believe in airing and cooling milk.

Mr. Aderhold: I wish we might hear a few works from Mr. Erf, who comes up here from Illinois with Mr. Glover.

Prof. Oscar Erf, of the Illinois Agricultural College: Gentlemen of the Association: It is exceedingly pleasing to me to have the opportunity to come up here and meet you in this convention.

Talking about the aeration of milk, we think that it is highly necessary to aerate milk and of great importance. Of course in Illinois we do not have very many cheese factories; we only have three that manufacture full cream cheese, the rest are all skimmed cheese factories; but we have a great problem before us in the matter of handling milk for the condensing factories. Remember, that is the greatest state in the union for condensing milk. These condensing factories find they cannot produce a good article without aeration. They have tried it; they have spent thousands and thousands of dollars to do away with that, but they cannot do it. Of course that is followed by another factor and that is, the expense of producing the necessary oxygen, which offsets the profit; so really it is not an effi-

cient way of handling the milk although it certainly improves it; but I think that in years to come, with our present inventive genius in the way of manufacturing liquefied air we may yet be able to produce oxygen cheap enough to aerate milk with it some day. You know by means of liquefied air we get the purest kind of oxygen, and they are coming to produce that at a reasonable expense. I thank you very much, gentlemen, for your kindness.

Mr. D. W. Willson, of Elgin, being called upon, said:

Mr. President and Gentlemen of the Association: I believe I was one of the original members of this association, and I am very glad to see that the infant has grown into a strong, lusty man. And when I see the work that is being done here, I feel that those who conceived the idea of this association were up to date, right in line.

There is just one thought I would like to leave with you cheesemakers: I would like every one of you to place in front of your factory this word "cleanliness." Get that so thoroughly ingrained into yourselves and into your patrons that they would not know anything else in the production of milk, and in caring for their cans, for their cows and all their surroundings; and about your factories let the watchword be, "cleanliness, cleanliness, cleanliness," from the beginning to the end, and when you have that firmly fixed a good many other things will come in and a good many other things may go out. That is all I want to say to you: "Be clean."

Prof. Short of Ft. Atkinson, being present, was called upon and said: Gentlemen, I think this is rather imposing upon me; I came down to listen earnestly and intelligently, I hope. I am a student more than anything else.

SOME OF THE DIFFICULTIES MET WITH IN CHEESEMAKING.

George J. Buchan, Adell, Wis.

Mr. President, Gentlemen and Fellow Cheesemakers: While I look over this audience before me, attending this meeting of the Wisconsin Cheese Makers' Association, an audience composed of men from the different vocations of industrial life, I wonder how many of you while eating a piece of that palatable American cheese while sitting at your table, have ever thought about its production and of the man who makes it?

Do you know the cheesemaker is one of the hardest working men in the country? Do you know that he works more hours with less credit for same than any other man? You may talk about the hardships of the men who work in the different manufactories of the cities, men who work eight or ten hours a day, and then their day's work is finished. But we, the cheesemakers, work no less than fourteen to sixteen hours per day, and with at least twelve hours of hard manual labor in the factory, and from two to four hours each day at making out the dividends and attending to the correspondence of our business. But the work in the factory and attending to the correspondence is by no means the most difficult. We have other things to contend with.

Now, supposing you have a factory of 40 or 50 patrons who are hauling milk to your factory, and those 40 or 50 patrons, or as many as you may have, are supposed to bring good, well-cared-for milk, but they do not always do so; so sometimes there is one, sometimes another, sometimes more who do not take as good care of their milk as they ought to—they do not aerate same in hot weather as they ought to, consequently their milk is pinholey; and you, cheesemaker, you who are supposed by all men to make good cheese out of milk poorly cared for, have been trying your level best to have all of your patrons bring good and well-taken-care-of milk. You apply the curd or some

other test and find: Patron A's milk in good condition today, Patron B's milk somewhat tainted, and Patron C's milk pinholey; tomorrow you again use the curd test and find Patron A's milk the worst of all, and perhaps the man who had the poorest milk yesterday has the best today. This condition of things is brought about simply because there are too many farmers who do not give the proper attention to the care of their milk. In summer, when milk should have the most careful attention, some will hurry through their milking and start off to the field for another load of hay or grain, and leave the small children or some of the women to take care of the milk. If such is being done you will find, nine times out of ten, that this milk is tainted. Your cheesemaker is the one to suffer by this. Milk that is tainted oftentimes cannot be detected until late in the day.

The next morning you kindly tell each farmer to try to do better, as you cannot make good cheese from poor milk, and you will invariably find that most every farmer has the idea that his milk cannot be better taken care of. He will tell you how much he has aerated it and cooled it, and everything else; but notwithstanding the assertion, his milk is getting worse from day to day, and you continue to tell him of this fact, and you will find farmers who will tell you: "If you cannot make good cheese out of my milk, I know where I can take it to a cheesemaker who can." The cheese factories now-a-days—at least where I came from, and I doubt not it is the same where most of you are from—are too plentiful, located at almost every crossroad. Therefore you, in order to hold your patronage, are obliged to take this man's milk or lose him. There are cheesemakers watching like the crouching lion ready to seize his prey, for such farmers, should they happen to leave you.

This cheesemaker will go to your patron and tell him that he can make good cheese from such milk, and that if he will only haul his milk to his factory he need not even take extra care of it, and probably induce this farmer in that way.

And you who have been trying to teach this farmer better

methods in taking care of his milk, and trying to build up your business by honest and straightforward work, you who have a factory that probably cost from $2,000 to $3,000, have all your capital invested, have a wife and little ones to support, are almost obliged to do as your next competitor does, in order to give those children of yours a good education so they may become good citizens. And furthermore, I know of cheese factory men who, in order to induce your patron to come to them, will pay him extra to haul his milk to their factory.

Some years ago there was a young fellow, who had made cheese one year, rented a factory south of our place. He got after one of our patrons to haul his milk to his factory, offered and did buy this farmer a new milk wagon that cost at that time at least $35.00. This I know to be a fact, because when we heard of this move, my brother (who at that time was in company with me) went to this man and asked him about it. This farmer said he had been offered a milk wagon, and that if we would give him more he would continue to haul to our factory. My brother told him we would not buy our patronage, and if he could not haul his milk to our factory without being paid for it that we did not want him. Well, he hauled his milk to the fellow at the neighboring factory. The next fall the young fellow fell short in his accounts and is in debt today for one to two months' milk and rent and board to the farmers. This young absconder skipped and took what boodle was in sight, and this one particular farmer has the milk wagon. The farmer who got the milk wagon, who paid for it himself in the end, is now hauling milk to another factory. Whether he is getting a new milk wagon or not I do not know, but from the distance he is hauling his milk it seems to me that he ought not only to have a new milk wagon every year, but also a big team of mules to pull him over the hills. Another factoryman up in Sheboygan county, who does not make any better cheese or at least does not receive any more per pound than any one else, has been trying another scheme for an inducement. His plan was to pay from four to eight cents more per hundred weight of

milk than any other factory around. He paid this four to eight cents a hundred out of his own pocket, so as to keep ahead of the rest of the factories. At the end of the month after all other factories had paid out, he would send out a so-called runner (who I am sorry to say is an ex-assemblyman, who very likely learned the trade at Madison) to a patron of each factory around him to obtain their monthly statement cards. Then they would compare, and a few days after all other factories had paid he gave out his statement with from four to eight cents per hundred weight more than any other factory. He has been successful in inducing some of the patrons of other factories to haul to him the past season, and I now understand he wants to sell his factory, very badly. No wonder, if he was fool enough to pay money out of his own pocket to the patrons of his factory in order to keep ahead of everybody else, to hold his patronage, and to make people believe he is doing a great business. Such men as I have just spoken of are a menace to any business. They are scabs of the lowest kind of humanity, ready to take the last crumb of bread from the mouth of a hungry creature. They are following the precept of the father to his son, when he said: "My son, go out into the world and get rich. Make it honestly if you can; but if you cannot, steal it; but get rich."

Another difficulty confronts us in the person of the cheese buyer. We cheesemakers go to attend the Dairy Board every week, and have to drive all the way from two to fifteen miles to sell our cheese. The cheese are placed on the call board. The buyers bid on the cheese—and, as you all know, the buyers are not angels any more than are farmers or cheesemakers. There are buyers bidding on your cheese, some to whom probably you do not care to sell. We will assume one of these has bid on your cheese. You will say you have a chance to pass it before the call is closed. True, and then you do not always know whether you will get a bid on your cheese as high as the one who had previously bid on them. I know of instances at different times when they were paying more for cheese than

they were worth, paid more than they could afford to because they were running each other. Who is the loser? Not the buyer, but the factorymen. If the buyer finds he has paid more than he should have done he will most generally manage it so he is not the loser. He will come around the next week and say: "Your cheese last week are not just fine; they are a little off flavor, or a little open or something else," and then tell you he will give you a quarter or a half a cent less, depending on the state of the market that week and how much he had paid the week before. What are you going to do? The market has gone lower; the cheese are on your hands probably from ten to fifty miles away. It costs you time and money to go there and get rid of them. Therefore, taking into consideration the falling off in price and the time and cost of selling to someone else, you take the reduction sooner than to have them on your hands.

You will probably say, why don't you make the patrons pay part of the losses? Well, here it is again: if you do not pay as much as the average of the factories around you the patronage is liable to leave you. Or you may say, why do you not get out of the business? I will again say that most of us began to make cheese when young and have done nothing else but this kind of work since. What else can we do? We have learned no other trade, and how are we going to go into some other business, probably something we know little or nothing about? Therefore, we are obliged to tug away, hoping some day the tide will turn for the better; but it will not turn for the better until the farmer, the buyer and the cheesemaker will work together for their own interests, and do away with the competition of cheesemaker against cheesemaker, by one trying to take the patrons from the other, by paying money out of his pocket to hold his patronage. When those conditions come to pass that the farmer, the buyer and the factoryman become wise enough to work for the interest of each other, then we can say that there is still a business which is not the worst, and can

then truly say that those three classes of men have come to their senses at last.

DISCUSSION.

Mr. Alvis: How do you prefer to sell cheese?

Mr. Buchen: I certainly prefer to sell on the call board, but I prefer to deal with men who will deal honestly, and who when they say they will give you such and such a price will give it and not come around the next week and say they will give so much less because cheese has come down, and tell you that this is the matter or that other thing is the matter.

Mr. Alvis: If there is something wrong with my cheese, I know it, and if it is good cheese I know it, and I have never had any trouble when the cheese was all right.

Mr. Buchen: Quite a few up in our country complain of the way they have been used.

Mr. Alvis: Well, now, I tell you there are a good many cheesemakers that want to be a little smart, and once in a while they sneak in a poor cheese with a lot of good ones, and they are sure to get left, and then they blame the buyer.

Mr. Bachman: I have noticed that when the market was declining, that even after a shipment was sold and inspected, the buyers have backed out.

Mr. R. B. Watrous of the Citizens' Business League of Milwaukee was introduced to the convention and said:

Mr. President and Gentlemen: It has been a matter of particular congratulation to the citizens of Milwaukee to have you meet with us for your tenth annual convention and we are particularly pleased to hear the reports from your secretary as to the growth of your membership as a result of your meeting in our midst. We feel that that will confirm you in the feeling that Milwaukee is an ideal place for your convention, and the conventions of a great many other organizations. We want you to come again and we hope that when you come next year, your membership will be doubled and trebled, as well as your exhibits

of machinery and cheese. I wish to say to you as one of the officers of the Citizens' Business League, that Milwaukee will do her share in keeping pace with you, we will supply the accommodations for you, no matter how many come or how large your exhibit may be. I take great pleasure in referring a formal letter of invitation to your executive officers, and I thank you.

Milwaukee, Jan. 8th, 1902.

To the Officer and Members of the Wisconsin Cheesemakers' Association, in Convention.

Gentlemen:—It has been a matter of particular pride to the people of Milwaukee to have your association meet with us this year. We trust that your coming has been as pleasant and satisfactory to your association collectively and individually as it has been to the people of our city, and we beg to express the hope that you will vote to return here for your annual meeting of next year, assuring you that the same cordial welcome will be extended to you and that everything will be done to make your stay here pleasant and profitable to the organization.

Wishing your very representative organization continued growth and prosperity, I am,

Very truly yours,

CITIZENS' BUSINESS LEAGUE,

By R. B. Watrous,

Secretary.

CHEESE FACTORY SANITATION.

Prof. Archibald Smith, Strathroy, Ont.

SUB-SURFACE SYSTEM SEWAGE.

The question of disposing of the washings and sewage at factories is one of the most important questions in connection with the dairy industry and deserves more attention than it receives. The primary cause of the question of the sewage disposal has lain in the fact that the waste materials have been looked upon

as having no commensurate value in return for the cost of disposal. The agricultural experience of the last twenty-five years has shown how serious has been the mistake, and today sewage is considered one of the best materials for restoring to the soil its lost organic and mineral constituents so necessary to intensive cultivation. It is true that there has been no cultivated idea except that of adopting the cheapest possible methods for the disposal of sewage compatible with a due regard either for their own safety or the law against pollution of streams. The introduction of methods of disposing of sewage other than the pollution of water courses has been and must be in the nature of things determined in each case by either a fear of the pollution of its own water supply or by compulsion through legal action brought about by any one affected by such a pollution. It is true the principles of sanitary science are freely discussed by the medical men at conventions but these conventions are mainly reported in professional journals and do not reach the great mass of the people.

On the sanitation of the factory depends to a great extent the quality of the cheese and butter and the reputation of the factory and maker as well as the health of those in the immediate vicinity. In order to understand the question of sewage we must therefore understand the principles involved in it.

By sewage is meant the liquid contents of a sewer and in factories this means all the washings. We are all well aware of the conditions existing at the average cheese factory and how easy it is to locate many of them before coming to them.

These conditions should not and need not exist. At some factories the washings are allowed to run into the whey tanks. This lessens the feeding value of the whey and injures the quality of the milk which has to be carried in the same cans. Others drain it into a creek or river but this makes the water unfit for use even for cattle. Others labor under the dangerous yet common idea that so long as the stuff is put down deep enough there is no danger and herein lies one of the greatest causes of many of the diseases which at times are epidemic in whole communities, viz., the polluton of the water supply.

Others allow it to run away in open ditches there to become a breeding place for foul smells and injurious germs. How can a maker expect to exercise an influence for good over his patrons when the conditions surrounding his own factory are not in accordance with his teachings for "Example is better than precept."

Considering the sewage then we see that organic wastes serve to clog the filters up while gas liquors and chemicals will at one time tend to destroy the living organisms or microbes which break up organic matters or at another time by their excessive acidity or alkalinity seriously alter the conditions under which the filter normally performs its work.

It will be apparent that the solids in suspension may be quite readily removed in a large measure by any crude filtering methods which may obstruct their onward course but that the organic matters in solution must naturally require such treatment as will either obstruct their flow toward the filter bed where the sewage water will ultimately flow or destroy them by altering them in chemical form. In addition however to the constituents already mentioned there are microbes or micro-organisms which are carried into the sewage as well as many which are in the soil and all of which once carried into the sewer will multiply there if there be no conditions or substance present inimical to their existence. Besides these there are the various forms present in the air.

The question "how is the water supply polluted by decaying organic matter buried deep under the surface of the earth?" may be asked. Over the whole surface of the earth where vegetation is possible nature has provided a wonderful scavenger system composed of millions of microbes whose natural functions tend to produce one result, namely, purification. Both the sun and air are essential to the life of the same species of microbes which are necessary to produce decomposition of waste matter. Hence in the deep sub-soil system where both are impossible microbe life cannot exist and instead of being converted into life producing matter at the surface of the earth with its dangerous properties destroyed

the organic matter is allowed to decay and putrefy in the deep dead earth until it is washed into some nearby well or stream there to cause the innumerable ills produced by drinking impure water. It may be thought the wells are too far removed from these cess pools to be in any danger from this source but this is not a fact as wells even at the distance of a mile have been known to be affected.

The problem then of sewage may be said to be "How shall the organic matters present in sewage be so disposed of with the least cost that they shall not create effluvium nuisances either on the surface of the soil, along the banks of streams or by their excessive presence in the water of streams or that they shall not pollute the water of streams which may be drunk either by man or beast with injury to health as a result.

The problem may resolve itself into the discovery of the methods by which nature can be so aided in the case of sewage that it can be purified at a reasonable cost without creating a nuisances and without the use of a chemical.

In order to do this some system is necessary. The system of disposing of it by the sub-surface or septic tank system is both effective and economical. By this system the ground is enriched and any foul smell is prevented from arising and the maker is also enabled to keep his factory and surroundings in a good sanitary condition which is absolutely necessary if satisfactory results are to be obtained.

First a box is made with a partition through the center thus forming two boxes, either one of which should be large enough to hold the washing of the factory for a single day which is supposed to be about 250 gallons for the average factory. This box may be situated near the factory or at any distance from it as the conditions permit. If the factory is elevated sufficiently the box may be placed on top of the ground in which case it would be preferable to build it of brick or stone well bedded in cement to prevent any leakage. The top should be covered tightly to prevent the escape of noxious gases formed within it. Otherwise it would be sunk in the ground and covered with earth. Then in laying the drain from the

factory to the box it is advisable to use sewer pipe if the well or water supply is near, otherwise ordinary field tile would do and would be much more economical. It is necessary to provide a trap in this drain near the factory to prevent any foul smells returning to the factory. Then attach a ventilator pipe (a 2-inch galvanized pipe will do) to the drain and carry it up above the roof of the building. This will carry off the gases formed in the box or drain. It is also necessary to have a small goose necked pipe attached to the box which admits fresh air to the box and forms a draught for the ventilator or otherwise the gases formed in the box would in a short time burst it.

The box as you will notice from the illustration is provided with a partition (E) in the center and passing through this partition is a small pipe (F) which extends down to the center from near the top. When the first box (D) becomes full it is allowed to filter through into second box (O) and on account of its being taken from below the surface nothing but the liquid matter flows through. The solid matter is retained and is quickly decomposed or oxidized by the different forms of bacteria at work on it.

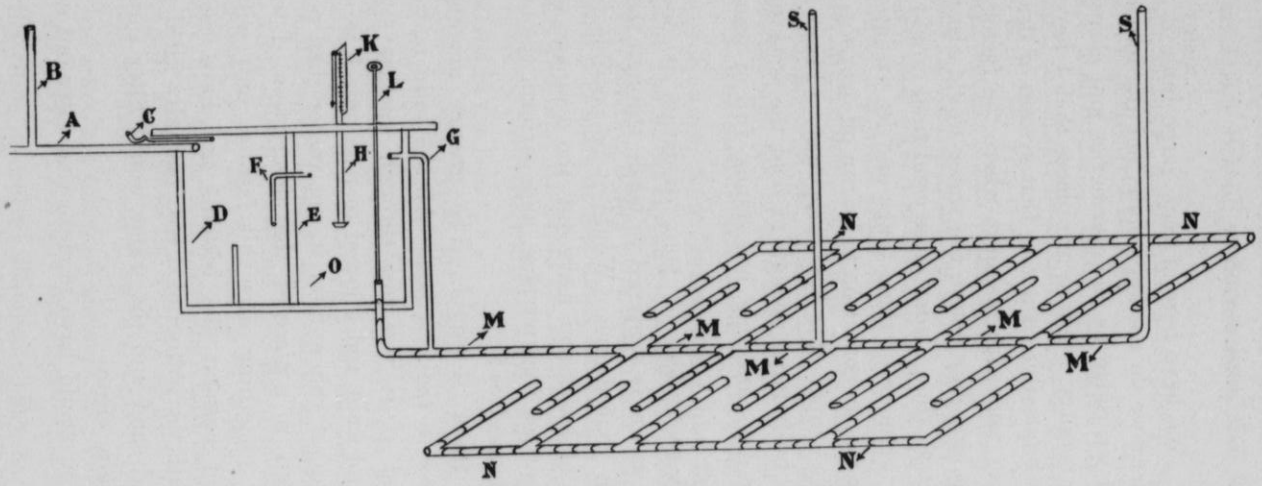
A filter bed is then provided by laying a sufficient number of four inch tile to hold the water in the box. Two ordinary four inch tile will hold a gallon. They should be perfectly level and have no outlet. The sewage can be disposed of in a very short space by constructing one long drain and a number of branch drains from ten to twelve feet apart. This filter bed must be at least from ten to twelve inches below the surface.

This second box is provided with a plug or valve (L) which closes tightly the opening of the drain. Some object to the plug as sometimes it might be forgotten to be pulled out and the sewage in the tank would overflow causing the drain between the factory and the box to fill up. This however may be overcome by having an overflow pipe from second box to drain off the filter bed. An automatic valve may be used which will open when the tank becomes full and after discharging all its con-

tents close again. Now when the second box becomes full which is known by an indicator and float attached to it the valve or plug is lifted and the sewage is allowed to run out very quickly. The outlet is then closed and it is necessary that it must be closed tightly otherwise the sewage will be running gradually into the drain and if there happens to be any sediment in the box it will run into the drain and there will not be a sufficient force in the water to carry it and distribute throughout the drain and consequently your drain soon becomes filled up. It is also necessary to provide one or two ventilators in the drain to allow the air to escape as the water runs in.

By the time the box is refilled the water in the till has been absorbed by the soil and any solid matter will have been decomposed by the action of the bacteria. The soil around some factories may be of such a nature that the water used will not all be absorbed readily. It would then be necessary to under drain the filter bed which would thus carry off the surplus moisture and increase the capacity of the filter bed. These under drains should not be put directly under the other drain but a long drain should be construed to extend along each side and then branch drains to these half way between the branches of the main drain. The sewage would then drain through four or five feet of ground to the under drain and would thus flow off quite clear.

When owing to the price of land or its impermeable character this method of filtering is not wholly available the final nitrification of the sewage from the septic tank will best be accomplished by a series of coke or sand filters through which the sewage will be allowed to pass slowly and intermittently the tanks being used in succession.



PLAN SURFACE SYSTEM SEWAGE.

A—Pipe from factory to box.
B—Ventilator.
C—Goose neck pipe.
D—Box where sewage empties.
E—Partition.
F—Overflow from No. 1 to No. 2.
G—Overflow from No. 2.
H—Float.
K—Indicator.
L—Plug.
M—Filter bed.
N—Under drain.
O—Second box.
S S—Ventilators filter bed.

DISCUSSION.

Prof. Short: We have here a very large tank of information, which I fear we do not appreciate, nor the importance of this question if we judge by the creameries and cheese factories through the country. There are places that I have seen where it would be impossible to put in that system of drainage away from the whey tank; for instance, where the factory was on land that was a blue clay where the water would absolutely not sink through it at all. Under those conditions would it be best to put in one or more of those tanks and let oxidation go on until that water was in condition to be run off over the land.

Mr. Smith: We empty this box every day. These boxes are required to be built large enough to hold the washings of the factory for one day, and this box stands full of water all the time.

Prof. Short: A good deal of your oxidation is done in that drainage, the water is supposed to leach through the soil and go off through your drains. Would it be possible to increase the number of boxes and leave out the drainage where the soil is not proper for that purpose, and perform the oxidation in the boxes themselves?

Mr. Smith: I think it would. The greater amount of oxidation takes place in the first box. All the solid matter is retained there, and if it was run through another box or through charcoal and sand and allowed to pass out, I think it would be quite clean, if you re-filter it, but rather than put in a system of this kind in a place of that description, I would put in a box, built something after this fashion, only without partitioning it, and without the bottom, and have the tile drain connecting with the bottom of a box, partially filled with gravel, charcoal and sand and the water would filter through that and leave it quite clean.

Prof. Short: You would have to clean that filter out every little while.

Mr. Smith: Not very frequently, if this filter bed is cov-

ered well, it would run a whole season without cleaning it. In our Dairy School, we have one of that kind and it runs all the season.

Prof. Short: That would solve the question with many factories on perfectly flat land.

Mr. McKinnon: Would you have the liquid drain down through this filter, or would you have it forced up through the filter?

Mr. Smith: You could have it either way. Dr. Brice, I believe, advocates draining it up through the filter, but in connection with most factories, it would be more practical to drain it down; you could clean it out more easily.

Mr. McKinnon: I should think the other way, if the sediment dropped in the box. You would have to take out the whole bed and put in a new bed, not if the solid matter was on top. I examined their system of draining off the water in the city of Newark, New Jersey, and found that they forced it up through the filter, through a number of filters.

Prof. Short: Where you have that coming down through the top there is more or less oxidation going on all the time.

Mr. Smith: And that is the reason why it is not necessary to clean it out frequently. The solid matter is nearly all oxidized in the box.

Prof. Short: How far would you have that drainage away from the factory?

Mr. Smith: It would depend on your water supply for your factory. The drain leading from the factory to the box should be made closed tightly, preferably, so there would be no leakage from the tile soaking into the ground, especially if it is near your well, or your source of water supply; otherwise ordinary field tile will do, and they will be cheaper; but you can have this as close to the factory as you wish, because there is no objectionable smell from this box—it is covered very tightly, all bad odors are taken off through the vent pipe.

Prof. Erf: I recently investigated the sewage system of one of the cities in central Illinois. They had a sewage box something like this, with a partition in it, and they did not have this

drainage at all. The river was eleven miles off and they drained the sewage from these boxes directly into a ditch, and there were no gases emitted at all. I wonder if Mr. Smith has investigated whether it would not be just as well to leave the filter bed out and drain it into a ditch,—if your box is large enough, of course?

Mr. Smith: I have investigated systems of that kind in connection with packing houses, where they drain into the river, but I found that they allowed it to pass through a number of filter boxes of this kind, and that nearly all the solid matter remains in the boxes; but I never found a case yet where there was not a complaint on the part of the farmer whose land adjoined the river on account of the sewage injuring the water for the use of the cattle.

Mr. Buchen: We have found it to work very well to have a box like that with the first partition in and then have a combination of charcoal and sand and gravel in the second one, and let the water sink into the ground. Do you think that the second box should be somewhat larger than the first one?

Mr. Smith: No, not necessarily, because you understand there is practically no solid matter going over into the second box, and there would be very little solid matter to be filtered out by the filter.

Mr. Buchen: I presume in that way the first box could be cleaned out when it filled up with these foreign substances.

Mr. Smith: The first box would not fill up any quicker under those circumstances than the other.

Mr. Buchen: Would not the soil around that drainage hold the water there all summer?

Mr. Smith: It would in some cases. It did for over two months in connection with this factory I speak of,—it is a very large factory, as large as any you have in Wisconsin—until the very wet weather came, and there was poor drainage in connection with this ground, and the ground became so saturated with water we could not use it; then we had to put in drains.

Prof. Erf: Have you ever had any difficulty in having these drains clog up with roots? We have had some difficulty in that

respect. You must keep the soil on top free from plants, or the roots will get down into the tile and form a net-work and clog up the pipe.

Mr. Smith: This one was put in in a garden, where there were vegetables growing of all kinds. There was a very rank growth, but we found no difficulty. Possibly it was because the garden was cultivated and kept free from weeds.

Question: How deep would you have the tile?

Mr. Smith: Ten inches under ground. I understand there is one man in the city of Toronto who has his filter bed out in front of his house. The box is at the side of the house and this is right on the lawn in front of the house. It makes a very rank growth of grass, but there is no bad smell from it whatever. It requires but a very small space of ground. These drains are eight feet long and eight feet apart, but you can make them any length you desire.

Question: Would you advocate that system where the factory is on a side hill?

Mr. Smith: Yes, I would advocate it for the purpose of disposing of the sewerage. Wherever your factory is situated, you may run your sewerage away from the factory, but you are causing nuisance wherever you empty it if you do not use this or some other system and destroy it in some way.

A Member: Don't those tiles freeze up in winter?

Mr. Smith: No, for the reason that they are empty. We found them in good condition in the spring. They are not used in the winter at the factories, although they are used at the house. Dr. Brice, who originated the scheme, claims there is no danger of freezing up, especially when the snow is on the ground.

Prof. Short: It seems to me that Wisconsin conditions would be different in that respect from what you have in Canada. We have had years when it has been 20 and 30 degrees below zero for six weeks at a time and the ground perfectly bare.

Mr. Smith: In such a case I think there would be danger of bursting these tiles. Of course this has been tried chiefly in

connection with cheese factories which operate only during the summer months.

Mr. Aderhold: With ordinary soil that is somewhat porous, you would not need any ditch or drainage, would you?

Mr. Smith: No, you would need no under drainage at all. This filter drainage would do the work, but where you have only a box, you would have to have something to carry away the water.

Mr. Aderhold: What would be the expense of putting in a box like that?

Mr. Smith: This large box made of two-inch pine cost us $13.00. The tile used for the underdrains and filter bed cost about $10.00 and it required two days, I think, to put it in with two men. It cost about $5.00 to put it in.

Mr. Knickerbocker: If it cost $10.00 there, you can figure it would cost $20.00 here for those tiles; that is about the difference.

Mr. Alvis: It seems to me it don't make any difference what it costs, as long as it is good.

Mr. Smith: If you are using any system of sewerage, you will have to have tile to convey the water.

Mr. Aderhold: Is it necessary to have the inlet of the pipe that carries the water from the factory to the box below ground?

Mr. Smith: Not necessarily, no. It is necessary to have it perfectly tight, so that there will be no gas or smell or water escaping from it. It is necessary to have a trap on the end of it that will stand full of water and prevent any gases or foul smells passing off into the factory.

Mr. Aderhold: If it was above ground, it would have to be a metal pipe.

Mr. Smith: Preferably. Of course, you could use glazed tile.

A Member: How far would have have that box from the factory?

Mr. Smith: It is not necessary to have it any distance from the factory; as close as you please.

A Member: Could you run whey into it?

Mr. Smith: Oh, yes, any kind of sewerage from the factory.

Mr. Wilson: What becomes of the fat? That does not oxidize very rapidly.

Mr. Smith: No, but if the milk is delivered in good condition and you have expert cheesemakers, there will be but little fat. I think most of the fat goes in the whey tank.

Mr. Wilson: I wonder if Mr. Smith cannot give us something that will do us good about sanitation inside of the building. So far he has talked of it outside. I have been in cheese factories where they needed evidently a great deal of sanitation. Now, I didn't know but the cheesemaker needed to be sanitated—in his mind, I don't mean in his person. What can you suggest, Mr. Smith, to help the cheeeemakers to keep clean, or those who are not clean begin to be clean?

Mr. Smith: I have been on the road going through cheese factories and creameries for the past six years, and my experience is that if a cheesemaker is not naturally clean and tidy in his habits and in his person, there is no way of making him clean, unless we can devise some process of renovating him altogether. A person who is naturally clean will be clean under any circumstances; a person who is not naturally clean will be clean as long as you stand over him, but as soon as you leave him alone, he will go back to his old habits; and that is where the great benefit is going to come if this resolution that was brought in here yesterday is followed up in the legislature, empowering your instructors to enforce better sanitary conditions, which they never have had before.

Mr. Aderhold: What is the best method of making a floor in a cheese factory?

Mr. Smith: I strongly advocate the use of cement floors, wherever it is possible to put them in.

Mr. Aderhold: Aren't they pretty hard on the maker?

Mr. Smith: Not if they are properly put in so that they can be kept absolutely dry. They are a little harder than the wooden floor.

Mr. Aderhold: In cases where your cement floor is below

the ground, is there danger of frost heaving the cement in the winter?

Mr. Smith: Not if the ground under the floor is properly drained. There should be two or three drains laid under your floor, and that will keep it dry.

Mr. Aderhold: If a person was going to build a wooden floor, what kind would you advise him to use?

Mr. Smith: Well, in our country we use chiefly the pine and oak floors; I don't know that there is anything very much bettter than that. We paint the joints before putting them together, and in some cases the floors are put down similar to those on vessels' decks, using two-inch planks.

Mr. Buchen: Will not oak plank rot faster than pine?

Mr. Smith: No, I think not. It will cost more than a pine floor, but it will last much longer.

Question: Will not a cement floor be slippery when wet?

Mr. Smith: No, I think not, any more than an ordinary wooden floor.

Mr. Wilson: I understand that in Canada it is part of the duty of the factory inspectors to enforce sanitary regulations by process of law. In Minnesota there are some provisions in the law in regard to that. How is it, Mr. Smith, is that true, about Canada?

Mr. Smith: No, it is not so. We are asking for that, but we have not been able to get it up to the present time.

Mr. Wilson: At the meeting of the Illinois State Dairy Association at Freeport, an inspector from the Pure Food Commission made the statement that in inspecting factories they were empowered to enforce sanitary regulations, but they were not pushing that thing. They were advising makers to keep the factories clean, but not enforcing that power. Advice don't always go. Wouldn't it be a good plan to push that other end of the proposition?

Mr. Smith: As I understand it, you have laws covering this subject that can be enforced by the proper authorities at this time, and you are asking now that your state traveling instructors be given power to enforce those laws. In Canada there are

local boards of health appointed in each township, whose duty it is to inspect all factories in that township as well as other buildings, and see that they are kept in good sanitary condition; but frequently those local boards of health are rather negligent in their duties and give very little attention to it, although we have some who are right up to their duty.

A Member: In Minnesota we had the instructors all appointed health commissioners in order to get around that.

President Dickson resumed the chair.

The Hon. E. P. Bacon, of Milwaukee, Wis., chairman of the executive committee of the Interstate Commerce Law convention, addressed the convention, giving a history of the attempts to enforce the present interstate law, and urged upon the members present the advisability and necessity of the passage of what is known as the Cullom bill, now pending before congress, which is intended to obviate the weaknesses of the former bill as developed in its application practically, and particularly in litigation before the various courts passing thereon in the United States.

Convention adjourned till 2 o'clock same day.

AFTERNOON SESSION.

The convention met at 2 o'clock P. M.

President Dickson in the chair.

COLD WATER METHOD OF COOLING CURING ROOMS.

R. C. Reineking, Franklin, Wis.

This system of cooling a curing room is on the same basis as a sub-earth duct. The cold water duct is simply a box or trough twenty-two feet long by three and a half feet wide and two feet deep. That sets up along the outside of the curing room. In that tank are twenty-one galvanized iron flues. They are twenty feet long. The water flows into one end of the tank and overflows on the other. There are partitions a foot from each end through which those pipes open.

The water surrounds the pipes, but the ends of the pipes open up into the air chamber from which the air has access to the inside of the pipes. These pipes are pitched slightly toward one end, and a large pipe leads downward through the wall into the curing room. There is a steady pitch all the way down into the curing room. It takes but little wind to push the cold air out of the flues, and I was surprised to see how well it worked.

The water flows into the tank day and night, and all there is to do is to regulate the ventilator in the curing room. The water from our well is 46 degrees Fahrenheit. The cost of this duct was $110.00.

DISCUSSION.

Mr. Aderhold: I think you will find in the report of last year a system that I spoke of where there is a trough sets alongside of the curing room, and it is higher than the floor and the cold air in passing through as it drops two or three feet from where it enters the pipes, enters the curing room. This apparatus was planned by me and I figured that the cold air would be blown through without any assistance, because it was down grade all the way, and the cold air being lighter than the warm,

ought to blow through; but we found after we had it up, that it didn't, and so we put on a wind cowl to catch the air and force it through, but I do not think yet that is the best thing we could do under the circumstances. I think he could utilize the water that overflows from this trough, have a little water wheel built and have that wheel drive a fan that will draw that air into the curing room; have the fan either at the entrance at the curing room, or else outside at the end of the pipes, forcing the air into the pipes. Then he would not be dependent on the wind or the weather or anything.

Mr. McKinnon: We understand that this gentleman has a well of flowing water?

Mr. Aderhold: Yes, this plan is only for such as have flowing wells. Mr. Reineking was going to put in a horizontal sub-earth duct, but his factory is in such a place that the water in the soil would bother him. He had this flowing water, and I advised him to use that instead.

A Member: Do you know how many degrees he could cool the curing room in hot weather?

Mr. Aderhold: I was there one very hot day, and the air entered the room at 58 degrees, and he didn't have any double windows on his curing room at that time, which would have helped.

Mr. McKinnon: How about the moisture in such a room?

Mr. Reineking: I cannot judge from any measurements but we have a very good room. We have four air spaces in the wall, and a cement floor; and if we had had double windows, as we should have, and that cold air coming in there, we would have had about 80 per cent. moisture, as I figured from my experience in other curing rooms.

Mr. McKinnon: Do you think that the temperature can be reduced so low by a sub-earth duct or by running water as to make mold germs inactive?

Mr. Reineking: No, you couldn't come anywhere near it, but you could control the mold. We burn sulphur liberally,—not liberally, but frequently,—in our curing rooms; and it is often claimed that if you will set a pailful of water in the same room

with the burning sulphur, so that the air is very moist, that the effect will be a great deal better in subduing mold, and it does not seem to hurt the cheese a particle. It is a very handy disinfectant.

A Member: How much sulphur would you burn in a room, say twenty feet square and nine feet high?

Mr. Reineking: One cheesemaker told me he used one or two double spoonsful at a time, but he did it frequently. He does it as often as once a day for a few days sometimes, and sometimes once a week. For a thorough disinfection I believe our scientific men say you should use a number of pounds, maybe ten or twelve, I don't remember the figure. But, of course, that is to kill all germs, and we are not trying to do that in a curing room.

The Charman: Those of the members who were present the other day will remember that the matter was brought up of the Wisconsin Protective Cheese Manufacturers' and Dealers' Association of Manitowoc. A number of the boys are here, seeking for information on that subject, and the members of that society are asking for the endorsement of this association. In order that you may better understand what their idea is, they having gone home, have left a copy of their by-laws, and if you approve, I would like to have you endorse them. Secretary Baer will please read them.

BY-LAWS OF THE WISCONSIN PROTECTIVE CHEESE MANUFACTURERS' AND DEALERS' ASSOCIATION.

SECTION I. We, the undersigned, do hereby agree and bind ourselves not to make any cheese otherwise than by the Babcock Milk Test, or by what milk yields, and will accept no milk at our respective factories that has less than standard test, or is in any way adulterated, or otherwise affected or tainted.

SECTION II. We further agree and bind ourselves not to make any cheese for less than the following prices:

For Daisy shape, 13¾c.
For Single Twins, 13¾c.
For Y. A. shape, 11½c.
For Double Twins, 11½c.
For Cheddar shape, 11¼c.
For Longhorn, 13¾c.

All other styles of cheese at prices to be fixed by the association. And we further agree not to accept any milk from the patrons of neighboring fartories, unless good reasons are given by such patrons and an investigation has first been made by the board of inspectors and their consent has been given that such patron may make such change.

SECTION 3. There shall be an instructor or tester selected by the officers of the association, whose duty it shall be to visit all the factories where it is necessary to give the cheesemaker instruction for testing the milk; and his time and salary shall be fixed by the officers of the association and shall be paid by the officers out of any money in the treasury of the association and such factory shall pay $2.00 for each visit, same to be placed in the treasury. And we further agree to establish a uniform system of milk testing, and to make cheese in accordance therewith.

SECTION 4. The election of all officers shall be by ballot, and the salaries of officers shall be fixed by a majority vote of the association at its annual meetings.

SECTION 5. Each member of the association shall pay five dollars ($5.00) entrance fee, for which he shall receive five shares of association stock, and he shall pay into the association's fund one cent for each 100 pounds of cheese he manufactures while a member of this association, and remit same to the treasurer of the association every three months, and receive the treasurer's receipt for same.

SECTION 6. It shall be the duty of the cheese manufacturer or manufacturers to keep a record of all cheese manufactured in their factory while a member of the association, and the cheese instructor or milk inspector shall visit each cheese factory on or before December 10 of each year, and inspect the cheese record of the factory or factories, and sign his name thereon if found correct; and if found incorrect, he shall report to the board of inspectors, and they shall see that the needful corrections are made. But if this is impossible, it shall be brought before the annual meeting of the association and further action taken thereon.

SECTION 7. If any discrimination occurs by any cheese dealer, it shall be the duty of the manufacturer to report at once to board of directors; and if the buyer or dealer is found guilty, and refuses to correct the mistake, then no member of this association will be allowed to transact any further business with him or them.

SECTION 8. It shall be the duty of every member to try and bring all honest cheese buyers and dealers into this association, and to co-operate with them, providing they uphold the rules and by-laws thereof; and their membership fee shall be five dollars ($5.00) per annum. But they shall receive no dividend from this association if any shall be declared by the officers.

SECTION 9. At the end of each business year, which shall be on the date of the annual meeting, the officers of this association shall make true and correct report of all moneys received and expended during the past year; and if they deem it wise, they

may then declare a dividend of part of the money on hand if any, and the dividend shall be on a pro rata of every 100 pounds of cheese manufactured and paid in for by the members of this association during that season; but sufficient funds must be retained in the treasury to cover the running expenses for the ensuing eight months of the following year.

SECTION 10. Any member who shall break, or discriminate against the laws of this association, shall pay a fine of $25 for the first offense, and $50 for each offense thereafter as often as found guilty; and it shall be the duty of the board of directors to impose such fine, or fines, and all moneys so derived shall be paid into the association treasury, to be expended as all other moneys.

Vice President McKinnon called to the chair.

Mr. Aderhold: I was present at one of the meetings of these people when they were trying to form their organization. Their main object was to do away with the pound-for-ten system, and the question came up whether they should pay for the milk by the Babcock test, and it seemed to be the idea that it would not be advisable to force that on the patrons.

The Chairman: It seems to me that while that paper could be picked to pieces some, yet there is a good deal in it that would rdound to the benefit of the business.

Mr. Bachman: How far does this association extend, and why couldn't it spread out all over the state?

Mr. Aderhold: It takes in a large portion of Manitowoc and Calumet counties.

Mr. Schultz: I think there are about thirty who have signed, and they are going to hold a meeting at Manitowoc the 15th of this month and expect to get more members, but I don't see why it could not spread all over the state as well as to be confined to certain counties. We thought the matter over quite deeply, and concluded this was about as good as we could do. We have been running on the one-for-ten plan, and these last years we have been running behind all the time.

A Member: What do you get for making cheese up there?

Mr. Schultz: A cent and a quarter for Twins and a cent and a half for Daisies. Last year we had 64,000 pounds of cheese, and we ran behind $400.

A Member: Do you know what the average test of the milk was?

Mr. Schultz: I couldn't tell you. From 3 to 3.2 is the average. Last year I tested it often, and I found I got a little better milk.

A Member: There must have been some of those patrons whose milk tested below three per cent.

Mr. Schultz: Oh, yes, I had some that tested below two.

On motion of Mr. Bachman, duly seconded, the convention passed a resolution, endorsing the movement and the organization of the Wisconsin Protective Manufacturers' and Dealers' Association of Manitowoc County, and many expressions of encouragement and hope that the movement would grow were heard in the ranks of the convention.

Mr. M. Michels: Mr. President, I have been a member of this association ever since it was organized, and I know I have derived large benefits in the line of cheesemaking from attending these annual meetings, but we cheesemakers must not forget the new born association which was organized at St. Paul last winter at the meeting of the National Buttermakers' Association. We have long felt the need of just such an association. The meeting will be held next week in Madison, and in behalf of the Wisconsin Buttermakers' Association, I wish to invite you all to come and listen to the papers and take part in the discussions. It will be held next week Tuesday, Wednesday and Thursday. Thank you.

Mr. Buchen: I believe the discussion as to the central market for cheese which came over from yesterday is now in order. I for one at this time am not in favor of such a move. I believe it is well to let well enough alone, and that we have better benefits in our present method of selling our cheese on the local call boards, than we would have to ship them to a central market and there have them inspected and sold, and I be-

lieve that in saying this I voice the sentiment of three-quarters of the cheesemakers of Wisconsin, and that they are not in favor of this action at this time; and as we have a great deal of work before us this afternoon, and a great many of the members wish to take the train home this evening, I move you that this question be laid on the table.

Motion seconded. The question was put to the house and carried.

Mr. Baer: The question of a central cold curing room as suggested by Dr. Russell also came over from yesterday.

The Chairman: I think the cold curing question is a proper question to come before this convention at this time.

Mr. Alvis: I wish Mr. Baer would tell us how would be the best and nicest way to conduct such a place, how the expenses should be paid, and all about it.

Mr. Baer: That is a pretty hard question, Mr. Alvis, but I can plainly see that a union cold curing room could be built and equipped properly, one or two first class men who thoroughly understood the curing and handling of cheese could be put in charge and supported by twenty-five or thirty factories at much less cost to the individual factory than would be represented in building twenty-five or thirty curing rooms. It is a well known fact that our factories are so small and the price of making so low, that it is out of the question for the factory to put into a curing room the money that is necessary to build a properly equipped curing room in which constant temperature and moisture can be maintained. I can plainly see that the question of shrinkage alone, to say nothing of the improvement in the quality of the cheese and the uniformity in the product would more than pay for the expense of hiring a man to look after these cheese and the maintenance of a union or consolidated curing room. We all know that often cheese which is made of rather doubtful milk, if cured at a temperature below that possible in many factories, such cheese would come out clean in flavor and of fine texture.

Mr. Glover: I wish to endorse what Mr. Baer says. I believe that the uniformity alone in the product will pay for the

running of this central curing plant, because people learn to like a certain kind of cheese, and they want it uniform, even if it isn't the very best, and we all know that a big line of exactly the same kind of cheese sells better than a smaller quantity. I have probably visited over two thousand stores in Minnesota, and talked with the storekeepers, and according to them, the greatest trouble in getting people to eat cheese is lack of uniformity.

Mr. White: I would like to say right here that you cannot count on making an indifferent cheese and keeping it in a cold storage room and then turning it out on the market to develop into the poor, slushy cheese that we so often find. It has been our experience with some sub-earth duct factories that when the cheese came out and was bored, it passed all right at first, but when it was exposed to the heat, we found we had a lot of poor cheese on our hands. Something has been said here about Minnesota cheese. You want to understand that they make an entirely different cheese from the Wisconsin cheese, and you cannot compare them. The bulk of Wisconsin cheese goes south, into a very warm temperature. You cannot make a poor cheese and put it in cold storage and keep it down until it is sold and then put it on the dealer's hands. You have got to make a fine cheese right through.

Mr. Baer: I fully accord with all Mr. White says. I did not mean that you should get the impression that this mode of handling would allow a slack method of making the cheese. I want you to keep on making just the same kind of cheese in the same way that you are making it now, only that the curing rooms shall not have the high temperatures that many of them now have. We all know that the shrinkage is less in a low temperature than in a higher temperature. I want you to make a first class cheese, I want you to cook the whey out of it, firm the curds up, and give them exactly the proper acidity. I want you to make just as good a cheese as you are making now, but if you cure it at a lower temperature, it is going to be a finer cheese than if you cure it at these higher temperatures; and if you gain anything in the yield, it is not due to

your having kept more whey or more water in your cheese in the process of making, but because the shrinking in the curing is less at lower temperatures.

A Member: How often would it be necessary to take the cheese to your curing room?

Mr. Baer: Whenever you get a load.

The Member: Would once a week be sufficient?

Mr. Baer: It would do. Better be oftener.

Mr. Buchen: I, to a certain extent, agree with Mr. Baer, and I believe it would be far better for the markets if those cheese were longer in the curing room than they are at the present time; but many of us have been selling after ten, fifteen and eighteen days on the shelf, and if we have to keep those cheese curselves a week in order to get a load, and we are going to deliver them that soon, we might as well keep them a few days longer, and then ship them direct to whomever they are sold to. Of course, if it was the rule that these cheese could be held longer in the curing, it would work all right and be better for the cheese but that is not the condition of things at present.

Mr. Baer: I am speaking of the improved quality of cheese. I am not speaking of running cheese off on the market within a week or ten days. Most of the factories would have a load of cheese probably every two or three days. Any factory that did not would be too small to hire a cheesemaker and pay him a decent salary to make a decent cheese.

Mr. Buchen: There is another question that would probably cause trouble, particularly to the patrons, and that is the question of quick returns for their milk. When I begin cheesemaking in the spring, in about three weeks they begin to ask for their checks, and it would be pretty hard work for some of those poorer farmers to wait six months for their money.

Mr. Glover: I think it is about time that cheesemakers waked up and faced the fact that people are not eating the amount of cheese that they would if they could get an even grade of cheese. I am not criticising Wisconsin at all, but Minnesota is supplied with cheese from Wisconsin, and I have found a great variety of cheeses upon our markets in Minnesota. Min-

nesota don't begin to make nearly all the cheese she consumes; most of it comes from Wisconsin, some from New York, but I would urge upon this convention to try to make a more uniform cheese, cure it better, and I believe you will increase the consumption one hundred per cent. I often meet people in Illinois and elsewhere, who say they would like cheese but they can't get a good piece to eat.

A Member: This is all true, but as Mr. Buchen has said, the farmers won't wait four to six months for their money.

Mr. Aderhold: Do you think, Mr. Gilbert, that cheese that had been kept a week or ten days in an ordinary curing room in the summer time will make fancy cheese?

Mr. Gilbert: I think it will not, and I think that cheesemakers can afford to borrow money and keep their cheese six months, and that they will come out better in the end. Train the farmer to that, although I know it is pretty hard work. It can't be done at one jump, but I believe we could borrow all the money we want for five per cent. any way upon those cheeses, and it would be a safe investment for a man. I am looking ahead five or ten years. We want to get a better quality.

Mr. Baer: This discussion reminds me of only a few years back, when we were discussing the question of paying for milk at the cheese factories by the Babcock test, and some of you talked just the same as you are talking now on this subject, you said it was no use telling a farmer that four per cent. milk will make more and better cheese than three per cent., that you can't get them to stand for it. Just wait, and see whether they will not stand for this system of curing cheese, as it must be cured to produce fancy cheese. Today seventy per cent. of the cheese factories in the state of Wisconsin are paying for milk by the Babcock test, and nearly the whole of this seventy per cent. is among our Cheddar cheese factories—the Swiss, brick and Limburger industries have not yet adopted the Babcock test, but that is bound to come just as the other came about. It is difficult to find a creamery in Wisconsin, not paying for milk by the Babcock test.

Mr. Aderhold: We have about forty dealers here, sitting

perfectly quiet. It seems to me we are divided in policies, and the other side ought to be heard. I would like to hear from some of these dealers in regard to this central cold storage question.

President Dickson resumes the chair.

The Chairman: I regret very much that Mr. A. H. Barber is not here to give us the benefit of some of his long experience in the cheese business. This last spring, in order to more fully inform himself as to the cold curing of cheese in the early stages after its manufacture, he made many valuable obervations, of which we might have had the benefit if he had been present. He thinks that it is not only theoretical, but practical, to store cheese immediately after manufacturing, because he has tried it, and seen it work.

Mr. Buchen: I like this idea all right, because it would save me a lot of work, but I don't believe Mr. Baer, or any of us, could induce the farmers to store their cheese for, say six months, and wait for their money until after they are sold. We are none of us rich enough to advance money four or five or six months ahead, or to pay interest on it. If we did, we would certainly be bankrupt in a short time, but at the same time I can see the advantage of it. I think that the gentleman is right who speaks about the Babcock test. Nobody would use that until everybody did. I would be in favor of this thing.

Mr. Baer: Down here in Green county there are 243 cheese factories that produce 15,000,000 pounds of cheese annually, Swiss cheese. I would like to ask some of the gentlemen here how long they hold those cheese before they are marketed.

A Member: Generally from six weeks to eight weeks.

Mr. Baer: I thought and believe that they are held longer, from three to four months.

Mr. Alvis: After all, I don't see that it would take so much money. We want to take this into consideration from one year to another. We will say we have put in four weeks' cheese in the cooler. We might pay those patrons, we can easily borrow

that money. Then when that month's cheese is sold, we get that money in, so we are just about one month out of our pocket all the time, and that is all.

Mr. Buchen: According to the theory of Mr. Baer and Mr. Glover, they certainly would be held more than four weeks in this storage.

A Member: I understood Dr. Russell that it ought to stay in there four to six months. Isn't that what Mr. Baer said?

Mr. Baer: You people are figuring on six months' curing. I know that those cheese will cure up for market in thirty days in better shape than they will go from your hot curing rooms in ten days; they are not so dry, crumbling, mealy. They are a more marketable cheese in every respect.

Mr. Aderhold: If they could be kept there for a couple of months, then they could be put in a higher temperature and perhaps that would be preferable.

Mr. Baer: It is a fact that after these cheese have been thoroughly ripened, physically broken down, they still have a perfectly mild flavor, but if they are then taken out and brought into a higher temperature, say 60 or 65 degrees, you can intensify the flavor to almost any degree you desire. You may have a very mild, broken down cheese or you may intensify that flavor by this subsequent or secondary curing. I want you to keep in mind that the expense of this system of curing is somewhat greater than the old method, but we are convinced that the returns will undoubtedly more than balance the debit side.

A FEW SUGGESTIONS.

F. N. Sargent, Madison, Wis.

To a great many of us the name bacteria has but little significance, yet all the trouble we have in cheesemaking is traced back to these minute organisms, and while certain species are actually necessary in giving variety to cheese, milk seeded with other organisms greatly impairs its value when made up into these dairy products.

Bacteria are of a vegetable nature of the lowest type and their manner of reproduction is by fission, that is the cell elongates in the direction of its longest axis and finally divides at the center forming two separate cells.

The food necessary for bacterial growth must be in solution as nourishment is derived by absorption through the cell wall, and the elements necessary for their existence is nitrogen, oxygen, carbon and mineral matter, however, different species exist under different conditions, and when brought together often antagonize one another. For this reason the cheesemaker is able to overcome to a certain extent the abnormal defects that occur in milk by the addition of a starter.

The physical properties of milk are such as to make it a suitable food medium for bacterial growth and when once they have gained access to it are able to multiply with astonishing rapidity. However, milk from the udder of a healthy animal is supposed to be sterile, germs gaining access to it after being exposed to the air, the source of contamination being augmented or decreased according to external surroundings and the degree of cleanliness exercised by the dairyman. Dirty utensils and slovenly methods are a constant source of contagion to the milk besides proving unprofitable. A first class article cannot be made from second class mlik, neither can the patron expect fancy prices for it. Thousands of dollars are lost yearly to the patrons through their ignorance or neglect in

taking proper care of their milk, and just as long as this state of affairs exists I see but little chance for improving the quality of our cheese.

Milk when drawn from a cow though it may be free from germ life contains a certain per cent. of dissolved gases in the form of animal odors, the amount depending upon the physical condition of the animal at time of milking. At times it is hardly noticeable, and again is so great as to be offensive, and is readily detected at the intake. These gases are a source of trouble to the cheesemaker invariably producing a tainted or pin-holey curd. This defect, however, can be entirely removed if the patron will only take time to expose milk to the air during the process of cooling. Whether this process of aeration has any effect in checking the germ growth in the milk I cannot say, but it is of prime importance in removing the volatile odors.

All the trouble we have in cheesemaking is due to fermentations of an undesirable kind, the extent of which is dependent upon the advanced condition of the disease as it originally existed in the milk.

In order to check the undesirable fermentations we use a starter, say about 2%, and add it to the milk early in the game when it will do some good. Do not wait until the milk is all in, then dump in a great quantity of starter with the expectation of overcoming the disease, in waiting you have simply allowed the evil to advance that much farther unimpeded, and to that extent will it show itself in the curd. Add your starter to the milk as soon as the bottom of the vat is covered, then warm the mass up to 86° and get the desirable germs to working. A starter is more a preventive than a cure and should be used as such.

Milk before setting should contain about 2% acidity, a large percentage of which, together with the milk sugar is caught up in the coagulated casein and while the acid is retained a certain percent of the milk sugar is expelled with the moisture during the process of manufacture, the amount depending upon the way the curd is handled, as certain per cent. of milk

sugar is actually necessary for the development of acid it is readily seen why a dry, over cooked curd is slow in developing same.

We cut a curd so as to get it in form for receiving an even distribution of heat and to facilitate the expulsion of whey. The degree of fineness attained should be regulated according to the amount of acidity the milk contained before setting, as in a great many instances milk comes to the factory over ripe. In such a case everything should be done to retard the action of acid; however, do not resort to the old fogie method of throwing in several handsful of salt. The proportion of salt to milk is so small it has more effect in checking rennet action than it does in retarding fermentation. In working up such milk cut finer, cook faster, and after dipping treat the curd to a vigorous hand stirring, ridding it of as much moisture as possible. A curd treated in this manner has more effect in checking the development of acid than any other process I know of. While a few pailsful of water at a temperature of 100° thrown on the curd after dipping and just previous to matting is also beneficial in removing some of the whey. Do not think for a moment you remove any of the acid contained in the curd by this process. It is impossible to wash out the acid by the application of water, we can, however, check its development by washing out some of the substance that produces it.

The most dreaded fermentations the cheesemaker has to contend with are those in which gaseous bye-products are formed. The gas usually appears in the curd at the time of cheddaring, but in extreme cases will develop during the heating process causing the curd to float. The only method of treating the above abnormal fermentations is to favor the development of lactic acid, but no matter what process you use the trouble is there just the same. Do not hurry the process along to such an extent you hoop the curd before the gas has had a chance to develop, it is far better to give it a chance to develop in the curd than in the manufactured product later. A great many makers labor under the impression they hurry the process

along simply to get the curd out of the whey. It is not the whey that is causing the trouble, it is the disease that originally existed in the milk and is now confined in the curd. This idea that a curd must be gotten out of the whey seems absurd for it is my candid opinion that a curd does not absorb any defect in this manner.

Another point I wish to bring up for discussion is the cutting of a gassy curd, it seems entirely wrong to cut such curds fine, by doing so you are simply expelling so much more of the substance that produces acid. Such curds are usually dry and we should not render them more so by manipulation. Where a great many makers complain of not getting a spin of acid, nine times out of ten they are cutting too fine. Use more, incorporate about 2% acidity to start with, cut coarse and I dare say you will not be troubled about getting acid.

In regard to washing such curds, I do not believe in it for the simple reason you weaken the body and wash out some of the very substance that we have been eagerly striving to retain, and those cheese if placed in our average curing rooms and subjected to extreme temperatures would soon open up and go off flavor. I would far rather wash a healthy curd than one from gassy milk, for the simple reason it has the body to withstand it.

There is too great tendency now-a-days among our Wisconsin makers to hurry the process along in order to get through early. I do not believe in allowing the milk to ripen to such a high point of acidity that your acid develops in the curd before it is properly matured, such cheese are usually salvy, weak-bodied, and of short texture. It is the slow development of acid that gives life and body to a cheese. Our Canadian friends recognize this fact and take advantage of it, and for uniformity of product are conceded our superiors. Most of the defects associated with cheesemaking can be traced back to a faulty condition of the milk, due either to ignorance or neglect on the part of the dairyman. Filth and bacteria are closely allied and for this reason the dairyman ought to enforce cleanliness.

DISCUSSION.

A Member: Do you advise washing all curds?

Mr. Sargent: I don't advise washing curds, I advise rinsing them.

The Member: A good curd, with the right kind of moisture and flavor, could you improve it any by rinsing?

Mr. Sargent: The only object in rinsing the curd, is to wash out the white whey.

Question: When you speak of too coarse or too fine cutting, is that when the milk is coagulated?

Mr. Sargent: Yes.

Question: Is the acid developed in the whey or curd?

Mr. Sargent: We use a starter. We incorporate just about so much acid in the milk to start with. Certainly the acid develops in the curd.

Question: And it is the development of acid in the curd that makes the whey acid?

Mr. Sargent: Yes, to a certain extent. Of course we expel the milk sugar out into the whey too.

Mr. Michels: Isn't it true that the milk sugar in the whey is what produces the acid?

Mr. Sargent: That is a question I want to bring up here. Some claim it doesn't. A properly cooked curd you can leave in the whey, and I don't believe it will hurt it. You have got to develop a certain amount of acid in the milk to start with, and you can take milk, for instance, that is almost sweet and the curd will have to lie in the whey a long time before you can get any acid.

Question: If you have got an acid curd, do you cook it higher or lower?

Mr. Sargent: I cook it a little higher and I stir it on the rack, too.

Question: Did you say that after you have got a properly cooked curd, the acid in the whey does not affect it?

Mr. Sargent: No. The trouble is with over ripe milk,

we can't get the cook. We have got to draw the whey off, before we can get the cook. The curd certainly absorbs some acid from the whey.

Question: Then, under those conditions you would run off the greater part of the whey and put on fresh water, isn't that the way to manage it?

Mr. Sargent: Certainly. You are washing the milk sugar out, but you can take and set your milk and make an acid test of your milk before you add your rennet, and say we incorporate about 2% acidity in the milk; of course your acid will develop in the whey, but there is a good deal of it incorporated right in the curd.

Question: In making a sour cheese is it the acid that you develop in the whey that makes the sour cheese or the acid that you develop afterwards?

Mr. Sargent: That comes from not cooking it enough.

Question: So it is naturally the acid that is developed after the whey is drawn that makes the sour cheese?

Mr. Sargent: Yes.

Question: Isn't there a great distinction between the acid developed in the whey and dry acid?

Mr. Sargent: Yes, there is a distinction.

Question: Can you make a sour cheese with dry acid?

Mr. Sargent: You can if you haven't got a sufficient cook.

Question: Then you mean by that, that if you have not cooked high enough to exclude the whey that is in the curd, you will get a sour cheese? Now, if you have got a curd there that the moisture has not been excluded out of, it will turn acidy afterwards?

Mr. Sargent: Yes.

Question: You have still got a vinegar acid, but I never saw a sour cheese made from a dry acid, and I believe it is impossible to do it.

Mr. Sargent: You will though, if you don't have a sufficient cook.

Mr. Michels: You wouldn't call that a dry acid, that would be a moist acid.

A Member: I have seen curds show two inches, even three inches of strings on the hot iron and I never saw it make a sour cheese.

Mr. Sargent: You can run all the acid you want, dry acid, if you have a proper cook.

A Member: When I was at the dairy school they made us take sour milk and produce cheese. We put lime in it, and we washed the curds. We washed the acid out.

Mr. Sargent: I have had some experience in washing curds. Lots of times there will develop a sweet curd flavor that has too much of the characteristics of a sweet curd, and whether it is due to washing the acid out or not I don't know, but if you wash the curds in a few hours it will string on the hot iron just the same as when the curd is taken right out of the whey.

Mr. Michels: Some times you get as much as three inches of acid, or three and a half and all at once it will disappear. What is the cause of that?

Mr. Baer: I think if you will take such a curd and put it in a little warm water and wash the oil off the outside, and get it perfectly dry, you will find it will string all right; get the free oil off the surface of the curd.

Mr. Michels: Do you think that the stringing on the hot iron indicates the amount of lactic acid in the curd?

Mr. Baer: Approximately it does. It is through the development of the lactic ferment that we get that action on the curd when applied to the hot iron. If we get no acid action in the curd we have no stringing on the hot iron.

Mr. Michels: I saw a batch of cheese last spring, of course it was not cooked sufficiently and the acid showed up very lightly on the hot iron, and still it turned out to be a sour cheese.

Mr. Baer: There are abnormal curds, abnormal conditions in milk, which vary the acid action as shown on the hot iron. You take early spring milk, where in a vat of four or five thousand pounds there will be three or four hundred

pounds of what we term colostrum milk, and you will find there is very little action on the hot iron from milk of that character. It will spin to some extent, but it is not that fine, silky acid the cheesemaker is looking for. Again, you take milk from cattle which have been eating water cress, while the curds may be acid, yet the spin on the hot iron is anything but satisfactory.

A Member: Why is it that some curds in some factories will stand more acid in the whey than others?

Mr. Baer: I give it up. It is a fact that milk coming from high land, from pastures that are up on higher lands do not requiree as much acidity in the whey, or as much dry acid after dipping as those in low lands.

Mr. Powell: And you would consider that poorer milk, would you not?

Mr. Baer: No.

A Member: Why is it that last year I could make cheese with very little acid, and this year I have to have quite a little more?

Mr. Baer: Those abnormal conditions frequently occur in cheese factories, and they are pretty difficult to explain. I would suggest though that perhaps your milk was better last year than this.

Mr. Michels: Don't you think that the better the milk the more acid you have to have?

Mr. Baer: I do not.

Question: When you speak of it being better, do you mean in per cent. of fat or in cleanliness?

Mr. Baer: I mean in cleanliness. I speak of milk that is free from taints and gases, and all those things that are detrimental to successful cheesemaking.

A Member: Will acid develop faster on a damp day than it will on a dry day?

Mr. Baer: I don't think that has anything to do with it.

Capt. Ben Dally, being called on for a few remarks, said:

Mr. President, Gentlemen of the Convention:

I assure you it gives me a great deal of satisfaction to be granted the privilege of addressing this convention, as it is very seldom that the transportation representatives get such a privilege. I have an arduous duty to perform, though a pleasant one, and it falls to my lot because of my early associations with our worthy President. In my first days on the road, in hunting out the cheese factories throughout the great State of Wisconsin, I tumbled onto our friend. He had been in business longer than I had, he took a liking to me and started me in the right direction, and I always had a great deal of regard for him. Gentlemen, it gives me great pleasure in behalf of a few of the members of this association, to present to him a small remembrance in kind appreciation of his efforts in developing this organization to what it is to-day. It is with pleasure, Mr. President, I present you with this small token.

President Dickson: Mr. Dally, I take pleasure in thanking you for your kind remembrance towards me. I feel disposed to lock it up in a box which I shall have prepared for the purpose and will not open until next Christmas.

The fact that the members of the convention have elected me for the third time, more than compensates me for all the courtesies that I may have extended to you, or any other member. I will only say that in the future my services are at your disposal.

MARKETING CHEESE.

F. L. Forward, Seymour, Wisconsin.

Mr. President and Members of the Wisconsin Cheese Makers Association, I have not prepared a paper with which to present this topic this afternoon, my experience being that the best interests of the convention are served by remarks of an extempore nature.

The past twelve years' experience as secretary of one of the dairy boards of this State, much of the time buying cheese and keeping in close touch with the cheesemakers as well as the farmers in my own section of the country, with many years' experience in the state of New York, reaching as far back as 1872 in the sale of cheese, lead me to believe that I am prepared to point out several of the disadvantages of the present method of selling cheese, and of bringing the buyer and the seller together. This is an age of progress, and all of our important industries have been obliged to introduce new methods for the marketing of their products. It is a lamentable fact that we are using the same methods today in marketing our cheese that we were using thirty years ago, with no improvement, with no change except that within the last two or three years there has been an attempted improvement in the way of a call board, which in my experience has proved to be a boomerang.

Let us consider some of the disadvantages of the present method of selling cheese. In the first place, it requires a section of country where there are twenty-five or thirty factories and a regular attendance of twenty-five or thirty men upon the board. Lock at the expense every week or two.

Another disadvantage that comes to the buyer's side is that they are obliged to attend the dairy board, spending a day for that, and they go out into the country and inspect the cheese at an expense of five dollars a day or more. Now, then, there is another disadvantage in this matter. Of those twenty-five or

thirty men, not over one in twenty has a correct knowledge of the value of cheese; they are not competent to sell cheese as it ought to be sold and get proper prices; and there is another disadvantage, and that is the manner in which our dairy boards are manipulated by unscrupulous buyers. We have buyers who attend those boards who go there for the purpose of bidding up the cheese to more than they are worth, and then going to the factories to cut the factory men down on the price. There is not a legtimate transaction made upon the dairy board.

These buyers go there—they are not all that way—but these buyers go there and bid on the chance to go to the factory to cut them down and buy the cheese for less than the market, if they can. Now, I will not dwell upon this subject; it has been spoken of here several times. We have many good, conscientious, straight cheese dealers who do a good, square business, or would, if they had the opportunity to; but when they are compelled by a class of men to either adopt their methods at the dairy boards, or stand back as idle spectators, then what are they going to do? They have simply got to do as the other fellow does, or stay out of the business. When it has come to pass that our dairy boards can be manipulated and in a measure controlled by a class of men who are not worth a dollar and whose principles are worth even less, it is time to call a halt and take a firm stand, and place the sale of our cheese where it can be carried on by straight, legitimate business methods.

Now, then, how can this be accomplished? I have given this matter a great deal of thought during the past year, and the subject of centralization of cheese stations has been my study for the past year, and I am about to put in force—in fact, I am making contracts with factory men and farmers in my own section at the present time towards this end. My plan is this: to build wherever you can concentrate 2,000,000 pounds of cheese in the course of one year, a suitable warehouse, with side-track privileges; let those cheese be delivered there by the factory men once or twice a week,—I would prefer once a week; let them be delivered there to be stored until sold. Then the

buyers can come there and inspect those cheese, and buy them if they wish, pay for them and ship them wherever they like. This may be brought about by co-operation; let the farmers co-operate and put up a building and hire a competent man to look after it; but that is not the plan on which I am working.

I am making contracts at the present time along this basis: The farmers are to deliver to me their cheese once a week, I am to receive them, store them, keep them insured to the full amount obtainable thereon, and sell them with the assistance or under the advice of the patrons of the factory, to collect and receive pay for them before they are delivered to the dealer. In fact, the condition in my contract is—that is, the party of the first part hereby agrees that he will not deliver to any person, firm, or concern, any cheese, until it is inspected, weighed and paid for. Thus, you see, you avoid one of the great difficulties which has been spoken of by the honored gentleman on the left here yesterday afternoon, by cheese going so far to the market that you have no control of it. In this manner you have control of your cheese until you receive the money for it.

As a compensation for my work, I am to receive one-eighth of one cent for each and every pound of cheese sold. They authorize me to take from the proceeds of each sale one-eighth of one cent for each and every pound of cheese sold. They also, according to the contracts that control, give me authority to sell all of the cheese delivered at that warehouse.

Now this, I think, will not only be an advantage to the seller, but will also be an advantage to the buyer. He can come to that warehouse, he can buy a cargo of cheese, he can inspect it, weigh it and ship it wherever he wants to. He can afford to pay more for that cheese.

Now, then, the farmers may say they object to paying one-eighth of a cent a pound for that storage, which is a very low figure, but have they not been paying one-eighth of a cent a pound for the last twelve years for the buying of the cheese? They have paid it, it comes out of the price of the cheese, and a dealer can afford to come there and pay that one-eighth of a cent more for that cheese than he could to chase all over the

country after it, so I think this will be an advantage to the buyer.

Now, I will say a few words in relation to the plan of the building which I propose to erect. My building will be a frame, with a good basement, seven feet in the clear, and with the last two feet of the wall brought up so that the top of the wall is bedded a foot wide with plank cemented in the top of the wall, which will form my sill. My cross joists will be laid directly on that sill; my studding will be spiked to the joists. In between those joists and up to the top for the width of the studding I will lay in with brick and mortar; on the outside of the studding, I will put on dry ship lap. Then I will put on water-proof building paper, covering that with my siding, and paint it. On the inside of the studding I will put on seasoned ship lap and again I will apply paper by hanging it perpendicularly, lapping the edges, that is, each edge one inch. Over that I will spike my second studding on. That will give me a complete dead air space. On the inner edge of that other studding, which will be 2 by 2, I will again hang this paper, lapping the edges so that they will come on the edge of the studding. Then I will apply my ceiling. That will give me another air space. This will be connected with the basement from below and will be connected with the upper room above. I will also have a circulation of air admitted through the windows of the basement, or through ventilators, which will give me a circulation of cold air from the basement up to this inner cold air space. This will give me, as you see, an air-tight storing room. The air circulation that I will have in my building proper, in the storing room, I will get by cold air ducts, which I think you all understand, leading direct into the curing room, having an outlet of the same size up from the top of the curing room, leading to above the building about ten or fifteen feet. This will give me circulation of cold air.

Now, I think that style of storage room to be far preferable to a real cold storage. I believe that it more nearly meets the requirements of the present time; that it will keep a cheese that will meet the demands of the buyer better than a cold stor-

age room where you keep the temperature down below 50. The idea is not to keep the cheese much longer than you would at the factory, that the cheese be delivered there from the factory each week, to be kept there until it is sold.

The principal point is to get it directly at the shipping point, so that a dealer may come and buy a carload of cheese and ship it right out. It need not take him two hours of time to come into my storage room, buy a carload of cheese, test the weights, inspect it and draw his check for it. Under the plan that I have suggested, in putting those cheese in that position, I can give a man a bill of the whole amount in two hours' time, and he can pay for it.

This is the plan that I expect to put in force, if I succeed in making contracts with a certain number of factories, and expect to have it ready about the 15th day of May. I have taken the step without considering any other outside points whatever; this is merely a local affair, but if it meets the requirements of the people, it can be adopted more generally.

DISCUSSION.

Mr. Davis: Mr. President, I have been acquainted with the Seymour country and the dairying interests in that section for about eighteen years. I remember the time when there were only one or two factories there and they had no board at all. We started a board out there and held it every two weeks, and then this trouble arose: as Mr. Forward states, there were certain bids made upon the board at an outrageous price for the whole product, and the deal never carried out; but I claim that the matter was in their own hands. If such a trick was perpetrated on them once, it was their fault if they allowed it to happen again. The first time it was the fellow's fault that made it, but the second time it was theirs. Now, Mr. Forward's remarks about his warehouse are all very nice; but, as I figure

it out, he is simply going into the cheese business just the same as any other dealer.

Mr. Forward: You are very much mistaken.

Mr. Davis: If any dealer wants to send his goods to be sold, or any cheese factory man wants to offer his goods to be sent out of his hands to be stored, they will find houses here in Milwaukee and in Chicago and many other points, where they can store goods for as long as they want and borrow money on them and sell them as they want them. Now, a buyer going into a factory can inspect goods much quicker and easier by looking at each batch laid upon the shelf in a bright condition than by going into a warehouse and picking out from among a lot of boxes, two or three or four hundred boxes of cheese to examine. In New York they have central curing rooms or combinations, where there are a number of factories having one central curing house, and they bring their cheese in and store them upon shelves, keeping each factory's make together, out of the box, so that the buyer can go in and buy a line of those cheese to advantage. Under those conditions you find ten, twelve and fourteen factories making a line of cheese of one color, one size, and one quality, and the buyer can buy three thousand boxes right straight through, and he don't get confused throwing them out of the boxes, the curing process is going on and they are kept in good shape, and that seems to me a better way of conducting it.

Mr. Forward: Our idea is that when those cheese will be delivered to the storage room that every box will be inspected as it is delivered. I will require every maker to put the date of make on each of the cheese, or on the box; also the weight of it, and if he has more than one vat, to mark it, "Vat 1," "Vat 2," etc. When those cheese are put in storage, each day's make will be put in a pile by itself, where they can be readily got at, and where the outside marking can be seen, at least one box of every day's make, and it would be a very easy matter for the cheesemaker or buyer to go through there and pick out cheese of a day's make, just as easy as any factory; and if he wants to see more than one, it will take just a moment to set that box

one side and pick up another. I will also have the weights of each marked where it will be easily seen, so that a bill of cheese can be figured up in a very few minutes. I will inaugurate such a system as will enable the buyer to go through and inspect the cheese very easily.

Mr. Alvis: Suppose the cheese was in there a week, what kind of appearance would they make by that time?

Mr. Davis: That is what I was going to ask. Suppose I come there to look at those goods and I don't agree with you, I want to test the weights and the condition; by the time the week was over, they would be worth considerable less money; they would become moldy, and that would affect the market value. Another thing I want to know: whom do I deal with—you or the factory man that owns those goods?

Mr. Forward: You are dealing with me.

Mr. Davis: They put their goods in your hands and they have nothing more to do with them as to the price?

Mr. Forward: Nothing more as to the price, no.

Mr. Davis: If the market advances, if I go in there early in the morning and buy them at the full price, they have got no redress.

Mr. Forward: If you buy the cheese, you get them at the price at which you buy them.

Mr. De Haan: I have been making cheese in Iowa for twenty years. This year we have been having very dry weather in our state, and I have had trouble supplying my customers; so I sent to New York and bought a carload of cheese. When they arrived, they were as black as coal. I had to go to work and take the caps off and fix them up, and there was a pound and a half of shrinkage on each cheese.

Mr. Forward: Yes, that was regular cold storage cheese.

Mr. De Haan: Now, I advise the man that wants to sell his cheese and get a good price for it, to keep it in the factory and sell them when they are three or four weeks old. I believe that out of a hundred persons, ninety-five people want a fresh, mild cheese. I am getting 15 cents for my cheese, I never sold

it for less than 11½. A man wants a nice, bright cheese that he can show to his customers.

Mr. Forward: I claim that cheese will shrink less in a building such as I advocate than in the average factory curing room. That has been advocated right here by experienced men at this convention. As for the cheese molding, I don't know why they should mold there any sooner than in the factory, or as soon, because I have a building in which I can control the temperature far better than any factory, and the cheese will come out by the time it is shipped in better condition than if it was kept at a factory. The object is to get that cheese at a central point where it can be sold quickly, where a buyer can go up there, and in one day's time get a carload of cheese whenever he wants, and he can save his freight many times to Chicago, because he can ship direct where he wants. We have a very good freight rate from Seymour; we can ship from Seymour to Chicago at 25 cents a hundred. We can ship from Seymour to eastern points across the lake as cheap as from Chicago, and I can't see why it wouldn't be an advantage to the buyer a well as the factory man. He can come to one place, he hasn't got to chase over four counties.

Mr. Bachman: Do you say you would put the cheese in boxes on shelves?

Mr. Forward: I would have no shelves. I would leave the cheese in the boxes.

Mr. Bachman: I think you would find that in a very few days they would mold.

Mr. Forward: Then, in that case, we would have to prepare shelves and shelve them; it might be better. We would find out these things by experience. It might be better, as suggested by Mr. Davis, to put those cheese on shelves in the storage room, a soon as brought in.

Mr. Powell: Is mold a detriment to a properly made cheese anyway?

Mr. Forward: I think not.

Mr. De Haan: I think it takes the flavor out of the cheese.

Mr. Powell: I believe that to cure cheese properly there

must be moisture enough in the air so there will be some mold on the cheese. I don't want cheese to eat in my family unless it is five or six months old, and a cheese kept in an atmosphere where there would be no mold on it, I would think was not properly cured.

Mr. Davis: Mold does not always indicate that cheese is damaged. There are a good many different kinds of mold. There is a white, fuzzy mold, a green mold, and a black mold. You take this green mold, and it is an indication of insufficient ventilation and too much moisture. The black mold will in time produce slime and rot. A pit will have a small scale that eats right into the surface of the cheese, and it will make a hole like a mite. Now, you can cure a cheese on a shelf where the ventilation is proper without any mold, and get just as good a cure, and certainly a better looking article when put on the table, or put on the counter for cutting. When the mold gets into the cheese, you will find a different flavor upon it every time.

Mr. Forward: I don't see why cheese would mold any quicker in my curing room than when put into a car and shipped to Chicago, and put into the storage rooms there and kept a week.

Mr. De Haan: If you keep the cheese in boxes, it will mold quicker than it will on the shelves, and it damages the sale of them; and the longer you keep them in those boxes, the greater the mold will be on them, unless your room is very dry, in which case you are going to increase your shrinkage.

Mr. Powell: A cheese to be cured in cold storage should be made quite a little different than that which is to be cured in a hot room or a dry room. Two or three years ago I saw a lot of cheese up at the La Crosse Cheese & Butter Company Storage at La Crosse, Wis. Their cheese are all cured in cold storage. They were cured in the boxes, and it was very seldom we found a box of cheese that was moldy. They were piled up ten cheese high and some stood there three or four months.

Mr. Michels: What was the temperature of that curing room?

Mr. Powell: I couldn't tell you that; I think it used to run about 34 to 38. Once in a while it would run up to 42.

Mr. Baer: The experimental work in the study of molds and mold growth on cheese has not to my knowledge been given much attention, but we now have new curing rooms erected at the Wisconsin Experiment Station with proper machinery so that we can control the moisture and temperature, and we hope to know more about this in the near future. On this question of cold curing of cheese, we have arrived at this decision: that the ideal temperatures for the curing of cheese are not favorable conditions for mold growth. We don't think the mold harms the cheese, providing the cheese are properly bandaged. Our cheese, up to this time, have been cured right from the press in boxes. From now on, we shall cure them on tables. We find that the ideal curing temperatures, as Dr. Russell told you, are in the immediate neighborhood of 40 degrees F., and mold develops slightly at that temperature, and down even as low as 32, while below freezing the cheese will mold, but nothing in comparison to the higher temperatures. The mold at these low temperatures is of the kind that Mr. Davis speaks of, the white, fuzzy mold which very readily wipes off, leaving the cheese bright and clean; but when you get up to 55 and 60, a green mold is formed, providing you have anything like a sufficient amount of moisture to properly cure the cheese, and it is very difficult to make anything like a presentable appearance out of that cheese. You can wash them, but the moment you look at them, you know that they have been washed and scraped, too, good and hard.

Mr. Michels: Have you ever made any experiments in paraffining cheese and protecting them in that way?

Mr. Baer: Yes, we have paraffined a considerable amount of cheese made in different manners, with different amounts of rennet, and different rates of salt, direct from the hoop, dipping them in hot paraffine, both to put in boxes and in the curing rooms on the shelf. Then we have paraffined cheese from one day up to ten from the hoop. Our experience taught us

that it will not do to paraffine cheese direct from the hoop. They may hold their flavor 30 to 60 days, but in time they will grow more or less bitter. The very best results have been secured when we have waited ten days and the cheese have started to cure before paraffining. In such case we have had no objectionable flavors develop.

Mr. Forward: Last summer I was in a cold storage room where the temperature was kept down with ice. The party showed me through the various departments, and he showed me a lot of cheese put in storage in the early part of June; it was August I was there. The cheese were in the boxes, had not been disturbed at all, and the bandages were just as bright as the day they were put in. I think it is possible where you can control the temperature and the moisture that you can keep the mold out, and keep your cheese so it will present just as fine an appearance when ready for the market as when they come out of the factory.

A letter from Mr. J. R. Biddulph, of Providence, Ill., was read by the secretary, that gentleman having been advertised to read a paper on

BENEFITS DERIVED FROM ATTENDING THE ANNUAL MEETINGS OF THE WISCONSIN CHEESEMAKERS' ASSOCIATION.

PROVIDENCE, ILL., Jan. 4, 1902.

Secretary Baer:

In regard to attending the meeting to be held in Milwaukee on the 8th, 9th and 10 inst., will say that inasmuch as the Illinois State Dairymen's Association convenes at Freeport, Ill., on the 7th, 8th and 9th, I am obloged to attend this as one of the directors. I regret very much to know that both of the meetings occur at the same time, as I had planned to be at your meeting.

Please give my regards to the boys, as I think there are some who will remember me. Tell them I am very much disappointed in not meeting them this year, as I have the last five years, and must say, spent a very pleasant and profitable time with them.

Now, friend Baer, permit me to say a few words in regard to the benefits derived from attending these conventions.

In February, '93, I attended the Cheese and Buttermakers' Convention at Dubuque, Iowa, and met but two gentlemen whom I knew, namely, Messrs. Belknap and Sawyer. I felt like a cat in a strange garret. Before the meeting was over I became acquainted with quite a number of interesting men.

As some of you know, the cheesemakers had but little show there in the way of learning much about cheesemaking. The last night of the convention I happened to go in one of the rooms at headquarters and there met Mr. Powell and some others talking to Mr. Monrad about the cheesemakers not having a fair show in the discussion. It was all butter and no cheese; so Mr. Monrad said, get up a cheesemakers' association, and at his suggestion it was started that winter. I did not attend the meetings for several years, as I understood it was for Wisconsin cheesemakers only.

Five years ago I thought I would go to Madison and learn for myself, feeling they could only tell me I had no business there. That was not the case. I was welcomed and invited to come again, and every year since has found me there, bringing away with me many helpful things.

By hearing the discussions, I found out my making room was not what it should be, so I came home and tore out the floor, filled it up and put in a cement floor. The next year I had a talk with Prof. King in regard to my curing room. He gave me some instructions about it that helped me to lower the temperature some. The next year he advocated a double air space for a curing room; so I came home and repaired my room, and have lowered the temperature from 90 or 100 degrees to 70 or 80 degrees. These are some of the benefits derived from attending the meetings at Madison.

The first year I did not have a cheese on exhibition. I had with me at my hotel a piece of cheeese which Messrs. Dickson and Powell judged. They said but little about it, but I knew pretty well what they thought. The next year I had a cheese on exhibit and it scored very low, as Mr. Monrad told you last year, 65 points. I have been gaining every year from 7 to 8 points, till last year my cheese scored 93½ points. I am going to send a cheese this year, and if the gain is proportionately as large I will get over 100 points; this, of course, is beyond reason.

Now, a few words to the young men. Attend the conventions. Do not think because you have worked in a factory for one or two years that you know all about cheesemaking. Attend these meetings, and you can learn something each year. In this day and age every branch of business has its organized body, holding meetings for the edification of all concerned. If you do not attend these meetings you fail to reap the benefit of new ideas which are presented each year. You may be like a gentleman I met at Madison the first year I was there. He had a great deal to say, and he thought he had the best cheese there. When he showed me his cheese I had not much to say, but I thought he would be a disappointed man. So he was. His cheese scored the lowest, and I have not seen him there since. Now, boys, before I weary you longer, permit me to say, do not condemn the judges if you do not get a high score. You may think that your cheese is of superior quality, but these men are supposed to be experts who can detect defects in your cheese which you cannot see. Do not give up; remember the old adage: "If at first you don't succeed, try, try again."

I trust you will have a profitable meeting and accomplish much to further the cause of dairying in the United States. With best wishes, I remain,

Yours truly,

J. R. Biddulph.

Mr. Biddulph: Gentlemen, when I sent that letter, I did not think I would be with you, but as our Illinois dairy meeting closed last evening, I hurried away and came to this place so that I could be here even for a little while at the end of this meeting, and I am very glad to meet with you once more.

The Chairman: Gentlemen, I wish to thank you one and all for your kind attention during all of our sessions. Many of you came from great distances, and we deeply appreciate your attendance. We feel that this first meeting at Milwaukee has been so successful that Milwaukee is the proper place for us to hold our future conventions. We have enrolled two hundred and twenty-three memberships. I want to say particularly to our friends from the northern and central counties of the state of Wisconsin, that I have been awfully pleased to see you here, and I trust that your profits and your pleasures have been such as to encourage you to come back again next year; if not to Milwaukee, to wherever we may hold the convention, but the probabilities are that Milwaukee will be the town. Come back again and bring your friends, and have your friends bring their frends. Let us make this a mammoth organization, and in doing so, you will help yourselves more than you have any idea of.

Gentlemen of the convention, I thank you most heartily for your kind interest and attention.

If there is no further business to come before the convention, I wish you all a happy and prosperous year, and I declare this convention adjourned *sine die*.