President: Gentlemen, I wish to announce that to-morrow morning at eight o'clock in the basement of the Auditorium the butter room will be open until ten o'clock and that in convening in this hall to-morrow morning at ten o'clock the butter will be sold to the highest bidder.

I would like to call your attention to the fact that the program will be very short. There will be something good and the awarding of prizes will be at the banquet in the evening.

If there are no further questions on that paper, we will go on to the next. The next number is My Experience in Pasteurization of Cream for Buttermaking. Mr. Mortensen of Albert Lea, Minnesota, will start the discussion.

MY EXPERIENCE IN PASTEURIZATION OF CREAM FOR BUTTERMAKING.

By Association Members.

Mr. M. P. Mortenson, Albert Lea, Minn.: Mr. Chairman: I have been practicing pasteurization for eleven years at three different plants and I am very satisfied that I would not want to make butter of any quality of cream—that is reasonably good cream to moderately poor cream—without pasteurizing. My experience has been with cream of a reasonably good grade. I believe that most of the cream we get is of such a quality that it can be improved by pasteurization. If we get perfect cream, pasteurization would not be of much benefit. In everyday work we find we can't get such cream, and the cream that is a little sour and reasonably sweet it does a great deal to overcome flavors and get uniform butter.

I believe uniformity is of great importance. Centralizers have demonstrated that.

My experience has been with the continuous type of pasteurizer. I believe either system has its advantages and that one is better adapted to one creamery and another to another creamery. I believe one of the main essentials in that system is the uniform temperature. With the vat system or intermittent system it is comparatively easy to get the same temperature from day to day, but with a continuous machine it is somewhat
more difficult. I believe some of the flavors have been due to the temperature not being uniform throughout the day’s run, now being up to 190 degrees, now down to 130, 40 or 50. I believe that accounts to some extent for poor keeping qualities. No one has ever advised me, but I have heard it said not to pasteurize or to discontinue pasteurizing. I believe that has been entirely due to faulty work on the part of the buttermaker, not due to the principle of pasteurization. It is trying to pasteurize with poor equipment. Unless you can have your cream 25 per cent or above it is doubtful practice with 18 or 20 per cent cream. Then have a machine of sufficient capacity and a cooler likewise. Many have been trying to pasteurize in the older styles of vats, which are not built for the purpose. Some have tried to pasteurize without the use of a starter. I believe it is the fault of the buttermaker, the appliance of the principle, for the few flavors we have had.

**President:** In the last year we have not heard so much talk about the quality of dairy products, but heretofore we have had some of those points brought out by the merchants which Mr. Mortenson spoke of, and they have said if it was pasteurized butter to stop pasteurizing. I have heard that frequently from buttermakers in the country. The merchants who receive butter are at liberty to discuss this feature of it.

**Mr. Warner, Minnesota:** While I am not a buttermaker, I am in the creamery every day. I think that pasteurization helps quite a bit. I want to say that Mr. Schuknecht, the man who was out with me, is the first man that ever pasteurized. He lost his job at Albert Lea because he went into pasteurization. He had the right idea, but it was worked out wrong.

**Mr. H. J. Credicott, Freeport, Ill.:** It seems peculiar to me that this question of pasteurization doesn’t bring out more of a discussion. I wonder if everybody has accepted pasteurization. A few years ago when you brought up the question of pasteurization we used to get quite an argument. I can remember back fifteen years ago in one of our Minnesota meetings where we were having quite a discussion one man who was very enthusiastic on pasteurization said that the pasteurizer was the doctor for poor cream. The practice of pasteurization in the large creameries of the country has shown its value in producing a uniform quality of butter that
will keep. I want to endorse what Mr. Mortenson said in regard to the use of it. If you knew the facts of the matter the chances are, when a man is asked not to pasteurize, either his equipment was too small for the work he was trying to use it for or else there was something wrong in the way he was using it and also insufficient capacity so that he has to have the heating surface of that machine so hot that it would give the butter an oily, fishy flavor.

There is another angle to that thing that I have learned from personal experience that may give a great deal of trouble. It is an easy thing in cleaning equipment to not do it thoroughly enough and leave a slight coating of grease or oil on the surface of the machine. That oil will form a sort of verdigris and the next time that machine is used this grease that has formed on the machine will warm up and disseminate through the cream and that cream, if you scratch it off, will have a strong metallic flavor. You will find that true every time. I found in my time when I had a fishy flavor in my butter it was because the machine was not properly cleaned, and by properly I mean water hot enough to cleanse sufficiently the exposed copper in a pasteurizing vat, and if it was sufficiently cleansed the pasteurizing machine never gave out any flavor. There is one of the points that has made a great deal of trouble, particularly in the small creameries, and I am just giving it to you for what it is worth.

President: How many of the buttermakers here pasteurize at present? I presume that pasteurization has been accepted generally throughout the country, but conditions are such in a great many communities that it cannot be brought about.

Mr. Wendt, Michigan: It don't seem to me that this discussion ought to center around the advisability of pasteurization. It ought to be methods. It reminds me of the darkey that got fired for posting some patriotic posters on the fence around the cemetery. He was asked why he was fired and he said because he had tacked the poster on the cemetery. He was then asked, 'Why was it, what was on the poster?' "Well," he says, "it read, 'Wake up, your country needs you.'"

President: I think that is quite true with the industry at the present time.
Mr. Moran, Wisconsin: I would like to know if the gentlemen who advocate pasteurization think it is an indication that you can get more for the butter, where you are already getting a substantial premium without pasteurization, and whether or not they would advise trying it under that condition.

Mr. James Sorenson, Minnesota: I believe there is another point in connection with this matter of pasteurization and that is the value of pasteurization as a germ destroyer and the talking point that buttermakers have to the public of turning out a sanitary product and taking the argument away from those all the time looking for some excuse to knock butter. I personally am not afraid of the bacteria that swim around in cream, etc., but at the same time the oleomargarine manufacturers, and as I say our friends the enemies, are all the time looking for something to knock butter, and if we pasteurize the cream and say it is safe and contains no dangerous germs, etc., they won’t have anything to talk about. I know some consumers prefer pasteurization because it is safe. I believe the time is coming when we will all pasteurize. We have pasteurized for years, proving that the system is absolutely all right if properly applied. I know some of our buttermakers in Minnesota are mighty careless. Mr. Gustafson went to a creamery where they were attempting to pasteurize. Along about noon the cream was all in. The buttermaker turned on the steam and said, "Come on, Gus, let’s go down and get something to eat," and left the cream to cook. There is too much of that. If pasteurization is properly applied it will never fail to give the results. I think the time is coming when we will all pasteurize; we will have to do our part.

Mr. Warner: Pasteurized butter made from pasteurized cream in the home market will sell far ahead of unpasteurized. Since we have begun pasteurizing we have driven the farmers’ butter out of the market in our town.

Mr. Credicott: In answer to this gentleman’s (Mr. Moran’s) remarks, I would say that of course we can’t judge the local individual conditions, but my point would be this, that in these days of food conservation that everybody ought to pasteurize so as to have the last ounce of butter that the consumer has fit to use
on the table. Unpasteurized butter may be good when it comes from the churn, but the last ounce of that butter is apt to go for cooking. That seldom occurs in pasteurized butter, and I think it is economy to pasteurize all butter.

**Mr. C. E. Lee, Wisconsin:** For the benefit of the Wisconsin boys that happen to be here today I would add that within the next few months no creamery man in Wisconsin can return by-products to the farmer unless they are pasteurized. Such a law was passed by the last legislature in Wisconsin. It is being enforced. They will make rules and regulations. Consequently the buttermaker will be required to pasteurize all the buttermilk before it is returned to the farm, which means that the cream will be pasteurized. The thing for the Wisconsin men to do is to get ready for that. It will make a more safe food. We don’t want the consumers to think we are trying to improve anything that has already been spoiled. We have good butter in Wisconsin, but we will make it a more safe food. The rules and regulations have been drafted for carrying out the new law. We don’t expect any opposition to it by the creamery men themselves.

**Mr. Wendt:** I would like to ask the Professor if this law that he refers to was passed in the interests of the live stock industry or in the interest of the consumer.

**Mr. Lee:** Live stock industry.

**President:** That reminds me of some facts. At a meeting I attended last spring, the 26th of April, the stock men of the country and the largest buyers of stock in the world wanted to call this meeting to see what could be done to conserve the dairy cow as well as the beef animal. They had invited experts and receivers of stock and they gave statistics from this market, Milwaukee. They said that 26 per cent of the calves received at Milwaukee here at some plant were Holstein calves and that a certain belt around Milwaukee had furnished in the neighborhood of 20 per cent of the animals received at this place and they were affected with tuberculosis, and that another belt down in Iowa going to Chicago was also affected. And along comes the man from Minnesota and he found that only four per cent of the animals received at South St. Paul were thus affected, and in his elaboration upon
the question he said that he had attributed that to the fact that all Minnesota creameries were pasteurizing their skim milk and were returning it pasteurized. I asked for a little information as to where these animals had come from to South St. Paul and he mentioned a certain location in Minnesota, and on looking up the records in that neighborhood I found that there was not one whole milk creamery there, that the farmers separated the milk and fed the skim milk to their animals and had sold the cream to the creameries and had not pasteurized at all. Here was a man in charge of a great sanitary board that attributed all the doing away of the tuberculin cattle to pasteurization of skim milk where there had been no pasteurization for at least seven years.

The question always is, how can we improve our methods, and if we find through pasteurization we can improve our methods and the product, let us do that, and that is what we have been doing for years. The health officials of this country haven’t a record of death caused by butter. We are a body of men manufacturing a product to be consumed. If we can bring a greater return to the producer and will give the consumer a better keeping product, that is what we want to do, and we want to compare notes. It is not a question of whether some pig or some calf will be saved or not, but it is a question of whether we will give a better product.

I know of no class of people that have improved the product so rapidly as the buttermaker. There is nothing that stands so high and so uniform as the exhibit of the four hundred tubs at this meeting. That shows that there is a method adopted by these makers and that they meet from time to time to still better that method. I hope it will be from that viewpoint, always bettering the product finished for the final consumer.

Mr. Miller, Missouri: It is said that a fool doesn’t change his mind, but a wise man does. A few years ago—not so very many years ago—when a person was taken sick with typhoid fever everybody was very careful that he didn’t get any ice water to drink, and the poor fellow had to lie and suffer. Now we give him all the ice water he wants. The method is changed: So it is with pasteurization. Not so very many years ago in our convention it was said when you want to
send for a doctor for some sick cream you pasteurize it, but not so today. It is good for the poor cream and it is good for the best cream. Bear that in mind. Therefore we change. Everything changes and today the best, the most up-to-date and the most successful creameries or buttermakers use pasteurization whether the cream or the milk is good or best or bad or rotten.

Mr. Smarzo, New York: I have been very much interested in the discussion of this pasteurization, particularly because I contend with the butter, some of it, in New York. More so because I have had an opportunity this summer to inspect a great deal of butter and we have been troubled with metallic, fishy flavor. I am very glad to know what is the cause of it, to hear this gentleman say it comes from the unclean condition. If the boys get down and dig out the corners of their cream vats I don't believe we are going to get very much fishy flavored butter. I felt at this time I wanted to tell you that because I have looked at a great deal this summer and it has been a mystery to me. Four or five tubs in a shipment will be fine and the next churning will be poor.

Mr. Credicott: It would be well to bring up one other point. I am a centralizer, and as centralizers we get a heap of experience. In pasteurizing a sour cream, and that means the kind of cream 90 per cent of our buttermakers get, there is great danger if you pasteurize a cream .4 per cent or over acidity. You will have the same flavor. If the acidity is up to .45 of one per cent we are almost sure to get that oily, fishy flavor. Too high acidity will produce that flavor.

Mr. Warner: How does Mr. Credicott bring that down?

Mr. Credicott: I presume the gentleman who is asking the question is from Minnesota, as that is one of the states by law which has barred neutralizers in cream. They thought if the centralizer could purchase a neutralizer and neutralize his cream the local creamery could beat him out. If he will make better butter, butter that is more palatable to the consumer, if they will neutralize sour cream back down to the acidity where it can be used, it is an economical proposition to conserve the food of the nation. The farmer is getting to the point where he figures his business on
a business basis. The farmer is not going to deliver cream to the creamery every day if he can deliver it every other day, and it is up to the buttermaker to turn out the best possible grade of butter that he can turn out. If he cannot he is an economic failure and he has no business in the country, and he will eventually go under. It is the man who is giving the best service to the producer and the consumer alike that is going to survive in this business. If in doing that it is using a neutralizer, then it should be used, and I am heartily sorry for the buttermakers in Minnesota who cannot do that thing without infringing the law.

Mr. C. E. Lee, Wisconsin: I am sorry Mr. Credicott has come out and championed neutralization. I am not against neutralization if it is so done that the public understands it is getting a neutralized product. I don't think we ought to sell it without informing the public that we are neutralizing. Wisconsin does not need to neutralize its cream. Suppose our 900 licensed buttermakers in the state of Wisconsin were allowed or were encouraged to neutralize, what would happen to the butter on the market? The average buttermaker cannot neutralize because he is not a big enough man for the job. The average product of Wisconsin's average creamery is good and the farmers of Wisconsin are willing to produce the kind of cream that will make the kind of butter that will go on the American's table. The Wisconsin buttermakers have been for years making good butter. The oleomargarine interests are not neutralizing their product. Let us stand back of our product. We are not ashamed of our butter. We are conserving our butter in Wisconsin. If Wisconsin butter was put on the market today it would be a credit to the state of Wisconsin and to the buttermakers of our state.

Mr. Wendt: Do you advocate, Mr. Liverance, with your creameries the use of neutralizer?

Mr. Liverance: I do not advocate the use of neutralizer. The position I take is that taken by Prof. Lee.

Mr. Reynolds, Iowa: It seems to me that Mr. Credicott's stand that this is an economic proposition is more to the point. If it is a fact that the buttermakers of Minnesota, Wisconsin or Iowa are not big enough to neutralize, I think they should take it up. If neutral-
izing is making a good butter better, I think it would be a good thing.

**Mr. Sorensen:** Let us for a moment take hold of this. I go into a store and two pieces of butter are put before me on the counter, one is labeled "made from neutralized cream," the other is not. Which will I buy as a consumer, do you suppose, at the same price? I will take the butter that is made from cream that has not been neutralized.

**Mr. Reynolds:** Look at this butter and it has not been labeled, what then?

**Mr. Sorensen:** I know that a neutralizer was used there in order to cover up a defect in the raw material and I don't know how bad that defect may have been, and I want to take a good butter.

**Mr. Smarzo:** My experience with neutralized butter: it doesn't give the consumer satisfaction. There may have been some butter that came down there that gave satisfaction, but most of it doesn't. Some of it absolutely blisters your mouth. The majority of butter that comes down there that is neutralized does not give satisfaction.

**Mr. Moran:** I just wanted to state that these advocates of pasteurization are having troubles among themselves and I have almost begun to think it is a difference in disposition. I don't want to appear here as against the theory of pasteurization. If they can prove their point all well and good, but I can't understand why they are so out of patience with the people who do differently than they do. We have operated creameries successfully for twenty-seven years and I can truthfully say the only complaint we have had in regard to the butter is we don't give them enough of it. I don't see any great harm in continuing our methods. We don't sell a pound of our butter without a guarantee. We have been selling it to the mothers of babies and those babies are feeding it to their own babies and as far as I know it wouldn't hurt anybody.

**President:** You are in a position where you are getting a nice material, and when you are getting a nice material pasteurization doesn't improve it.

This is getting interesting. I was at a meeting of dairy, food and drug officials this summer and a very
prominent food official asked the audience what they thought of issuing an order or regulation, when he went back home, that all milk going on the markets of that state should be pasteurized. Very few gave him any advice upon the subject. In fact they were not exactly interested, but I asked him why he was going to put that rule into effect and he said to save the babies of the cities. At that time it was real fresh in our minds that we must conserve our citizens and above all the men who are tilling the soil, the farmer, and if there is anybody conserved it should be the farmer. I compiled a figure, getting it up to something like six million good steady fellows. Of course there are more than that. There are at least thirty-five million people on the farms. Here are thirty-five million people living upon the farms of this country using milk, milk for the babies, and yet not one single quart of it was ever pasteurized; and I thought it was a good time, not for the city people whom he thought it was so necessary to save at that time, but to save the lives of the people who were tilling the soil. I think that is quite a problem to come before an audience, stating the great danger of this great universal food. For six thousand years we have used it.

There may be a condition down there in Freeport, Illinois, where that cream might need neutralizing to cut down the acidity, but that is not a statement of fact that it has to have that condition, instead of a good clean condition. Who would prefer any cream that would have to be neutralized to a good delivery of cream? Who would prefer the other to the clean, sweet product? What are we going to do with these conditions if neutralization is put as an economic condition? Cut it out. We have been beaten so many times in Minnesota on good dairy laws that I do not feel like falling down on this one.

These are the things we should get together on, and always be on the alert to our own problems and not let the other fellow go to the legislature and tell that body of men what we want. We must be the instigator of these laws we want.

Mr. Mads Sondergaard, Washington, D. C.: I just want to make a statement at this time. Last year I was carrying on some experiments in relation to the dairy and food work along the line of pasteurization,
and also in connection with this work the effect of the cream. This work shows quite plainly that the neutralization of cream as pursued by the average creamery in Minnesota is a detriment to the body. I was not one of the judges. I am quite sure the judges today don’t know that half of the butter was made from neutralized cream. They pronounced it very queer. When you go above .4 per cent acidity I will be frank to admit that the neutralization has a very marked improvement on the score. But below that it was certain, I am convinced, and according to the judges’ score it was a detriment to use it.

Mr. Credicott: I am misunderstood on this proposition. Prof Lee thought I was using the neutralizer on all cream. I think all centralizers are working more on quality than ever before. We are working for better quality. We are getting a much better quality of cream than we did two or three years ago, and I give the credit very largely to Mr. Lee’s department. We have spent a good deal of money and increased our cost up there in Wisconsin to show the men how to deliver the cream. Mr. Sorensen, if I understand him right, said that cream above .4 acidity was improved, but below that injured the flavor. Below .3 you are almost sure to get a neutralizer flavor. Mr. Smarzo speaks about getting a taste in the mouth. The man that used that didn’t know how to use a neutralizer. It should not, in my mind, utterly condemn a system.

As I tried to bring out before, I believe this is an economic proposition. At Freeport we are in the milk business and the ice cream business. We found it hard to get farmers to deliver us enough sweet cream for our ice cream department. The reason for that was a matter of a great deal of interest to me. The farmer says, “How often must I deliver that cream to you to get that price?” When he is told every day he says: “Considering the price and the amount of time involved I do not think it would pay. My time is worth more to me on the farm than delivering that cream.” The farmer will deliver that cream in pretty good condition, but on the other hand he does object to the every-day delivery in most cases that would make the use of neutralizer entirely unnecessary. If we can make a wholesome butter that is not hurtful to the consumer, and as long as the cream is wholesome I am not advo-
eating the use of neutralizer in what Mr. Miller calls rotten cream. If it is .6 per cent acidity it is too high to pasteurize. I believe then it is not only proper but right to use a neutralizer.

Mr. Thomas, Clear Lake, Iowa: I would like to ask if they use lime water exclusively for neutralizing.

Mr. Credicott: There have been some who used alkalies, particularly that put up by the Wyandotte people, but I found lime superior to that. In a cream running up to .7 per cent acidity I have had better results by the use of pure lime, and we can see no reason why lime should be objected to in that way. In the feeding of it you will find them feeding lime water to babies to balance up their diet. If it is going to make a better keeping piece of butter I fail to see the reason why we should not use it, and practically all that lime passes off in the buttermilk and you would not be able to determine whether that was the natural lime that came in the milk or whether it was added by the neutralizer. I believe the quantity is so small I know of no reason to object to this proposition. It doesn’t come back to the matter of using rotten cream, and every centralizer and every creamery is working for better cream. I have long felt it is a shame that some of these creameries go on taking cream of .6 acidity and they take that and try to handle that cream under conditions under which nobody can make a good grade of butter. They are not giving efficient service to their farmers. They are a detriment. Why should not they be allowed to use a little lime in that cream? I can see no reason for it.

Mr. Lee: A great deal of the high acidity cream comes in the summer time. I can give the names of any number of buttermakers making a large amount of butter who are getting a fancy price for that butter on the market.

Mr. Morris Schroeder, Wisconsin: I have been experimenting on pasteurization for a good many years. Ever since we put in the pasteurizer we have been experimenting and kept sending butter to Madison for scoring. Last year of course we tried to neutralize, but this year we cut out the neutralizer entirely. We have had some cream as high as .6 per cent acidity. We pasteurized it and it brought out butter with a 92 score.
Mr. Sorenson: I believe that the usual neutralizer, the general proposition is wrong, for this reason, that it gives the man why is trying to put on the market an imitation for butter a splendid argument for his article. We have to watch our cream in order to make it into good butter. I believe we ought to go after the producers, that the creameries themselves should cooperate and destroy the market for the kind of cream that it is necessary to neutralize. If there is no market for it it will not be produced. I believe there is just as much reason for neutralizing cream as for coloring oleomargarine. * * *

President: The secretaries and officers of the affiliated associations of this organization are asked to meet at 7:30 at the hotel this evening.

If there is no further discussion of this question we must turn the meeting over to Wisconsin pretty soon. We will proceed to the election of officers, and don’t go away, anybody, because I have got a message to deliver to you. I am going to do it some time between now and when we adjourn.

The first in order will be your president, secretary and treasurer and vice president. Nominations are in order.

Mr. Sorenson, Minnesota: I don’t like to spend the time and I believe for the best interests of the organization we should retain our present officers. I would move, Mr. Chairman, that the present officers be retained, suspending the rules, and the secretary or somebody else cast the ballot for the present officers.

Mr. Sorenson takes the chair.

Chairman: Gentlemen, you have heard the motion.

Mr. Joslin: I agree with everything Mr. Sorenson has said about the president and secretary on account of the work they are engaged in and which must be carried through, but in regard to the vice president, I am so far away in the eastern end, I am frankly in favor of having you elect another vice president.

Chairman: The boys will have an opportunity to vote that down.

The motion was duly seconded and unanimously carried.