and this is not impossible of accomplishment. I believe that Dr. Robertson's argument for cooperation among the Canadian farmers as a means of accomplishing the end he had in mind is equally applicable to the various factors involved in the production of Wisconsin cheese, and this leads me to raise the question whether the time has not arrived in the history of this association when it should put forth strenuous efforts to promote cooperation among cheese factory owners, cheese makers, patrons and cheese buyers. I raise the question whether or not the time is not at hand when instead of the extreme segregation of the cheese makers of the state in their association work and the dairymen of the state in their association work and the butter makers of the state in their association work, there should not be more cooperation, more coming together of these respective interests. Is it not true that it would be to the mutual advantage of cheese makers and their patrons if there could be a completer understanding by each of the problems and difficulties and of the methods of the other in the accomplishment of the objects in which both parties are mutually interested. If joint meetings of this association and the dairymen's association could be held in the great cheese producing centers of the state wherein the problems of the cheese makers and the problems of the patrons could be presented and discussed, would not the results be highly beneficial to all parties concerned?

Under existing conditions and tendencies and in view of the great need of more cooperation, I have wondered if after twenty-one years of divorce, a remarriage of the Wisconsin Dairymen's Association and the Wisconsin Cheese Makers' Association would not prove more advantageous to the dairy interests of the state than the present state of divorce. In my opinion this is a question worthy of thoughtful consideration.

The high standard which the Wisconsin cheese industry has reached indicates that the best cheese factory patrons spurn the offering of filthy milk to the factory and the best cheese makers and factory owners spurn the manufacture of such milk into cheese. But so long as there is one patron of a cheese factory, or one cheese maker or cheese factory owner whose system and practice are not equal to the best, there still remains work by this association and its members to secure improvement.

SALARIED INSTRUCTORS.

S. G. Thompson, Department of Agriculture, Washington.

Such gains as the cheese industry in your state has made in the last ten years can not be accomplished without thorough organization of the persons interested and the proper concentration of effort by competent leaders in the work. An increase in the annual cheese production of 67,000,000 pounds or 87 per cent in ten years has not been secured without the combined energy of all the forces which are working for the success of the industry.

Better Methods Desired.

It is plain that Wisconsin is interested in better dairy methods. This is shown by the support given your university which is one of the largest of its kind in the country; also by the development of your dairy and food department which is perhaps doing more work and has a larger force of capable men employed than any other state in the Union, besides the development of other educational forces at work in the state, particularly your own organization.

Fortunately, the need for improved methods is recognized by many producers. The increased cost of feed and labor makes it necessary for the dairymen if he wishes to be financially successful, to keep only such cows as are capable of producing at a profit and to discard all others.
He must also get away from the old idea that a cow is a cow which is to be fed and handled like every other cow and learn to deal with them individually instead of collectively. Furthermore, the successful dairymen must have a good idea of modern requirements in order to put the improved methods into successful operation. Your educational institutions already referred to are furnishing instruction of this sort and this association is helping to solve these problems, yet with all the work done and with all the advancement made there are too many inferior cows kept in Wisconsin as in all other states and too much poor raw material delivered to your cheese factories as in other places. Thus, it becomes apparent that although you are making advancement you are not securing improvement in methods fast enough to keep pace with the demand and are failing to reach the class of people who must need assistance.

There are many patrons of our cheese factories who have never had an opportunity or at least have not embraced it, of being shown how they could produce a better and more valuable product at a reasonable cost and make more money out of present day dairying. I believe this condition can be overcome in a large measure through our cheese factories and creameries if they will undertake the task.

The Cheese Factories' Relation To The Patrons.

The cheese factory represents a certain number of patrons whose interests are identical and whose success depends in a large measure upon the success of that factory, in fact, I do not think it is putting it too strongly to say that the cheese factory is responsible for the quality of milk produced by its patrons and for their success as dairymen. This being the case, then, our cheese factories may be considered a unit made up of the farmers patronizing them. This unit is maintaining itself so far as cheese making and marketing is concerned against the competition of other similar units. Each one is striving to make a little better product than its neighbor and hopes to get more money for it in order that it may pay its patrons a higher price for the milk they furnish. There is a common interest in this direction and why not make the organization valuable in other directions. Why not broaden the scope of the organization to include not only the manufacturing of cheese but for buying supplies and making the cheese factory a distributing point for practical information and assistance. This will fill the place which the educational institutions fail to reach, by taking the assistance to the homes of the patrons and delivering it to them in a practical way.

New Plan Proposed.

The plan I would suggest is for the cheese factory to employ a man to do this work, a man who will spend all his time among the patrons of the factory showing them where they are failing to get best results and how to make the necessary changes. Such a man must be well trained both practically and scientifically besides possessing the necessary tact to make his work valuable. Such a man must, of course, be expensive, but I have no fear that his work can not be made profitable. Several states have undertaken instruction work in a limited way with excellent results and the dairy division is conducting experiments at creameries for the purpose of determining just how far it is profitable for them to go with such work and while the experiments are far from being complete the indications are that the plan is entirely feasible. We can never hope for the state or federal governments to furnish men enough to work with each patron of our cheese factories and creameries, and if it were possible I doubt if it would be wise to do so as there would be too great a tendency to rely on some one else to solve our problems for us. But since the patrons of creameries and cheese factories are integral parts of the organi-
zation each one would have some responsibility which would require more or less thought and study, if such work be undertaken by the organization. By this plan each unit would employ its own man who would properly be called an instructor. The plan, is not intended to increase the cost of production, but instead to decrease the cost of production and at the same time secure a better product. It is a well known fact that an article of good quality always brings a high price and it is also well known that it is only possible to secure a high price when you have a superior product to sell. With the highest market prices received for milk the farmer or dairyman who has the right kind of cows and uses proper methods can make more money from dairying than ever before. A cow that produces more milk per year than is necessary to pay for her feed and care makes more profit when milk sells for $2 per hundred weight than when it sells for $1 per hundred weight. Then, again, the profitable cow is usually a large producer and if the production could be increased the cost of producing would be decreased and with double the amount of milk available for manufacture the cost of making would be materially reduced.

Wisconsin Cheese Statistics.

Reports from 232 cheddar cheese factories in Wisconsin for the year 1911 which made a total of 23,369,541 pounds of cheese showed that they receive an average price of 12.51 cents per pound. They also showed a variation in the selling price from 10½ to 11½ cents per pound, a difference of 4 cents per pound between the maximum and minimum price. If a cheese factory or a combination of factories making 400,000 pounds could increase the selling price one cent per pound they could afford to pay a salary of $2,000 per year to an instructor, then have left $2,000 more to be distributed among the patrons. If the selling price could be increased 2 cents per pound they could pay the salary stated and have left $6,000 to distribute among the patrons, and so on. The reports referred to showed that the average cost of making cheese was 1.683 cents varying from 1.37 to 2.25 cents per pound or a difference of nearly one cent. If this amount could be saved because of increased production it would pay a handsome salary to the instructor and leave something for the patrons besides.

Requirements For Instructors.

The successful instructor must be well trained and familiar with production and manufacturing problems. He must also have a large amount of tact and push, then if he is interested in his work there is no end to the good he can accomplish. He would probably first visit the patrons for the purpose of making their acquaintance and studying their conditions. On his first trip he would probably make a critical examination of the conditions which he finds, but if he is wise he will make only minor suggestions and such as can be easily complied with. His first effort will be directed toward improving the quality of the product delivered to the factory by improving sanitary conditions generally and perhaps by discouraging undesirable practices that may thoughtlessly be followed. He will work to secure a clean, pure milk properly cooled and protected from contaminating influences. A trained man will notice many things that the untrained hard working farmer overlooks but which he appreciates if pointed out to him in a proper way. It is necessary, however, that only one or two of the more important items be mentioned at once, as too many suggestions at one time may defeat the purpose of the work. The successful instructor must be practical and he must stay down to the level of the person he would assist. In other words, the instructor must not talk over the head of the man he is working with. There are very few farmers who will not receive suggestions regarding their work from a person who has shown himself to be familiar with the subject and who presents his suggestions in a practical way.
By the time he has succeeded in securing improved methods of handling and caring for milk without any material increase in the cost he will have secured the confidence of the patrons and shown himself to be a safe and careful leader. He can then take up matters which at first may not appeal so keenly to the producer.

Instructor's Methods.

It is likely that he will explain to the farmer the importance of keeping records of each individual animal in his herd and he will probably weigh and test the milk of each cow in the herd himself for a certain period. This will interest the dairyman because he would like to know definitely which cow is actually giving the most milk and butterfat, although it is likely that he has never taken the trouble of finding out for himself. With a record of each cow’s production for a certain period it will be easy to show the importance of complete individual records since the surprises in the first test will show that only individual records can be depended on. The instructor will then probably discuss the methods of feeding and the importance of feeding a proper ration and perhaps will figure a balanced ration for part or all of the animals in the herd. He will also weigh the food for each cow and compute its cost. This he will compare with the value of the milk produced and right here is where most dairymen will become interested. They will for the first time realize that they are conducting an important business to which should be applied business principles and they may for the first time understand their chosen calling in its true light. If some cows can not produce at a profit they are likely to be quickly discarded and a search made for profitable animals to take their places. This should lead to the establishment of a cow testing association in each community. It is quite likely that sooner or later it will be discovered that the only way to secure the necessary number of desirable cows is to breed them. Here again the instructor will have an opportunity to assist in selecting the cows from which to breed and in this he can perform a real service. He will also help in selecting the sire, for by this time the scrub bull will be no longer desired. When the patrons understand the need of better cows and find a reasonably sure way of getting them by breeding, they are sure to become more interested in all branches of their new business proposition and it would be strange indeed if they do not seek the advice of the instructor in the matter of securing cheaper feeds. Many will decide that a silo is necessary in order to provide succulent food for winter. The instructor will be familiar with the various kinds of silos on the market and be prepared to assist the patron in making his selection. He will also probably supervise its construction for him in order to prevent mistakes being made which might interfere with its success.

When several patrons become interested in keeping herd records and the proper selection, breeding, feeding and handling of their animals, other patrons who failed at first to become enthusiastic over the proposition will see the advancement that their neighbors are making and realize that they are losing some valuable assistance which would be theirs for the asking and the most of these will take up this work immediately. When producers become thoroughly interested in the problems already referred to they will do a lot of thinking for themselves and not depend so much on the instructor for everything they wish to know. They will soon realize that high class animals must be kept in better stables and it is likely that many barns will be remodelled and perhaps several new ones built and other needed improvements made. In this work the instructor can again make himself very valuable. There are many other things that this instructor can do but if he is able to develop an interest along the lines indicated with a few patrons each cheese factory his work will be a success for as soon as the seed of improvement is planted and a proper start made it is sure to gain such headway that it will be carried along by its own mo-
mentum. When one's interest and enthusiasm is aroused it is only necessary to show that the plan is feasible and successful from a financial standpoint.

SWISS CHEESE MAKING.

Mr. Joseph Willimmann, Monroe, Wisconsin.
Cheese Factory, Dairy and Food Inspector.

I shall take a positive stand against the prevailing opinion, that the imported Swiss cheese is better than our domestic Swiss, for it is not, providing we proceed in the process of making and curing the same, as the fundamental principles of Swiss cheese making require. We know, a cow fed on alfalfa, good grain and pure water will give a good milk, which of course, is the first essential part to make good Swiss cheese. With such milk the old country Swiss maker begins, but for financial and technical reason, he skims a portion of the cream from that milk, which we do not, and have therefore a point in favor of a better product. When I say financial and technical reason, I mean by extracting one half to three quarters pound butter per hundred pounds milk. Any of you can see the financial gain in that process. When I say technical, I mean the texture gets more tensile strength, which is really needed, to open Swiss cheese to such extent as the imported Swiss is opened, and of course, the people are of the opinion that Swiss cheese must have big eyes or holes as they call them and a lot of them. Not that the cheese is any better for this reason, but the point is, to make a big show with a little quantity and yet get a lot of money for it.

Well, I stated the maker in Switzerland starts his Swiss with a good clean milk, makes the cheese with the best of scientific and practical methods, brings it to a cool cellar, salting it daily for about four weeks, when he removes it to a warm room for fermentation, until satisfied that it is open enough for export market. Then it is removed to a cool room again and is continually salted until it is five to six months old, when the wholesale merchant will buy it, remove it to his store room, where again it will be continually salted, until it is salt ripe, which means that it has that oily salt water in the holes, a flavor peculiar to Swiss cheese, which bites a trifle on your tongue when you eat it. And last but not least, it melts between the teeth.

Swiss Cheese in Wisconsin.

Now, let us see how we make Swiss in Wisconsin—it is possible for us to have just as good milk to begin with here as anywhere under the sun, and even better than in Switzerland, which I will explain. We got the good milk to start with, but I must admit, while we have a good lot of number one Swiss cheese makers, we also have a good lot, who lack scientific and technical training, although we have the finest dairy school in the United States at Madison. We see further that our good makers, do not adhere to the well known laws and principles of Swiss cheese making. While they take a creditable, well made cheese to the cellar, they start the gross neglect as soon as they get it down cellar, by omitting the daily salting, which hastens fermentation and that is just what they want, so they can get it on the market in from four to six weeks. In capacity of foreman of a large wholesale firm, Swiss cheese only thirty days old passed through my hands going to the consumer. They were what you call open, the texture fairly tender and white, but this unnatural condition of cheese only four weeks old was brought about by the starter or "sur." But at the cost of the aroma and flavor which was sacrificed, as there is not a trace of flavor or aroma which an imported Swiss cheese has. And do not forget the cheese eating public is not long in deciding which cheese they will eat when you put before them the imported or at present our Wisconsin Swiss. Can you, fellow milk producers, cheese makers and