You can get a cow census for every patron that comes to your factory, and then talk to them about the importance of importing to the community bulls of pure breed; form an association and buy one of those pure bred animals, then fix up by-laws and regulations for keeping the animal, and his service may be used in all the herds that come to your factory unless there are too many cows, in which case you would have to buy more sires. But don’t you see if there is a good sire in one community and the farmers in an adjacent community own another good sire, you can change those sires about and you can use those sires for years without inbreeding, simply by changing around. It is a cheap way, an inexpensive way to get the farmers into the pure bred business. There is nowhere such an educator in a community as a pure bred sire. It sets men to thinking.

SANITARY MILK PRODUCTION

Charles Steffen, Milwaukee
President of the International Association of Dairy and Milk Inspectors.

In my connection of almost five years with the Milwaukee Health Department, one year as chief inspector of the milk inspection work, I have had an opportunity to gather statistics on the farm cows feeding, such opportunity as has come to but few men in Wisconsin, and I want to emphasize fully this question of good cows and good feeding and this question of Sheboygan county as compared with the balance of the state of Wisconsin.

We are getting in Milwaukee today milk from perhaps nine counties. I show a picture of one depot where we receive our milk supply, showing the business in Milwaukee at the present time with our wagon getting the milk from the St. Paul depot. Within the last year we visited some 120 farms in Sheboygan county and found the average production per cow in that county was approximately three gallons, while the average of all cows sending milk to Milwaukee was two gallons per cow. That was last spring. This fall, up to this time, we have visited 950 farms located in five counties. As a result of this second inspection, we found of these 500 farms the average production was three-quarters gallon per cow. In the territory surrounding the city of Milwaukee, to the south, the west and the north, we found the lowest production, many of the farmers making a practice to buy cows and depend on the brewery slops for feed. I again emphasize the necessity of feeding corn silage and alfalfa. We find where the farmers grow their own feed for the cattle there is a better breed of cattle, the production is higher and we get a better supply of milk.

The question of clean, sanitary milk production for the Milwaukee milk supply is a greater one than the supply for the cheese factories or the creameries. There never was a better demand for milk than at present, but we have too much of the wrong kind of milk. This fact is emphasized when we go into competition, it was emphasized last fall at the annual dairy show and it is emphasized in the monthly scoring contests.

The report of C. E. Lee in charge of the Wisconsin butter and cheese scoring exhibitions for November, in referring to cheese scored says: “It was a fairly good lot of cheese, considering the condition of the milk from which the large percentage of the cheese was made.”

Mr. Lee’s report coincides with my experience and observation. Within the past year a number of complaints have been referred to my department for investigation. Most, if not all, were due to an excess of moisture in the cheese, hasty marketing and rank flavor, due to the poor quality of the milk from which the cheese was made.

It is within my recollection and yours, too, when pasteurization was heralded as the one process necessary to insure the butter maker “extras” from inferior milk. Time and experience have proven this erroneous, and contrary to the very essence of the laws of nature, dirt is dirt, and filth is filth, whether you cook yours or prefer to take it raw.
Excessive Moisture and Unclean Milk

This report convicts the cheese makers of incorporating an excess of moisture, and of making cheese from insanitary and unclean milk. The judges have condemned your practices and you are on parole. The question of moisture, texture, and the practice of marketing green, uncured cheese, are directly under your control. Any cheese maker who deliberately incorporates an excessive amount of moisture and markets green cheese, is, in my opinion, guilty of a conspiracy to destroy the reputation of Wisconsin cheese.

We all know with good clean milk the cheese maker can take his time all through the process of cheese making from the time the milk is heated to the proper temperature until it goes to press. How different with unclean, stale, old milk. There are times when you can't work fast enough to control all the different types of bacteria which you can plainly see are getting the upper hand in this battle for supremacy.

The result is always the same; unclean, filthy milk wins. In consequence of this hasty handling of the curd, we have incorporated excess moisture, and the cheese maker, knowing the milk was of poor quality and his wages depended on turning out extras, rushes his green cheese to market before the undesirable ferment develop too far, and deprive him of a portion of his salary.

Licensing of Operators

It should be the duty of every cheese and butter maker to inspect regularly all cow barns and cows from which comes his milk supply, to insist that all cans and receptacles are promptly and thoroughly cleansed and scalded with boiling water, and as reasonable precautions taken as will insure the delivery of a fairly clean milk supply. I believe much could be accomplished by law to improve the cheese and butter of this state, if it was possible to secure legislation compelling all operators who make butter or cheese to be licensed by the State Dairy and Food Commission before permitting them to engage in that profession, and by requiring a standard of efficiency, intelligence, and cleanliness, as a requisite to obtain a license would tend to eliminate the careless, filthy operator from the ranks of cheese and butter makers.

Such a law should confer on operators all rights now conferred on inspectors of the State Dairy and Food Department, insofar as applied to cow stables, and our present corps of state inspectors act as instructors for our cheese and butter makers. It would, in my estimation, do much toward bringing about the desired regulation, so necessary in this campaign for better cheese, butter, and a clean market milk supply.

Get your producers to read dairy papers, study the question of light and ventilation, proper barns in which to house milch cows, how to feed them properly so as to get the best results from the feed consumed, and lastly, let them understand they cannot strain dirt from milk, that they must keep milk clean; that means that it must come from clean cows, kept in a clean barn, and handled by clean people.

The producer has the best sediment test at his home. Rest assured, evidence of dirt in the strainer cloth insures a contaminated milk supply in proportion to the amount of dirt shown, and the danger of using the sediment test is, that the producer will be more careful in straining his milk supply, and pay less attention toward keeping the cows clean, unless you inspect his herd and premises, and compel him to use a small top milk pail, unless you are assured he is taking all precautions possible to provide against contamination. Unless he does this, you have no assurance whatever that sediment free milk means clean and wholesome milk, but the sediment tester, reinforced by farm inspection and the compulsory use of the small top milking pail, will be a tremendous force in improving our milk supply.
In my own experiments last year I clearly showed the close relation between sediment and bacteria count, that increase in sediment means increase in bacteria count, all other conditions being equal.

The number of organisms found in the milk will always be the final test or indicator of the purity or wholesomeness of the milk supply, and these organisms will be in proportion to the precautions exercised in keeping out filth, prompt cooling, temperature to which the milk was cooled, and age of the milk.

**Demonstrated at Dairy Show**

Milk produced under the best supervision possible contains a certain number of bacteria, but the average farmer or dairymen can produce a very superior quality of milk low in bacteria, if he chooses to do so, as was demonstrated by us during the International Dairy Show last October. An average farm barn scoring 48.4 points, kept scrupulously clean, all utensils thoroughly washed and sterilized, cows’ udders washed with clean water and wiped with clean cloth, milked in closed top pails, removed immediately from stable, cooled to 40 degrees Fahr. and stored at a temperature of 35 degrees Fahr., contained after six days 150 bacteria per cubic centimeter, and the milk scored 98.3 points out of a possible 100 points perfect.

A model dairy entered milk in this show in the same class, barn conditions generally superior to the other farm and scoring 74.5 points by the government score card. The herdsmen didn’t believe in those modern methods of milk production; he strained the milk into the can in the cow barn, left it there twenty minutes before cooling, the result was 82,000 bacteria, and scored 73.5 or 25 points less than the milk produced on the average farm.

Need more be said with reference to cleaning and brushing cows, wiping udders, removing milk promptly from the stable and cooling to about 40 degrees and keeping at that temperature in a clean place?

Producers should discard the fore milk from each cow; the importance of so doing is evident. As a result of experiments by our department recently, the first one-half pint drawn from the udder contained 19,000 bacteria, the remainder or balance of eight quarts drawn contained only 4,000 organisms, in other words the first half-pint from the cow contained five times as many organisms as did the whole milk, and the fore milk contained but 1.6 per cent butter fat, while the whole milk 4.2 per cent.

We found in our tests that removing milk from the stable and prompt cooling of same lowered the bacteria count from 5,000 organisms to 3,000 or a difference of forty per cent in favor of prompt cooling and immediate removal.

One of the greatest abuses in the past was the practice of returning whey in the milk cans to the producer. This should not be permitted under any circumstances. The importance of clean utensils cannot be too strongly emphasized. The cheese maker can do much toward remedying this abuse by making a thorough inspection of all cans and vessels at the factory as well as at the farm.

An abundant water supply of good quality for the herd as well as for cleaning utensils is an important factor in the production of a clean milk supply.

**Dairy House**

A dairy house in which to properly cool and store the milk is a necessary adjunct to every well equipped dairy and is deserving of far more attention than is given this subject by the average producer at the present time. The cattle should be housed in a barn so constructed as will enable them to keep clean and in good health. For the average farmer that means plenty of sunlight and ventilation, equipped with swinging stanchions and cement floor, not longer from gutter to stanchion, for the average cow
The manure should be removed from the barn daily, to a distance sufficiently remote so the cattle will not be compelled to wade through the same in passing in and out of the stable, and so that any odors arising therefrom, will in no way affect the milk in the milk house, or the air in the cow stable. All feed should be fed after milking and by so doing the cattle will be more quiet during milking, give more milk, and the milk will be of better quality.

The milk house should be conveniently located, so that ready access may be had from stable and ice house, and should be near the well if possible, and we insist this house be used only for cooling milk, cleansing of utensils, storing of milk, and must be kept clean.

Health of attendants is of great importance. Diphtheria, scarlet fever, tuberculosis, typhoid fever, all are prevalent to a far greater degree than producers generally are willing to admit, and should be guarded against. Finally, convince your patrons it is to their advantage to apply the tuberculin test to their herd, and you have your patrons producing a reasonably safe and sane milk.

In conclusion, I believe Wisconsin produces as clean milk as any people in this, or any other country. I believe our producers are as intelligent and as progressive as can be found anywhere. The trouble is, we have too much poor milk and too little milk of the right quality. It is your duty to reverse these conditions and by so doing, you will do much for the reputation of Wisconsin dairy products. It will bring happiness and prosperity to the producers, make your work more pleasant and profitable, and finally, to the consumer you will be a beneficiator.

Discussion.

Mr. Glover: The straining of the milk outside of the barn involves a lot of extra work especially where the barn is large, and have you ever thought of building within the barn a very small place in which the milk might be strained. To give opportunity for straining it out of the atmosphere of the barn and at the same time prevent so much walking? I believe we have to get around this in some other way. I moreover believe that if the barns were properly ventilated, as they should be, well lighted, whitewashed and kept clean as cow homes ought to be, that it would not be of prime importance to the production of high class milk to have it strained outside the barn in a milk house. We would make a tremendous step forward in the production of clean milk if we could get the farmers to realize the importance of air, sunlight and white washed walls in their barns, but when we ask a busy man to carry milk as far as would be necessary in a barn of fifty cows we are asking too much, we are asking more than we can expect a human man to do unless he is paid more than we are willing to pay for so much work. Why not install a place within the barn where the milk can be set and scales ready for weighing the milk?

Mr. Steffen: In Sheboygan county we found a great many large dairies and I have had occasion to visit some of them, and it is our experience that the larger the dairy, the more cattle a farmer is keeping, the better are his facilities for caring for his product and it is easier to deal with him than it is with the owner of five cows. He is more intelligent, better equipped, has a better barn, and is easier to approach than the five cow farmer. Our trouble is with the five cow man, the man that milks twenty-five to forty cows usually has the proper equipment and we have no trouble with that class of producer.

As long as I am in charge of the work I believe I will not prosecute a man for keeping a filthy cow barn because he has sinned enough already, we will simply shut his product out from Milwaukee and let it go somewhere else. I believe it is practical to have a small room in one corner of the barn, where the milk may be strained, but there should be a hallwa