price, just so long will we have makers that will make that quality. Law enforcement alone will never place the standard of quality of our cheese where it should be and where it must be if we are to maintain our place in the world’s markets.

The real vital need of the cheese industry today is a full and complete realization on the part of every one engaged in it of the necessity of better methods, of the application of more concerted and intelligent effort and with a vision looking into the future instead of the blind policy of considering the immediate penny at the expense of the future dollar.

Mr. Chairman: The next thing on the program is the “Weighing of Cheese to Quarter Pounds” by Mr. Math Michels of Fond du Lac, and others.

Mr. Michels: I believe Mr. Reis has so well covered that subject that I am willing to give up my time.

THE CARE OF CHEESE NECESSARY TO PRODUCE A GOOD RIND

By Mr. A. T. Bruhn, Spring Green.

As this talk of mine is merely for the purpose of opening a discussion I have outlined the conditions which in my opinion affect the rinds, in the expectation that the discussion following will clear up any hazy points.

To remedy any evil the cause of the evil must be removed, therefore the first thing to do is to find the cause. The great indirect cause is perhaps the fact that the cheese dealers have, in the past years, paid full price for cheese with a tendency to develop defective rinds, and as long as that was the case we cheese makers soon became careless, lazy or indifferent, and shipped them anything in the line of cheese curd that would stick together long enough to get it off of our hands.

It is of no use to dodge the issue by saying “I couldn’t help it; it wasn’t my fault; I did the best I knew how with the appliances and raw material at hand.” It would be impossible for me to prove that you did not do the best you knew how, but I do say that in ninety-nine cases out of one hundred it was your fault, and that you could have helped it if your cheese did not arrive at the paraffining plant with a good rind.

If you do not know how to obtain a good rind on your cheese, work long enough under the direction of a good cheese maker or go to some good dairy school until you learn how; and if you cannot learn how then, take your medicine and get out of the business and leave room for the man who can.

The first cause of poor rinds, but one perhaps not so frequently encountered, is in the milk supply. It happens occasionally that in times of short pasture cows will eat vegetation which will cause cheese made from the milk of those cows to be abnormal. As before stated, however, this is so seldom the case that this cause is practically elim-
inated. Under this head would also come milk from sick cows or from cows kept under abnormal conditions.

The first real cause that we have to contend with is probably overripe milk and that should be rejected at the weigh can, as any milk that is sour enough to cause trouble in the process of manufacture can easily be detected by the sense of smell or taste, and the cheese maker has therefore no reason to run it into the cheese vat.

If for any reason you should get overripe milk in the vat there is no more reason you should get poor rind on that cheese, than there is for you to get a sour cheese, and it has always been my opinion that sour or high acid cheese is entirely the fault of the maker, unless the milk is so sour that it is impossible to stir in the rennet before coagulation takes place and such a condition should only be possible when some accident occurs to prevent you from adding the rennet as soon as the milk is all received and heated to its proper temperature.

During the process of manufacture, that is from the time the rennet is added to the milk till the curd is pressed, there are a number of things that might affect the condition of the rind of the finished product; for instance, insufficient cook on the curd at the time of drawing the whey, too much acid on the curd at that time, poor drainage of curd while matting, insufficient matting, uneven distribution of salt or not enough salt, curd greasy when salted, too cold or too warm when pressed.

Of the above named causes, insufficient cook is undoubtedly the most frequent cause, for even though you may not have much acid at the time of running off the whey, the extra moisture gives impetus to the development of acid and you may have a high acid cheese before it is a week old which is almost certain to develop poor rind.

Where considerable acid is developed before drawing the whey the moisture must be reduced, or sour and often leaky cheese and checked rinds is the result.

Where the curd is not turned properly, leaving whey standing in pools on curd, the result is liable to acidy spots causing checked rinds wherever these spots come near the surface.

Where the curd is insufficiently matted before salting the moisture is not evenly distributed and especially where considerable moisture is retained in the cheese it is almost certain to produce a leaky cheese unless it has been practically cured before it is paraffined.

The old saying that one hour in the vat is worth one week on the shelf seems to hold good in this case.

Lumpy salt causes the uneven evacuation of moisture, leaving spots in the curd so dry that it will not cement properly, leaving open spaces in the rind giving mold a chance to start.

Where curd is lumpy, salt does not penetrate it evenly causing faster fermentation in certain places, often producing gas which in turn causes the cheese to huff and sometimes blistering the rinds.

When curd is greasy or too cold when salted and pressed it does not cement, causing open rind. In either case the curd should be
rinsed with water at a temperature of 105 to 110 degrees F. before salting and hot water poured over the surface of the cheese when dressed and turned in the press.

When curd is too warm when pressed the fat is apt to press out, start the grease is the common expression, preventing the curd from cementing together and forming perfect rind.

Though you may have a curd that is practically perfect when ready to put to press you may still spoil the rind if your hoops, followers and cap clothes are greasy or coated with what is commonly called milk stone. In order to get a good rind you must keep your hoops, followers and cap clothes clean. Right here it might be well to tell how to keep the hoops clean without too much extra work. I will confine myself to speaking of the hoops for daisies, flats and prints and will leave the other styles to be discussed by someone else.

When the wash sink is close to the press I find it easier to wash my hoops and followers daily, and when a coating forms place as many of them as I am not using to soak over night in the whey tank. After that the coating washes off as easily as grease. If you should happen to be using all your hoops every day take about ½ cup of sulphuric acid to two pails of water, place in a wooden tub and soak hoops and followers in this solution for from five to fifteen minutes and they will wash up easily and clean up bright as new tin.

Another cause of imperfect rinds is wrinkled bandage. Care should be exercised, not only in bandaging the hoops, but every cheese should be inspected before being placed on the shelf to see that the whole cheese is covered smoothly, that the caps lap over the bandage leaving no exposed surface.

If you have a perfect rind on the cheese when it leaves the press that is no guarantee that it will stay that way unless you will take proper care of it afterward and particularly during the first few days of curing.

If I could always have my choice I should want my cheese to go directly from the press into a room where the temperature was not above 55 nor less than 45 degrees F. and kept at that temperature by air, which was at the time of entering the curing room, cooler than the air in the curing room. This of course would mean artificial cooling for the greater part of the cheese producing season, in other words it would mean cold storage.

If you must keep your cheese in curing rooms which have not these qualifications, a well constructed room or building that is well insulated and kept as close to the temperature stated above as possible with air which is cooler than the air already in the room, is the next best thing.

You will notice that I am laying particular stress on the matter that the air which enters the curing room should be cooler than the air already in the room. I will explain why. The higher the temperature of the air the more moisture it will carry.

You have all noticed that on a warm day the moisture will collect on the outside of any container filled with cold water. The reason
for this is that the warm, moisture laden air when coming in contact with the cold surface of the container will become cooled and consequently cannot carry all the moisture which it contained and this moisture is deposited on the container. Practically the same thing takes place in a cellar curing room. When the warm air coming in from the outside strikes the cheese in such a room it is cooled and being unable to carry its original amount of moisture the moisture is deposited on the rind of the cheese and the result of this, as each and all of you who have had experience with cellar curing rooms, know, is mouldy cheese.

The only remedy I know of for this evil is to eliminate the intake of warm air as much as possible and stimulate the circulation of cooler air. Theoretically a good subearth duct should do this to perfection, and what it does in practice there are men here who can tell us from experience.

A curing room half basement, half frame, well insulated, with a good ventilating flue, having most of the windows on the north and west side and awnings over those windows where the sun strikes has proven satisfactory where the cheese is kept only sufficiently long to be acceptable at the paraffining stations.

My reason for having the windows on the north and west sides is to get as little direct sunlight into the curing room as possible, also you have all noticed that the wind coming from the north and west is always cooler and drier than that coming from the east and south. My method therefore is to open the windows on the north or west side during the night or early morning when the air has been cooled and lost some of its moisture in the form of dew, closing them again as soon as the outside air is as warm as that in the curing room.

If the same precautions regarding ventilation are observed in the above ground curing rooms as in the part cellar curing rooms, on rare occasions only will you have much trouble with mould unless your cheese are defective or loaded with moisture when first placed in the curing room.

In the above ground curing room the trouble is usually that the air is too warm and dry, causing the grease to start and often checking the rinds of the cheese. In such cases the awnings over the windows are even more essential and during especially hot and dry weather a quantity of ice placed in pans near the ceiling or having cold water in opens pans may be beneficial.

Where cheese must be shipped within three days of the press or as soon as the law allows, it is sometimes advisable to strip the cap cloths as soon as the cheese is removed from the press and then turn the cheese as often as is necessary to prevent the rind from checking. This, however, is encroaching on a topic which is to be discussed later. (Applause.)