Mr. Curtin: It is still true that good makers do make poor cheese at times. We have shipped out two lots of poor cheese from our factory, and only two.

Mr. Noyes: That is a good record, and I will venture to say you had no trouble selling them.

Mr. Curtin: I still am not convinced by Mr. Bamford's statement, or anybody else's, but believe that the cheese buyer and the seller should be together with the cheese.

SEPTIC TANKS OR SUBEARTH SEWAGE DISPOSAL.

MATTHEW MICHELS, GARNET, WIS.

What I have to say is merely about septic tanks, as I have had no experience with the sub-earth disposal of sewage, i. e., to have the earth take up all the sewage from a system of tile, laid under ground from the septic tank. My experience has been only with the septic tank, and has been so successful, that I have not as yet had any desire to put in the tile.

It was after our convention, January 8 to 10, 1902, that I commenced thinking very seriously of that most valuable paper read to us at that convention by Prof. Archibald Smith of Ontario, entitled "Cheese Factory Sanitation" in which he gave a very lucid explanation of all the details of construction, as well as the principles of sanitary science.

Mr. Joseph Bost, of Stockbridge, had some trouble with the disposal of sewage and he concluded trying the septic tanks. He made an excavation 10x12 feet, and 5 feet deep and enclosed the same with a stone wall, with a partition running through the center. The waste from the factory emptying into the first tank was siphoned into the second tank, and from there again siphoned into a series of tile.

This means of outlet extended over a distance of about 40 feet, and emptied into a ditch.

Being thoroughly satisfied with the results of Mr. Bost's experiment, I decided to build a tank at my factory at Garnet,
Wis., where I have a whole lot of waste water to contend with, being somewhere in the neighborhood of forty barrels per day. I proceeded as follows: After digging a well 12x14 feet, and 5½ feet deep, I built a wall around it but did not put in a partition, leaving this as one tank. A string of sewer tile with a trap near the factory carries the waste water into the well, wherefrom it is siphoned out by a three-inch gas pipe extending to within 10 inches from the bottom of the tank into a series of sewer tile about 80 feet long, and empties the water into a creek.

The tank mentioned above holds about 130 barrels of water, or more than three times as much as the waste water amounts to in one day. After I had completed this tank, I built a cover over it of two thicknesses of ship lap, and had it raised sufficiently at one end to allow the water to run off, and then I banked all around the tank with ground and gravel.

The waste water contained in the tank was covered with a scum from three to four inches thick, last summer, but the water running from it was perfectly clear and caused no trouble whatsoever when it emptied. Formerly we were considerably annoyed by the smell caused by the waste water which was noticeable not only in the immediate surroundings, but also at the barn and house which were located quite a distance from the tank, and even the neighbors were continually complaining.

I have not as yet laid the tile suggested by Professor Smith, for I was afraid that their capacity for water would not be sufficient and also, I feared that the ground would not absorb the waste water very readily. In my case, it is not necessary to put in the tile, as the creek flushes everything clear after a rain.

I am strongly in favor of a septic tank, and would not be without one, especially after my experience with one last summer, and I also believe that by adding the tile it would be a great improvement.

For the average cheese factory, a tank 4x8 and 3 feet deep would be large enough, and where the stone quarries are not located too far away, I think it would be advisable to use stone in place of wood for the walls.

A septic tank constructed on the above principles would last a life time, and taking the price into consideration, even should it be desired to use the tile, would be in the reach of all.
DISCUSSION.

Mr. Graskamp: Do you ever empty that tank?

Mr. Michaels: No, I have it only one year. The first tank I have used nearly two years. The outlet is about ten inches from the bottom, and I think it will be a long time before it will ever fill up. The heavy settlings will settle at the bottom, and the lighter material will go to the top and ferment there. It siphons about ten inches from the bottom of the tank through a three-inch gas pipe.

Mr. Brewer: How near is that tank to your factory?

Mr. Michaels: Only about a rod from the factory, but you could put it right along the side of the factory. It does not cause any trouble, it is covered up, air-tight.

A Member: Is there no chimney leading from that tank?

Mr. Michaels: I have a gas pipe, but it doesn't do much work; everything is covered.

Mr. McKinnon: But in the course of years, those tanks will have to be cleaned out, won't they?

Mr. Michaels: I don't know. Professor Smith told us they ought to be cleaned out every year, but I didn't want to clean it out every year, so I made a large one. I think one without a partition works about as well as one with. We have had a lot of comfort from ours, and no smell at all, whereas we used to be bothered a good deal when the wind blew in a certain direction.

Mr. Dewhirst: In many places these septic tanks are cleaned out once or twice a year and a little lime is added when they are cleaned out, and the smell from the substance in the tank is hardly offensive at all, even after the substance has accumulated for six or twelve months. The lime is added principally to check fermentation and to destroy any offensive odors which may come from the settlings. As a rule, they are not offensive until they are stirred up, and then the lime is added.

Mr. Michaels: I think it is all right to add the lime at the time you are cleaning, but not at any other time, because we want the bacteria to grow in there and eat up this material. By adding lime, you kill off the bacteria. The only thing you will have to clean out is the heavier settlings at the bottom. This scum over the top, I believe, that in the course of a year more,
it will be all wasted away and there will be nothing left of it, and even now it looks in some parts of the tank as though it was growing less. In the summer it was as much as five or six inches deep and hard as leather.

Mr. Bruhn: Then the longer it stays in there, the more the bacterial growth will increase?

Mr. Michaels: Yes, that is the way Professor Smith gave us to understand in his paper.

Mr. Bruhn: Would it be safe to run whey in there, cleanings from the whey tank?

Mr. Michaels: Yes, I think so. I don’t think it would be anything worse than what I have been running into mine the past summer.

A Member: Does the pipe siphon all the time, or does it work with a valve and empty it out when it gets full?

Mr. Michaels: It works only when the water is run in at the other end. You see when the tank gets up so full, it siphons it up from the bottom, and out. Mine runs into the creek.

Question: It empties out frequently, does it not?

Mr. Michaels: The tank is full all the time.

A Member: I saw an article a while ago where it said it would be better if you emptied the tank frequently; then leave it stand till it fills up again.

CHEESE FACTORY ACCOUNTING.

FRANK DEWHIRST, MADISON, WIS.

When our worthy Secretary informed me recently, in that calm, cool way of his, that my name had been placed upon your program with “Cheese Factory Accounting” as the subject, I wondered why such an infliction was placed upon both speaker and hearers.

At any rate, he might have assigned me a subject of less audience dispelling power than that of the cold figures implied by such a subject. It takes the persuasive eloquence of a Rock-