acidimeter is more accurate than either the hot iron or rennet test.

Mr. Maker: I would like to ask Mr. Carson what would be the cost of an apparatus like that?

Mr. Carson: It depends on where you buy it. If you go and buy it at one of the supply houses, the Creamery Package Company have it for sale now, they would charge about five dollars for it, but you can buy the ingredients, and the whole thing all together will not cost you more than $1.25 to $1.50.

Mr. Mason: I went to our druggist in our city and I had him put up one last summer, I think he charged me a little over $3, but we could not get the solution accurate enough so that I could make any use of it.

Mr. Luchsinger: I would like to ask Professor Carson whether this test or the Farrington test either are used at the dairy school in connection with the manufacture of any other than the cheddar or so-called American cheese.

Mr. Carson: No, but I am just putting one in use in the Swiss cheese department and I believe the time is coming when it will be used just the same in limburger and brick cheese as in American cheese making, because I believe the amount of acidity in the milk or whey has the same effect in foreign as in American cheese making.

THE MANUFACTURE OF DOMESTIC CHEESE.

Prof. John Michels, Madison, Wis.

Mr. President and Members of this Association: I feel complimented when asked by your worthy Secretary to address this intelligent and progressive body of cheesemakers upon the subject, The Manufacture of Domestic Cheese. It was with some reluctance, however, that I persuaded myself to accept his request, because a good many, no doubt, will look upon the manufacture of a rather soft, fast ripening cheese as an innovation scarcely to be tolerated in a state which has hitherto been such an exclusive manufacturer of the firmer kinds of cheese. This feeling was intensified when I recalled the time when my place was beside the cheese vat from one season's end to the other,
and when I should have considered myself a failure had a day's product turned out too soft to bear exportation across the ocean. But my experience during the past four years has convinced me that there is sufficient demand for a softer kind of cheese, to warrant its manufacture, in a limited way, even in this state.

You are already manufacturing to some extent cheese of the softer kinds, such as limburger and brick, and the kind that I wish to bring to your attention stands, perhaps, between a brick and a cheddar. It is what is known as "Michigan," or what you would call soft cheddar, a cheese with quick curing properties. Such a cheese might be designated as "domestic," as it is strictly for home consumption.

This class of cheese is more popular in Michigan, and parts of Ohio and Indiana than cheddar, and commands better prices, and this in spite of the lack of uniformity which it possesses. Elsie cheese, which represents the best type of Michigan cheese, has become nearly as well known as the famous Herkimer county cheese of New York. This cheese, when I first came to Michigan in 1900, was selling from one to two cents per pound more than the best cheddar.

Elsie cheese is characterized by its porosity, low acidity, high rennet content, and somewhat high moisture content. The method of making this cheese is essentially as follows: set the milk fairly sweet, say with about .17 to .18 per cent acid, using at the rate of 5 to 6 ounces of rennet per 1,000 pounds of milk. Cut moderately coarse, and heat to 108° F. in about 45 minutes. Allow to remain at this temperature about two hours, when the curd should show not more than 1/4 inch of acid on the hot iron. Remove the whey, stir about 15 minutes, and salt at the rate of 2 to 2½ pounds per 1,000 pounds of milk. Cheese made in this way will develop openings about the size of buckshot, and will be fully cured in six weeks when placed at a temperature of 60° to 65° F. Such cheese is not pasty in texture, but is meaty, wholesome and palatable. The fact that it ripens fast makes it short-lived, so that in the course of a few months it becomes sharp to the taste. Needless to say, cheese of this description must be made from good, clean milk.

Owing to the prevalence of gassy milks in the summer, many of the Michigan cheesemakers have found it wise to adopt the curd mill in the manufacture of fast ripening cheese. This makes it somewhat more difficult to secure the highly open texture, but permits making a cheese of rather high moisture content. The method of making is briefly as follows:
Set the milk fairly sweet, say with .17 to .18 per cent acid, so that in 2 to 2¼ hours from setting the curd will just show acid on the hot iron (1/16 inch). Add 4 to 4½ ounces of rennet and handle the curd the same as for ordinary cheddar up to the time of dipping, which is the critical stage in making a soft cheese. At this stage the curd should be only moderately firm and should not show more than 1/16 inch of acid by the hot iron test. Allow the curd to mat on the racks with more moisture than for cheddar, and mat quickly by frequent and deep piling. The quicker the curd is matted the more moisture it will retain. If the curd is gassy it should be matted until the gas holes are thoroughly flattened out. After the curd has been put through the curd cutter, it should be aired by stirring 15 to 20 minutes, and then salted at the rate of 2 to 2½ pounds of salt per 1,000 pounds of milk. The acid by the hot iron test at the time of salting should not exceed ½ inch.

Cheese made by either of the foregoing processes is mild in flavor until it is about five weeks old, after which the flavor grows more and more pronounced, and after two months it becomes rather sharp to the taste. Its texture at no stage of ripening possesses that degree of curdiness, rubberiness, even harshness, which characterizes the true cheddar in its early stages of ripening. This is largely due to its somewhat higher moisture content.

There are many people who like new, mild flavored cheese, and for such cheese, of the fast ripening order should prove more wholesome because of its greater digestibility. On the other hand, those who are familiar with the cheese consuming public, know that a great many people want cheese that possess a great deal of flavor, flavor that is even sharp and strong. To supply the demand of these two classes of people, it is believed the limited manufacture of a rather fast ripening cheese may be entered into with profit.