

a year even on the same farm, to a considerable extent, the percentage of the bacteria in the milk must be naturally subject to great variation. If this is the case, the ripening of cheese, when the method of treatment remains the same, cannot possibly be of a uniform nature. These conditions are most active in the case of the preparation of the best hard fatty cheeses, which ripen slowly. They have little effect, on fat soft cheeses, the ripening of which begins on the surface and develops towards the centre, nor have they much effect on skim-milk cheeses. It is a fact, that summer cheeses are better than winter cheeses, and cheeses made in those countries with which the manufacture of the cheese has been long associated are better finer than those made in other countries.

Good butter finds a ready market everywhere, but the different kinds of fat cheeses are not equally liked in different localities. It is, therefore, of the highest importance in the manufacture of cheese to ascertain exactly what the taste for cheese is, and only to prepare cheeses which are in demand, and which are thus sure of a market. It must also, however, be clearly understood that it is necessary to make cheese of a good quality, and not to think that is easy of accomplishment. For this purpose, in deciding the question of whether it is more advantageous to make butter or cheese of this or that kind of different fat cheeses, it is also necessary to consider along with this general question, others connected with the economic side of the question, and especially the local and natural conditions influencing the exact bacteriological condition of the milk, which produce in different districts and countries the predominant flavour. It is also necessary to consider the absence or presence among the people of a cultivated taste for cheese.

If the trade in whole-milk cheeses requires less capital involved in plant than in butter, it nevertheless requires a large circulating capital, as it is accompanied by more risk, and the money is returned more slowly. For this reason, however, it is suited for a wider utilization of milk, since the manufacture can be stopped at any time without disadvantage, and the preparation of butter and the manu-

facture of skim-milk cheese can be substituted. When cheeses are sold off the farm, a not inconsiderable portion of mineral salts, consisting chiefly of "calcium phosphate," is removed.

H. WESTON PARRY.

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### *INFLUENCE OF TEMPERATURE ON THE RIPENING OF CHEESE.*

*By Emile Castel.*

The value of cheese, such as we find it on the market, is subject to many variations; this is due to the difference of quality, and this again is due either to the use of faulty milk in the making of the cheese, to the want of skill in its manipulation, or to the defective installation of the department wherein the cheese is placed for ripening. Though all these factors are of vast importance, the first and the last are of greatest importance, and it is to them that must be chiefly attributed the loss which now occurs, under the present commercial conditions.

The conditions necessary to the good working up of the milk are generally pretty well understood, and the losses due to this source usually spring from want of care more than from ignorance. But with the process of ripening, it is not so. There, we have still many difficulties to overcome, given our ignorance of the changes produced, and until we have more information on this matter, the results obtained will most frequently depend upon purely empirical methods of working.

It is impossible for us to estimate, even approximately, the extent of the losses that the State of Wisconsin alone suffers, on account of the want of proper arrangements for the ripening of its cheese. Experts estimate these losses at hundreds of thousands of dollars a year. If these losses absorb so large a proportion of the profits that this trade ought to realise in Wisconsin, what must be the state of things in those parts of the country, that do not possess the same advantages of climate.

Still the natural conditions existing in our State are far from being ideal. In the ordi-