condition, and one that has not been given the prominence which it deserves. The process of pasteurization, very often looked upon as a heating process, is half refrigeration, because the heating without immediate and rapid cooling would, in most cases, be worse than useless. Refrigeration will not remove impurities from the milk, but it does have the effect of checking the multiplication of bacteria. It is of the utmost importance that the cooling of milk should be proceeded with as quickly as possible after it is drawn from the cow. Milk which is cooled immediately, say, to 60° F. will keep longer and be in better condition than if it is allowed to remain at a temperature of 70 to 80 degrees for several hours and then cooled to 40. I use these figures more to illustrate my meaning than to record actual experience. The refrigerating engineer who is called upon to design or erect a milk-cooling plant, should provide for quick cooling with as little exposure to the air as possible.

Some years ago an attempt was made to ship milk long distances in a frozen condition. Milk was sent from Scandinavia to Great Britain, covering a journey of two or three days, and it was predicted that it would be possible to ship it by this method across the Atlantic. The scheme has apparently not been commercially successful, because we have heard nothing about it of late years. One of the objections to the freezing of milk is the formation of flocculent particles of albumen or casein compounds which are not readily dissolved when the milk is thawed. It also has the effect of collecting the fat globules into small lumps of fat.

It may be said, therefore, that for practical purposes, a temperature of 40° F. or under is low enough for the preservation of milk, and that its preservation can only be a matter of days under ordinary commercial conditions.

Refrigeration of Butter.

Refrigeration is probably more useful to the butter-making industry than it is to the industry pertaining to any other food product. It is also highly essential in the practice of the art. The principal butter-making countries of the world are in the northern hemisphere and the periods of production are more or less intermittent, owing to the fact that the summer season is more favourable for production than the winter months are. It follows, therefore, that there is a large surplus of production over consumption at certain periods of the year, which must be held in reserve to supply the shortage at other periods. Before the days of refrigeration, the consumption of butter during the off-season was very much curtailed, owing to the fact that it was difficult to secure supplies in good condition. With efficient refrigeration available for storing the surplus product during the summer months, consumers can now obtain their requirements in practically as good condition during the winter months as at any other time of the year. This has resulted in an enormous increase in the consumption of butter all over the world, because we spread it thicker when the quality is good, and the business of dairying has grown and developed to an extent which would not have been possible without the aid thus rendered by refrigeration.

Butter is an unstable product. It is at its best when freshly made, and its fine quality will last only a few days at ordinary temperatures in the summer months. As the temperature is reduced, the changes which take place in the butter to bring about rancidity and other undesirable flavours proceed more slowly, so that the 'age' of butter is determined by the temperature at which it is kept rather than by the number of days or weeks which may have elapsed since it was made. At one time it was thought to be undesirable to keep butter below the freezing point of water under any circumstances, but gradually, in the light of experience, the storage temperature of butter has been reduced, until at the present time we have it being held as low as zero F.

Experiments and investigations have shown that butter eventually changes perceptibly under any storage temperature that has so far been tried, and that the effect of storing at different temperatures is only a matter of degree and not of absolute stoppage of all change in any case.