

Scotia, into cold storage warehouses. It would be quite practicable in many places to establish a central refrigerating plant with pipe lines running to each warehouse. Only slight alterations in the insulation would be necessary. Such warehouses could be equipped with cold storage at comparatively little cost.

The fishing industry and the trade in fish products probably offer us good a field for the extension of cold storage as any other line in Canada at present. The great distance from the sea at which a large number of the people of Canada must always reside, makes it impossible for them to procure sea fish in fresh condition without the use of cold storage and cooling facilities. The application of cold storage to the fishing industry of Nova Scotia within the last two or three years has resulted in the rapid development of the inland trade and it is undoubtedly capable of great extension with the aid that may be rendered in this manner.

### THE REFRIGERATION OF DAIRY PRODUCTS.\*

In presenting this subject to the society, I wish to remind the members that I deal with it from the point of view of the dairy expert rather than from that of the refrigerating engineer. I do not suppose that anyone will object to having the subject approached from that side, because it seems to me that the engineer must have some knowledge of dairy requirements if he is to manage the refrigeration of dairy products with complete success. If I should appear at times to wander rather too far into the field of dairying, I hope I shall be forgiven, for it was my first love and I am still much more of a dairy expert than an engineer.

Any discussion on this subject would be somewhat simplified if we had a clearer definition of the term 'refrigeration.' Strictly speaking and with regard to the derivation of the word, I suppose it means the employment of temperatures below the freezing point of water, but in practice it has received a broader meaning and to most people the term 'refrigeration' implies the employment of some mechanical or chemical system for securing low temperatures as compared with the use of ice. For the purposes of this paper, however, we shall be obliged to adopt an even broader application of the term, and include under the head of refrigeration any reduction of natural temperatures for the preservation of dairy products.

The refrigeration of dairy products may be divided under three heads, viz.—(1) the refrigeration of milk; (2) the refrigeration of butter; (3) the refrigeration of cheese.

#### The Refrigeration of Milk.

Housewives and dairymaids have, from time immemorial, employed a measure of refrigeration for milk when they placed it in various receptacles, in cool cellars, for the purpose of securing a maximum amount of cream or to keep it sweet as long as possible. It is only within recent years that actual refrigeration has been used in the preservation and handling of milk. Absolutely pure milk, that is milk free from germs of fermentation, or as it exists in the cow's udder, will keep indefinitely at any temperature if protected from infection, but if any of the members of this society were brought up on farms, as your humble servant was, they will know how impracticable it is to procure milk without more or less, generally more, impurities finding entrance into it. If the multiplication of these germs which are thus introduced, is not checked in some manner, most profound changes soon take place in the milk.

I should be the last person to decry the efforts which are being made all over Christendom to obtain cleaner and more sanitary milk, because I know the need thereof, but I would emphasize the importance of cooling in that connection, because I believe it to be probably the most potent factor in preserving milk in a sweet and wholesome

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