MECHANICAL REFRIGERATION.

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It is not my intention in this short paper, which I am about to give, to enter into any scientific formula in connection with refrigeration, but to give only such figures as practical experience in the care of refrigerating plants require. However, it is necessary to make a few introductory remarks in order to give a somewhat clearer interpretation on the subject.

REFRIGERATION.

As the process of refrigeration is merely a transfer of heat from the space or goods to be cooled, to some convenient medium, we must look at some of the properties of heat, before taking up the details of refrigerating apparatus.

HEAT.

Heat is as much an attribute of matter as weight, form, or size. Everything must contain a certain amount of heat which we will call, for convenience, its temperature. The amount of heat contained in any body is controlled by surrounding conditions. Heat, like water, always flows down hill. If two bodies of different temperatures are placed together, the heat of the warmer will pass into the colder until both bodies are of the same temperature. The first problem to be solved was to find some agent of sufficiently low temperature to start the heat on its down-hill course. In the early days of cold storage this was accomplished by natural ice, and acted sufficient for all conditions above the melting temperature of ice, but as the business of cold storage increased, and applied refrigeration expanded, the comparatively high temperature of ice refrigeration, and the moisture contained in the air by the actual melting of the ice became objectionable. In looking for some means of transferring heat to a very low temperature scientists turned their attention to "latent heat," and these two words are the whole sum and substance of mechanical refrigeration. The latent heat of ice is 142 British Thermal Units, that is to say, one pound of ice at 32°F. will require 142 B.T.U. to melt it into water at 32° F., or 142 B.T.U. must be extracted from water at 32° F. to freeze it into ice at 32°.