http://www.geology.19thcenturyscience.org/books/Bridgewater-Treatises/index.html

particular and invariable degree of heat; yet they do not take place suddenly when we increase the heat to this degree. This is a very curious arrangement. The temperature *makes a stand*, as it were, at the point where thaw, and where boiling take place. It is necessary to apply a considerable quantity of heat to produce these effects; all which heat disappears, or becomes *latent*, as it is called. We cannot raise the temperature of a thawing mass of ice till we have thawed the whole. We cannot raise the temperature of boiling water, or of steam rising from it, till we have converted all the water into steam. Any heat that we apply while these changes are going on is absorbed in producing the changes.

The consequences of this property of *latent heat* are very important. It is on this account that the changes now spoken of necessarily occupy a considerable time. Each part in succession must have a proper degree of heat applied to it. If it were otherwise, thaw and evaporation must be instantaneous: at the first touch of warmth, all the snow which lies on the roofs of our houses would descend like a waterspout into the streets: all that which rests on the ground would rush like an inundation into the water courses. The hut of the Esquimaux would vanish like a house in a pantomime: the icy floor of the river would be gone without giving any warning to the skaiter or the traveller: and when, in heating our water, we reached the boiling point, the whole fluid would "flash into steam," (to use the expression of engineers,) and dissipate itself in the atmosphere, or settle in dew on the neighbouring objects.

It is obviously necessary for the purposes of human life, that these changes should be of a more gradual and manageable kind than such as we have now described. Yet this gradual progress of freezing and thawing, of evaporation and condensation, is produced, so far as we can discover, by a particular contrivance. Like the freezing of water from the