ature. By the time the ice is melted, the thermometer in the water will stand at 172°, and consequently a temperature equal to 140° has been communicated to it; but the temperature of the water is nothing higher than that of the ice at the commencement of the experiment, and it may therefore be concluded that it requires a temperature of 140° to liquefy ice. That it is the process of liquefaction which prevents the ice from rising in temperature is evident; for if equal quantities of water at 32° and 172° be mixed, a temperature of 102° will be produced; that is, the whole will have a temperature equal to half the sum of the parts.

Nearly all liquids may be reduced to the condition of solids; but they freeze at different temperatures, and require various amounts of heat. All solids, except carbon, are capable of liquefaction, though many of them require the most intense heat.

These facts may enable us to explain some meteorological results, which would otherwise be exceedingly perplexing. It may have been noticed by some of our readers that the temperature of the air during a thaw is generally colder than when the ground is actually covered with ice, and this is evi dently produced by the abstraction of heat from the atmosphere. In order that the ice may be reduced into a liquid state, it is necessary that it be supplied with a certain amount of caloric, which it applies as a constituent principle for the production of liquefaction; this it can only obtain by robbing some other substance of its sensible heat, and it consequently abstracts from the atmosphere, as it passes over it, a portion of its heat, and lowers its temperature. This explanation accounts, on philosophical principles, for the fact that it is colder during a thaw than when ice covers the ground, and the surface of lakes and rivers.

But if a thaw lowers the temperature of the atmosphere, a frost must raise it. When water assumes a solid state, it gives out as much heat as it receives during the process of liquefaction. A large portion of this must be communicated to the atmosphere; and when there are no causes tending to decrease the amount of sensible heat, the temperature must be increased by the quantity supplied by water during solidification.

But we have hitherto only considered two conditions of matter, solids and liquids; it may, however, be presented as