But the instrument is not complete, as no measure is yet provided for any temperature between the freezing and boiling points. The division of this space must be arbitrary, and indeed it is only necessary that such a graduation should be formed as shall enable different observers to understand each other's results. Unfortunately, the same division has not been universally adopted; and although it is easy to reduce the observations made by one graduation to the degrees of another, yet the want of unanimity is attended with inconvenience.

The scale employed in England was invented by Fahrenheit, and is called after his name. In his day, it was supposed that the mixture of snow and salt produced the most intense cold that could be obtained by any artificial means, and he consequently took that temperature as the commencement of his scale, and marked the level of the mercury in his tube, when placed in this mixture, as 0. The interval between this and the freezing point he divided into 32 parts, or degrees; and, continuing the division, the boiling point is 212°.

The centigrade scale is employed in France, and in this the interval between the boiling and freezing points is divided into 100°; the freezing point being 0. Reaumur's thermometer is generally used in other countries, and it differs from the centigrade in the division of the interval between the freezing and boiling points into 80 instead of 100°.

It must not be supposed that the thermometer is a measurer of the quantity of caloric contained in a body; degree of temperature and quantity of caloric are not synonymous expressions. The thermometer will be equally affected whether it be plunged into a river or a basin of water taken from it, and yet it cannot be supposed that there is as much caloric, if we may speak of the agent as though it were matter, in a small as in a large quantity. Caloric may be in a substance, and yet not affect the thermometer; and it has not been proved that when bodies have the same increase of temperature, they receive an equal quantity of the principle. There are, in fact, two states in which the agent may be placed: in one its presence is known by the effect which it has upon bodies, whether animate or inanimate, and in the other its influence is confined to an alteration of state: the one is