particles of water descend till their temperature reaches 39° 2′. The excess in the mean temperature of the water over that of the air attains its maximum beyond the polar circle, where the sea does not wholly freeze.

CLIMATE.

Although a number of places may have the same annual mean temperature, yet they have not necessarily the same climate. There are certain primary constituents of climate which influence every part of the earth's surface, but these are often so modified as to produce effects altogether different from those which might be anticipated. Temperature is in every case the most important constituent of climate, and this results from the form and celestial relations of the earth, such as its globular figure, the obliquity of its motion in an elliptical orbit, in regard to the plane of its equator, and its diurnal motion upon its axis. All these have a primary influence upon the production of climate; but no acquaintance, however accurate, with the circumstances resulting from these, could ever enable the philosopher to calculate the character of the climate at any place. There are many accidental causes which modify their results, and these are called the secondary constituents of climate. Such are the position of the place, its distance from the sea, its proximity to mountains, its elevation above the level of the ocean, the nature of its soil, the cultivation of the lands in its vicinity, and the direction of the winds to which it is exposed. These, and many other local phenomena, may so affect the results which would be otherwise produced by solar heat, as to prevent any hope of ascertaining a climate without experiment.

The distribution of animals and vegetables is governed by climate. The lines which mark the boundaries of temperature and peculiarities of season, are also the limits of species or genera. It is on this account that different countries contain animals and vegetables different from those which are found in neighbouring districts. This is especially marked in relation to vegetables. The plants of the tropics are rich, luxuriant, and various; interminable forests are everywhere presented to the eye of the traveller, bound closely together by the wide and gigantic arms of towering shrubs. In the arctic regions, the circle of vegetation is small and feeble: but the modest floweret that raises its head above