

as to climate, the constitution of the animal and vegetable world is precisely adapted. The differences of different climates are provided for by the existence of entirely different classes of plants and animals in different countries. The constancy of climate at the same place is a necessary condition of the prosperity of each species there fixed.

We shall illustrate, by a few details, these characteristics in the constitution of inorganic and of organic nature, with the view of fixing the reader's attention upon the correspondence of the two.

1. The succession and alternation, at any given place, of heat and cold, rain and sunshine, wind and calm, and other atmospheric changes, appears at first sight to be extremely irregular, and not subject to any law. It is, however, easy to see, with a little attention, that there is a certain degree of constancy in the average weather and seasons of each place, though the particular facts of which these generalities are made up seem to be out of the reach of fixed laws. And when we apply any numerical measure to these particular occurrences, and take the average of the numbers thus observed, we generally find a remarkably close correspondence in the numbers belonging to the whole, or to analogous portions of successive years. This will be found to apply to the measures given by the thermometer, the barometer, the hygrometer, the raingage, and similar instruments. Thus it is found that very hot summers, or very cold winters, raise or depress the mean annual temperature very little above or below the general standard.

The heat may be expressed by degrees of the thermometer; the temperature of the day is estimated by this measure taken at a certain period of the day, which is found by experience to correspond with the daily average; and the mean annual temperature will then be the average of all the heights of the thermometer for every day in the year.

The mean annual temperature of London, thus