

as day and night, summer and winter, produce in water, inequalities of temperature much smaller than those which occur in a solid body. The heat communicated is less, for transparent fluids imbibe heat very slowly; and the cold impressed on the surface is soon diffused through the mass by internal circulation.

Hence it follows that the ocean, which covers so large a portion of the earth, and affects the temperature of the whole surface by its influence, produces the effect of making the alternations of heat and cold much less violent than they would be if it were absent. The different temperatures of its upper and lower parts produce a current which draws the seas, and by means of the seas, the air, towards the mean temperature. And this kind of circulation is produced, not only between the upper and lower parts, but also between distant tracts of the ocean. The great Gulf Stream which rushes out of the Gulf of Mexico, and runs across the Atlantic to the western shores of Europe, carries with it a portion of the tropical heat into northern regions: and the returning current which descends along the coast of Africa, tends to cool the parts nearer the equator. Great as the difference of temperature is in different climates, it would be still greater if there were not this equalizing and moderating power exerted constantly over the whole surface. Without this influence, it is probable that the two polar portions of the earth, which are locked in perpetual ice and snow, and almost destitute of life, would be much increased.

We find an illustration of this effect of the ocean on temperature, in the peculiarities of the climates of maritime tracts and islands. The climate of such portions of the earth, corrected in some measure by the temperature of the neighbouring sea, is more equable than that of places in the same latitudes differently situated. London is cooler in summer and warmer in winter than Paris.

2. Water expands by heat and contracts by cold,