

Australia lies in the southern hemisphere, while we are in the northern, and and that there they live in the midst of summer, while we are buried in snow. Nor will he now be surprised when he reads, that it snowed in Australia in the month of August, and that his friend or relative there reposed by the fireside, and read the letter from home by the light of the lamp, at the same hour that we were taking an afternoon walk in the summer shade.

The heat of summer, however, does not altogether depend upon the length of the day; nor does the cold of winter upon its shortness; but principally on this, that during summer-time the sun at noon stands directly over head; that therefore his vertical rays are enabled to pierce the soil with intense heat; while in winter-time the sun at noon stands nearer the horizon; his rays fall on the earth obliquely, therefore heating the soil with but feeble power.

We shall see in our next chapter, that this position of the sun exercises great influence upon the weather.

THE ATMOSPHERE.

If the atmosphere be considered as a vast machine, it is difficult to form any just conception of the profound skill and comprehensiveness of design which it displays. It diffuses and tempers the heat of different climates. For this purpose it forms a circulation, occupying the whole range from the pole to the equator; and while it is doing this, it executes many smaller circuits between the sea and the land. At the same time, it is the means of forming clouds and rain, and for this purpose a perpetual circulation of the watery part of the atmosphere goes on between its lower and upper regions. Besides this complication of circuits, it exercises a more irregular agency, in the occasional winds which blow from all quarters, ending perpetually to restore the equilibrium of heat and moisture. But this incessant and multiplied activity discharges only a part of the functions of the air. It is, moreover, the most important and universal material of the growth and sustenance of plants and animals, and is for this purpose everywhere present, and almost uniform in

its quantity. With all its local motion, it has also the office of a medium of communication between intelligent creatures, which office it performs by another set of motions, entirely different both from the circulation and the occasional movements already mentioned; these different kinds of motions not interfering materially with each other; and this last purpose, so remote from the others in its nature, it answers in a manner so perfect and so easy, that we cannot imagine that the object could have been more completely attained, if this had been the sole purpose for which the atmosphere had been created. With all these qualities, this extraordinary part of our terrestrial system is scarcely ever in the way; and, when we have occasion to do so, we put forth our hand and push it aside, without being aware of its being near us.

If we attend but to one of the minor offices of the air—the production and propagation of certain pulses, which, falling upon the ear, produce sound—abundant material may be offered for instruction and admiration. How many delightful associations do we connect with sound! How many of the beauties and sublimities of nature! How much of the business and the pleasure of social life! The murmuring of waters, the whispering of winds, the sweeping of the blast through the forest, the rush of the cataract, the roaring of the ocean, and the voice of the thunder—these are a few of the distinctive characters of different objects which the atmosphere presents to us in so perfect a manner that we can distinguish any one of them amid a multiplicity of minor sounds. And then, how beautiful is that combination which makes up many a rural concert! The woodman's axe, the lowing of cattle, the cawing of rooks, the hum of insects, the distant village bells, the evening song of the thrush, (we must transport ourselves in spirit to dear old Ireland, to hear the song of the thrush), the bleating of sheep, sounds apparently unconnected, and some of them inharmonious, yet, taken with their poetical associations, can scarcely be heard without emotion. But the articulate character of sounds is for us one of the most important arrangements which exist in the world;