

really would be, were it not for the circulation of the air; and that in hot countries we never find the degree of heat that there would be if the air were continually at rest.

According to what has been said, however, but two different winds would exist on the earth, and these two moving in fixed directions; one sweeping over the earth from the poles to the equator, with us called "North wind," and one from the equator to the icy regions, with us the "South wind."

But we must add here something which considerably modifies this, viz., the revolution of the globe. The earth, it is well known, revolves round its axis from west to east once in twenty-four hours; the atmosphere performs this revolution also.

But since that part of the atmosphere nearest to the equator must move with greater velocity than the part nearer the poles, it may with a little thinking be easily understood, that the air which goes on the surface of the earth from the poles to the equator, passes over-ground which moves faster east than the air itself; while, on the contrary, the air coming from the hot zone starts in an eastern direction with the velocity it had at the equator; but, as it is moving on, it passes over that part of the earth which rotates with less velocity.

This gives rise to what are called *trade-winds*, so very important to navigation. In our hemisphere the trade-winds come in the lower strata of the air from the north-east, they come from the south-west. On the other hemisphere the trade-winds in the lower strata of the air move in a northwesterly direction; in the upper they move in a southeasterly direction.

From this arises our rules respecting the weather.

The idea that many persons have that wind and weather are two things entirely different, is wrong. Weather is nothing else but a condition of the atmosphere. A cold winter, cold spring, cold summer, and cold autumn, do not mean, as some believe, that the earth, or that part of it on which they live, is colder than usual; for if we dig a hole in the ground, it will be found that neither cold nor warm weather has any influence upon the temperature below

the surface of the earth. At the small depth of thirty inches below the surface, no difference can be found between the heat of the day and the cold of the night. In a well sixty feet deep no difference is perceivable between the hottest summer and the coldest winter-day, for below the surface of the earth differences of temperature do not exist. What we call "Weather" is but a state of the atmosphere, and depends solely upon the wind.

It has been stated already that there are fixed rules of weather, or, which is the same thing, that there are laws governing the motion of the winds; but we have added also, that there are a great many causes which disturb these rules, and therefore make any circulations in advance a sheer impossibility.

We have seen that these rules are called forth, 1st, by the course of the sun; 2nd, by the circulation of the air from the poles to the equator and back again; and 3rd, by the revolution of the earth, causing the trade-winds.

All these various items have been calculated correctly; and, owing to this, we have now a fine basis in Meteorology. But in the next article, we shall see what obstacles are put in the way of this new science by other things; and the allowances to be made for these disturbances cannot be easily computed.

THE EARTH'S JOURNEY ROUND

THE SUN.

One, two, three, four, five! Does the reader know that while he has been counting these five beats, five seconds, he has actually been conveyed through space a distance of more than a hundred miles? Yet so it is. However incredible it may seem, no fact is more certain than the earth is constantly on the wing, flying around the sun with a velocity so prodigious, that for every breath we draw we advance on our way forty or fifty miles. If, when passing across the waters in a steamboat, we can wake, after a night's repose, and find ourselves conducted on our voyage a hundred miles, we exult in the triumphs of art, which has moved so ponderous a body as a steamship over such a space in so short a time, and so quietly, too, as not to disturb our slumbers; but,