

WIND.

The equilibrium of the atmosphere may be destroyed, and streams or currents of air be produced, by a variety of causes, but change of temperature is by far the most important. Air, as well as other bodies, expands by heat, for its particles are thrown to a greater distance from each other. Heated air, therefore, must be bulk for bulk lighter than cold air, and will consequently rise and give place to that which is cold and heavier. If the air resting upon any spot be more heated than that which surrounds it, there will be a constant flowing in of cold streams from every direction, and those persons who are situated to the north of the spot will experience a north wind, while those to the south a south wind; but those who are on the spot where all these several currents meet will suffer violent and tempestuous weather. When this process is extensive and violent, hurricanes and whirlwinds are produced.

We may often learn principles that may be applied to the investigation of nature, from comparatively insignificant results. Artificial winds are constantly circulating through our houses. Smoke rises because it is mingled with hot air, and the deficiency of air which is thus produced in an apartment, is supplied by the cold air which rushes through the crevices of the doors and windows. But our fires communicate at the same time an increased temperature to a portion of the air in the room, which consequently rises; and it will always be found, in every building, that the hottest air is at the top. On this account there are always two currents in a room, one outward, and another inward, as may be easily proved; for, if a lighted candle be placed near the top of the door, the flame will be blown outward by the heated current which is making its escape; and if at the bottom, it will be blown inward by the cold current which is rushing in. The same process is going on in nature on a larger scale, and the principle which explains the one is applicable to the other. Take the land and sea breezes, which occur in all the Islands of the torrid zone, as a proof of this statement. During the hottest part of the day the winds set in from every direction toward the centre of the Island, for the sun's rays produce more heat by their reflection from land than from water. When the sun ceases to throw its rays upon the region, the land cools, and that portion of air which had been heated by them will begin to descend, and currents will be produced off the land, occasioned by the spreading or equalisation of the atmosphere.

But the principle to which we have referred is not sufficient in itself to account for all the phenomena we witness as the results of air in motion. The air resting upon the equatorial regions being more heated than that which surrounds the polar, there must be a constant current of cold air rushing from the poles to the equator, and a counter current of hot air from the equator to the poles. We might therefore anticipate, that all countries in the northern hemisphere would experience a constant north wind, and in all the southern hemisphere, a constant south wind, except so far as local obstructions might interfere. No such results, however, are produced; but within thirty degrees of the equator in each hemisphere, constant winds are blowing, called the trade winds; that in the northern hemisphere from the northeast, that in the southern from the southeast.

It is true that there is a never-ceasing under-current of air from the polar regions to the equator. But, in consequence of the revolution of the earth from west to east, the atmosphere is influenced by a force acting at right angles to that which results from the heating of the air at the equator. As an atmosphere must necessarily participate in the motion of the body it surrounds, and as the velocity of the earth's circumference must increase from the poles to the equator, so the velocity of the atmosphere from west to east must increase in proportion to its advance towards the equatorial regions. Let us then imagine a current of cold air rushing from the poles to the equator to occupy the place vacated by the heated air, and throughout its progress to be influenced by a constantly increasing rotary motion from west to east, and it will be evident that, as two forces are acting upon it, it cannot implicitly obey either, but must take an intermediate path, and in fact describe a curve line, the convexity of that line being turned towards the east. The cause of the tradewinds will now be easily deduced. In the northern hemisphere there is a current of air from the north to the equator; but, being impressed by a force tending to drive it eastward, that is to say, being under the influence of the earth's rotation, it takes an intermediate course, and a northeast wind is produced. In the southern hemisphere there is a current from the south to the equator, but this being also under the influence of a force tending to drive it eastward, a southeast wind is produced.

Some writers have referred to the influence of the solar and lunar attraction upon the atmosphere as a general cause of winds. There can be no doubt that the two luminaries, by their attractive force, have an influence upon the atmosphere somewhat similar to that which disturbs the ocean, but their effect upon it is of little or no importance in our present inquiry, and it is quite certain that the tradewinds, so far from being produced by, exist in spite of their attraction.

The tradewinds in some parts are subject to a change of direction every six months, and they are then called monsoons. This variation in the tradewinds is produced by the annual revolution of the earth round the sun, which causes the north pole to be directed towards that luminary one half of the year, and the south pole the other half; one being the summer of the northern hemisphere, the other the summer of the southern. When the northern hemisphere is especially exposed to the sun's rays, Arabia, Persia, India, and China, being greatly heated, raise the temperature of the atmosphere that covers them, and the colder air from the regions south of the equator rushes towards the parts. It will therefore follow that for one six months the tradewind is in this instance produced by a current of air rushing from the equatorial regions; but, when the summer of the southern hemisphere approaches, then the direction of the current changes, and the colder air rushes towards the ocean and countries near the southern tropic, which are then the most heated.

It is not always easy to determine with precision the causes which disturb the equilibrium of the aerial ocean. There are so many active agents exerting their influence, and in such an infinity of ways, that it is equally difficult to separate or to combine their effects. But although some objections may be made to the explanations we have given, yet there can be no doubt that the causes which have been supposed to operate in disturbing the equilibrium of the atmosphere are the most important, however their results may be obstructed by not less active though minor local agencies.

From the parallel of 30 deg. to the pole, in both hemispheres, the winds are irregular both in direction and violence. But in all countries there is a tendency to periodical winds more or less marked. Even in the Island of Great Britain, which, from its situation, having a continent on one side and an ocean on the other, must necessarily have a variable climate, there is a certain prevalence of periodical winds; easterly winds usually prevail during the spring, and during the remainder of the year westerly winds are most common.

The irregular winds are most feared by voyagers and travellers, and the most violent of these are the whirlwind, the harmatan, and the sirocco.

The whirlwind appears to be produced by the contact of two or more currents blowing from different parts, and is usually produced by a temporary and local, though violent agitation of the atmosphere. The harmatan is not uncommon in the western coast of Africa, and is probably produced by an interruption of the direction of the tradewinds in the course of their progress over the sandy deserts of Africa. It is generally attended with an oppressive heat and heavy fog, and is said to be the forerunner of a hurricane. The sirocco is occasioned by the passage of a current of air over the heated sands of Africa, which render it so dry and rarified as to unfit it for respiration; it is therefore chiefly characterized by its unhealthy qualities; but in passing over the Mediterranean Sea it absorbs so large a quantity of moisture, that a suffocating and oppressive fog is produced.

We often hear of the destructive effects of a violent wind, but we are happily, experimentally, unacquainted with them. The noblest works of man are not unfrequently destroyed by its energetic efforts, and countries are sometimes devastated by its fearful blast; but in no country are its effects more to be dreaded than in some parts of Africa. During the storms that often rage in the deserts, the loose and unstable sand is frequently carried into the air, in such dense clouds as to intercept the rays of the there omnipotent sun, while at other times it is raised by the whirlwind into massive and gigantic pillars. The traveller who has to cross the extensive deserts of Africa, may consider himself fortunate if he passes them without beholding either of these terrific phenomena. It must be a magnificent but fearful sight to see a number of prodigious pillars of sand, stalking with greater or less velocity over the unmeasured waste, their tops reaching to the clouds, and sometimes based on the attenuated air. Should they, however, happen to cross the path of the traveller, there is little chance of escape. But if this phenomenon be sometimes destructive to a kafilah, how much more so the sand-wind, or hurricane. Denham had the misfortune to encounter a sand-storm in crossing the desert, and has briefly but graphically described its effects. The unlimited expanse seemed to be filled with particles of sand, and the eye of the traveller could only penetrate the space of a few yards around him; the sun and the clouds were obscured, and a suffocating and oppressive weight rested upon all; the horses refused to face the sandy clouds which threatened to overwhelm them, and both man and beast suffered under an oppressive thirst which could not be alleviated.

It is not necessary to compare the amount of evil produced by the atmosphere under such conditions, with its beneficial influence upon the human species. Every phenomenon may be considered in two ways; there are a light and a shady side, and we may be perfectly satisfied that no agent is active for the mere purpose of destruction. The traveller may be sometimes overwhelmed by the vast masses of sand that the disturbed atmosphere bears on its wings as it hurries over the desert, and the pleasant country

may be sometimes over-turned in its fury, but the same agent still ministers to our wants and pleasures; it carries over the swelling bosom of oceans the riches and intellect of foreign climes, aids man in his heaviest toils, and bears life and health upon its balmy wings.

SOUND AND SENSE.—That in the formation of language, men have been much influenced by a regard to the nature of the things and actions meant to be represented, is a fact of which every known speech gives proof. In our own language, for instance, who does not perceive in the sound of the words *thunder*, *boundless*, *terrible*, a something appropriate to the sublime ideas intended to be conveyed? In the word *crash*, we hear the very action implied. *Swoop*—"at once fell swoop"—seems as if it actually echoed the murderous action by which the whole family of the poorthane was fancied to be destroyed. *Imp—elf*—how descriptive of the miniature beings to which we apply them! *Fairy*—how light and tripping, just like the fairy herself!—the word, no more than the thing, seems fit to bond the grass blade, or shake the tear from the blue-eyed flower. *Pea* is another of those words expressive of light diminutive objects: any man born without sight and touch, if such ever are, could tell what kind of a thing a pea was, from the sound of the word alone. Of those picturesque words, sylvan and crystal are among our greatest favorites. *sylvan*!—what visions of beautiful old sunlit forests, with huntsmen and bugle horns, arise at the sound! *Crystal*!—does it not glitter like the very thing it stands for? Yet crystal is not so beautiful as its own adjective, *Crystalline*!—why the whole mind is lightened up with its shine. And this superiority of crystalline over crystal is exactly as it should be, for crystal can only be one comparatively small object, while crystalline may refer to a mass—to a world of crystals.

It will be found that natural objects have a larger proportion of expressive names amongst them than any other thing. The *eagle*—what appropriate daring and sublimity; the *dove*—what softness; the *linnet*—what fluttering gentleness! The beauty of flowers can be heard. "That which men call a rose" would not by any other name smell as sweet. Suppose it was called trumpety—it would be put down below the poppies immediately, and never cultivated more. *Lily*—what tall, cool, pale, lady-like beauty have we here! *Violet*, *jessamine*, *hyacinth*, *anemone*, *geranium*!—beauties all of them to the ear as well as to the eye. The name of the precious stones have also a beauty and magnificence above most common things. *Diamond*—*sapphire*—*amethyst*—*beryl*—*ruby*—*agate*—*pearl*—*jasper*—*topaz*—*garnet*—*emerald*—what a carcanet of sparkling sounds! A necklace of the words, writ in fair capitals, would tell (almost) as well as the actual jewelry.—*Chambers' Jour.*

THE PEARL.

HALIFAX SATURDAY, OCT. 14, 1837.

DULL WEATHER.—Here we are in a mood most grave and melancholy, attempting to compose for the benefit of our readers, but what can a poor editor write in dull weather. With no sunshine without, it cannot be expected that there should be any within—and in the absence of the sun, the mind must continue as thick and hazy as the clouds which now hang so gloomily over the earth. Many and great have been the ideas we have cogitated on this sombrous morning, but they have vanished, as soon as conceived, reminding us by their fleetness of the many miserable creatures who have within the last three hours, hastily passed our door, crunched with sleet and rain. Pity on your men of profundity who before they will go down into the unfathomable well of their originality, must close shutters and wrap themselves in midnight darkness, as if afraid of the light of heaven—pity on your metaphysical geniuses who, when engaged in their abstruse and unintelligible studies, abjure the sight of the human face divine and the innocent prattling of little ones—pity on your vast mathematicians who cannot abide the prospect of nature either in its sweet or terrific forms, when absorbed in the solution of their intricate problems. With such unearthly beings we hold no communion of sentiment. The sunshine we love—the presence of wife and children we love—and the glorious landscape we love, and never more than when with pen in hand, we wish to render durable our views and opinions. With the regent of day looking us in the face, the air around the cranium is so rarefied that all the mists of ignorance are dispelled from the brain—with the loved ones of earth before us, the mind becomes attuned to themes