

ments. The composition of the atmospheric envelope has been already discussed (p. 63), and further information will be found under the head of Rain. The movements of the atmosphere are due to variations in the distribution of pressure or density, the law being that air always moves spirally from where the pressure is high to where it is low. Atmospheric pressure is understood to be determined by two causes, temperature and aqueous vapor. Since warm air, being less dense than cold air, ascends, while the latter flows in to take its place, the unequal heating of the earth's surface, by causing upward currents from the warmed portions, produces horizontal currents from the surrounding cooler regions inward to the central ascending mass of heated air. The familiar land and sea breezes offer a good example of this action. Again, the density of the air lessens with increase of water-vapor. Hence moist air tends to rise as warmed air does, with a corresponding inflow of the drier and consequently heavier air from the surrounding tracts. Moist air, ascending and diminishing atmospheric pressure, as indicated by the fall of the barometer, rises into higher regions of the atmosphere, where it expands, cools, condenses into visible cloud and into showers that descend again to the earth.

Unequal and rapid heating of the air, or accumulation of aqueous vapor in the air, and possibly some other influences not yet properly understood, give rise to extreme disturbances of pressure, and consequently to storms and hurricanes. For instance, the barometer sometimes indicates in tropical storms a fall of an inch and a half in an hour, showing that somewhere about a twentieth part of the whole mass of atmosphere has, in that short space of time, been displaced over a certain area of the earth's surface. No such