

the equatorial region of the earth habitually hotter by about 80° Fahr. on an average of all seasons and hours, than the Polar.

(18.) Hot air under equal barometric pressure is lighter than cold. The equatorial portion of the atmosphere, then, in comparison with the polar, is dilated upwards; the only direction in which the lateral pressure it experiences will permit it to dilate. Hence, the external form of the atmosphere, and of each of its upper strata, instead of conforming in exact parallelism to the spherical* form of the globe on which it reposes, as the laws of equilibrium would require; are unduly elevated, and bulged out, equatorially, into elliptic forms, a state of things inconsistent with repose. The prominent portion rests, in fact, either way, on a slope, and being unsupported laterally, *flows down* on either side—that is, from the equator towards the poles. In so doing, however, it deserts its place, and ceases to contribute by its weight to the total pressure on the equatorial region; while at the same time it goes to add to the weight incumbent on the polar. Thus the hydrostatic equilibrium of pressure is subverted, and air is pressed inwards towards the equator from the poles below, to make good the efflux aloft. A circulation is established in each hemisphere by inferior currents of air running in on both sides towards the equator and superior ones setting outwards, all around the globe, from the equator towards the poles. Both these, were the earth at rest, would

* We neglect the spheroidal form of the earth, which in meteorology is never worth considering.