

if they were of long duration, be reflected with more certainty in the mean temperature of the sea than in that of the solid land.

The zones, at which occur the maxima of the oceanic temperature and of the density (the saline contents) of its waters, do not correspond with the equator. The two maxima are separated from one another, and the waters of the highest temperature appear to form two nearly parallel lines north and south of the geographical equator. Lenz, in his voyage of circumnavigation, found in the Pacific the maxima of density in 22° north and 17° south latitude, while its minimum was situated a few degrees to the south of the equator. In the region of calms the solar heat can exercise but little influence on evaporation, because the stratum of air impregnated with saline aqueous vapor, which rests on the surface of the sea, remains still and unchanged.

The surface of all connected seas must be considered as having a general perfectly equal level with respect to their mean elevation. Local causes (probably prevailing winds and currents) may, however, produce permanent, although trifling changes in the level of some deeply-indented bays, as, for instance, the Red Sea. The highest level of the water at the Isthmus of Suez is at different hours of the day from 24 to 30 feet above that of the Mediterranean. The form of the Straits of Bab-el-Mandeb, through which the waters appear to find an easier ingress than egress, seems to contribute to this remarkable phenomenon, which was known to the ancients.* The admirable geodetic operations of Corabœuf and Delcrois show that no perceptible difference of level exists between the upper surfaces of the Atlantic and the Mediterranean, along the chain of the Pyrenees, or between the coasts of northern Holland and Marseilles.†

our planet, changes its physical constitution and splendor, like the greater number of the stars, or whether, on the contrary, that luminary has attained to a permanent condition."—Arago, in the *Comptes Rendus des Séances de l'Acad. des Sciences*, t. xi., Part ii., p. 309.

* Humboldt, *Asie Centrale*, t. ii., p. 321, 327.

† See the numerical results in p. 328-333 of the volume just named. From the geodesical levelings which, at my request, my friend General Bolivar caused to be taken by Lloyd and Falmarc, in the years 1828 and 1829, it was ascertained that the level of the Pacific is at the utmost $3\frac{1}{2}$ feet higher than that of the Caribbean Sea; and even that at different hours of the day each of the seas is in turn the higher, according to their respective hours of flood and ebb. If we reflect that in a distance of 64 miles, comprising 933 stations of observation, an error of three feet would be very apt to occur, we may say that in these new