

the level of the polar water being reduced, and its density increased by the surface-*cold* to which it is subjected, whilst a downward motion is also imparted to each stratum successively exposed to it; and the level of equatorial water being raised and its density diminished by the surface-*heat* to which it is exposed. (The first of these agencies is by far the more effective, since it extends to the whole depth of the water, whilst the second only affects, in any considerable degree, the superficial stratum.) Thus a movement will be imparted to the upper stratum of oceanic water from the equator towards the poles, whilst a movement will be imparted to the deeper stratum from the poles towards the equator."

It seems to me that the doctrine here propounded by my distinguished colleague, if I understand it aright, is open to the objection to which I have already referred in connection with the speculations of Captain Maury.

If the currents flow in the direction and with the permanence accepted by Dr. Carpenter in the Strait of Gibraltar and in the Baltic Sound, if their flow and its direction be due to the causes to which Dr. Carpenter attributes them, and if there be any analogy whatever between the conditions of equilibrium of these inland seas and that of the outer ocean,—none of which propositions appear to me at all satisfactorily proved,—I should think that the vast equatorial region, the path of the trade-winds and the belt of vertical solar radiation, must, so far as evaporation is concerned, resemble, or rather greatly exaggerate, the conditions of the Mediterranean. The consequent accumulation of salt,—through the whole