

east; and it would seem that the cause of this phenomenon should be sought in the constancy of the westerly winds which prevail in the high latitudes. Besides, the particles of water do not move with the same rapidity as the particles of air; and the currents of the ocean, which we consider as most rapid, have only a swiftness of eight or nine feet a second; it is consequently very probable, that the water, in passing through different parallels, gradually acquires a velocity correspondent to those parallels, and that the rotation of the earth does not change the direction of the currents.

The variable pressure on the surface of the sea, caused by the changes in the weight of the air, is another cause of motion which deserves particular attention. It is well known, that the barometric variations do not in general take place at the same moment in two distant points, which are on the same level. If in one of these points the barometer stands a few lines lower than in the other, the water will rise where it finds the least pressure of air, and this local intumescence will continue, till, from the effect of the wind, the equilibrium of the air is restored. M. Vaucher thinks that the tides in the lake of Geneva, known by the name of the *seiches*, arise from the same cause. We know not whether it be the same, when the movement of progression, which must not be confounded with the oscillation of the waves, is the effect of an external impulse. M. de Fleurieu, in his narrative of the voyage of the *Isis*, cites several facts, which render it probable that the sea is not so still at the bottom as naturalists generally suppose. Without entering here into a discussion of this question, we shall only observe that, if the external impulse is constant in its action, like that of the trade-winds, the friction of the particles of water on each other must necessarily propagate the motion of the surface of the ocean even to the lower strata; and in fact this propagation in the Gulf-stream has long been admitted by navigators, who think they discover the effects in the great depth of the sea wherever it is traversed by the current of Florida, even amidst the sand-banks which surround the northern coasts of the United States. This immense river of hot waters, after a course of fifty days, from the 24th to the 45th degree of latitude, or 450 leagues, does not lose,