


CHAPTER III.

THE CURRENTS OF THE OCEAN.

HE oceanic currents depend on the combination of a great number of more or less active causes. Among these may be named,—the duration and force of the winds; the successive propagation of the tide around the globe; the density of the waters varying according to temperature; the depth, and degree of saltness; and, lastly, the variations of barometric pressure.

The currents which plough the sea present a striking contrast to the immobility of the contiguous waters; they are rivers of a fixed breadth, whose banks are formed by waters in a state of repose, and whose channel and course are often plainly visible, owing to the long tracks of weeds and other aquatic plants which they carry onward in their imposing march.

Clearly to understand the origin of these “ocean-rivers,” it is indispensable, in the first place, to take into consideration the laws which regulate the atmospheric currents, and, in particular, those of the Trade Winds.

The difference of temperature between the equinoctial and the polar regions engenders two adverse or opposing currents—one, superficial, flowing from the Equator to the Poles; the other, beneath the former, flowing from the Poles to the Equator. On arriving at the Equator, the cold air of the Pole grows warm, and ascends into the upper strata of the atmosphere, whence it returns towards its original starting-point; there it again becomes cold, and, with the lower current, passes back towards the tropical regions. This process is incessantly taking place.

But the rotatory motion of the earth modifies the direction of these atmospheric currents. The swiftness with which the air is