

a contrary direction in the motion of the waters. Within the tropics, especially from the coast of Senegal to the Caribbean Sea, the general current, that which was earliest known to mariners, flows constantly from east to west. This is called the equinoctial current. Its mean rapidity, corresponding to different latitudes, is nearly the same in the Atlantic and in the Pacific, and may be estimated at nine or ten miles in twenty-four hours, consequently from 0·59 to 0·65 of a foot every second! In those latitudes the waters run towards the west with a velocity equal to a fourth of the rapidity of the greater part of the larger rivers of Europe. The movement of the ocean in a direction contrary to that of the rotation of the globe, is probably connected with this last phenomenon only as far as the rotation converts into trade winds* the polar winds, which, in the low regions of the atmosphere bring back the cold air of the high latitudes toward the equator. To the general impulsion which these trade-winds give the surface of the sea, we must attribute the equinoctial current, the force and rapidity of which are not sensibly modified by the local variations of the atmosphere.

In the channel which the Atlantic has dug between Guiana and Guinea, on the meridian of 20 or 23 degrees, and from the 8th or 9th to the 2nd or 3rd degrees of northern latitude, where the trade-winds are often interrupted by winds blowing from the south and south-south-west, the equinoctial current is more inconstant in its direction. Towards the coasts of Africa, vessels are drawn in the direction of south-east; whilst towards the Bay of All Saints and Cape St. Augustin, the coasts of which are dreaded by navigators sailing towards the mouth of the Plata, the general motion of the waters is masked by a particular current (the effects of which extend from Cape St. Roche to the Isle of Trinidad) running north-west with a mean velocity of a foot and a half every second.

The equinoctial current is felt, though feebly, even beyond the tropic of Cancer, in the 26th and 28th degrees of latitude. In the vast basin of the Atlantic, at six or seven hundred leagues from the coasts of Africa, vessels from Europe bound to the West Indies, find their sailing accele-

* The limits of the trade winds were, for the first time, determined by Dampier in 1666.