

amidst the rigours of winter in the temperate zone, more than 3 or 4 degrees of the temperature it had under the tropics. The greatness of the mass, and the small conductivity of water for heat, prevent a more speedy refrigeration. If, therefore, the Gulf-stream has dug a channel at the bottom of the Atlantic ocean, and if its waters are in motion to considerable depths, they must also in their inferior strata keep up a lower temperature than that observed in the same parallel, in a part of the sea which has neither currents nor deep shoals. These questions can be cleared up only by direct experiments, made by thermometrical soundings.

Sir Erasmus Gower remarks, that, in the passage from England to the Canary islands, the current, which carries vessels towards the south-east, begins at the 39th degree of latitude. During our voyage from Corunna to the coast of South America, the effect of this motion of the waters was perceived farther north. From the 37th to the 30th degree, the deviation was very unequal; the daily average effect was 12 miles, that is, our sloop drove towards the east 75 miles in six days. In crossing the parallel of the straits of Gibraltar, at a distance of 140 leagues, we had occasion to observe, that in those latitudes the maximum of the rapidity does not correspond with the mouth of the straits, but with a more northerly point, which lies on the prolongation of a line passing through the strait and Cape St. Vincent. This line is parallel to the direction which the waters follow from the Azores to Cape Cantin. We should moreover observe (and this fact is not uninteresting to those who examine the nature of fluids), that in this part of the retrograde current, on a breadth of 120 or 140 leagues, the whole mass of water has not the same rapidity, nor does it follow precisely the same direction. When the sea is perfectly calm, there appears at the surface narrow stripes, like small rivulets, in which the waters run with a murmur very sensible to the ear of an experienced pilot. On the 13th of June, in $34^{\circ} 36'$ north latitude, we found ourselves in the midst of a great number of these beds of currents. We took their direction with the compass; and some ran north-east, others east-north-east, though the general movement of the ocean, indicated by comparing the reckoning with the chronometrical longitude, continued to be south-east. It