

65 and 67. Now, when we consider the position of the water-layers and the effect of the earth's rotation, as treated above (p. 276), we come to the following conclusion: the current in the upper water-layers sets towards the north-east between Stations 65 and 66, another current runs towards the south-west between Stations 66 and 67, then a current runs to the north-east again towards Station 70.

As we were working at Station 67 on the afternoon of the 27th June, a gale arose, increasing in the course of the night to a hurricane from the south-west, veering later on to the west. There was a rough sea with choppy waves, as is usual with the wind blowing against the current. We kept the ship's head to the wind all night, and it was as much as we could do under heavy steam pressure to stem the storm without drifting off. Next morning the wind fell somewhat; it was fresh from the west when we occupied Station 68. When the captain got an observation, it proved that we had been carried southwards about fifty nautical miles from Station 67 to Station 68. This agrees excellently with our conclusions from the distribution of temperature and salinity, and it is established beyond doubt that in this place there was a strong current running towards the south-west. The west wind caused the ship to drift more to the south than the course of the current. Peake and Murray¹ and Schott tell us that a current running south-west has been met with before in the same region; thus, the cable-steamer "Podbielski," in May 1902, drifted 53

¹ "The climate of the British Isles being influenced to such a large extent by the warm water of the Gulf Stream, the movements of this great body of water, the course of its main current, and the manner in which this spreads itself over a very large portion of the North Atlantic, should be a subject of special interest to the inhabitants of these islands. Among those who have not carefully studied the observations that have been made on this subject, a general impression obtains that after leaving the American coast the Gulf Stream consists of a body of warm water moving steadily across the North Atlantic in the direction of the Irish coast. An increasing number of observations tend more and more to show that this is not the case; the movement of this great mass of water is more probably somewhat in the form of bands of current which curve and recurve on one another, forming swirls of large area whose strength and direction change almost daily. A glance at the current charts shows how the Gulf Stream in its passage across the Atlantic spreads itself out at the surface like a fan, and forms what is known as the Gulf Stream drift.

"It will also be noticed that on the line of observation given herewith, an easterly current was met with considerably farther to the westward than would have been expected from the Admiralty current charts; this, however, merely exemplifies the variations which occur in the course of even the main body of the stream at the surface, the course as shown on the Admiralty current charts being its average direction.

"In the appended list of observations the total 'sets' are given, and these are again corrected for the pressure of the wind and the force of the sea, leaving a 'set' due to current only. The correction for wind and sea is necessarily only an approximation, but the result approaches more nearly to the current effect than would have been the case had no correction been attempted. The direction of the current as observed between the Azores and North America is shown on the accompanying map by arrows" (Peake and Murray, "On the Results of a Deep-Sea Sounding Expedition in the North Atlantic during the Summer of 1899," extra publication of the Roy. Geog. Soc. London, 1901, pp. 13-14).