boundary of the ocean; on the 29th, 120 miles to the eastward, the bottom of the basin had been reached in 2800 fathoms. On the 28th the "dip" in the temperature took place at 1700 to 1900 fathoms, while on the 29th it was found at 2100 to 2300 fathoms.

The temperature of the water from 2400 fathoms to the bottom was uniform, the mean result of six observations being 32°·43. This water underruns the body of the Atlantic water, which at 1500 to 2000 fathoms has here a temperature of 37°, producing a temperature gradient of about 1°·3 per hundred fathoms at the steepest. For the preservation of this gradient a considerable supply of cold water is requisite, and it must be drawn from higher latitudes. But any motion of the water towards the Equator will be accompanied by a strong deflection to the westward (proportional to the change of the cosine of the latitude). A measure of this deflecting force is furnished by the rise of this cold water at the more inshore Station on the 28th, where the maximum gradient is at about 1750 fathoms, while on the 29th, at a distance of 120 miles, it is at about 2100 fathoms. Hence the average incline produced on the surface of the cold water by this tangential force is 350 fathoms in 120 miles, or approximately a gradient of 1 in 350. Between latitudes 36° and 35° the tangential force increases in the proportion of 81 : 82. In the northern hemisphere there is no polar current at the bottom which can be compared with this one. The North Atlantic water which penetrates into Arctic regions is cooled, and fills up the whole of the deep basin of the Norwegian Sea with cold but dense water, but its passage southward is barred by the ridge stretching from Greenland by Iceland, Færöe, and the Shetlands to Norway, the greatest depth of water on which does not exceed 300 fathoms. The northward drift at the surface is largely influenced by tidal currents which stir up the water to the very bottom, keeping the summit of the ridge clear of mud.[1] Were it not for this ridge there would doubtless be a similar current occupying the deep water along the edge of the continental plateaus of Europe and Africa.

A very remarkable current exists in the North Atlantic close to the shores of Morocco, and extends from Cape Bojador to Cape Spartel and even through the Strait of Gibraltar along the African coast into the Mediterranean. This current, which flows in a northerly direction, is confined to the immediate neighbourhood of the coast, not extending more than 20 miles out to sea. Its waters are characterised by their low density and temperature as compared with the water immediately outside, and by their deep olive-green colour. In October 1883 the S.S. "Dacia" found the temperature of the water out at sea to be very constantly 69° F.; when the African coast in the neighbourhood of the town of Mogador was approached the temperature and the density began to fall perceptibly and close in within a couple of miles of the shore, and in less than 50 fathoms, the temperature fell to 61° in water of a pure olive-green colour, and the density (at 60° F.), which had been 1·0268 outside, fell to 1·0264. When it is remembered that the trade

[1] See Encycl. Brit. Article, Norwegian Sea, vol. xvii. p. 592, 9th ed., 1884.