

in depths between 50 and 100 metres the temperature is below zero, and where there are banks at these depths they are covered with ice-cold water; hence the great difference between such banks and those which lie within the region of the warm currents. Fig. 95, p. 110, represents a section across the Newfoundland Banks from the Gulf Stream (Station 69) northwards to a point just outside St. John's (Station 74). On the northern part of the bank it is very cold, for there we are in the middle of the Labrador Current; on the southern slope it is much warmer, because of the vicinity of the Gulf Stream. There are accordingly great differences in temperature and salinity in different parts of the Newfoundland Banks, especially in the deeper parts.

From Fig. 170 we see that the salinity was below 33 per thousand at the surface, that it increased rapidly downwards (to 34.6 per thousand at 200 metres), and afterwards more slowly, but it nowhere attained the salinity of the "Atlantic water," viz. more than 35.0 per thousand. This is characteristic of the Arctic and Antarctic regions, especially in summer. The water brought by the currents from the North Polar basin is a kind of coast-water. The great rivers of Siberia and of the north of America empty volumes of fresh water into the Polar Sea, where it mixes with the salt water, diminishing the surface salinity, which is further reduced by the melting of the drifting ice in summer. The low salinity at the surface renders the density comparatively small, but it increases rapidly downwards, so that the water at 100 metres is heavier than at any of the three stations within the warm water region just mentioned. We have not in any of these examples taken into consideration the fact that the density is slightly increased with increase of depth by the pressure due to the weight of the overlying water.

The pressure in the sea increases by about 1 atmosphere for every 10 metres of depth. Thus there is a pressure of about 100 atmospheres 1000 metres below the surface, and of 500 atmospheres at a depth of about 5000 metres. When differences in pressure occur in adjacent areas at the same level below the surface, various currents arise, just as air-currents are produced by differences of barometric pressure. The circumstance that the water is not equally heavy everywhere is one of the main causes of the ocean currents, and, the water being easily moved, small differences of pressure will be sufficient to produce a sensible motion. By the great pressure the water

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in the sea.