

an increase of density, but the differences are not so great as to forbid the inclusion of the three stations in one region with regard to the upper water-layers; it is a region with a southern character.

The conditions are widely different when we come to a northerly region, like that where the East Greenland Polar Current and the Labrador Current bring down great water-masses from the Arctic seas. On our passage to and from St. John's we sailed across the Labrador Current and took a number of observations at different places in it. Fig. 170 shows the conditions at Station 76, due east of St. John's, towards the eastern margin of the cold current. Here the temperature at the surface was about  $6^{\circ}$  C., falling rapidly to  $-0.35^{\circ}$  C. at 55 metres (30 fathoms), rising again, at first rapidly, to  $3^{\circ}$  C. at a

Off New-  
foundland.

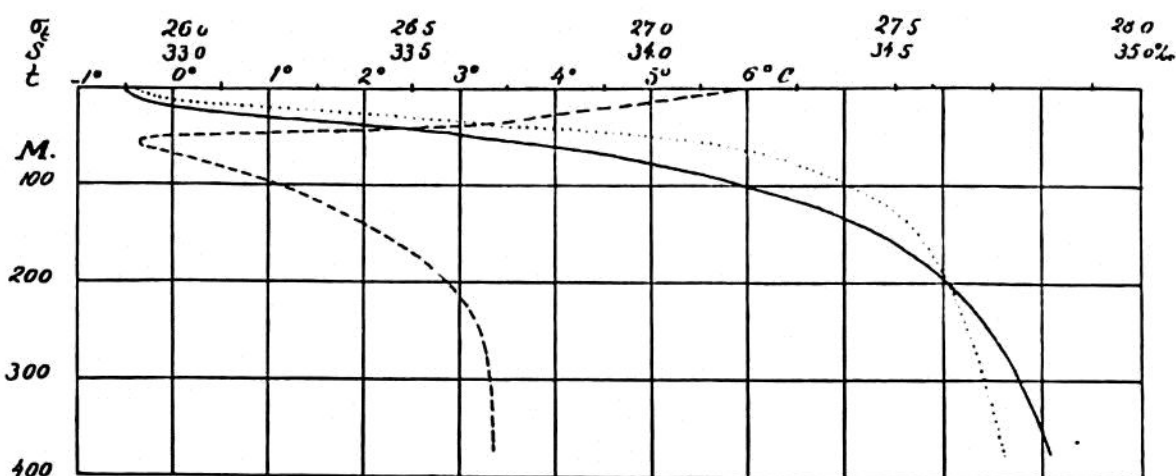


FIG. 170.—TEMPERATURE, SALINITY, AND DENSITY AT STATION 76, IN THE EASTERN PART OF THE LABRADOR CURRENT, OFF NEWFOUNDLAND (9th July 1910). Depth in metres.

little more than 200 metres, and then slowly to  $3.4^{\circ}$  C. towards the bottom in about 400 metres. If the depth had been greater, we should have found that the temperature fell again as we penetrated into the deep water. This is an example of the usual conditions in Arctic and Antarctic regions, where in summer the temperature decreases gradually from the surface to a minimum at 50 to 70 metres, then rises to a secondary maximum at 300 to 400 metres, falling again towards the bottom, and it is in a case like this that the ordinary maximum and minimum thermometer is inadequate (see p. 216). At Station 76 the water was warmer through the influence of the Gulf Stream; it was much colder, for instance, at Station 75 farther west, where we found  $-1.43^{\circ}$  C. at 55 metres, and at Station 74, just off St. John's, where the temperature was  $-1.52^{\circ}$  at 91 metres. As a rule, it may be said that in a polar current