

higher maximum temperature, showing distinctly that they had entered or passed through a warmer stratum of water than had been indicated between the surface and a depth of 200 fathoms. The minimum indices all registered  $29^{\circ}$ , agreeing exactly with what had been found at lesser depths. At 200 fathoms the thermometers both showed a slight, but only a very slight, rise in the maximum index; but as they both agreed exactly, it is probable that at this depth the warm underlying strata commenced. It is impossible that the thermometers could have been affected in their momentary passage through the air (which was at a temperature of  $33^{\circ}$ ) from the sounding bridge to the surface of the water, as the utmost care was taken to keep the outer case filled with the cooling mixture until the instrument was immersed, and on recovering each thermometer it was detached and read off before the mercury had sufficient time to attain a higher temperature than that of the surface water ( $29^{\circ}\cdot5$ ), besides, if they were affected by the air, all the instruments would have registered higher on the maximum side, whereas only those lowered to depths exceeding 200 fathoms did so. The temperature of the bottom water ranged between  $33^{\circ}$  and  $28^{\circ}\cdot8$ , these being the temperatures registered by the maximum and minimum indices of the instrument sent to 1675 fathoms.

On the 19th February, in lat.  $64^{\circ} 37' S.$ , long.  $85^{\circ} 49' E.$ , the temperature of the surface water was  $32^{\circ}$ , and that of the air  $30^{\circ}$ . A large number of icebergs were in sight. At a depth of 50 fathoms the maximum index, which before immersion registered  $31^{\circ}\cdot4$ , rose to  $32^{\circ}$  (the temperature of the surface water), and the minimum index fell to  $29^{\circ}\cdot2$ , indicating a colder stratum of water. At 100 fathoms the maximum index rose to the temperature of the surface water, the minimum fell to  $29^{\circ}$  which was slightly colder than that at the depth of 50 fathoms; but as two other instruments sent down to greater depths, which, therefore, passed through this cold stratum did not register  $29^{\circ}$ , the temperature of  $29^{\circ}\cdot2$  has been adopted for 100 fathoms. The maximum index of the one thermometer sent to 300 fathoms rose from  $33^{\circ}$  to  $33^{\circ}\cdot8$ , but as the two sent to the bottom, which must have passed through this stratum, only registered  $33^{\circ}$ , that reading has been adopted. On the other hand, this might indicate that the stratum of  $33^{\circ}\cdot8$  F. is so limited that the bottom thermometers passed through it without attaining the full temperature. The bottom temperature at 1800 fathoms, as registered by two thermometers, was between  $33^{\circ}$  and  $29^{\circ}$ .

On the 21st February, in lat.  $63^{\circ} 30' S.$ , long.  $88^{\circ} 57' E.$ , and under the same circumstances of air and surface water temperature, a few observations showed a regular decrease in the temperature from  $32^{\circ}$  at the surface to  $29^{\circ}\cdot3$  at 40 fathoms.

On the 26th February, in lat.  $62^{\circ} 26' S.$ , long.  $95^{\circ} 44' E.$ , the temperature of the air was  $35^{\circ}\cdot5$ , and that of the surface water  $33^{\circ}$ . A large number of icebergs were in sight. Previously to immersion the thermometers were cooled with ice and salt to a low temperature. At 100 fathoms the thermometer indices remained the same as on immersion, viz.,  $31^{\circ}\cdot8$  and  $32^{\circ}$ , although this temperature was lower than that of the surface water,