

owing probably to their having passed too quickly through the narrow belt of superheated water. A third instrument which, before immersion, was set at  $32^{\circ}5$  was afterwards sent to the same depth, when the maximum index registered  $32^{\circ}8$ , or approximately the surface temperature; and the minimum  $31^{\circ}8$ , or the same temperature as previously obtained. This reading has, therefore, been assumed as the temperature at 100 fathoms. At 150 fathoms two thermometers registered a warm stratum of  $34^{\circ}$ , and the minimum indices showed that they had passed through the cold intermediate stratum of  $32^{\circ}$ . This was also confirmed by the two instruments lowered to 200 fathoms and the one sent to the bottom, for each of them registered a maximum temperature of  $34^{\circ}$ , and a minimum of at least  $31^{\circ}8$ . The bottom thermometer, indeed, registered on its minimum side  $31^{\circ}3$ , but unfortunately its temperature on immersion was not noted, and as it was cooled by the mixture of salt and ice, it may have stood at the temperature of  $31^{\circ}3$  when immersed. The bottom temperature is, therefore, uncertain, but must be between  $34^{\circ}$  and  $31^{\circ}3$ .

On the 11th February, during the passage southward, in lat.  $60^{\circ} 52' S.$ , long.  $80^{\circ} 20' E.$ , with three icebergs in sight, serial temperatures were taken. The temperature of the air was  $35^{\circ}5$ , and that of the sea surface  $34^{\circ}2$ . Before immersion the thermometers, with the exception of those sent to the bottom and to the depth of 25 fathoms, were cooled to as low a temperature as was deemed necessary. The lowest temperature registered was  $32^{\circ}$  at 50 fathoms, and this continued certainly to the depth of 100 fathoms. At 150 fathoms the thermometer registered  $36^{\circ}$  on the maximum side and  $31^{\circ}8$  on the minimum. At 200 fathoms the thermometers registered from  $35^{\circ}$  to  $35^{\circ}8$  on the maximum side and  $32^{\circ}$  to  $32^{\circ}8$  on the minimum. At 300 fathoms the thermometer gave the same result as at 200 fathoms. Here, therefore, a rise of temperature took place at 150 fathoms, which reached its maximum at 200 fathoms. The bottom temperature is uncertain, as the thermometers which, on immersion, registered  $41^{\circ}$  came up showing  $41^{\circ}$  on the maximum and  $32^{\circ}$  and  $33^{\circ}$  on the minimum side.

On the 3rd March, in lat.  $53^{\circ} 55' S.$ , long.  $108^{\circ} 35' E.$ , the temperature of the air being  $37^{\circ}8$ , and that of the sea surface  $37^{\circ}2$ , serial temperatures were again obtained. No icebergs were in sight, but some were seen on the 2nd, and one was passed on the 4th. The thermometers were lowered to every 10 fathoms from the surface to 100 fathoms, and showed little alteration to the depth of 60 fathoms, registering there  $36^{\circ}6$ , or only  $0^{\circ}6$  less than the surface temperature. At 70 fathoms a sudden fall of  $3\frac{1}{2}^{\circ}$  took place, and at 80 fathoms the temperature was  $32^{\circ}5$ , below this depth the temperature is uncertain, as the instruments registered on their maximum side the temperature of immersion, and on their minimum the temperature at 80 fathoms. If a stratum of warm water commenced at 150 fathoms of the same temperature as that of the 26th February, viz.,  $34^{\circ}$ , as there is every reason to believe, it could not, owing to the construction of the instruments, be detected, for, as the thermometers had passed through the