

with that obtained by observation at 6 A.M. on May 4th, the first time the position of the ship could be ascertained by those means after the temperature of the water fell below $75^{\circ}0$.

Observations taken below the surface showed that the water retained a temperature of over 70° to 60 fathoms, and that it then decreased rapidly to 57° at 125 fathoms, and then slowly to the bottom.

It therefore appears that the Gulf Stream on the 1st May 1873, in lat. $36^{\circ} 23' N.$, long. $71^{\circ} 46' W.$, was 15 miles in breadth and about 100 fathoms in depth, that its speed was $3\frac{1}{4}$ miles per hour in a N. $60^{\circ} E.$ direction, and that it was, at that time, discharging 4.87 cubic miles of water per hour into the North Atlantic basin, equal to 116.88 cubic miles per day, or 42,661 cubic miles per year. Taking into consideration the high specific heat of water some idea may be formed of the vast amount of heat annually carried from the tropics into the North Atlantic.

In the section from Bermuda towards New York eight soundings, seven temperature soundings, and four dredgings were obtained, and from the New York end of the section to Halifax three soundings and three dredgings (see Sheet 9).

The bottom temperature, at depths exceeding 1800 fathoms, was again remarkably uniform, from $36^{\circ}5$ to $36^{\circ}8$, the mean being $36^{\circ}6$, nor was it affected in any way by the cold surface water on the northwest side of the Gulf Stream (see Diagram 2).

The isotherm of 40° was found at a uniform depth of 810 fathoms for 350 miles N.W. of Bermuda, but after crossing the Gulf Stream it rose to 280 fathoms. The other isotherms maintained a position parallel to that of 40° .

On the 24th April, at Station 37, the weather being fine and the sea smooth, a boat was anchored by the dredge to try the current, with the following results:—

On the surface the current was setting	N. $60^{\circ} E.$	0.24 mile per hour.
At a depth of 50 fathoms	„ N. $75^{\circ} E.$	0.46 „
„ 100 „	„ N. $87^{\circ} E.$	0.36 „
„ 200 „	„ S. $70^{\circ} E.$	0.22 „
Below 200 fathoms there was no perceptible set.		

On the 28th April, at Station 40, a boat was again anchored by the dredge and the current tried, with the following results:—

On the surface the current was setting	N. by W.	0.75 mile per hour.
At a depth of 50 fathoms	„ N. by W.	0.75 „
„ 100 „	„ N.N.W.	0.6 „
„ 200 „	„ N.W.	0.6 „

On the 6th May, at Station 46, the surface current found by anchoring a boat by the dredge was E.S.E., a little over a mile per hour.

The anemometer on the 26th April, when the ship was kept laying-to under double