

found running N.E. 1·3 miles per hour. On the 21st, at Station 102, the dingey was anchored by the lead line, and the surface current was found running N.W. 1·25 miles per hour. These results confirm the existence of the current as ascertained by difference between D.R. and observations. From Porto Praya to the parallel of $12^{\circ} 30' N.$ a S.W. current was experienced; from thence to the parallel of $4^{\circ} 40' N.$ the current was easterly, trending sometimes north, and sometimes south, by east. The total drift experienced between the parallels of $12^{\circ} 30'$ and $4^{\circ} 40'$ was 146 miles in a N. $88^{\circ} E.$ direction (true), or at an average rate of three quarters of a mile per hour. Southward of the parallel of $4^{\circ} 40' N.$ the current was westerly. The temperature of the easterly or Guinea Current was 79° or $1^{\circ} 5'$ higher than the Equatorial or westerly Current.

In the equatorial section from the position in lat. $3^{\circ} 8' N.$, long. $14^{\circ} 49' W.$ to St. Paul's Rocks, seven soundings, four serial temperature soundings, and three trawlings were obtained (see Sheet 12).

The surface water maintained an average temperature of 78° .

The bottom temperature at depths exceeding 1800 fathoms varied $0^{\circ} 8'$ or from 36° to $36^{\circ} 8'$, the mean being $36^{\circ} 4'$.

The serial temperature soundings showed a rapid cooling of the water near the surface, for the isotherm of 60° was at an average depth of 70 fathoms. Below 70 fathoms the temperature fell more slowly, the isotherm of 50° occupying an average depth of 150 fathoms, varying from 130 to 180 fathoms, and that of 40° being at an average depth of 520 fathoms, varying from 430 to 550 fathoms (see Diagram 4).

On the 23rd August, at Station 104, the cutter was anchored by the trawl, and the surface current found to run west (true) 1·2 miles per hour. On the 25th August, at Station 106, the cutter was again anchored by the trawl, and at 10.30 A.M. the surface current was running west (true) 2 miles per hour, but in the afternoon its velocity had decreased to 1 mile per hour. The current drag at 10 A.M. at 75 fathoms showed no current, at 50 fathoms a current of half a mile per hour, and at 15 fathoms three quarters of a mile per hour, all to the west, thus showing how very superficial the Equatorial Current is. On the 26th August, at Station 107, the cutter was again anchored by the trawl, and the surface current found to be running west (true) 1·5 miles per hour, and it continued to run at that rate throughout the day instead of slacking in the afternoon as on the 25th.

The following anemometer observations were taken when, the ship being stationary for sounding or dredging purposes, a favourable opportunity presented itself for ascertaining the velocity of the trade wind:—