

mass of water gradually and uniformly rises in temperature toward the head of the gulf.

3. That water at any given temperature (below 4° C.) can only occur in the Atlantic where there is a direct communication with the belt of water at the same temperature in the Southern Sea without the intervention of any continuous barrier. (The actual result of the present arrangement of such barriers is, that, however great the depth may be, no water at a temperature lower than $1^{\circ}\cdot9$ C. is found in the eastern basin; none at a temperature lower than $1^{\circ}\cdot6$ C. in the north-western; and none beneath the freezing-point anywhere in the Atlantic, except in the depression between the coast of South America and the central ridge, to the south of the equator.)

4. That the temperature of the Atlantic is not sensibly affected by any cold indraught from the Arctic Sea. (I purposely neglect the Labrador Current and the small branch of the Spitzbergen Current, for these certainly do not sensibly affect the general temperature of the North Atlantic.)

5. That although there is a considerable flow of surface-water through the influence of wind-currents from the Atlantic into the Southern Sea, that flow is not sufficient to balance the influx into the basin of the Atlantic (the constant influx being proved by the maintenance of a general uniformity in the course of the isothermobathic lines, and by the maintenance in all the secondary basins of the minimum temperature due to the height of their respective barriers); that, for several reasons (the lower barometric pressure, and the supposed greater amount of rain-fall in the Southern Sea; the higher specific gravity at the surface than at greater depths in the Atlantic; the higher specific gravity of the surface-water in the Atlantic to the north than to the south of the equator), it is probable that the general circulation is kept up chiefly by an excess of evaporation in the region of the North Atlantic, balancing a corresponding excess of precipitation over evaporation in the water hemisphere.