by contact with the surface of the crust of the earth, the inevitable conclusion seems to have been early arrived at that, if such temperatures existed, they must be due to a general oceanic circulation,—to surface currents of warm water passing towards the poles, and compensating counter-currents of cold water from the poles towards the equator. Humboldt states that he showed, in 1812, "that the low temperature of the tropical seas at great depths could only be owing to currents from the poles to the equator"[1]

D'Aubuisson, in 1819, also attributed the low temperature of the sea at great depths at or near the equator to the flow of currents from the poles.[2]

But although the fact of the existence of currents lowering the temperature of deep water in equatorial regions was admitted by various authorities in physical geography, little light was thrown upon the causes of this circulation. Latterly, the whole subject became obscured by the very general adoption of the doctrine already referred to of a permanent temperature of 4° C. all over the world beyond a certain depth; and it was not until the publication of Captain Maury's fascinating book on the 'Physical Geography of the Sea' had given an extraordinary stimulus to the study of this department of science, that the question was again raised.

It was natural from its geographical position, and from the much greater opportunity which it offered for the accumulation of the almost infinite number

[1] Fragments de Géol. et de Climatol. Asiat., 1831.

[2] Traité de Géognosie.—Quoted in the Anniversary Address to the Geological Society of London, 1871.