

The North Atlantic and Arctic seas form together a *cul de sac* closed to the northward, for there is practically no passage for a body of water through Behring's Strait. While, therefore, a large portion of the water, finding no free outlet towards the north-east, turns southward at the Açores, the remainder, instead of thinning off, has rather a tendency to accumulate against the coasts bounding the northern portions of the trough. We accordingly find that it has a depth off the west coast of Iceland of at least 4,800 feet, with an unknown lateral extension. Dr. Carpenter, discussing this opinion, says: "It is to me physically inconceivable that this surface film of *lighter* (because warmer) water should collect itself together again—even supposing it still to retain any excess of temperature—and should burrow downwards into the 'trough,' *displacing colder and heavier water*, to a depth much greater than that which it possesses at the point of its greatest 'glory'—its passage through the Florida Narrows. The upholders of this hypothesis have to explain how such a re-collection and dipping-down of the Gulf-stream water is to be accounted for on physical principles."¹ I believe that as a rule, experimental imitations on a small scale are of little use in the illustration of natural phenomena; a very simple experiment will, however, show that such a process is possible. If we put a tablespoonful of cochineal into a can of hot water, so as to give it a red tint, and then run it through a piece of india-rubber tube with a considerable impulse along the surface of a quantity of cold water in a bath, we see

¹ Dr. Carpenter's Address to Geographical Society, *op. cit.*