

face is sometimes subjected to intense cold, warmer water may be found below, until the balance is restored by convection. This I believe, however, to be entirely exceptional; and it may certainly be taken as the rule for all latitudes that if we disregard the film which is affected by diurnal alterations, the temperature sinks from the surface to the bottom.

The first important series of deep-water temperature observations was made during the Arctic voyage under Sir John Ross in the year 1818. On Sept. the 1st, lat.  $73^{\circ} 37' N.$ , long.  $77^{\circ} 25' W.$ , the temperature at the surface being  $1^{\circ} 3 C.$ , the registering thermometer gave at eighty fathoms  $0^{\circ} C.$ , and at 250 fathoms  $-1^{\circ} 4 C.$  On the 6th of September, lat.  $72^{\circ} 23' N.$ , long.  $73^{\circ} 07' W.$ , the first serial sounding on record was taken, the thermometer having been let down to 500, 600, 700, 800, and 1,000 fathoms in succession, the thermometer showing each time a lower temperature and indicating at the greatest depth named a temperature of  $-3^{\circ} 6 C.$  On the 19th of September, in lat.  $66^{\circ} 50' N.$ , long.  $60^{\circ} 30' W.$ , another serial sounding was taken, the temperature being registered at 100 fathoms  $-0^{\circ} 9 C.$ , at 200  $-1^{\circ} 7 C.$ , at 400  $-2^{\circ} 2 C.$ , and at 660 fathoms  $-3^{\circ} 6 C.$  On the 4th of October, lat.  $61^{\circ} 41' N.$ , long.  $62^{\circ} 16' W.$ , Sir John Ross sounded, but found no ground in 950 fathoms; at the same time the self-registering thermometer was sent down, and the temperature of the sea at that depth was found to be  $2^{\circ} C.$ , while at the surface it was  $4^{\circ} C.$ , and the air at  $2^{\circ} 7 C.$  I am informed by General Sir Edward Sabine, who accompanied Sir John Ross's expedition,