

There can be no doubt that this view, which of late years has received almost universal acceptance, is entirely erroneous. It has been shown by M. Despretz,¹ as the result of a series of carefully conducted experiments which have since been frequently repeated and verified, that sea-water, as a saline solution, contracts and increases steadily in density down to its freezing-point, which is, when kept perfectly still, about $-3^{\circ}67$ C. ($25^{\circ}4$ F.), and when agitated $-2^{\circ}55$ C.

The temperature observations of Sir James Clarke Ross during his Antarctic voyage in 1840-41, seemed to give support to the theory of a constant temperature of $4^{\circ}5$ C. for deep water, but these observations have as evidently been made with unguarded instruments, as those of Sir John Ross in 1818 with instruments defended from pressure; and although I believe they must be taken as proving that in high southern latitudes the surface temperature is sometimes lower than the temperature of the water at a considerable depth beneath, still the amount of correction for pressure is uncertain, depending upon the construction of the thermometers used, and in any case it must reduce the difference considerably.

A large number of thermometers of the ordinary Hydrographic Office pattern were sent out with us, as I have already mentioned, in the 'Lightning,' and these were of course the instruments used by Staff-Commander May for his temperature observations. There was an opportunity of testing these thermometers, however, on the return of the vessel,

¹ Recherches sur le Maximum de Densité des Dissolutions aqueuses. Loc. cit.