ature, the density of sea-water with a salinity of 35 per thousand and at a temperature of 0° C. being 1.02813. By means of Knudsen's Tables the density is quickly found when both salinity and temperature are known. The value of most interest to us is the density at the potential temperature (see above, p. 221) corresponding to the temperature *in situ*. It has been found that this density always increases from the surface downwards to the bottom, even when the compression is left out of account. If this were not so, in order to attain equilibrium the heavier overlying water and the lighter underlying water would have to change places, and this is what actually takes place in winter, when the density at the surface exceeds that of the waters below. The layers will always arrange themselves in such a way that the lighter water is on the top and the heavier water underneath.

Freezing-point.

Salt water freezes at a lower temperature than fresh water; thus sea-water with a salinity of 35 per thousand freezes at $-1.9°$ C., so that temperatures below zero are found in the sea, $-1\frac{1}{2}°$ C., for instance, being a common temperature in the polar currents. When the salinity exceeds 24.7 per thousand the water becomes heavier on being cooled, until the freezing-point (below zero) is reached. This implies an essential difference between salt water and fresh water. In the deep water of lakes temperatures below 4° C. are never found, while in the bottom-water of the ocean considerably lower temperatures prevail, as, for instance, $-1°$ C. or still lower recorded in the Norwegian Sea, and about $+2°$ C. recorded in the Atlantic. Thus it is, as a general rule, colder in the great depths of the ocean than it is at the bottom of deep lakes.

Distribution of salinity.

We shall now indicate in a general way the distribution of salinity. It must be remembered that the salinity is raised by evaporation, and lowered by dilution with fresh water either from rainfall or from rivers. Where the evaporation outweighs the supply of fresh water the salinity increases, as is the case, for instance, in the Mediterranean and in the Red Sea, where the air is dry and hot, and in the ocean north and south of the equator, where the warm trade-winds blow, producing a strong evaporation. In such places a high salinity will be found.

Mediterranean.

There is a steady inflow of Atlantic surface-water with a salinity of about 36 per thousand into the Mediterranean Sea, where the water removed by evaporation is far greater than the supply of fresh water, so that the salinity rises to 38 per thousand, accompanied by an increase in density, which is accentuated by the