

depends first of all on the salinity and temperature, but the influence of salinity and temperature is essentially different in regard to specific gravity and to viscosity. This fact is easily seen from the following table, compiled from Knudsen's tables for specific gravity and from Ostwald's measurements for viscosity :—

Temperature C.	Viscosity.		Specific Gravity.	
	30 ‰ Salinity.	35 ‰ Salinity.	30 ‰ Salinity.	35 ‰ Salinity.
0°	102	103	24.11	28.13
5°	87	88	23.75	27.70
10°	75	76	23.09	26.98
15°	66	66	22.16	26.00
20°	58	59	20.99	24.79
25°	52	53	19.61	23.37
30°	47	47	18.02	21.76

We see from this table that within the common limits of salinity, 30 to 35 per thousand, the salinity influences viscosity very little ; in other words, viscosity is almost entirely dependent on temperature. If the viscosity of pure water at 0° C. is placed at 100, ordinary sea-water at 0° C. has a viscosity of 102-103 ; at 10° C. it has decreased by one-fourth, and at 25° C. by one-half. Sea-water at 25° C. is only half as viscous as the same water at 0° C., that is, the same body sinks twice as rapidly at 25° as at 0° C. Variations in salinity alone, it will be observed, influence the specific gravity as well as variations of temperature. In the ocean specific gravity and viscosity therefore do not run parallel, but they run in the same direction. Thus a body, which can maintain its specific gravity independent of changes in temperature and salinity, will have its velocity of sinking increased with falling specific gravity and viscosity of the sea-water, and its floating faculty will be augmented when viscosity as well as specific gravity increase.

Osmotic
pressure.

Temperature, and especially salinity, influence the floating faculty of living bodies, through changes in osmotic pressure. If the salinity of a cell is higher than that of the surrounding water, the cell will, if not surrounded by an impermeable membrane, give off salt and absorb water. The volume of the cell will then increase, but although the cell actually increases in weight, its specific gravity will decrease. In