two different worlds, the Atlantic world south of the ridge, the Arctic world north of it.

Decrease of surface-temperature from equator to poles.

The surface-temperature is naturally high in the equatorial regions, decreasing toward the poles, where it falls below 0° C. Krümmel has calculated the mean surface-temperatures for each 10-degree zone throughout the great ocean basins, his figures for the North Atlantic being :—

Zone . .	0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70° N. lat.
Temp. . .	26.83	25.60	23.90	20.30	12.94	8.94	4.26 °C.

It is interesting to compare this horizontal distribution of temperature with the vertical distribution in tropical waters. The following temperatures, for instance, were recorded by the German Antarctic Expedition in July 1911, at a station in lat. 7½° N. in the middle of the Atlantic :—

Depth . .	0	100	200	400	800	1000 metres.
Temp. . .	26.86	18.57	10.71	7.70	5.13	4.81 °C.

At a depth of 100 metres the temperature is seen to be the same as the average surface-temperature in about 40° N. ; the mean surface-temperature at 50° N. is the same as that found at 200 metres in the tropics, and the mean surface-temperature at 60° N. corresponds to the temperature at a depth of 700–800 metres in the tropics. In other words, we have a horizontal distribution of temperature from the equator towards the poles similar to what we have vertically from the surface towards the bottom in the tropics. Near the equator one need only send a thermometer down to 800 metres in order to find the same temperature that one would have to travel 60° northwards to find at the surface, but the other physical conditions are widely different. In the deep water at the equator there is an enormous pressure and unchanging darkness, but at the surface far north and south there is a pressure of only one atmosphere and good light, at least in summer. Thus the physical conditions in the deep layers of the tropical waters are really very different from those at the surface towards the poles, and in consequence the conditions of life also differ ; organisms living in the surface-layers of high latitudes are found in far deeper water in low latitudes, in so much as they are capable of adapting themselves to the excessive pressure and the infinitesimal quantity of light. Some organisms seem to be mainly dependent on the degree of light, the temperature being of less importance to them. We shall return to the questions of light