where the cold water from below comes comparatively near the surface, it is a little more; the highest value, over 6 c.c. per litre, is found in high northern and southern latitudes. The second section shows the deficiency from saturation in cubic centimetres per litre at the temperature and salinity *in situ*. In the upper 50–100 metres the water is nearly saturated all over the Atlantic, while in greater depths the oxygen is deficient, especially in tropical waters; at a depth of about 500 metres in lat. 10° N. and S. the deficit amounts to five or six cubic centimetres per litre. This is explained by the abundant supply of oxygen in the surface-layers, through absorption from the atmosphere, and through assimilation by the rich plant life, while the oxygen is being constantly consumed at greater depths, where plant life is scarce and animal life in excess. As a rule, where there is a great deficit of oxygen the water is characterised as "stale," a long time having elapsed since it was aerated at the surface or purified through the action of plants.

The disappearance of the oxygen is not, however, due only to the respiration of animals, but may also be caused by various hydro-chemical processes. In the Black Sea oxygen is found only in the upper 150–200 metres (about 100 fathoms) of water; below this it has disappeared totally, whereas sulphuretted hydrogen is present in increasing quantities down towards the bottom. The Black Sea is separated from the Mediterranean by the Bosphorus ridge, so that the water in its deep basin lies stagnant, unrenewed by the influx of other water. Similar conditions prevail in several Norwegian "threshold fjords," or on a smaller scale in the oyster-"polls." In such places the bottom is thickly covered with organic matter; a slimy black mud is formed, swarming with bacteria that produce sulphuretted hydrogen, which spreads through the water, combining with the oxygen to form various sulphates. This causes the oxygen to decrease and finally to disappear altogether, when the sulphuretted hydrogen begins to appear free in solution. It gradually spreads upwards, until the water is devoid of oxygen and contains free sulphuretted hydrogen, at a depth of only 100 fathoms in the Black Sea, and in the oyster-basins in autumn often at merely a couple of metres below the surface. In summer the "bottom-water" of the oyster-"polls" lies stagnant, but in the course of the autumn and winter it is generally renewed by the supply of comparatively heavy water from without; then the sulphuretted hydrogen disappears and

Black Sea.

Norwegian threshold-fjords and oyster-"polls."