

Vertically as well as horizontally the fauna termed by me the southern one appears to exist within the same limits of temperature. The different species appear to be at liberty to move within these limits and to be independent of depth. Thus there are many observations showing that the southern species occur in deeper water on the Atlantic slope than they do in the North Sea. This is easy to understand, because in the North Sea only the shallow upper layers are affected by high summer temperatures. Nevertheless the records of such species from deeper water available from the results of the "Michael Sars" and other expeditions are quite surprising. Thus the French deep-sea expeditions found :—

<i>Solea vulgaris</i>			in 235 metres.
<i>Solea variegata</i>		„ 306	„
<i>Arnoglossus grohmanni</i>		„ 175	„
<i>Gobius minutus</i>		„ 118	„
<i>Callionymus lyra</i>		„ 411	„
<i>Trachinus draco</i>		„ 175	„
<i>Lophius piscatorius</i>	between 219 and	668	„
<i>Merluccius vulgaris</i>	„ 99	„ 640	„
<i>Motella tricirrhata</i>	„ 112	„ 640	„
<i>Phycis albidus</i>	„ 40	„ 460	„

These instances are quite sufficient to show that in the southern part of our area the fishes tend to migrate vertically within considerable bathymetrical ranges. Evidently temperature here plays a dominant part, and perhaps also other factors come into play, above all the deeper penetration of light in southern waters.

The Northern
(boreal)
Species.

We have previously seen that the northern species in North European waters range from the Barents Sea in the north to west of the British Isles in the south. But within this wide area we meet with many variations in detail, even though the fish fauna of the whole area in a broad sense may be said to be homogeneous. Thus some species belong mainly to the most northerly part of the area, while others are taken in quantities worth mentioning only in the far south of the region. The abundance of a species does not alone depend on latitude or conditions of temperature, but the extent of the area of bottom suitable to the species is also of great importance.

An analysis of this question cannot, however, be restricted to a search for the geographical limits of the species. As regards the northern forms, information as to their bathymetrical distribution is very important. The English fishery statistics