

the two faunas led to a closer examination of certain forms which had formerly been looked upon as common to both areas, and as a result the Danish zoologist Jensen came to the conclusion that not a single species of *Lycodes* belonging to the cold area occurs in either the Atlantic or the boreal parts of the Norwegian Sea. He further succeeded in showing that one of the most characteristic mussels of the cold area, formerly designated *Pecten fragilis* and included as such among the fauna of the Northern Atlantic, is in reality a form peculiar to the cold area of the Norwegian Sea, and he has accordingly named it *Pecten frigidus*. Other naturalists have made similar discoveries in the case of a number of other forms. Thus, the irregular sea-urchin of the Norwegian Sea, *Pourtalesia jeffreysi*, is quite distinct from the Atlantic forms of the same genus. The characteristic starfish of the Norwegian Sea, *Bathyiaster vexillifer*, was formerly said to be distributed throughout the Atlantic, but it is now known to be different from the Atlantic form, which is *Bathyiaster robustus*. Another starfish, *Pontaster tenuispinus*, is represented by different varieties in the two areas, and the same is true of the ophiurid *Ophiecten sericeum*. The one characteristic pennatulid of the Norwegian Sea, *Umbellula encrinus*, is not found outside that sea, though there is a species closely related to it in the Atlantic, namely, *Umbellula lindahli*. Further evidence of the difference in the two areas is supplied by a pycnogonid belonging to the genus *Colossendeis*. A form in the Norwegian Sea deep basin, *Colossendeis angusta*, is said to occur also in the Northern Atlantic, but if we compare Atlantic and Norwegian Sea specimens we immediately recognise considerable differences in their structure, the latter being much more robust and furnished with shorter legs and claws. Any one seeing the two forms side by side would be able to tell the respective areas from which they came, though it may be difficult to find sufficient dissimilarities to designate them separate species.

These are merely a few instances. It must be admitted that nothing like a complete comparison of the species has yet been made, but we know enough to justify us in looking upon the cold area of the Norwegian Sea as a distinct deep-sea faunal region, which with Mortensen and Jungersen we may term the arctic abyssal.¹ No doubt, this arctic-abyssal region owes its

Cold area
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abyssal area.

¹ In my description of the fauna in the cold area on pp. 517-524, I have made a distinction between the continental slopes and the abyssal region below 2000 metres, but no such distinction has been made here, for in instituting a comparison between the fauna of the cold area and the fauna of the Atlantic, I have included everything below 800 metres.