

over the boreal parts of the Norwegian Sea, and are thus just as much boreal as purely arctic; I append a short list:—

Molluscs: *Lepeta cæca*, *Margarita grönlandica* and *M. helicina*, *Lunatia grönlandica*, *Littorina rudis*, *Cylichna alba*, *Leda perrula*, *Modiolaria lævigata* and *M. nigra*, *Astarte (Nicania) banksi* with varieties, *Astarte compressa*, *L. (= elliptica, Br.)*, *Mya truncata* (chiefly arctic, whereas *M. arenaria* is the typical boreal form), *Saxicava arctica*, *Pecten hoskynsi*, *Portlandia frigida*. Echinoderms: *Strongylocentrotus dröbachiensis*, *Pontaster tenuispinus*, *Echinaster (Cribrella) sanguinolentus*, *Solaster papposus* (occurs as a rule in the arctic region as a distinct variety, *S. affinis*), *Pteraster militaris*, *Ophiura sarsi* and *O. robusta*, *Ophiocten sericeum*, *Ophiopholis aculeata*, *Ophiacantha bidentata*, *Ophioscolex glacialis*, *Cucumaria frondosa*, *Psolus phantapus*. Decapod crustaceans: *Pandalus borealis*, *Hippolyte gaimardi*, and *H. polaris*, *Pagurus pubescens*, *Hyas araneus* and *H. coarctatus*. Isopods: *Munnopsis typica*. Pycnogonids: *Nymphon grossipes* (and a few other species of *Nymphon*). Ascidians: *Pelonaia corrugata*, *Styela rustica* and *S. loveni*, *Styelopsis grossularia*, and *Ascidia prunum*. Worms: a number of species of *Harmothoë*, *Lumbrinereis fragilis*, *Onuphis conchylega*, *Nereis pelagica*, *Arenicola piscatorum (marina)*, *Owenia assimilis*, *Nicolea zostericola*, *Thelepus circinnatus*, and *Terebellides strömi*.

These forms are very interesting biologically, as they show to how great an extent the same species is able to adapt itself to different natural conditions. Many of them<sup>1</sup> are quite common in the littoral zone of the boreal region, where during a large portion of the year the temperatures are comparatively high, and yet they are also to be found in arctic tracts, where temperatures are all the year round below 0° C., or at any rate not more than a few degrees above 0° C. during a very short period. Others, again, are more consistent, as they inhabit only the greater depths of the boreal region, where throughout the whole year the temperature is fairly uniform and comparatively low (though never sinking below 6° or 7° C.), whereas in the arctic region they exist in shallow water; thus on the Norwegian west coast we find the mussel *Portlandia frigida*, the brittle-star *Ophiacantha bidentata*, and the prawn *Hippolyte polaris* (see Fig. 373) only as a rule beyond 100 metres, whereas in high arctic latitudes they may be met with at a depth of about 10 metres. The species included in this second category do not all by any means show the same distribution throughout the arctic region; some forms occur every-

<sup>1</sup> *Margarita grönlandica* and *M. helicina*, which both occur in the boreal laminaria belt, *Saxicava arctica*, *Strongylocentrotus dröbachiensis*, *Echinaster sanguinolentus*, *Ophiopholis aculeata*, *Cucumaria frondosa*, *Hippolyte gaimardi*, *Pagurus pubescens*, *Hyas*, *Styela rustica*, *Nereis pelagica*, *Arenicola*, *Nicolea*, etc.