

In proof of this I ought to have cited in the text the observations made by Dr. Hooker in his antarctic voyage with Capt. Sir J. C. Ross, when the soundings made off Victoria Land between the parallels of  $71^{\circ}$  and  $78^{\circ}$  S., established the fact that the bottom of the ocean was inhabited in those high latitudes at depths of from 200 to 400 fathoms by a great variety of invertebrata. Among these Dr. Hooker enumerates crustacea and mollusca, besides serpulæ, ophiuræ, flustræ, virgulariæ, an encrinite, and many sponges.

Some of the same series of antarctic soundings led to the belief that animal life extended at least to a depth of 550 fathoms. The bottom in those latitudes was covered with fine mud and with occasional stones derived from melting ice. It is therefore evident that the frequency of large icebergs and the proximity of elevated antarctic land entirely covered with perpetual ice are conditions by no means unfavourable to a free development of animal life in the bed of the ocean.\*

If we turn our attention to the north polar seas, we find similar conclusions borne out by the latest investigations. Dr. Torell, whom I have already mentioned, after he had examined between the years 1856 and 1860 the glaciers of Switzerland, Norway, Iceland, Greenland, and Spitzbergen, was appointed to command in 1861 a scientific expedition fitted out at the joint expense of the Swedish government and Prince Oscar of Sweden. It consisted of two ships, and a survey was made of the coast of Spitzbergen and the adjoining seas.

So far from finding any scarcity of mollusca, these explorers collected no less than 150 living species, chiefly on the west and north coasts of Spitzbergen, in lat.  $79^{\circ}$  and  $80^{\circ}$  N., and the number of individuals, as well as the variety of species, was often great, especially where the bottom consisted of fine mud derived from moraines of glaciers, and from the grinding action of the land-ice on the rocks below.

Between Spitzbergen and the north of Norway, but nearer the former country, Dr. Torell and his fellow labourer Mr. Chydenius obtained, at the enormous depths of 1000 and 1500 fathoms (September, 1861), mollusca (a *Dentalium* and *Bulla*, or *Cylichna*), a crustacean, polythalamian shells, a coral three inches long, with several red actinias attached to it, and a few annelids. These occurred to the west of Beeren's Island, in latitude  $76^{\circ} 17'$  N., and longitude  $13^{\circ} 53'$  E., in a sea where floating ice is common for ten

\* J. Hooker, Annals and Magazine of Natural History, 1845, p. 238.