

for twenty-four hours, taking continuous observations of temperature and salinity at different depths. It was quite evident that there were considerable vertical fluctuations, the intermediate layers showing up and down movements with an amplitude of as much as 35 metres during a period that corresponded practically with the tidal period.

Pelagic hauls.

After leaving Glasgow we made pelagic hauls with our silk nets and young-fish trawls on the coast bank, on the slope, out in the deep channel, near the southern flank of the Wyville Thomson Ridge (Station 101), and to the north of it (Station 102). At every depth our catches to the south of the ridge closely resembled those we made in our northern Atlantic section between Newfoundland and Ireland, and particularly the catches made in the eastern portion of that section.

In the upper layers there were all the boreal animals characteristic of Atlantic water in the Norwegian Sea, as, for instance, *Euthemisto* and *Clione limacina*. But there was also a mass of Atlantic forms that do not occur all the year round in the Norwegian Sea, though they are known to wander in at certain seasons of the year, as at the end of the summer or during autumn. The tow-nets gave a mixture of *Arachnactis*, *Salpa fusiformis*, numbers of scopelids, leptocephali (full-grown larvæ of the common eel), the young of *Macrurus*, and *Nerophis æquoreus*.

At a depth of 300 metres we captured the silvery *Argyropelecus*, and in deep water, from 500 metres downwards, there was the characteristic fauna of black *Cyclothone microdon*, red crustaceans (*Acantheephyra*), and other forms, which thus occur *right up to the southern slope of the Wyville Thomson Ridge*.

On the northern side of the ridge we towed our appliances at 50, 100, 150, 200, 300, 500, 700, and 750 metres (Station 102) *without catching a single specimen of these Atlantic deep-sea forms*; but in the upper layers there were not merely boreal forms, but also salpæ, the area of distribution of which is mainly Atlantic.

These results quite accord with our previous observations during the cruises of the "Michael Sars." Hauls in the deepest waters of the Norwegian Sea have not yielded any pelagic fish other than the black *Paraliparis bathybi* (Fig. 107), which used to be considered a bottom-fish; it is interesting to note that it is black. There was a complete absence of *Cyclothone* and the red Atlantic crustaceans belonging to the genus *Acan-*