At Station 80 we became aware of the influence of Atlantic water, and at the same time we got clear weather, but, as the figure will show, it was at Station 81 that we first met with the real Atlantic or Gulf Stream water with a salinity of about 35.5 per thousand, which extended in a layer 100–200 metres deep right across to near the coast bank outside Ireland. Below this layer the salinity and temperature decrease till we come down to bottom-water, with a salinity of less than 35 per thousand; the temperature was the same as what we had found in bottom-water to the south of the Azores, namely, a little under $2\frac{1}{2}°$ C. Our investigations made it apparent that this bottom-water is in continuity with the surface water in the north-west corner of the Atlantic.

Plants.

Our investigation of the plants of the sea was continued during this cruise; we made collections with silk nets, and centrifuged water-samples with the big steam centrifuge, with the result that, in spite of high seas and heavy rolling of the vessel on the eastern side of the ocean, Gran was able to proceed with his classification and enumeration of the minute living organisms that had hitherto eluded observation.

At almost every station he determined the number of extremely small organisms, chiefly coccolithophoridæ, per litre of sea-water, and ascertained that here, too, on our northerly route they constituted the greater portion of the plant plankton. An exception must, however, be made in the case of the coast banks of Newfoundland and Ireland, where there was also a very abundant plankton of larger organisms, large enough to be retained by the tow-nets. One single species (a calcareous flagellate) at a station just outside the European coast bank numbered 200,000 per litre, and actually affected the transparency of the sea.

Gran succeeded in collecting abundant material for the study of these little-known forms (many of them new to science), and for a proper understanding of their significance in the total plant life of the sea. In Chapter VI. he has set down the chief results of his observations.

Pelagic life of Newfoundland Bank.

We found again a complete accordance between the distribution of the different water-masses and the occurrence of characteristic "societies" of pelagic animal life. At Stations 75–79 on the Newfoundland Bank (see Fig. 94) the boreal organisms were mixed with arctic forms. Thus there were: