

dimensions and of reproducing their kind. The degenerate forms of neritic diatoms met with in the open sea appear to me to lack the stimulus which in some unknown manner leads to the formation of auxospores; consequently their ultimate extinction is only a matter of time, even though they may continue reproduction through a whole succession of generations. This is, of course, merely an unsupported surmise, for the few random investigations we have hitherto made do not afford sufficient material to settle questions of this nature at all definitely; but my idea is that the hypothetical views of an author are of more value than the enumeration of solitary facts that have no apparent connection.

Resting-spores  
in the open  
sea.

When the neritic diatoms evolve resting-spores out in the open sea, which occurrence we have been able to observe on more than one occasion, it might be supposed that the spores would be destroyed after sinking down to profound depths. This is not, however, necessarily always the case, since they appear to sink slowly, and remain within the region of light for weeks if not for months. The spores after leaving their cells are so minute that they are rarely caught in silk nets, so that little has been done as yet to throw light upon this question. But now that we have adopted the centrifuge-method it is possible to collect them, and we discovered numbers of resting-spores of species of *Chaetoceras* in our centrifuge-samples from the Atlantic. In a litre of sea-water from Station 87 (lat. 46° 48' N., long. 27° 46' W.), from a depth of 100 metres, I secured altogether 1160 resting-spores belonging to three different species of *Chaetoceras*, though the forms themselves were not present at that time in a vegetative state either in the surface-layers or deeper down. Most probably what we got were representatives from the last remnants of the diatom-masses that throng the surface-layers there during the spring.

Distribution.

Neritic species include a very large number of diatoms—a class by far the most characteristic in coastal seas. In the majority of these neritic diatoms we have now been able to prove the existence of resting-spores. The peridineæ, on the other hand, are mainly oceanic, especially the species of *Ceratium*. One of the best-known neritic peridineæ is the comparatively low species *Prorocentrum micans*; but there are probably, too, whole series of small forms, as yet imperfectly known, which prefer the neighbourhood of the coasts. The coccolithophoridæ, again, are undoubtedly oceanic, whereas most of the naked flagellates are most likely domiciled in