

NUMBER OF CELLS PER LITRE.

	Before experiment on 21/VIII.	Three Days Later (24/VIII).	
		In Original State.	With addition of 0.5 mg. NH ₄ Cl per litre.
<i>Ceratium tripos</i> .	583	640	696
„ <i>fuscus</i> .	543	649	833
„ <i>furca</i> .	155	149	196
<i>Prorocentrum micans</i>	1052	548	1464
<i>Dinophysis acuminata</i>	219	107	226
„ <i>rotundata</i>	33	30	42
<i>Rhizosolenia alata</i> .	157	232	345
<i>Cerataulina bergonii</i>	2840	3381	7214

Experiments with pure cultures of different plankton-diatoms, made by Allen and Nelson at Plymouth, show that they do not thrive without a regular supply of nitrogenous compounds. The plan of working which they adopted may also be employed with advantage when we wish to ascertain what concentration of dissolved nitrogenous compounds induces the plankton-algæ to augment most rapidly. This is the first thing to find out if we desire to know whether a want of dissolved nutritive substances is the limiting factor of production. It is quite possible that augmentation diminishes from lack of nitrogen long before the total amount of this essential has been fully consumed; yet augmentation must not fall below a certain minimum if the species is to hold its own, because of the larger or smaller number of individuals that are constantly perishing. Questions like these can only be settled by experiment, so that the cultivation method of Allen and Nelson is bound to be of great assistance to us eventually. But in the meantime our comparative investigations over large areas of the sea are also of considerable value.

Allen and
Nelson.

I have already stated that plant life in the Christiania fjord was limited to a very thin surface-layer, which, owing to its lesser density, was differentiated from the deeper infertile water-masses, and this was practically the case along all the coasts where plankton-algæ were plentiful. Out in the open sea, on the other hand, where there are not such marked differences in salinity, temperature, and density be-

Plankton
extends
deeper, but
is less
abundant, in
the open sea
than in
coastal areas.