

taken place, but also upon how many have perished or been carried away; and the causes bringing about diminution, which we may perhaps term factors of loss, may vary without being in any way directly connected with the conditions of existence of the plankton. There is one genus, at any rate, whose rate of augmentation can be approximately determined. The species of *Ceratium* only divide their cells at night, so that if we make our investigations early in the morning we can tell which cells have been divided during the night and which remain entire. In a sample of surface-water on 10th September 1907 we found 300 whole cells and 161 half cells of *Ceratium tripos*, the latter consisting of 79 anterior parts and 82 posterior parts. The number of cells, then, had in twenty-four hours increased from $300 + \frac{161}{2} = 380.5$ on 9th September to $300 + 161 = 461$ on 10th September. The addition is accordingly $\frac{161}{2} = 80.5$ individuals, and the percentage of the total amount on 9th September works out at $\frac{100 \times 80.5}{380.5} = 21.2$ per cent.

This was the plan we adopted for calculating the augmentation of the species of *Ceratium* at Dröbak during the whole of their vegetation period in 1907, and we also recorded the average number per litre at different depths during the whole year.¹ The following tables show our chief results:—

¹ Similar investigations in the case of *Ceratium tripos* were carefully carried out during 1908-1909 by Apstein in the Baltic. The values he obtained for percentages of augmentation on the whole accord as nearly with mine as might be expected.