

The other expeditions that were sent out about the same time as the "Challenger" carried out their investigations on similar lines. G. O. Sars, who was a member of the Norwegian North Atlantic Expedition in 1876-1878, made a study on board ship of the luxuriant plant life near the ice-limit, and remarked, like *Ørsted* before him, that plants are really the basis upon which the nutriment of animals is founded. It was not, however, till twenty years afterwards that an examination was made of the algæ in the comparatively small number of samples then collected.

Soon after 1880 Hensen commenced a physiological study of the sea, and essayed principally to estimate its production of nutritive substances at different seasons. As a result the plants came more into notice than they had previously done; and it is significant that Hensen found it necessary to introduce the new name of "plankton" to designate generally all pelagic organisms, both plants and animals, regarded as one universal community. The term "plankton" is now used for all floating organisms which are passively carried along by currents, while "nekton"—a term introduced by Haeckel—is used to designate all pelagic animals which are able to swim against currents. During Hensen's Plankton Expedition in 1889 Schütt made the first investigations regarding the general biology of the plankton-algæ. His ingenious descriptions and admirable drawings explained the different ways in which the algæ adapt themselves to their floating existence.

An endeavour was made by Hensen to find a method of calculating the quantity of pelagic organisms occurring in different localities. He constructed nets to be drawn up for certain distances through the water, that were supposed to filter the whole column of liquid through which they passed, and to retain all the organisms existing therein. The total amount of these organisms was then measured by determining the volume, and a most careful enumeration was made of the number of individuals belonging to each species. The nets were drawn vertically through the whole zone where plant plankton is abundant, that is to say, from a depth of 200 metres to the surface; and Hensen attempted to utilise the results for measuring the production of life in a column of water whose superficial area is one square metre. He tried at the same time to solve important problems, such as the rate of augmentation of algæ, or what proportion of individuals disappears owing either to consumption by other organisms or unfavourable conditions of existence.

G. O. Sars.

*Ørsted*.

Hensen.

"Plankton."

"Nekton."

Schütt.

Quantitative estimations.