

determining the species whose development we desire to trace ; consequently most of those who endeavour to work at these interesting questions will be forced to confine themselves to definite problems, and content themselves with tracing the growth of a limited number of species. No doubt a man like Lohmann may be able to know all the species within certain limits, and may actually calculate by counting what each of them contributes to the total plankton volume, but speaking generally a "universal method" that will give us the total quantity of all the plants and animals of the sea in curves and tables is unattainable.

Quantitative investigations on board the "Michael Sars."

During the "Michael Sars" Expedition our quantitative investigations yielded really remarkable results. Lohmann had succeeded by means of a centrifuge in determining the quantity of plankton in quite small samples of Baltic water, and we felt confident, therefore, that this excellent method ought also to prove serviceable in the

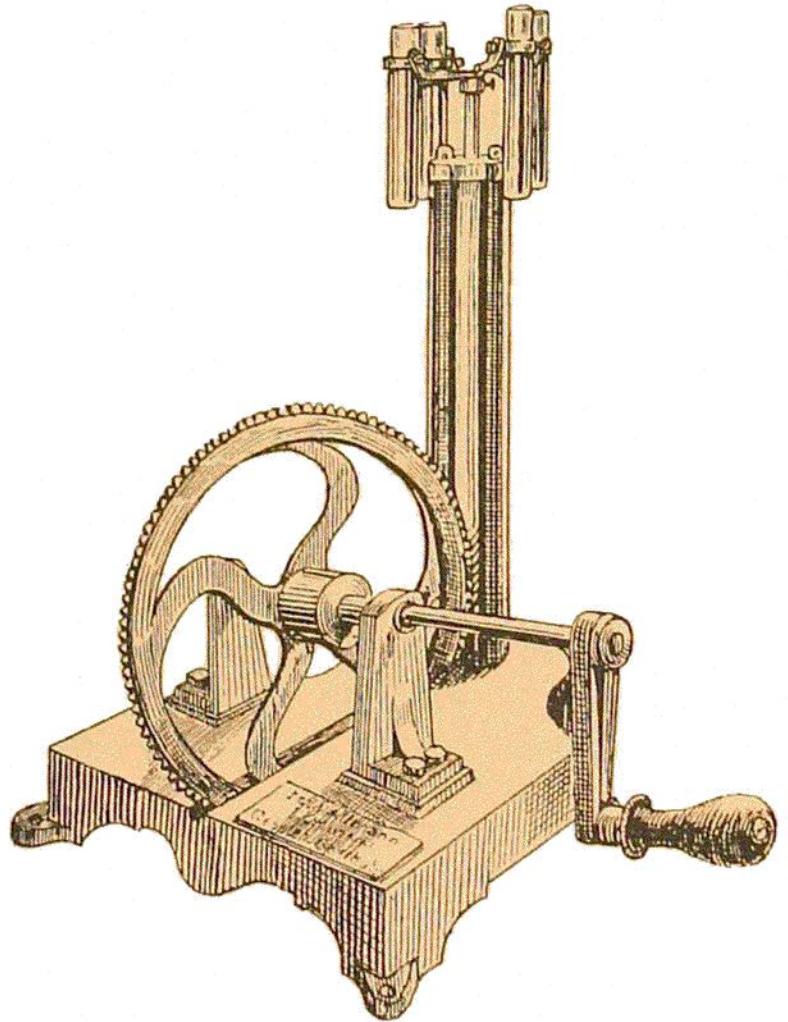


FIG. 250.—LOHMANN'S HAND-CENTRIFUGE.

Centrifuge.

open sea. We very soon found, however, that the algæ there were too scarce for our little hand-centrifuge (Fig. 250) to be of much utility ; there was so little to be found at the bottom of the centrifuge glasses (Fig. 251) that we obtained a hopelessly inadequate idea of the plant life, whereas in the stomachs of salpæ we might, perhaps, get a quite abundant flora of small forms. Fortunately, we had taken with us a big centrifuge to be worked by steam (see Fig. 91, p. 105), and in its six glasses we could centrifuge at one time as much