

mass in the middle, and become enwrapped in a new thick wall of characteristic shape within the old cell-wall, which is discarded as soon as the resting-spore is completely developed (see Fig. 223). The spores have now acquired an increased specific weight, as compared with their original cell, and sink down into deep water, where they may be found months after they have disappeared from the surface-layers. The majority of them, however, rest on the bottom in shallow coastal waters, until conditions of existence again occur which induce them to make a fresh start.

The germination of the resting-spores has not yet been described, though Hensen states that Lohmann has observed the first stages on several occasions. It will be a great advantage when we can follow their development-history through all its stages, and study the conditions of existence that lead to germination. Resting-spores are unknown in the true oceanic species; but, as already stated, they are found in most of the species belonging to coastal seas. In some cases we were not aware of them till quite a short

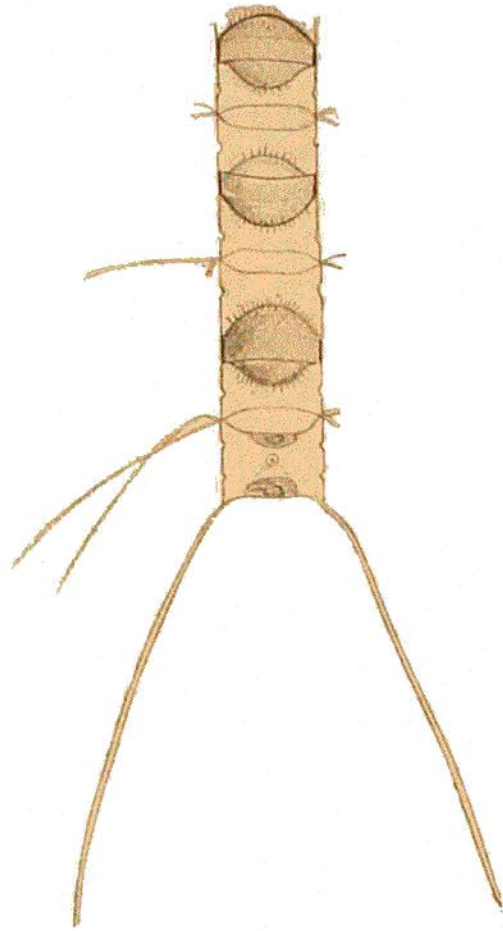


FIG. 223.—CHAIN OF *CHÆTOCERAS CONRICTUM*, WITH THREE RESTING-SPORES AND ONE NORMAL CELL (THE END-CELL OF THE CHAIN) (44^e).

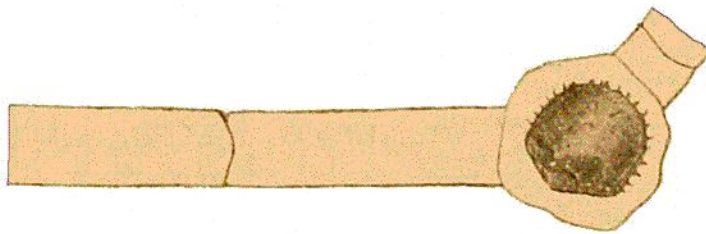


FIG. 224.—*LEPTOCYLINDRUS DANICUS*, WITH RESTING-SPORE (1^o 1^o 2).

time ago. It is only recently that they have been discovered in *Leptocylindrus danicus* (see Fig. 224), in which the cylindrical cells are broken across in the process of spore-formation, so that the spores are liberated, and in *Chaetoceras pseudocrinitum*, in which the resting-spores originate in auxospores.

So far as we are able to ascertain, the auxospores of pelagic diatoms are always formed without any sexual act. There is, however, another kind of organ, the so-called microspores, Microspores.