

is known as the ring-furrow. It is guarded by projecting borders on the anterior and posterior sides, called ring-borders. It is in this furrow that the second cilium lies and vibrates.

These principal organs appear in a great variety of shapes. The genus *Ceratium* has the anterior end drawn out into a long horn, which is open at the top; its posterior end has also nearly always two horn-like projections, which in most species bend in a forward direction. The species of *Ceratium* are well supplied with brown pigment granules, and they occur in the upper water-layers, where they constitute an essential part of the plant

*Ceratium.*

life. The horns must be regarded as suspension-organs, even though the mobility of the cell makes an adaptation of this kind less indispensable. We frequently find them, especially in the species of tropical seas, transformed into very consummate suspension-organs. Sometimes they are decidedly long and hair-shaped, sometimes flattened, and in a few species actually terminate in radiating branches. Kofoid has shown that the species of *Ceratium* can regulate their floating power, and that when, owing to the movement of the water masses, they enter colder or warmer layers of water, they can shed portions of their horns or

Kofoid.

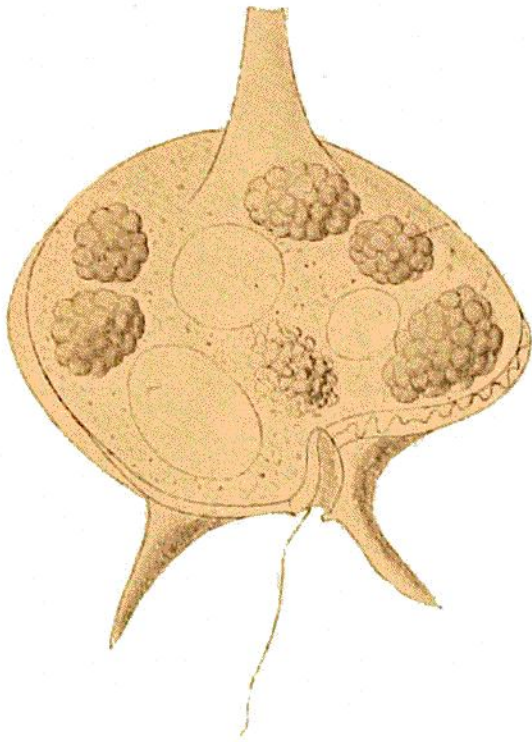


FIG. 226.—*PERIDINIUM DEPRESSUM* ( $\frac{27}{16}$ ).  
(Schütt.)

prolong them at will (see Fig. 227). They have also still another mode of improving their floating power. The cell wall grows in thickness during the whole life of the algæ, and simultaneously ribs and pores are constantly developing; but as soon as the cell gets too heavy, one or even several laminæ peel off from the cell armour, and new extremely thin plates take their place.

The species of *Ceratium* are also formed by division, and with them, too, the daughter-cells each retain half of the membrane of the mother-cell, the other half being new. This does not, however, take place within the cell-wall of the mother-cell, and there is therefore no gradual diminution in the bulk of the individual. Sometimes the cells hang together in chains,