Plymouth Peridinians. IV.

The Plate Arrangement of some Peridinium Species.

By

Marie V. Lebour, D.Sc.,

Naturalist at the Plymouth Laboratory.

With Figures I–V in the Text.

THE well-known *Peridinium ovatum* (Pouchet) is a common and widely distributed species. It was first described by Pouchet (1883) from the Mediterranean, and later more detailed figures were given by Schütt (1895), Fauré Fremiet (1908),* and Broch (1909). None of these figures agree with the plate arrangement found in the specimens from Plymouth. Jörgensen (1913) places the species in his section Humilia in the group Metaperidinium, on account of the supposed arrangement of the dorsal epithecal plates. However, on examining a large number of specimens from Plymouth it was found that the dorsal plates were not symmetrical as in the section Humilia (Fig. I, 1), but asymmetrical with the second

FIG. I.—Relation between the second anterio rintercalary plate and precingulars in the the sections Humilia and Pyriformia of the group Metaperidinium Jörgensen.

1. Humilia.
2. Pyriformia.

anterior intercalary touching both the third and fourth precingulars (Fig. I, 2). It would thus be placed in Jörgensen's section Pyriformia of the group Metaperidinium. Meunier (1910) agrees in his figures with Broch and Fauré Fremiet, but later (1919) he gives a figure (Plate XVI, Fig. 11), in which the dorsal plates are arranged as in the section Pyriformia, and exactly similar to the Plymouth specimens. Meunier, therefore, is the first to give the correct plate arrangement.

Specimens from the Isle of Man kindly sent by Sir William Herdman,

* Not his *P. ovatum*, which is another species, but his *P. lenticula*.

and from Cullercoats, Northumberland, have also been examined and found to agree with those from Plymouth; moreover, in plankton samples sent from Calicut, Madras, the species was abundant and the plate arrangement the same (Fig. II). There thus seems no doubt that

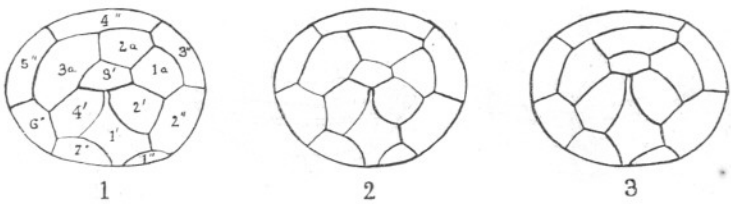

FIG. II.—Epitheca of *Peridinium ovatum* (Pouchet).
1. From Plymouth Sound, 18.2.21, 70 μ across.
2. From Plymouth Sound, 27.7.22, 70 μ across.
3. From Calicut, Madras, May, 1922, 70 μ across.

Peridinium ovatum belongs to the section Pyriformia, group Metaperidinium, of Jörgensen (Fig. III).

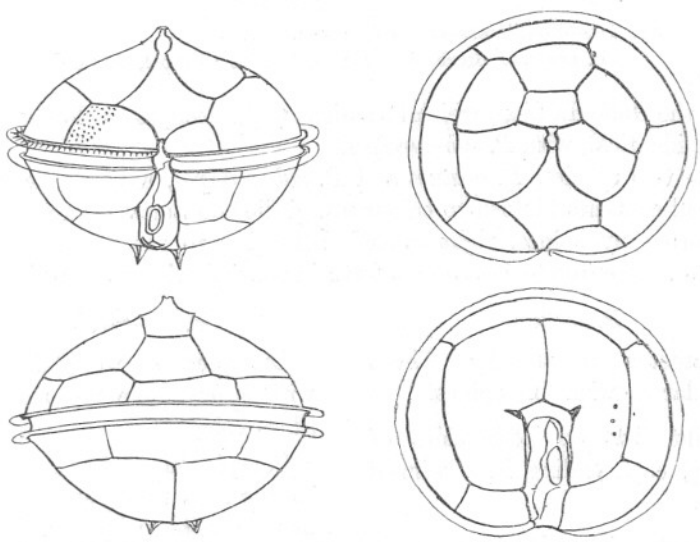

FIG. III.—*Peridinium ovatum* (Pouchet).
Plymouth Sound, 25.5.21, 64 μ across.

Another species recently found at Plymouth has possibly been confounded with *P. ovatum*. This is Broch's *P. curvipes* (1909), for which, as it is not identical with Ostenfeld's species of that name, I suggest the name *Peridinium sub-curvipes*. Paulsen (1911) and Pavillard (1916) have already pointed out that this is a different species which Broch described from Spitzbergen and those from Plymouth exactly agree

with it. The dorsal plates (Fig. IV) are symmetrical, and show that it belongs to the section Humilia, group Metaperidinium; thus it differs from the original *P. curvipes* of Ostenfeld, which also occurs in Plymouth and which belongs to the section Paraperidinium. Pavillard's species

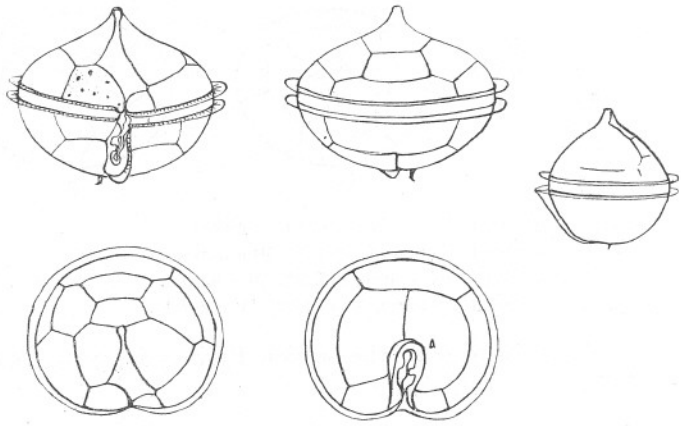

FIG. IV.—*Peridinium sub-curvipes* nom. nov.
=P. curvipes Broch, 44 μ across, English Channel, Station E2, 14.3.23.

from the Golfe du Lion, which he assigns to *P. curvipes*, is closely related, if not identical, with *P. sub-curvipes*.

The two species, *P. ovatum* and *P. sub-curvipes*, are both lenticular, the cell contents pinkish to colourless, girdle equatorial with strong lists supported by spines, right-handed, belonging to the group Metaperidinium. The differences are set forth in the following table :—

P. ovatum.	*P. sub-curvipes.*
Diameter up to 84 μ. Theca granular or with fine spines.	Diameter up to 52 μ. Theca with a few large pores or sometimes spines.
Faint lists on both sides of sulcus, each ending in a winged spine.	Conspicuous list on left side, ending in a spine, spine on right not connected with list.
Dorsal epithecal plates, as in the section Pyriformia.	Dorsal epithecal plates, as in the section Humilia.
First apical oblique with fairly long central side on left.	First apical very oblique with very short central side on left.
Conspicuous ridge on anterior margin of third apical.	No ridge on anterior margin of third apical.

Another species occurring fairly frequently at Plymouth, but usually

singly, calls for attention as to its plates—*Peridinium claudicans* Paulsen (1907). Paulsen himself does not describe the plates in detail, although he says it is similar to *P. oceanicum var. oblongum*. Certainly at the first glance affinities with this species are suggested, but on careful examination of the dorsal epithecal plates it is seen to be of the right oblique type with the second anterior intercalary related to both the third and fourth precingulars (Fig. V), and thus belonging to the section

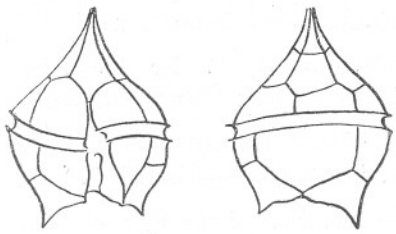

FIG. V.—*Peridinium claudicans* Paulsen.
75 μ across, Plymouth Sound, 30.5.21.

Tabulata of the Orthoperidinium group, not to the Oceanica section, where it is related only to the fourth precingular. Barrows (1918) figures this species from Sousaleto, California, with similar dorsal plates, but regards the specimen as abnormal. As in all the Plymouth specimens examined the plates are as described above it seems that this is the typical arrangement, and any showing the Oceanic type must be regarded as a different species.

To sum up, therefore, we place the species above-mentioned in the following sections and groups :—

Group.	*Section.*	*Species.*
Orthoperidinium Jörgensen.	Tabulata Jörgensen.	*Peridinium claudicans* Paulsen.
Metaperidinium Jörgensen.	Pyriformia Jörgensen.	*Peridinium ovatum* (Pouchet).
	Humilia Jörgensen.	*Peridinium sub-curvipes* nom. nov.

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