A RED WATER ORGANISM FROM WALVIS BAY

(*Gymnodinium galatheanum* n. sp.)

By TRYGVE BRAARUD
University of Oslo

During the Danish "Galathea"-expedition 1950-52 red water was observed in Walvis bay on 24 December 1950. A sample preserved with formalin was collected by Professor E. STEEMANN NIELSEN and forwarded to me for examination.

The plankton consisted of several species, dinoflagellates, *Euglena,* naked and thecate ciliates, but one species outnumbered all the others, a species of *Gymnodinium* or *Gyrodinium.* Since it does not seem to agree with any of the known species, we are describing it as *Gymnodinium galatheanum* n. sp.

Diagnosis: Cells without plate structure, but with a periplasm which seems to be firm. In ventral view both the anterior and posterior parts are broadly rounded, being connected by an extremely broad cingulum, which has a displacement of about 2 times its width. The cingulum is deeply excavated. The sulcus seems to be extremely narrow

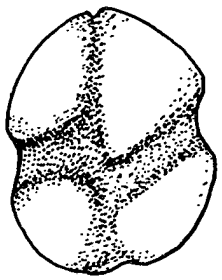

Fig. 1. *Gymnodinium galatheanum.* Sketch of cell in ventral view.

and is connected with a well defined furrow on the anterior part of the cell. In ventral view this furrow produces an indentation in the contour at the apex, giving a similar impression as an apical pore in thecate species. The posterior part of the cell has different outlines in ventral and dorsal views. While in ventral view the outline is smooth, like that of the anterior part, in dorsal view an irregular protrusion is visible on the left side of the cell. In oblique dorsal view still another protrusion is visible, which is considerably shorter and narrower. The smaller protrusion

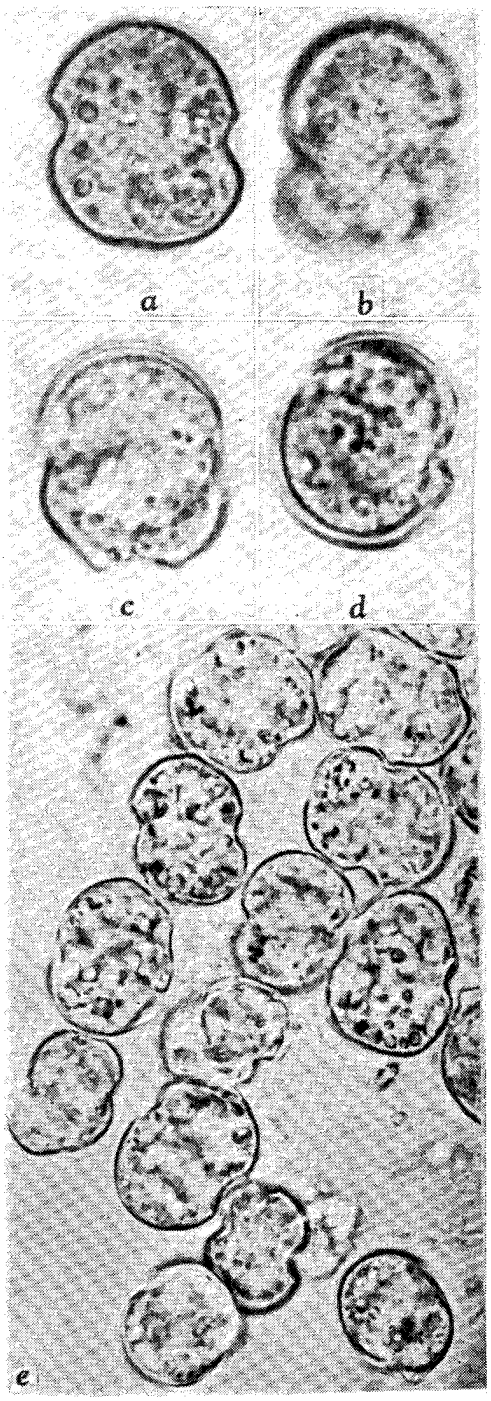

Fig. 2. *Gymnodinium galatheanum.* Photomicrographs of preserved material. a, in ventral view; b, in oblique side view; c, in oblique antapical view; d, optical cross section; e, part of the plankton sample, showing cells in various positions.

is due to a narrow fold, the larger represents a more rounded hump, both on the left side of the narrow sulcus. There are numerous rounded chromat ophores.

Length of the cell: 14-17 μ, breadth: 10-14 μ.

The cells resemble *Gymnodinium boreale* GAARDER, but in that species neither the characteristic protrusions on the posterior part nor the pore-like indentation at the apex have been observed.

The displacement of the cingulum seems to be about $^1/_5$ of the length of the cell. This detail is, however, not easily seen and the species may just as well be referred to *Gyrodinium* as to *Gymnodinium*.

Trypan blue does not produce the blue characteristic of thecate dinoflagellates, and no signs of plates were observed. On the other hand the cingulum is clearly marked, even in preserved material, so a fairly firm periplasm seems to be present. During treatment with Eau de Javelle the cell content does not disappear until the outline of the cell becomes obscure.

The species which accompanied *Gymnodinium galatheanum* were mostly quite subordinate in numbers and have not been made the object of more detailed taxonomic studies. The list of forms which were observed is as follows:

Amphidinium sp.
Euglena sp.
Goniaulax sp.
Peridinium sp. (cf. *P. triquetrum)*
Ciliates, naked and thecate.

In comparison with *Gymnodinium galatheanum* they form a subordinate component of the plankton, and there is every reason to consider this species as the main cause of the red water observed on the date of sampling.

25. 7. 57. 600. 225.