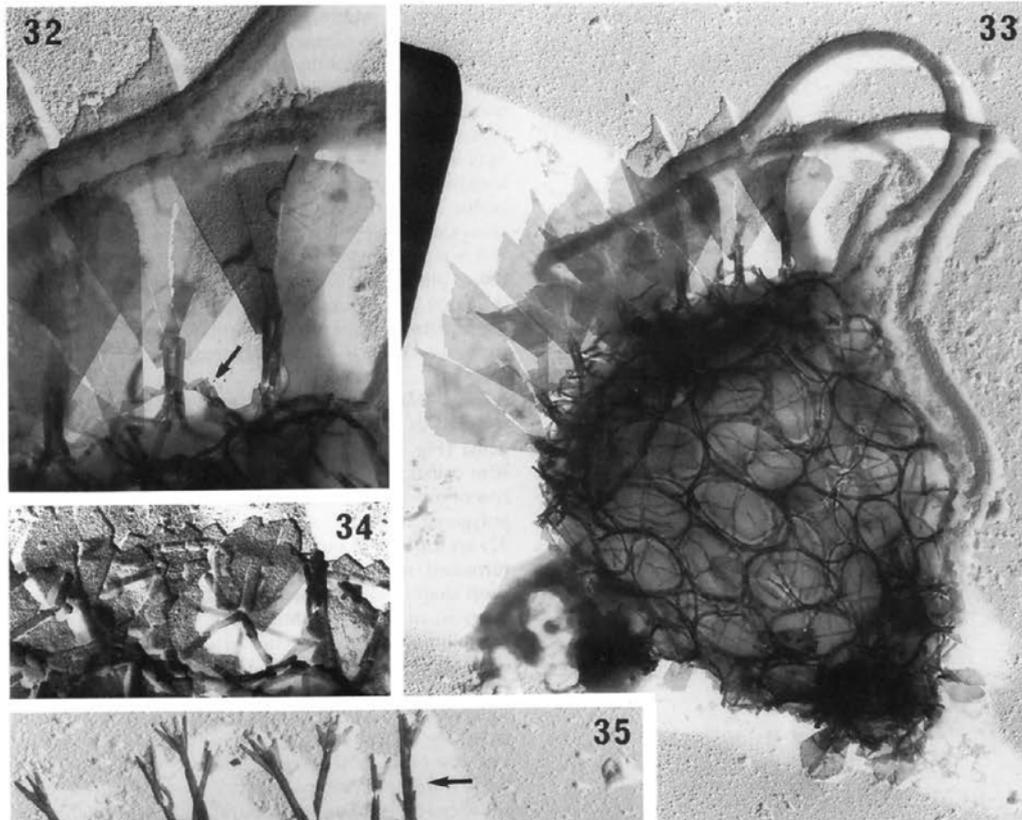


52. *Pappomonas weddellensis* Thomsen in Thomsen et al. (1988)



Figs 32-34

Figs 32-34. *Pappomonas weddellensis*.

Fig. 32. High magnification of flagellar pole coccoliths. Notice circular base-plate (arrow). Micrograph T01085, x 25000.

Fig. 33. Complete cell (type specimen). Micrograph T01083, x 15000.

Fig 34. Coccoliths from the posterior cell end. Notice rim calcification, the much reduced central appendage, and eight calcified radiating arm on top of the base-plate. Micrograph T00665, x 30000.

Cellula a latere visa rotundate triangula, flagellis binis et haptonemate instructa. Coccusphaera e pappolithis composita. Anulus marginalis calcarius cujusque coccolithi e circulo interiore elementorum bacilliformium et circulo exteriori elementorum polygonorum erectorum compositus. Pappolithi apicales circulares. 0.6-0.7  $\mu\text{m}$  diam., quisque appendice centrali armatus. Scapus appendicis (0.2) 0.4-0.6  $\mu\text{m}$  longus, e partibus sursum prolongatis serierum radialium crystallitarum formatus. Pars apicalis 2.0-2.2 x 1.3-1.4  $\mu\text{m}$  magna, e duabus laminis imparibus composita fissura media angusta separatis, altera denticulo terminata altera minore truncata. Ceteri pappolithi praeter posticos ovaes, 1.0-1.3 x 0.5-0.8  $\mu\text{m}$  magni, appendicibus centralibus carentes, radios plerumque 4 e crystallitis seriatis bacilli

formibus formatos praebentes. Coccolithi postici appendicibus parvis armati scapis nullis, partibus apicalibus symmetricis, 0.6-0.8 x 0.4-0.6  $\mu\text{m}$  magnis.

(Figs 32-34). Cell rounded triangular in side view (dried material ea. 6 x 5  $\mu\text{m}$ ) with two flagella and a haptonema (Fig. 33). Cocosphere composed of pappoliths. Rim calcification of all coccoliths consists of an inner row of rod-shaped elements and an upright outer row of polygonal elements. Anterior cell end pappoliths (Fig. 32) are circular in outline (0.6-0.7  $\mu\text{m}$  in diameter) and furnished with conspicuous central appendages. The short shaft of each central appendage, (0.2) 0.4-0.6  $\mu\text{m}$  long, is an upright continuation of the four rows of crystallites that traverse the base-plate (Fig. 32). The distal appendage measures 2.0-2.2 X 1.3-1.4  $\mu\text{m}$ , and consists of two morphologically different fan-like blades separated by a narrow, central cleft. One blade is terminated by a tooth-like projection, the other is smaller and truncated. Other coccoliths are oval, 1.0-1.3 x 0.5-0.8  $\mu\text{m}$ , and without central processes. Base-plate calcification consists of (mostly) four rows of narrow rod-shaped crystallites that converge at the scale centre (Fig. 33). Coccoliths at the posterior cell end have much reduced symmetrical central processes (Fig. 33). There is no shaft to the process, and the distal appendage measures only 0.6-0.8 x 0.4-0.6  $\mu\text{m}$ .

**Type micrographs:** Figs 32, 33. Cell found 9 March 1986 in mixed water sample (50 m/75 m depth) from st. M 9 (65°39,6' S 47°34,0' W).

The material of *P. weddellensis* comprises only two complete cells from st. M 9 (50 m/75 m) and st. M 30 (1 m/ 10 m).

*Pappomonas weddellensis* is closely related to the type species of the genus. *P. flabellifera* Manton & Oates, but the new species differs in the shape and pronounced asymmetry of the distal appendage on the coccolith processes, and above all by the absence of concentric base-plate calcification of non-styliform coccoliths.

In addition to the morphological details accounted for in the diagnosis it seems relevant to point to the fact that whereas flagellar pole coccoliths (Fig. 32) and body coccoliths (Fig. 33) appear to display a fourfold symmetry of base-plate calcification, it appears from Fig. 34 that coccoliths with reduced central processes may have a base-plate calcification which consists of eight radiating rows of crystallites.

The present species shows its general affinity with species of *Pappomonas* through 1) the pronounced dimorphism of coccoliths (flagellar pole coccoliths with central processes and circular base-plates/body coccoliths without central processes and oval base-plates) and 2) the overall morphology of the distal appendage of the coccolith processes. Concerning base-plate calcification of body coccoliths the species described here is further reminiscent of some of the species of *Papposphaera* Tangen (1972). It is thus evident that the combination of morphological characteristics

observed in *P. weddellensis* only adds to the evidence accumulating in favour of either merging the two genera *Pappomonas* and *Papposphaera* or perhaps rather redistributing the species described according to other combinations of characteristics (see e.g. Thomsen 1982).

Thomsen, H.A., Buck, K.R., Coale, S.L., Garrison, D.L. & Gowing, M.M., 1988. Nanoplanktonic coccolithophorids (Prymnesiophyceae, Haptophyceae) from the Weddell Sea, Antarctica. *Nordic Journal of Botany*, **8**: 419-436.