Figs 38-40. *Papposphaera obpyramidalis*.

Fig. 38. Complete coccosphere. Notice that there is a gradual change in coccolith size from one end of the cell to the other. Arrow points to flagellar apparatus. Micrograph T01074, x 8000.

Fig. 39. High magnification of coccoliths showing details of calcification. Micrograph T01063, x 20000.

Fig. 40. Field of coccoliths. Arrow points to “wristlet”. Micrograph T00781, x 8000.

Cellula sphaerica. Cocosphaera e pappolithis styliformibus composita. Lamina basalis coccolithi ovalis, 1.3-1.5 x 0.8-1.0 μm diam., duabus seriebus crystallitarum marginata, alteris prostratis bacilliformibus, alteris erectis polygonis lateribus 0.20-0.25 μm longis. 4 radii crystallitarum tenuium medio in scapum appendicis centralis 0.4-1.3 μm longum transientes. Pars apicalis appendicis e 4 laminis cuneatis composita, in viva cellula probabiliter obpyramidalis. Margo apicalis laminae cuneatae paulum convexus, 0.6-1.6 μm longus, medio 0.6--1.7 μm a base acuta laminae distans.

(Figs 38-40). Cell spherical, ea. 5 μm in diameter. Cocosphaerae composed of styliform pappoliths (Figs 38, 40). The coccolith base-plate is oval (1.3-1.5 x 0.8-1.0 μm) and with rim calcification (Fig. 39) consisting of a basal row of rod-shaped crystallites and an upright row of approximately 25 polygonal elements (edge: 0.2 0.25 μm). The central area (Fig. 39) is crossed by four narrow rows of crystallites that continue into the shaft of the central appendage. The length of the shaft varies from 0.4 μm to 1.3 μm. The four distal elements on the shaft are cuneiform with rounded distal edges
and in living material probably arranged to form an inverted pyramidal structure (Figs 39, 40). The distal edge measures from 0.6 μm to 1.6 μm. The distance from the centre of this edge to the point of convergence of the four elements ranges from 0.6 -tm to 1.7 μm.

**Type micrograph:** Fig. 40. Cell found 8 March 1986 in a mixed water sample (45 m/60 m depth) from st. M 5 (65°26,2' S, 45°38,8' W).

The material of *P. obpyramidalis* comprises electron micrographs of four coccospheres and some isolated coccoliths from st. M 1(0 m), st. M 5 (45 m/60 m), st. M 9 (50m/75m), and st. M 47 (2m/8m/14m).

In no cases did the cells possess flagella and haptonema. It is yet likely that the curled structure pointed out in Fig. 38 may represent part of the flagellar apparatus.

*Papposphaera obpyramidalis* is closely related to both the type species of the genus, *P. lepida* Tangen, and *P. thomsenii* Norris. The species differs from *P. lepida* in the shape and arrangement of the distal coccolith process appendage. The differences between *P. thomsenii* (from the Indian Ocean) and *P. obpyramidalis* is mostly dimensional. The fact that the process shaft is considerably shorter in *P. obpyramidalis*, and the distal infundibuliform appendage at the same time much larger, results in a conspicuous difference between the otherwise morphologically similarly constructed styliform pappoliths of these two species.

*Papposphaera obpyramidalis* does appear to have a "wristlet" of elements at the distal end of the process shaft (Fig. 40, arrow), in this respect being similar to *P. lepida* and differing from *P. thomsenii*.

From some of the coccospheres examined (e.g. Fig. 38) one might get the impression that there is a gradual change in the size of the infundibuliform process appendages from one end of the coccosphere to the other. The larger pappoliths most likely occur at the anterior cell end (cfr. *P. sagittifera*).