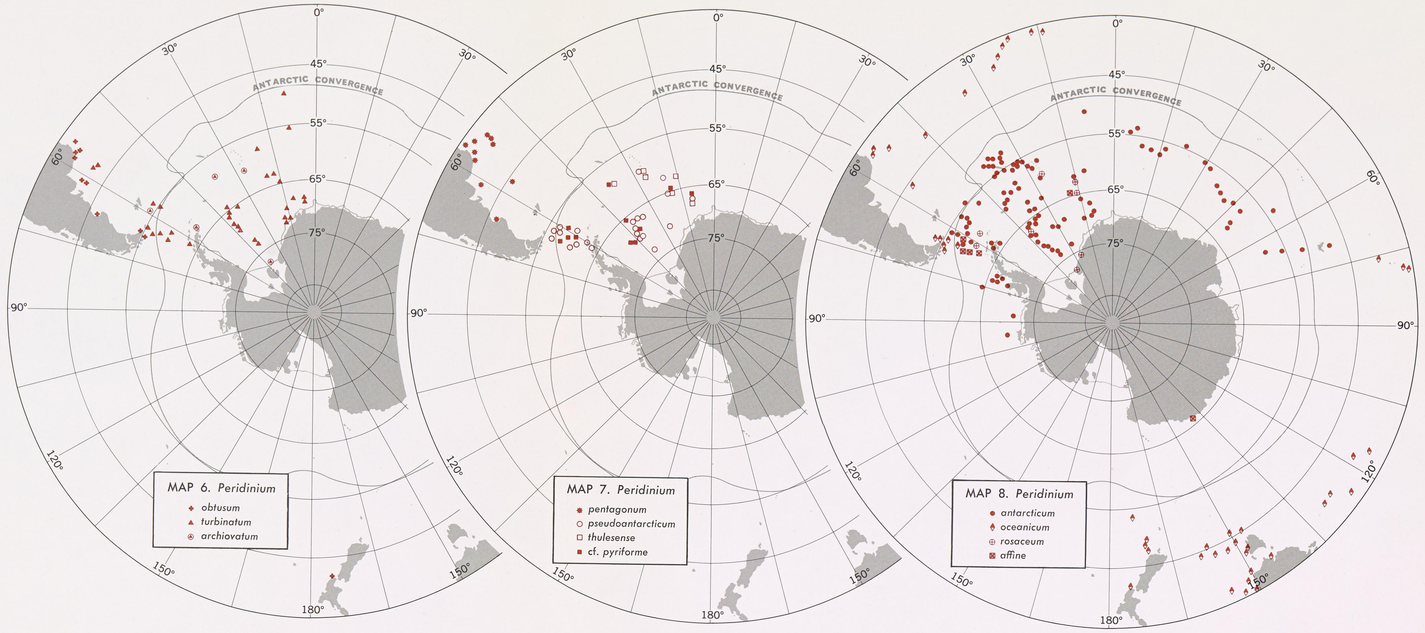
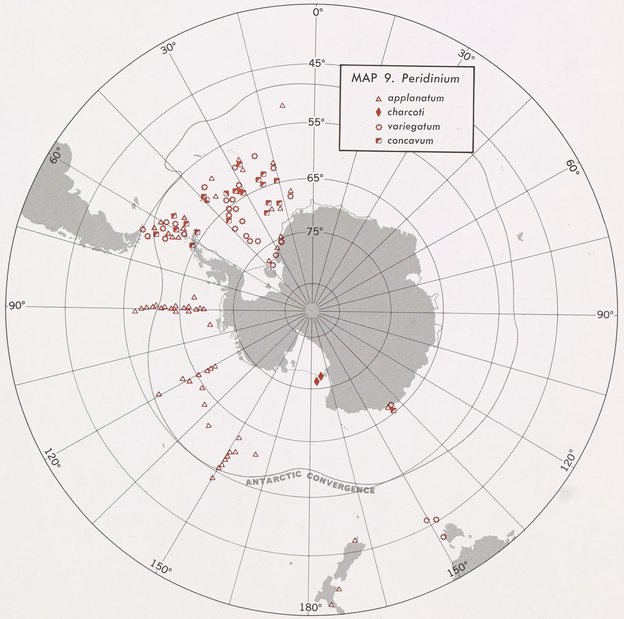




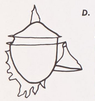
IDENTIFICATION OF ANTARCTIC THECATE DINOFLAGELLATES

The following concise descriptions and drawings are not intended as a key but rather as a simple guide to help distinguish the known species of Antarctic dinoflagellates. All drawings are of the same magnification (x400).

E. Balech

Dinophysis

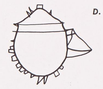
D. antarctica Balech (Antarctic forms of *D. ovum*, auct.) Simplicity of contour, low epitheca, wide hypotheca, a narrow left sulcal list and a very short right one make this species easy to distinguish from the Antarctic congenerics



D. cornuta Peters has a high epitheca with protuberances. Hypotheca narrow and irregular with a very ragged, irregular list along its sutural line in the dorsal and posterior parts. Left sulcal list very wide along the posterior rib.

subspecies *inerme* Balech. General contour like the typical subspecies. Epitheca and hypotheca without excrescences or with some, poorly developed, near the aboral end. Left sulcal list significantly narrower at the base.

D. tuberculata Mangin is the other species of low epitheca (*Dinophysis* type). It is larger than *D. antarctica*; the lateral outline is more elongated and generally furnished with irregular excrescences in the posterior part. Left sulcal list with a wide base. Highly variable.



D. spinata Peters. Very similar to *D. cornuta*; however its contour is different, especially in frontal view. Most of its excrescences are of a square type.

Diplopsalis

D. granulosa Balech. The high, elliptical form and strong sculpture are exceptional in this genus.

Podolampas

P. antarctica Balech is the only species of this genus found to date (1968) in the Antarctic. In general outline it is somewhat intermediary between *P. spinifer* and *P. palmipes* although its tabulation differs from both. Antapical membrane strongly sculptured.

Oxytoxum

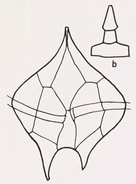
O. criophilum Balech. The only species of the genus known from the Antarctic. It is one of the very rare species of the genus with overhanging. It differs from *O. elegans* by the form of the epitheca and in its sculpture.

Peridinium

Fig. b. Epithecal plate pattern, dorsal view
Fig. c. The epitheca, apical view
Fig. d. Epithecal plate pattern, ventral view

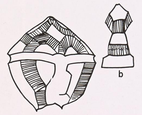
I. ORTHO

A. Quadra



P. antarcticum Schimper. The largest Antarctic species. This and the following species are the only Antarctic *Peridinium* with well-developed, hollow antapical horns. The protoplasm generally appears clear and contracted in fixed specimens.

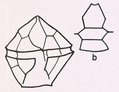
P. pseudoantarcticum Balech. Somewhat smaller and narrower than *P. antarcticum*. Expansion at the girdle more gentle. Antapical horns more divergent; Plate 1′ usually wider. Protoplasm generally opaque. The dorsal plate pattern similar to that of *P. antarcticum*.



P. latistriatum Balech. Pentagonal outline. Sutures very wide; protoplasm dark.

B. Hexa

P. rosaceum Balech. (Antarctic *P. subinermis*, auct.) Pentagonal contour. The lateral angles of 1′ low. Lateral sutures of 3′ prominent.



P. parvicollum Balech. Pentagonal outline. Plate 1′ has a typical convexity at the right of the posterior angle. Plate 3′ very high.

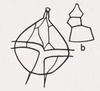
P. turbinatum Mangin. Pentagonal outline. Hypotheca is relatively low. Plate 1′ is rather narrow; Plate 3′ high. Lateral margins of 2° almost in a straight line with those of 3′ and barely touching 3″ and 5″.

II. META

A. Hexa

P. incertum Balech. The only Antarctic species with this plate pattern. It is a small species, probably referred to by some authors as *P. pellucidum*.

B. Penta



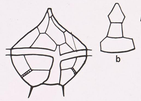
P. unipes Balech. Pear-shaped and has a rather long apical horn. Plate 1′ narrow; Plate 7″′ very high. Its antapical plates are fused together; this is a character unique in the genus.

P. sp. cf. P. pyriforme Paulsen. Pear-shaped also. No apical horn. Short antapical spines and broad sutural bands.

P. incognitum Balech. Much smaller than the other species in this group. Its shape is a broad oval. It has a very short apical horn.

C. Quadra

This is the division of the genus which contains the highest number of Antarctic species.



P. concavum Mangin. Rather large. Very short and attenuate apical horn. Two well-developed antapical spines, widely separated.

P. elegantissimum Balech. Very similar to *P. concavum*, but distinctly smaller. Details of the tabulation also differentiate the two species.

P. mediocre Balech. Wide ovoid, clumsy. Apical horn very short and steep. Antapical spines of medium size and closely set.

P. curtum Balech. Shorter than *P. mediocre*. It is wider than long. The cingulum has some overhanging. Antapical spines very small.

P. raphanum Balech. Small and short. Apical horn of medium size and emerges abruptly. Antapical spines rather short and widely separated.

P. applanatum Mangin. Shorter than the species described above. Long apical horn emerges abruptly and its long antapical spines are widely separated.

P. obovatum Wood. Even shorter than *P. applanatum* and very flattened. It could be a variety of the former.

III. PARA

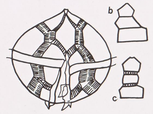
A. Quadra

P. nanum Balech. The smallest Antarctic species. Its general contour is similar to that of *P. metananum*.

P. adeliense Balech. Closely resembles *P. elegantissimum* in general outline and size; however its antapical spines are closer, and have lists. The left sulcal list forms a "third antapical."

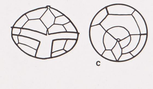
B. Hexa

P. affine Balech. Rather closely resembles *P. adeliense* in general outline, but is stouter with a short apical horn and shorter antapical spines.



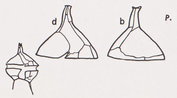
P. variegatum Peters. Somewhat wider than long. This is the larger *Peridinum* Para. Its apical horn and antapical spines are very short. Occasionally some quadra specimens are found.

IV. *PERIDINIUM*, SUBGENUS Archaeperidinium



P. archiovatum Balech. An "ovatum" form but has only two intercalaries plates. It is the only known Antarctic species belonging to this subgenus.

V. *PERIDINIUM* WITH QUITE ABNORMAL PLATE PATTERN



P. defectum Balech. A very small species with long and dissimilar antapical spines and a long apical horn. The very abnormal tabulation makes its inclusion in the genus contestable.