

72. *Pontosphaera megapachydisca* Steurbaut (2011)

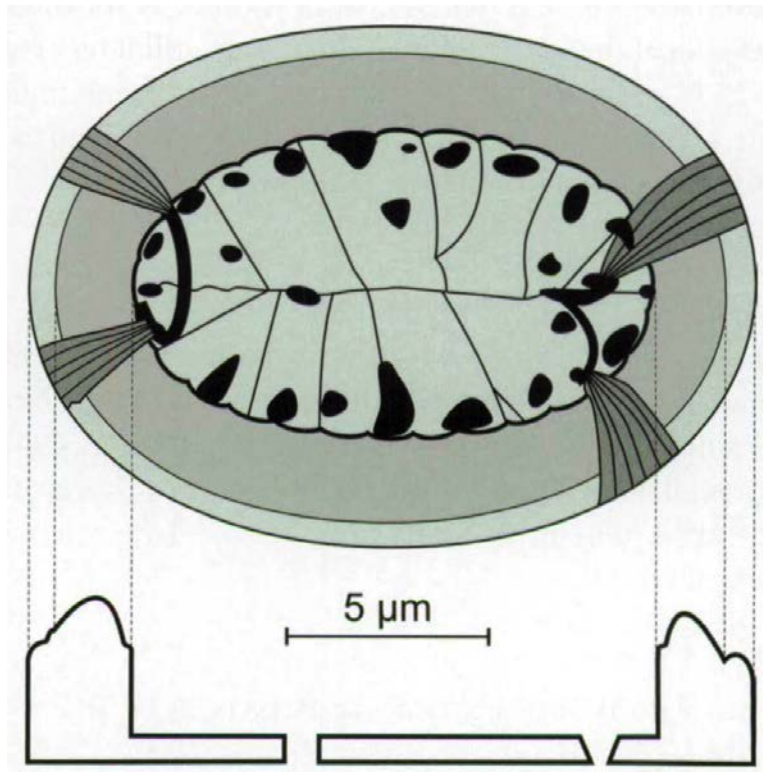
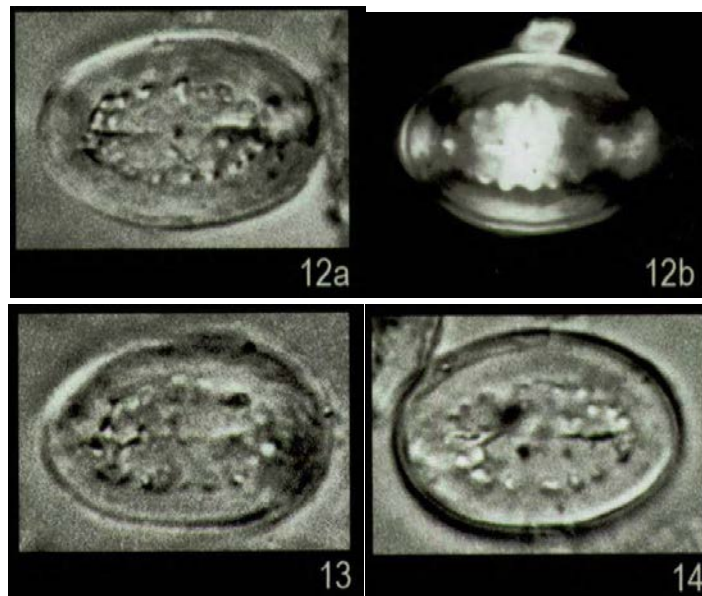


Fig. 12

Fig. 12. Composite drawing of the holotype of *Pontosphaera megapachydisca* sp. nov. (IRSNB b6394) from sample AK189 at Aktulagay.



Pl. 1, Figs 12-14

Pl. 1, figs. 12-14. *Pontosphaera megapachydisca* sp. nov. 12: AK189, holotype, top l-NP13, a = t. l., b = c. p., L = 18.4 μm, (IRSNB b6394); 13: AK189, paratype, top l-NP13?, t. l., L = 16.0 μm, (IRSNB b6395); 14: AK50, paratype, m-NP13, t. l., L = 18.4 μm, (IRSNB b6396).

**Derivatio nominis:** Refers to the very large and exceptionally thick heterococcoliths marking this new species.

**Holotype:** Fig. 12 and Pl. 1, Fig. 12a, b (IRScNB b6394) (negatives stored in the collections of the RBINS).

**Locus typicus:** Aktulagay, Western Kazakhstan; 47°32'31" N, 55°09'14" E.

**Stratum typicum:** Tolagaysor Formation, base of Unit C2 (sample AK189); top of lower part of NP13 (9 m above its base), Ypresian, ~50.3 Ma.

**Paratypes:** 2 figured specimens, both from the Tolagaysor Formation: one from the same sample as the holotype (Pl. 1, Fig. 13) (IRScNB b6395) and one from 6 m higher up within the lower part of unit C2 (AK50) (Pl. 1, Fig. 14) (IRScNB b6396).

**Diagnosis:** Very large elliptical heterococcoliths with a high, extremely thick rim and a much thinner basal plate, with 18 to 23 peripheral perforations of variable dimensions and a few (up to 5) irregularly distributed central pores.

**Description:** The heterococcoliths of this new taxon are extremely large, ranging from 16 to 18.5  $\mu\text{m}$  in length and marked by a very thick complex rim. The latter consists of a small thick outer rim and a two to three times broader, thick inner rim, surrounding a much thinner basal plate. This plate is built up by a series of several smaller accessory plates (7 to 8 on each longitudinal half), which are separated along the long axis by a thin depression (line), running along the entire plate. The basal plate is peripherally perforated by 18 to 23 pores, of which the dimensions and shape are highly variable. A very restricted number of pores (generally around 5) are randomly distributed over its central area. The robustness of this form is very distinctive and easily demonstrated in cross-polarized light. The outer rim and the transition of the inner rim towards the basal plate show high order birefringence colors from dark yellow to red, whereas the main part of the inner rim fluctuates from blue to green. Two rather sharp irregular Y-shaped extinction lines appear when viewed in a position parallel to the polarization direction. Viewed at 45°, these lines are transformed into two L-shaped thin lines, following the axis of the ellipse although without completely interconnecting in the center.

**Dimensions:** Length = 16.0 to 19.2  $\mu\text{m}$ , Width = 11.2 to 13.2  $\mu\text{m}$  (holotype: L = 18.4  $\mu\text{m}$ , W = 13.2  $\mu\text{m}$ ).

**Discussion:** This taxon is included in the genus *Pontosphaera* because of its general outline, consisting of a perforated plate surrounded by an elevated rim, and its optical characteristics (high birefringence and typical extinction lines in cross-polarized light). Within all known *Pontosphaera* taxa it bears most resemblance to *P. distincta* (BRAMLETTE & SULLIVAN, 1961), by the large dimensions of the coccoliths and by

their exceptional thick rim. The latter, described from the middle Eocene of California, has erroneously been synonymized with *P. multipora* (see AUBRY, 1990, p. 236). However, the material from Aktulagay indicates that coccoliths of *P. megapachydisca* are still larger (up to 25%) than those of *P. distincta*, whereas the main part of their central plate, contradictory to what has been observed in the latter, is almost completely free of perforations.

**Distribution:** Up to now only known from Aktulagay, where it occurs episodically in the greater part of Unit C2 of the Tolagaysor Formation (samples AK189 to AK94), although not its topmost 5m. Hence, its range seems to be restricted to the upper part of NP 13 and the extreme base of NP 14.

Steurbaut, E., 2011. New calcareous nannofossil taxa from the Ypresian (Early Eocene) of the North Sea Basin and the Turan Platform in West Kazakhstan. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre*, **81**: 247-277.