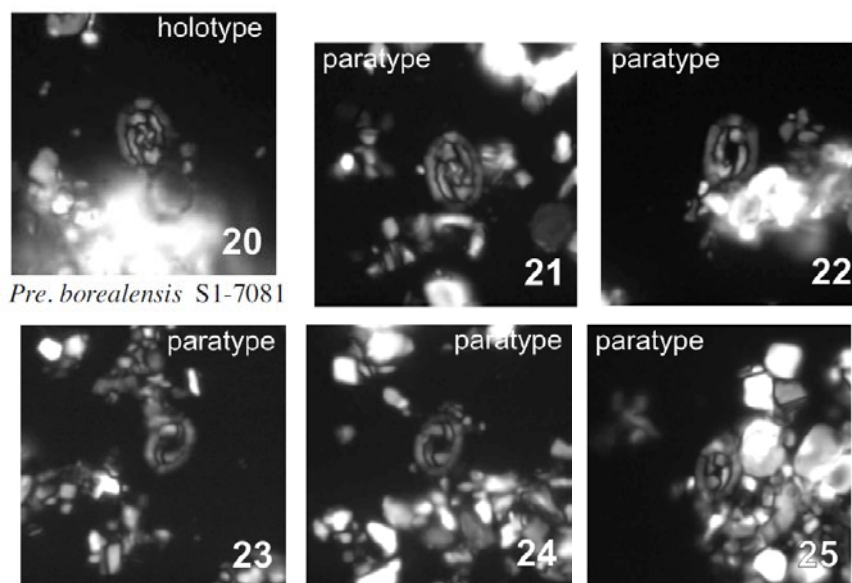


69. *Prediscosphaera borealensis* Thibault (2010)



*Prediscosphaera borealensis* S1-7081 (21), S1-7076 (22), S1-1131 (23, 24), S1-1029 (25)

Pl. 5, figs 20-25

**Derivation of name:** Referring to the northern high latitudes, from where this species is described.

**Diagnosis:** A small, elliptical species of *Prediscosphaera* with a thin, axial cross, a thin outer cycle, and a wide inner cycle, which tends to enclose the central area (Pl. 4, figs 20, 21). The inner cycle exhibits an anticlockwise spiral interference pattern and almost fills the central area around the axial cross. The axial cross appears very slightly offset from the axes of the coccolith, and its arms are slightly sigmoidal. Only a few better-preserved specimens were found with the axial cross present in this study. In most specimens encountered, the cross was absent (Pl. 5, figs 22-25). It is possible that the cross is not visible in proximal view, where the inner cycle virtually fills the central area (Pl. 5, figs 24, 25).

**Differentiation:** This species exhibits the same size range as *P. stoveri* (Table 2, Figure 2). It can be distinguished from the latter, and from *P. spinosa* (Pl. 6, figs 8-10), by the spiral pattern exhibited by the inner cycle, the relatively thinner outer cycle, the more enclosed central area (Figure 2, and compare Pl. 5, figs 18, 19 with Pl. 5, figs 20-25), and the different composition of the axial cross. In *P. stoveri* and *P. spinosa*, the arms of the cross are straight and aligned with the axes of the coccolith (Pl. 5, figs 18, 19; Pl. 6, figs 8-10), whilst in the new species, the arms are slightly offset from the axes and slightly sigmoidal (Pl. 5, figs 20, 21). The new species differs from *P. arkhangel'skyi* (Pl. 5, figs 14-16) by its smaller size, the more enclosed central area, and the slightly offset and slightly

sigmoidal axial cross.

**Holotype:** Pl. 5, fig. 20 (L = 5.1µm, W = 3.6µm; see Table 2 for range of dimensions).

**Paratypes:** Pl. 5, figs 21-25.

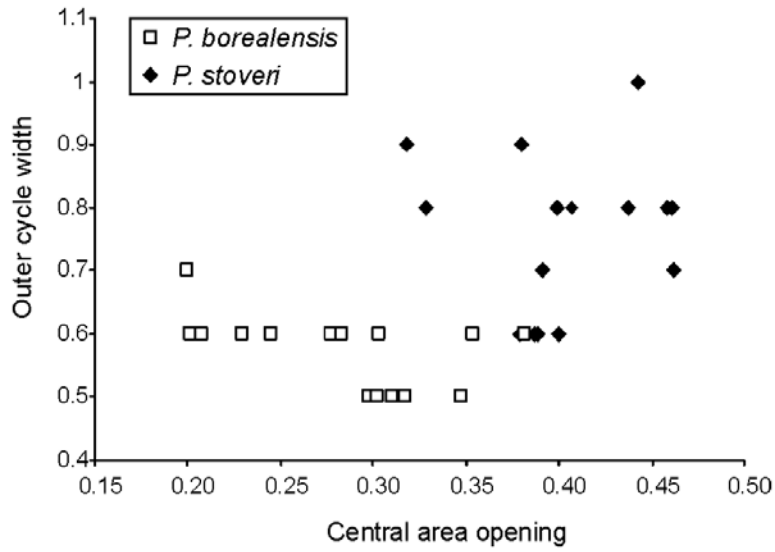
**Type locality:** Stevns-1 core-hole, Denmark.

**Type level:** S1-7081, Upper Campanian (UC16a<sup>BP</sup>-c<sup>BP</sup>).

**Occurrence:** Stevns-1, Rørdal-1; Upper Campanian-Lower Maastrichtian (UC16a<sup>BP</sup>-UC19).

**Table 2:** Dimensions and other morphometric parameters for *Prediscosphaera borealensis* sp. nov. and *P. stoveri* (15 specimens each)

Samples	Species		Length	Width	Ellipticity	Length central area (LCA)	Width central area (WCA)	Ratio LCA/Length <sup>h</sup>	Ratio WCA/Length <sup>th</sup>	Central area opening	Outer cycle width
7081	<i>P. borealensis</i>	(holotype)	5.10	3.60	1.42	1.70	1.30	0.33	0.36	0.35	0.50
7081	<i>P. borealensis</i>		5.00	3.40	1.47	1.90	1.30	0.38	0.38	0.38	0.60
7081	<i>P. borealensis</i>		5.20	3.60	1.44	1.80	1.30	0.35	0.36	0.35	0.60
1131	<i>P. borealensis</i>		3.80	2.63	1.44	1.15	0.77	0.30	0.29	0.30	0.50
1131	<i>P. borealensis</i>		4.17	3.26	1.28	1.05	1.20	0.25	0.37	0.31	0.50
1131	<i>P. borealensis</i>		3.99	2.95	1.35	1.27	0.93	0.32	0.32	0.32	0.50
1131	<i>P. borealensis</i>		3.99	2.54	1.57	1.39	0.65	0.35	0.26	0.30	0.50
1131	<i>P. borealensis</i>		4.07	3.17	1.28	1.16	0.89	0.29	0.28	0.28	0.60
1131	<i>P. borealensis</i>		4.15	2.91	1.43	0.98	0.74	0.24	0.25	0.25	0.60
1131	<i>P. borealensis</i>		4.01	2.88	1.39	0.85	0.55	0.21	0.19	0.20	0.60
1131	<i>P. borealensis</i>		3.79	2.64	1.44	0.78	0.55	0.21	0.21	0.21	0.60
1131	<i>P. borealensis</i>		3.86	2.94	1.31	0.93	0.64	0.24	0.22	0.23	0.60
1131	<i>P. borealensis</i>		3.87	3.13	1.24	0.90	0.52	0.23	0.17	0.20	0.70
7076	<i>P. borealensis</i>		4.85	3.40	1.43	1.40	0.90	0.29	0.26	0.28	0.60
7076	<i>P. borealensis</i>		5.30	3.50	1.51	1.70	1.00	0.32	0.29	0.30	0.60
		Mean	4.34	3.10	1.40	1.26	0.88	0.29	0.28	0.28	0.57
		Maximum	5.30	3.60	1.57	1.90	1.30	0.38	0.38	0.38	0.70
		Minimum	3.79	2.54	1.24	0.78	0.52	0.21	0.17	0.20	0.50
1131	<i>P. stoveri</i>		4.24	3.21	1.32	1.89	1.18	0.45	0.37	0.41	0.80
1131	<i>P. stoveri</i>		4.20	3.13	1.34	1.60	1.31	0.38	0.42	0.40	0.60
1131	<i>P. stoveri</i>		3.41	2.52	1.35	1.45	0.88	0.43	0.35	0.39	0.60
1131	<i>P. stoveri</i>		4.89	3.62	1.35	2.36	1.57	0.48	0.43	0.46	0.80
1131	<i>P. stoveri</i>		3.74	3.59	1.04	1.50	1.29	0.40	0.36	0.38	0.90
1131	<i>P. stoveri</i>		3.74	3.05	1.23	1.92	1.25	0.51	0.41	0.46	0.70
1131	<i>P. stoveri</i>		3.52	2.65	1.33	1.37	1.03	0.39	0.39	0.39	0.60
1131	<i>P. stoveri</i>		3.78	2.42	1.56	1.82	0.95	0.48	0.39	0.44	0.80
1131	<i>P. stoveri</i>		5.20	4.00	1.30	2.20	1.44	0.42	0.36	0.39	0.70
1131	<i>P. stoveri</i>		4.59	3.71	1.24	2.13	1.56	0.46	0.42	0.44	1.00
1131	<i>P. stoveri</i>		4.15	3.02	1.37	1.89	1.41	0.46	0.47	0.46	0.80
1463	<i>P. stoveri</i>		4.00	3.40	1.18	1.60	0.80	0.40	0.24	0.32	0.90
1463	<i>P. stoveri</i>		3.50	2.80	1.25	1.40	1.00	0.40	0.36	0.38	0.60
1463	<i>P. stoveri</i>		4.30	3.60	1.19	2.00	1.20	0.47	0.33	0.40	0.80
1463	<i>P. stoveri</i>		4.00	3.20	1.25	1.50	0.90	0.38	0.28	0.33	0.80
		Mean	4.08	3.19	1.29	1.78	1.18	0.43	0.37	0.40	0.76
		Maximum	5.20	4.00	1.56	2.36	1.57	0.51	0.47	0.46	1.00
		Minimum	3.41	2.42	1.04	1.37	0.80	0.38	0.24	0.32	0.60



**Figure 2:** Cross-plot of outer-cycle width *versus* central-area opening for *Prediscosphaera borealensis* and *P. stoveri* (15 specimens each)

Thibault, N., 2010. Calcareous nannofossils from the boreal Upper Campanian-Maastrichtian chalk of Denmark. *Journal of Nannoplankton Research*, **31(1)**: 39-56.