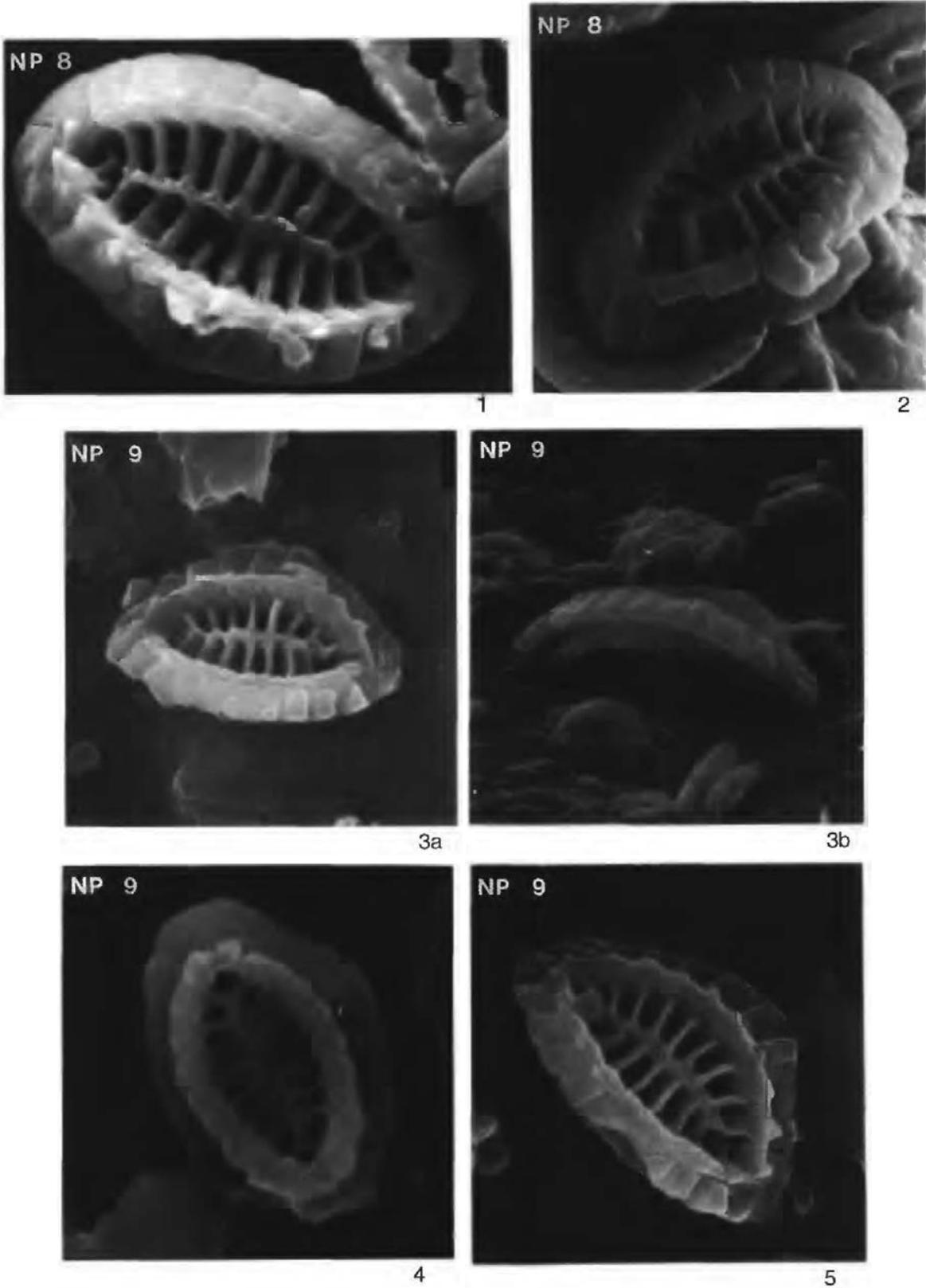
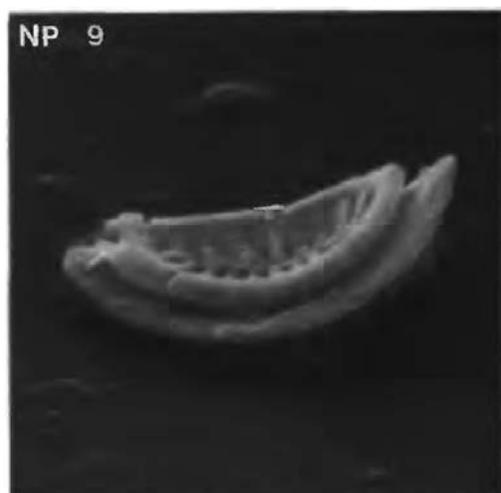
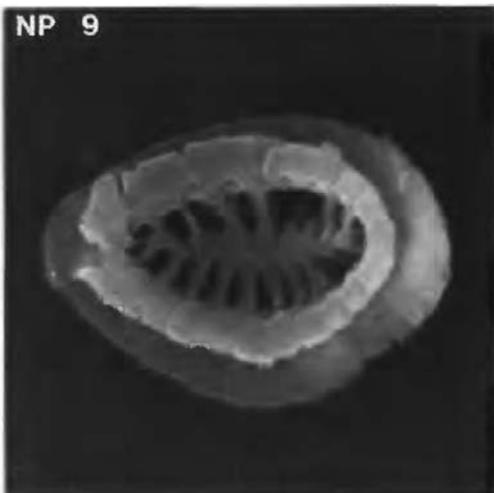
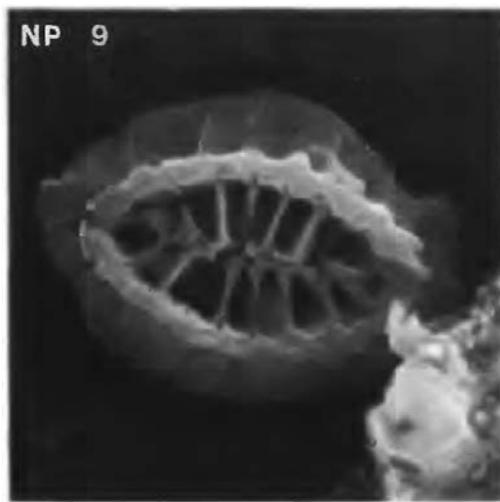
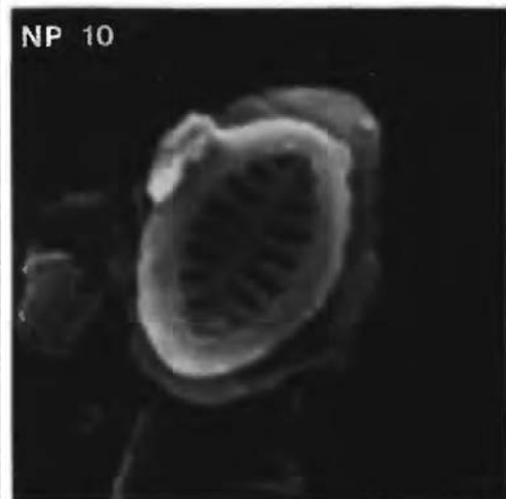
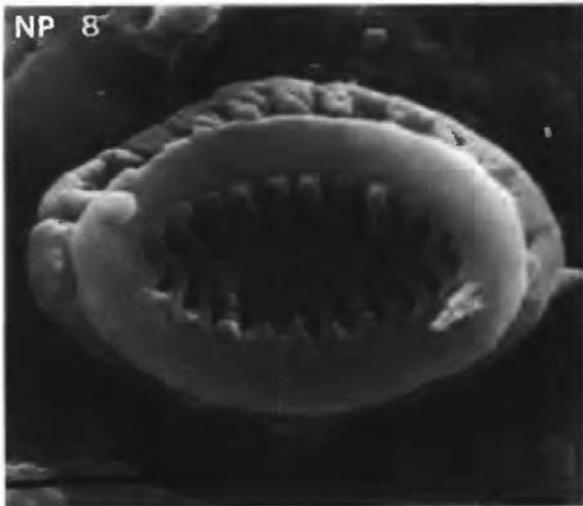
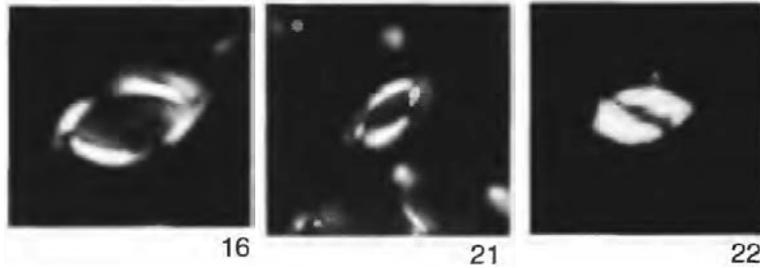


37. *Hornibrookina arca* Bybell & Self-Trail (1995)





Pl. 18, figs 1-9



Pl. 36, figs 16, 21, 22

Diagnosis: A species of *Hornibrookina* in which both shields arch convexly upward; the central area contains slender laths that radiate outward from a narrow longitudinal bar.

Description: *Hornibrookina arca* n. sp., which is 4-7 μm in size, has 21 to 26 elements both on the distal and the proximal shield. The shield elements overlap slightly on the distal surface (pl. 18, fig. 1); overgrowth is common on the proximal surface (pl. 18, fig. 6), and it is unclear whether these elements overlap or not. This species has an irregular outline on the distal surface; the central portion of one side bulges outward, there is an indentation next to the bulge, and each apex of the shield narrows somewhat (pl. 18, fig. 4). Both shields arch convexly (pl. 18, fig. 9b). There is less arching of the shields and narrowing of the apices on the oldest specimens of this species, which were found in Zone NP 3. The amount of arching increases through time and is at its maximum in Zones NP 8 and NP 9.

On the distal surface, the large central area contains slender laths that extend inward from either side of the specimen. The spacing between laths varies so that individual laths from either side may or may not be in alignment (pl. 18, fig. 1). In the central area where the laths join, they thicken to form a longitudinal bar. With recrystallization, the laths and the longitudinal bar thicken and widen somewhat. The proximal shield is smaller than the distal shield and has a more uniform outline because it lacks the lateral extension and indentation that occur on the distal shield. This species occurs in New Jersey, Alabama, Maryland, and Virginia. The holotype is from Virginia, where the preservation is significantly better than in the other areas.

Remarks: *Hornibrookina australis* Edwards & Perch-Nielsen, 1975 also is arched convexly, but it has considerably wider laths and lacks the central longitudinal bar that is found in *H. arca* n. sp. It is possible, but unlikely, that previously illustrated specimens of *H. australis* may represent heavily overgrown specimens of *H. arca* n. sp. *Hornibrookina australis* lacks a longitudinal bar, and as mentioned above, overgrowth that was observed in *H. arca* n. sp. did not remove its distinctive longitudinal bar.

Holotype: Plate 18, figure 1, SEM photomicrograph number 90.

Paratypes: Plate 18, figures 2, 6, SEM photomicrograph numbers 88, 87.

Type Locality: Holotype: Virginia, Aquia Creek locality, sample AQ 24, NP 8, Aquia Formation. Paratypes: pl. 18, fig. 2, Maryland, Piscataway Creek locality, sample PC 21, NP 8, Aquia Formation; pl. 18, fig. 6, Piscataway Creek locality, sample PC 23, NP 8, Aquia Formation.

Occurrence: This species is present in Zones NP 3 through lower NP 10 in New Jersey, Maryland, and Virginia, and it also has been observed in lower Zone NP 10 in Alabama.

Depository: The original scanning electron photomicrographs and negatives are stored at the U.S. Geological Survey in Reston, Va.

Bybell, L. & Self-Trail, J.M., 1995. Evolutionary, Biostratigraphic, and Taxonomic Study of Calcareous Nannofossils from a Continuous Paleocene-Eocene Boundary Section in New Jersey. *U.S. Geological Survey Professional Paper*, **1554**: 36pp.