

A NEW GENUS OF EOCENE FORAMINIFERA

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In the American Tertiary there are numerous foraminifera representing several species which it is difficult to assign to any existing genus. The nearest species to these is that described by Hantken as *Siderolina kochi* Hantken.¹ A figure of this is given here. The American species are all different from this.

The genus *Siderolina* was erected by Defrance² and is the same as *Siderolites* Lamarck³ the type species being *S. calcitrapoides* Lamarck. This has been at various times assigned to *Siderolina* Defrance of which it is the type and to *Calcarina* d'Orbigny. The model of d'Orbigny of *Siderolina* is of *S. laevigata* d'Orbigny and may probably be referred to *Siderolites*. That genus has the young rotaliform and later vesicular chambers cover the early chambers. These Eocene species referred to here are planospiral, consisting of but a few chambers usually each with a distinct spine and while they should probably be referred to the Rotaliidae are very different from *Siderolites* or *Calcarina*. The following genus is proposed for them:

HANTKENIA, new genus

Description.—Test free, planospiral, consisting of about three coils, chambers few, usually about five in the adult coil, laterally compressed, wall finely or coarsely perforate, sutures distinct and depressed, each chamber at least in the adult with a stout peripheral spine with a hollow center, aperture tripartite one arm running along either side of the base of the chamber, the other extending peripherally in the apertural face of the chamber.

Type species.—*Hantkenina alabamensis*, new species, from the *Zeuglodon* bed at Cocoa post office, Alabama.

¹ A magy. kir. földt. int. évkönyve, vol. 4, 1875 (1876), p. 68, pl. 16, fig. 1 and Mitth. Jahrb. ung. geol. Anstalt, vol. 4, 1875 (1881), p. 79, pl. 16, fig. 1.

² Dict. Sci. Nat., vol. 32, 1824, p. 180.

³ Syst. Anim. sans Vert., 1801, p. 376.

In the Tertiary of America there are at least four species and to this genus should be referred Hantken's species. These are all described below and figures are given of all of them. They seem to mark the Uppermost Eocene in Alabama and elsewhere on our Gulf Coastal Plain and the Mexican species from the Alazan are closely related. Hantken's species is from the *Clavulina*-Szaboi beds of Hungary.

HANTKENINA KOCHI (Hantken)

Plate 2, fig. 1.

Siderolina kochi HANTKEN, A magy. kir. földt. int. évkönyve, vol. 4, 1875 (1876), p. 68, pl. 16, fig. 1; Mitth. Jahrg. ung. geol. Anstalt, vol. 4, 1875 (1881), p. 79, pl. 16, fig. 1.

Description.—Test planospiral, laterally compressed, adult coil composed of five chambers, wall smooth, sutures slightly depressed, distinct, each chamber in the adult with a rapidly tapering spine in the last formed chambers nearer the apertural side, hollow, aperture not shown.

Diameter 0.5 mm.

The type specimen as described from the *Clavulina*-Szaboi beds of Porna, Hungary, was a unique, no other specimens being known.

Hantken speaks of the aperture being formed by the tubelike projection, but this is evidently an error, as the hollow spines would give this appearance. The aperture may have been filled and indistinct.

HANTKENINA BREVISPIINA, new species

Plate 2, fig. 3

Description.—Test somewhat compressed, planospiral, six chambers in the adult coil, periphery not lobulate, wall distinctly perforate, each chamber with a short hollow spine broad at the base, chambers of the umbilical area slightly visible.

Diameter without spines 0.45 mm., with spines 0.65 mm.

Type specimen.—Cat. No. 353079, U.S.N.M., from Mexico. Light colored clay, lower 20 feet of exposure, Rio Pantepec, 2.2 kms. S. 20° W. from Buena Vista, T. W. Vaughan, Collector.

This species has much shorter and stouter spines than the other species of the genus.

HANTKENINA LONGISPINA, new species

Plate 2, fig. 4

Description.—Test planospiral, compressed, chambers rapidly increasing in size and height as added, five or six in the adult coil, those of the early coils showing slightly at the umbilicus, each chamber with a long stout spine, often somewhat longer than the

chamber, hollow centered, wall very finely punctate, periphery somewhat lobulate.

Diameter without spines 0.5 mm., with spines nearly 1 mm.

Type specimen.—Cat. No. 353080, U.S.N.M., from Mexico. Dark gray clay, Rio Tuxpan, crossing of road from Palo Blanco to La Noria and along Rio Pantepec about 200 meters above its mouth, T. W. Vaughan, Collector.

This species has much longer spines than any of the others. This occurs with *Orthophragmina*.

HANTKENINA MEXICANA, new species

Plate 2, fig. 2

Description.—Test planospiral, umbilicate, five or six chambers in the adult coil, rapidly elongating as added and peripherally extended to the base of the very large stout hollow spine at the periphery of the chamber, wall coarsely punctate, periphery of test much lobulated.

Diameter without spines 0.5 mm., with spines 0.75 mm. or more.

Type specimen.—Cat. No. 353081, U.S.N.M., from Mexico. Yellowish brown clay, La Laja, Zardo Creek, 1 kilometer southwest of Tierra Colorado, T. W. Vaughan, Collector.

This occurs with *Orthophragmina*.

HANTKENINA ALABAMENSIS, new species

Plate 1, figs. 1-6; plate 2, fig. 5

Description.—Test planospiral, compressed, adult coil with five or six chambers, periphery very slightly if at all lobulated, wall very finely punctate, smooth, granular near the aperture, each chamber with a hollow, slender, acicular spine at the periphery, pointing somewhat anteriorly; aperture tripartite, with an elongate projection along each side at the base of the apertural face, and the third, median, extending peripherally from the base of the apertural face.

Diameter without spines 0.45 mm., with spines 0.75 mm.

Type specimen.—Cat. No. 353082, U.S.N.M., from the Eocene of the *Zeuglodon* bed at Cocoa post office, Alabama, where it is very abundant. It occurs in other parts of the Coastal Plain in the Upper Eocene.

There are specimens from Mexico in the United States National Museum collections which seem identical with this species. They are



HANTKENINA ALABAMENSIS, NEW SPECIES. APERTURAL VIEW SHOWING THE MEDIAN APERTURE AND THE ALAR PROJECTIONS FROM IT TOWARD THE BASE.

from fine sandy clay, Rio Buena Vista, just south of crossing of Alazan to Moyutla road, Vera Cruz; fossil horizons 3 and 4; light gray sandy clay, Rio Tuxpan, south side just above Agua Nacida, Vera Cruz, all three lots collected by T. W. Vaughan.

This is the most delicate of the various species.

EXPLANATION OF PLATES

PLATE 1

Hantkenina alabamensis, new species

FIGS. 1-6. Side views of six specimens from Cocoa post office, Alabama. $\times 60$

PLATE 2

FIG. 1. *Hantkenina kochi* Hantken. Side views and apertural view. (After Hantken.)

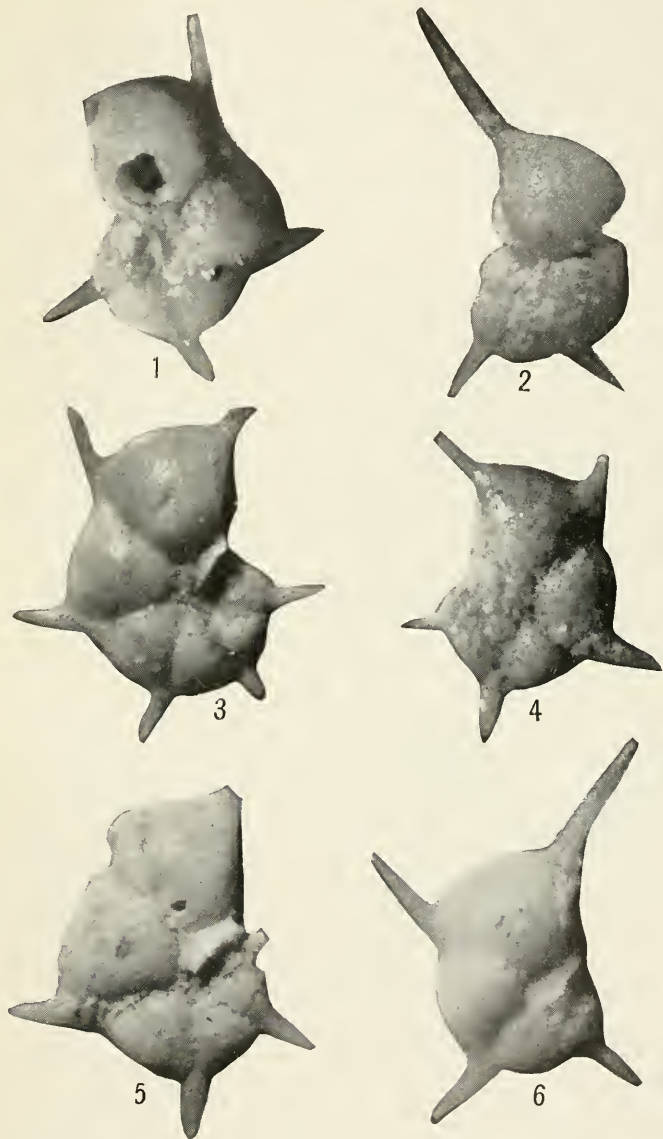
2. *Hantkenina mexicana*, new species. Side view. $\times 75$.

3. *Hantkenina brevispina*, new species. Side view. $\times 75$.

4. *Hantkenina longispina*, new species. Side view. $\times 75$.

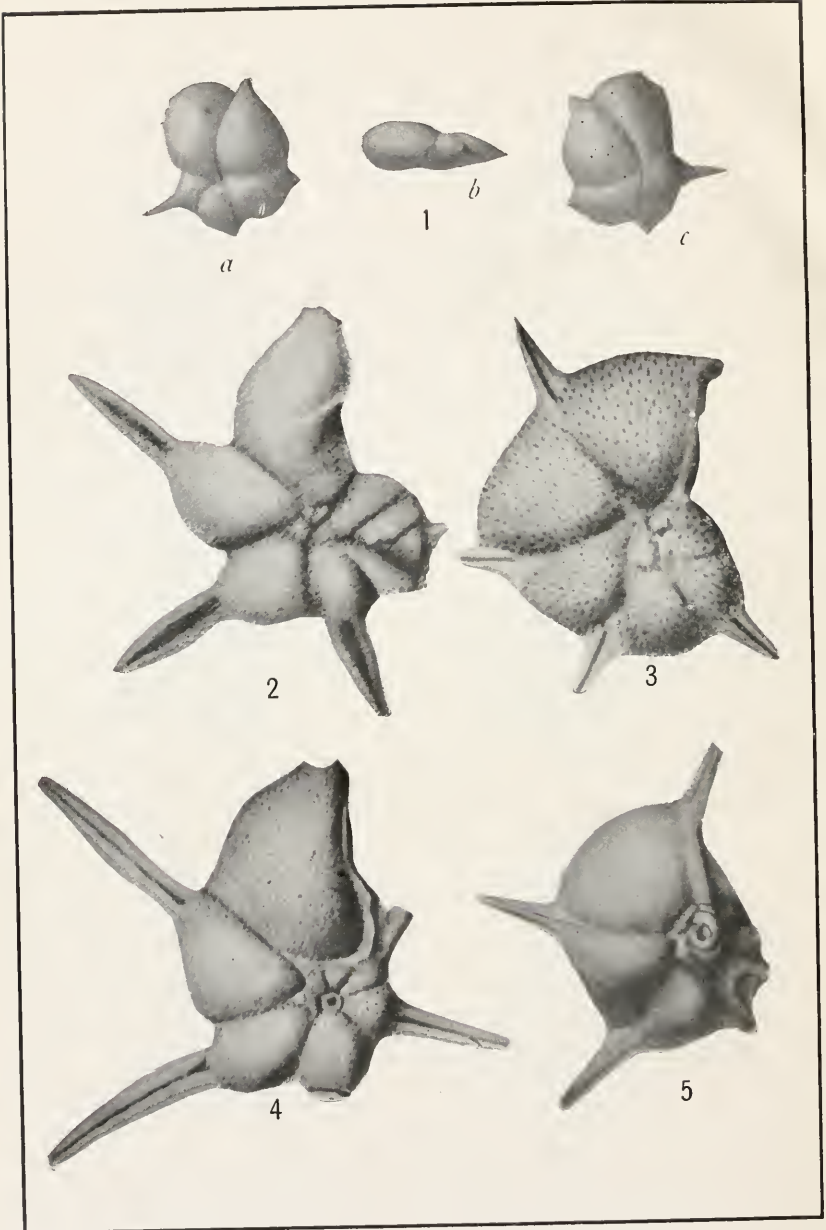
5. *Hantkenina alabamensis*, new species. Side view of Mexican specimen. $\times 75$.





HANTKENINA ALABAMENSIS, NEW SPECIES

FOR EXPLANATION OF PLATE SEE PAGE 4



SIDE VIEWS OF VARIOUS SPECIES OF HANTKENINA

FOR EXPLANATION OF PLATE SEE PAGE 4