

ON THE DISCOVERY OF *ORDUINA* N. GEN., A NEW GENUS OF THE
FAMILY ROTALIIDAE

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INTRODUCTION

A new genus of the family Rotaliidae, *Orduina* n. gen., has been discovered in the limestone samples from the Paleocene of Gölköy (Ordu Province, North Anatolia). The samples studied were collected from a locality approximately 8 km northeast of Gölköy. The investigated limestone unit overlies either andesites or Senonian limestone containing *Globotruncana*.

The description of *Orduina* n. gen. is given below. Due to the hardness of the investigated limestone samples, it was not possible to obtain free individuals. The present study is based on thin sections and geometrical considerations.

SYSTEMATIC

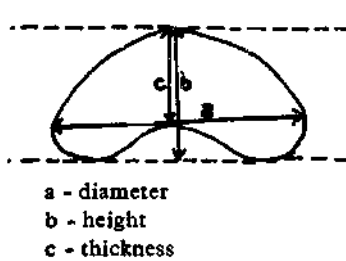
Family **ROTALIIDAE** EHRENBERG, 1839

Genus *ORDUINA* n. gen.

Species-type *Orduina erki* n. gen. n. sp.

Description. — The test is free, conical or subconical. Specimens show a depression at the ventral side. The coiling is trochospiral. The structure of tests is radial. The test is built of hyaline calcite as separate laminae, as in Rotaliidae, and it contains many pores.

The dimensions are given in mm.



<i>Dimensions</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Average</i>
Diameter	1.98	3.83	2.44
Height	0.70	1.38	1.057
Thickness	0.55	1.13	0.833
Number of whorls	5	7-7.5	6

The chambers are evolute in ventral side and involute in dorsal side. The spire is thick and complex. It shows a regular development throughout and the spire intervals do not change. It is not possible to obtain a perfect equatorial section due to conical and subconical shapes of the individuals. This is explained in Plate I, on a conical form. Obtained equatorial sections display rectangular

chambers. Height of chambers is more than their width. The ratio 3/4 is found between height and width in different individuals. The septa are double and there are intraseptal channels.

Spire is thick and porous. The first chamber is spherical with a thick envelope. It could be single or double. The average size is 130 microns for single ones, 78 and 96 microns for doubles.

Orduina erki n. gen. n. sp.

(Plate II, fig. 1-5; Plate III, fig. 3)

The form is subconical and shows a depression in the ventral side. The coiling is trochospiral. For a diameter of 3.83 mm, 1.16 mm and 1.41 mm are found for the thickness and the height, respectively, and 7 whorls are counted. The spire is thick and measures 0.084 mm. The first chamber is spherical, it has a thick wall and generally it is double. The average size for the first chamber is 0.074-0.092 mm.

It possesses other characteristics of the genus.

Holotype sample ES-1.

Orduina erki var. *conica* n. var.

(Plate III, fig. 1, 2, 4, 5)

It is conical in shape and the depression in the ventral side is more pronounced than that of *Orduina erki* n. gen. n. sp. It is smaller than *Orduina erki* n. gen. n. sp. For a diameter of 2.3 mm, 0.97 mm and 1.27 mm are found for the thickness and the height, respectively, and 6 whorls are counted. The first chamber is spherical, it has a thick wall and it is single.

The average measurement is 0.12 mm.

The dimensions are given in mm (averages).

Holotype sample : ES-2.

	<i>Diameter</i>	<i>Thickness</i>	<i>Height</i>	<i>Thickness of the spires</i>	<i>Number of whorls</i>
<i>Orduina erki</i> n. gen. n. sp.	2.85	0.98	1.20	0.084	6-7
<i>Orduina erki</i> var. <i>conica</i> n. var.	2.10	0.88	1.12	0.078	6

Remarks. — This genus shows close similarities to *Laffiteina* Marie, 1945 and *Dictyokathina* Smout, 1954 of the Rotaliidae family. It resembles *Laffiteina* Marie, 1945 by its shell structure and by the presence of the numerous pores. But it is clearly distinguished from it by its form, by involute position of dorsal chambers, by its coiling plane, which is distorted to a conical surface. The chambers are not grouped on a single whorl. This is its most important characteristic.

It also resembles *Dictyokathina* Smout on account of its form and its coiling plane, but it clearly differs from it by its shell structure, by the presence of numerous pores and the lack of the boss in the umbilical region.

PLATE - I

Plate outlining the possibilities of obtaining equatorial sections in a conical form.

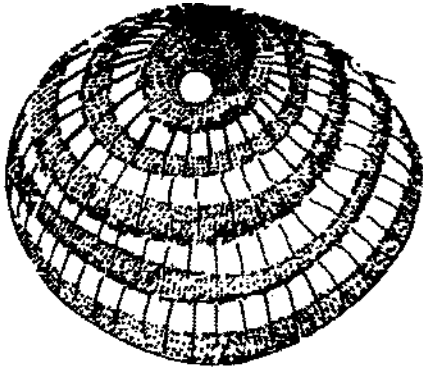
- Fig. 1 - *Orduina erki* var. *conica* n. var. is taken as a sample.
Fig. A - Oblique equatorial section.
Fig. B - Equatorial section containing two whorls.
Fig. C - Horizontal section, parallel to the equatorial section and close to the base.
Fig. D - Horizontal section, passing through the middle cavity.

PLATE - II

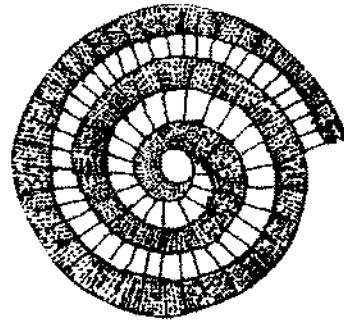
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| Fig. 1 - <i>Orduina erki</i> n. gen. n. sp. Axial section. | Holotype, 18 X. |
| Fig. 2 - <i>Orduina erki</i> n. gen. n. sp. Axial section. | Paratype, 21 x. |
| Fig. 3 - <i>Orduina erki</i> n. gen. n. sp. Susequatorial section. | Paratype, 26 x. |
| Fig. 4 - <i>Orduina erki</i> n. gen. n. sp. Horizontal section parallel to the equatorial section. | Paratype, 26 X. |
| Fig. 5 - <i>Orduina erki</i> n. gen. n. sp. Horizontal section passing through the middle cavity. | Paratype, 20x. |

PLATE - III

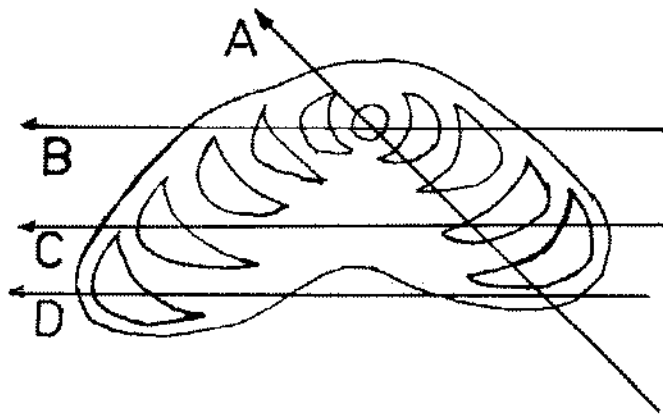
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| Fig. 1 - <i>Orduina erki</i> var. <i>conica</i> n. var. Axial section. | Holotype, 30x. |
| Fig. 2 - <i>Orduina erki</i> var. <i>conica</i> n. var. Axial section. | Paratype, 21 X. |
| Fig. 3 - <i>Orduina erki</i> n. gen. n. sp. First chamber. | 108 X. |
| Fig. 4 - <i>Orduina erki</i> var. <i>conica</i> n. var. Axial section. | Paratype, 22 X. |
| Fig. 5 - <i>Orduina erki</i> var. <i>conica</i> n. var. Oblique equatorial section. | 21 X. |



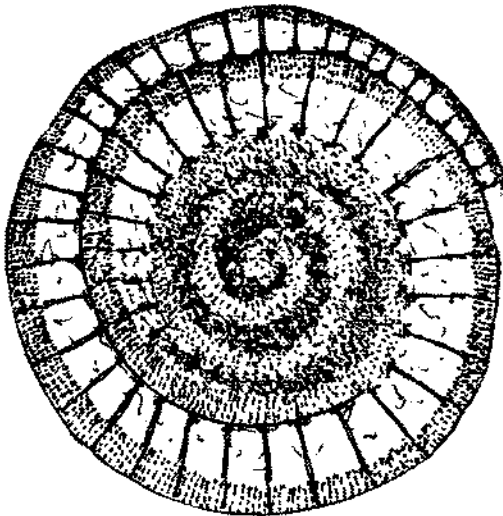
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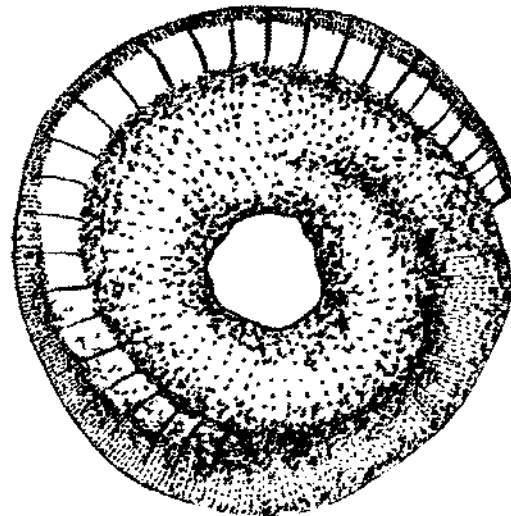
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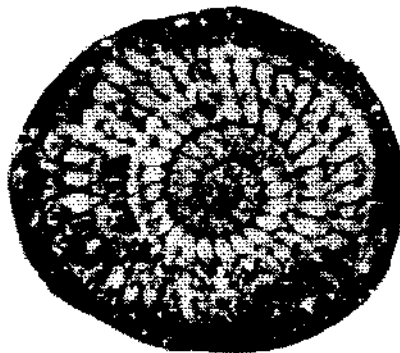
C



D



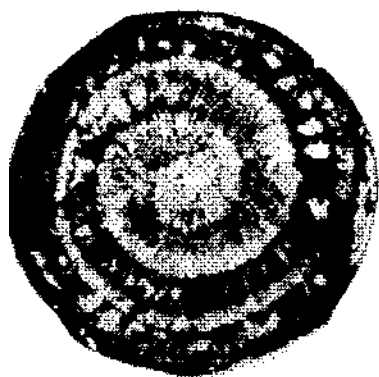
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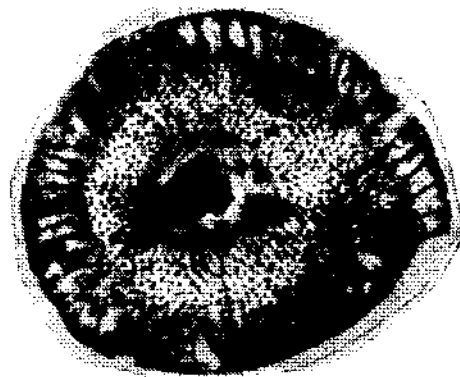
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4



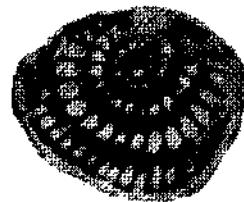
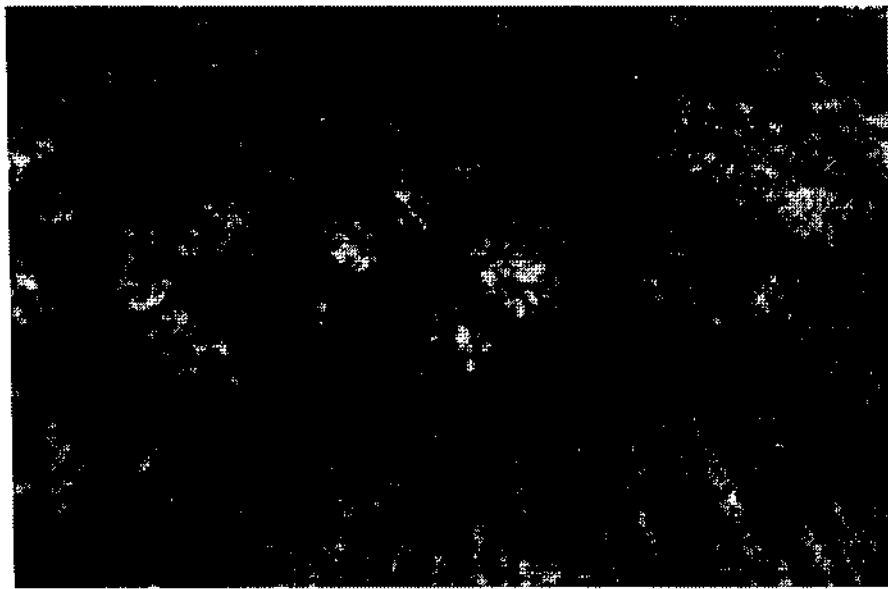
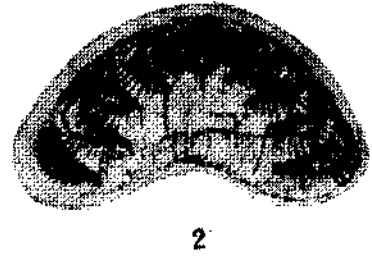
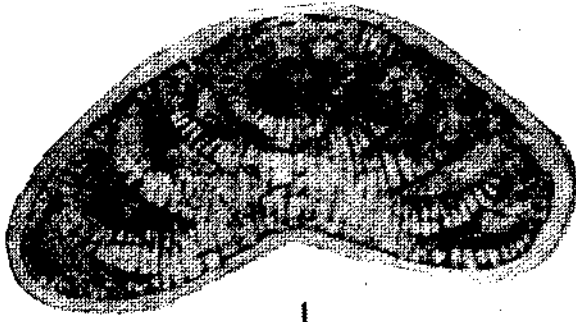
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PLATE

III



Distribution.—The genus has been found in hard, brown-colored limestone together with a rich fauna composed of *Rotalia trochidiformis* Lam., *Miscellanea* cf. *meandrina* (Carter), *Laffiteina* sp., *Keramosphaera* sp., *Lockhartia?* *Valvulammina* sp. and abundant Miliolidae.

Age. — Paleocene.

Locality.—Közören Village, Ordu Province, 8 km NE of Gökkyöy.

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