

*LACAZINA OEZTEMUERI* SİREL 1981 RENAMED AS *PSEUDOLACAZINA OEZTEMUERI* (SİREL)» FROM THE THANETIAN LIMESTONE (CENTRAL TURKEY)

Ercüment SİREL\*

ABSTRACT. — In 1981, *Lacazina oeztemueri* Sirel was first described and figured by the present author from the Paleocene (Thanetian) of the different regions in central Turkey; Aksaray (southeast of Tuz lake), Kırıkkale (southeast of Ankara), Ereğli (northwest of Bolkar mountains), and Örencik, Demircilik (southeast of Sivas). In this paper, *Lacazina oeztemueri* is reviewed on well preserved material of this species. Because of the following characters, *Lacazina oeztemueri* Sirel is renamed as *Pseudolacazina oeztemueri* (Sirel); all the chambers of the form A are arranged in biloculine mode; the growth stages of the form B are composed of quinqueloculine with proloculus, biloculine and monoloculine chambers; the septula are arranged in continuous rows in both generations (form A, B).

## INTRODUCTION

During an investigation of Paleocene strata of the Aksaray, Kırıkkale, Ereğli, Örencik and Demircilik regions (central Turkey) (Fig. 1) carried out in 1981; a «fabularid» species resembling *Lacazina* «*Lacazina oeztemueri*» was observed and described from limestone regarded as of Thanetian age. The four trematophorid foraminifers (*Lacazina* Munier-Chalmas 1882, *Fabularia* Defrance 1820, *Periloculina* Munier-Chalmas and Schlumberger 1885 and *Pseudolacazina* Caus 1979) are globular to ovoid in general shape, porcellaneous form and the same subdivision of the chambers with chamberlets. When studying on only one of the generations (form A,B) of these trematophorid forms, they can be confuse with each other, even in thin sections examination. It is obvious that all observable features of both generations (form A,B) must be taken into consideration when studying on trematophorid foraminifers such as *Fabularia*, *Periloculina*, *Lacazina* and *Pseudolacazina*.

In this study, the some diagnostic characters of the genus *Pseudolacazina* have been obtained from the both generations (form A,B) of the *Lacazina oeztemueri* which is reviewed on well preserved materials of this species. For this reason, *Lacazina oeztemueri* is transferred to genus *Pseudolacazina* Caus. The figured samples are deposited at the Museum d'Histoire naturelle, Geneve, Suisse (86-10019—86-10033).

## SYSTEMATIC DESCRIPTION

Order : Foraminiferida Eichwald, 1830  
Superfamily : Miliolacea Ehrenberg, 1839 .  
Family : Fabulariniidae Ehrenberg, 1839, emend Drobne, 1984  
Genus : *Pseudolacazina* Caus, 1979 -  
Type species : *Pseudolacazina hottingeri*, 1979

*Pseudolacazina oeztemueri* (Sirel), 1981  
(Plate I, fig. 1-6; Plate II, fig. 1-10 ; Plate III)

1981 *Lacazina oeztemueri* Sirel, Pl. 4, fig. 1-6; Pl. 5, fig. 1-6.

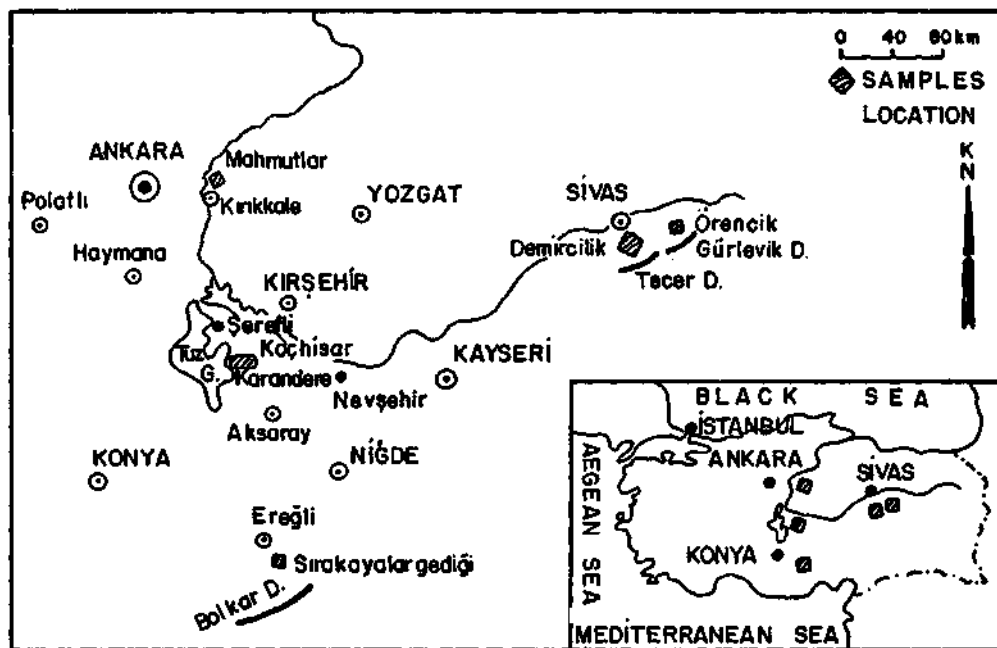


Fig. 1 - Location map.

*Diagnosis.* — Test large, ovoid, slightly elongate in the direction of the apertural axis, imperforate porcellaneous shell with thick wall. All the chambers except 4-6 undivided chambers around the proloculus of the form A are arranged in biloculine mode, all the chambers of the form B are quinqueloculine to monoloculine; 3 cycles undivided quinqueloculine chambers completely embracing mikrospheric embryo, the first 4-5 chambers which follow the quinqueloculine cycles are arranged in biloculine pattern, all later 7-11 chambers are monoloculine; the cavities of the biloculine and monoloculine chambers are subdivided by the continuous thick septula in parallel tooth-like chamberlets, the aperture is trematophore at one end of the apertural axis.

#### *Description*

Microspheric form: Test is large, ovoid, slightly elongated in the direction of the poles (apertural region). The wall (outer wall and basal layer) is porcellaneous calcite. The equatorial diameter varies between 2.7-4.9 mm, axial diameter reaches 3.4 mm, index of elongation (ratio of the equatorial diameter to the axial diameter) is 1.15-1.44 but the mean values are around 1.3. The microspherule is spherical (Pl.I, fig. 1,2,4,6) its diameter varies between 22  $\mu$ -25  $\mu$ . The first 3 cycles which follow the microspherule are arranged in quinqueloculine pattern and coiled very tightly, their diameter varies from 248  $\mu$  to 266  $\mu$ . They are followed by 4-5 whorls of biloculine mode with a diameter 719-892  $\mu$ . All the later 7-11 chambers are monoloculine. The cavities of the biloculine and monoloculine are subdivided by the septula into parallel chamberlets. The thick septula join the outer wall of the chamber together with the septum; they are arranged in continuous rows from one chamber to the next. The continuous pattern in the arrangement of the septula is recognized best in the tangential sections. The basal layer of the biloculine and monoloculine chambers are thick compared to the chamber spaces. The chamberlets are small, their cross-sections are generally tooth-like in shape.

The trematophores are alternating from one pole to the other in successive biloculine and monoloculine chambers.

**Macrospheric form:** The shell is very small, ovoid, rather elongated in the direction of the apertural axis. The equatorial diameter is 1.6-1.8 mm, axial diameter 1.29-1.35 mm and index of elongation around 1.6; it is counted 5 chambers for an axial diameter of 1.3 mm. The proloculum is ovate and very large compared to the size of the shell. The diameter of the megalosphere varies between 235  $\mu$ , and 310 $\mu$ . There is the thick goulot as the in alveolid genus. There are 4-6 undivided chambers around the proloculus. All the later chambers of the form A are arranged in biloculine pattern. The biloculine arranged chambers are subdivided by the septula into parallel very small chamberlets. The shape of the cross-section of the chamberlets is subspheric. The trematophore plate is often positioned out of the pole in the form A.

*Comparisons and remarks.* — It is accepted by the present author that the foraminifer found in Lower Part of Thanetian limestone described and figured as *Lacazina oeztemueri* in Sirel (1981) from the central Turkey, belongs to *Pseudolacazina* Caus: when restudying on well preserved materials of *L. oeztemueri* the some diagnostic characters of *Pseudolacazina* have been obtained from the form A,B, and because of the following some diagnostic characters, *L. oeztemueri* is renamed as «*Pseudolacazina oeztemuerh*»:

1. All the chambers (except 4-6 undivided chambers around the macrospheric embryo) of the form A are arranged in biloculine pattern (Pl. II, fig. 4,5,8).
2. The chambers of the growth stages of the form B as the follow:
  - a. The first 3 cycles which follow the microsphere are arranged in quinqueloculine mode (Pl. I, fig. 1,2,4,6).
  - b. The quinqueloculine chambers are followed by 4-5 whorls of biloculine mode (Pl. I, fig. 1,2,3,4,6; Pl. II, fig. 1,2,6,7,10).
  - c. The later 7-11 chambers (average 7 chambers) are monoloculine (Pl. I, fig. 1,3,4,6; Pl. II, fig. 1,3,6,7,10).
3. The septula are arranged in continuous rows in both generations (form A,B) (Pl. I, fig. 5; Pl. II, fig. 4; Pl. III).

The first occurrence of the genus *Pseudolacazina* Caus reported by the Drobne (1974); in her study on the specimens of form A and form B (without equatorial sections) from Yugoslavia, described as «*Fabularia donatae*» Drobne. This fabularid species is transferred to *Pseudolacazina* by the Caus (1979).

*Pseudolacazina donatae* (Drobne) differs from *Pseudolacazina oeztemueri* (Sirel) by having delicate internal structure (very tightly coiled); it has 11 whorls (biloculine and monoloculine chambers) in an axial section of 2 mm; Drobne (1974) Pl. 4, fig. 21; Pl. 9, fig. 1; whereas, *P. oeztemueri* has 11 whorls (biloculine and monoloculine chambers) in an axial section of 3.26mm; Pl. II, fig. 1, also the form A of *P. donatae* has 6 whorls (in biloculine pattern) in an axial section of 1-1.15 mm; Drobne (1974), Pl. 3, fig. 1,4; but, form A of *P. oeztemueri* has 4-5 whorls (in biloculine mode) in an axial section of 1.35 mm; Pl. II, fig. 8. The form A of *P. oeztemueri* has more chamberlets per whorl than form A of *P. donatae*.

*P. oeztemueri* Distinguished from the *Pseudolacazina hottingeri* Caus by having external shape, larger size, loosely coiling and well development quinqueloculine and biloculine stages.

*Stratigraphic level and geographic distribution.* — The detail stratigraphic level and geographic distribution of *P.oeztemueri* were reported by the present author Sirel(1981). In the Haymana (south of Ankara), Polatlı (southwest of Ankara), Kırıkkale (west of Ankara), Aksaray (southeast of Tuz lake), Ereğli (northwest of Bolkar mountains), Demircilik and Örencik (southeast of Sivas) regions, *P. oeztemueri* is abundant restricted shelf-back reef environments where it is accompanied by *Solkarina aksarayi* Sirel, *Laffiteina mengaudi* (Astre) (only three specimens are observed in about 150 thin section), *Keramosphaera* cf. *iranica* Rahaghi, *Pseudolacazina* aff. *donatae* Drobne, *Idalina* cf. *sinjarica* Grimsdale, *Peneroplidae* (*Hottingerina*), *Miliolidae*.

*P. oeztemueri* occurs in the Upper most Part of the biozone *L. mengaudi* and reaches to the lower boundary of the biozone *Aheolina* (*Glomaheolina*) *primaeva*. Up to now, *P. oeztemueri* has not found together with *A. (Glomaheolina) primaeva* Reichel.

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- Drobne, K., 1974, Les grandes Miliolides des couches Paleocenes de la Yougoslavie du Nord-Ouest (*Idalina, Fabularia, Lacazina, Periloculind*): Razprave 4. razr. Sazu, Ljubljana, 17, 125-184.
- Sirel, E., 1981, Bolkarina, new genus (Foraminiferida) and some associated species from the Thanetian limestone (Central Turkey): Eclogae Geol. Helv., 74/1, 75-95.

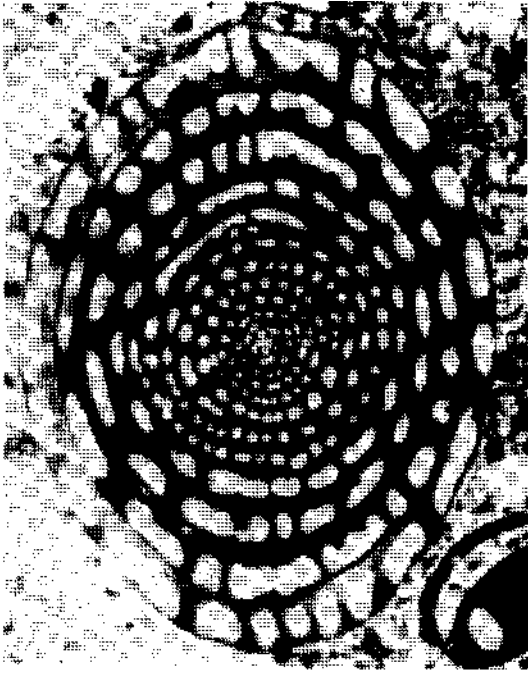
# PLATES

PLATE - I

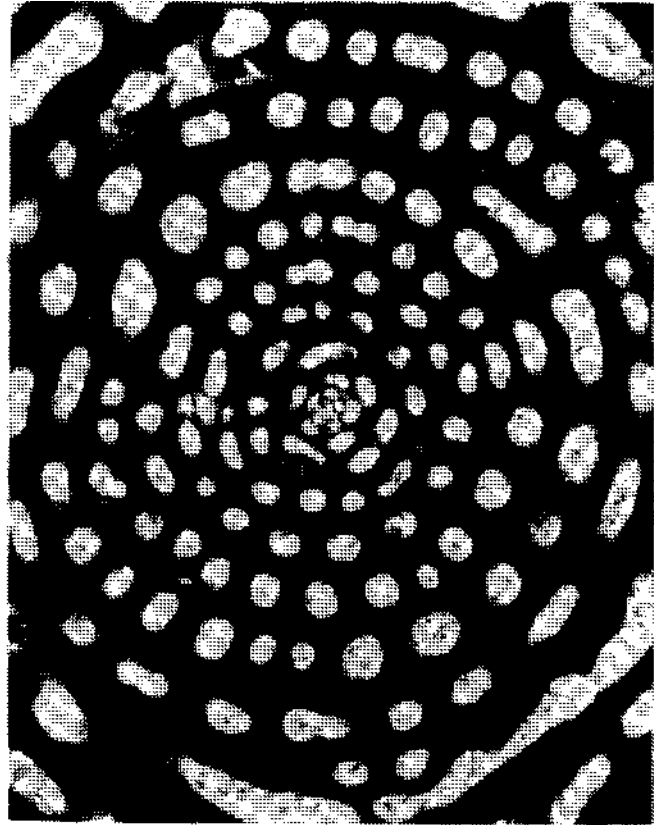
*Pseudolacazina oeztemueri* (Sirel) 1981

Form B

- Fig. 1 - Oblique section, slightly inclined to axial section, all the stages of the growth (86-10019), X 18.
- Fig. 2 - The quinqueloculine and the biloculine stages, magnification from figure 1, (86-10019), X 91.
- Fig. 3 - Oblique section, slightly inclined to axial section (it is figured in Sirel, 1981; Pl. 4, fig. 5 (86-10020), X 17.
- Fig. 4 - Axial section, microsphere and all growth stages (86-10021), X 18.
- Fig. 5 - Tangential section, showing continuous septula (figured in Sirel, 1981, Pl. 5, fig. 2) (86-10022), X 15.
- Fig. 6 - Axial section, showing microsphere, quinqueloculine, biloculine and monoloculine chambers, magnification from Fig. 4 (86-1002!), X 56.



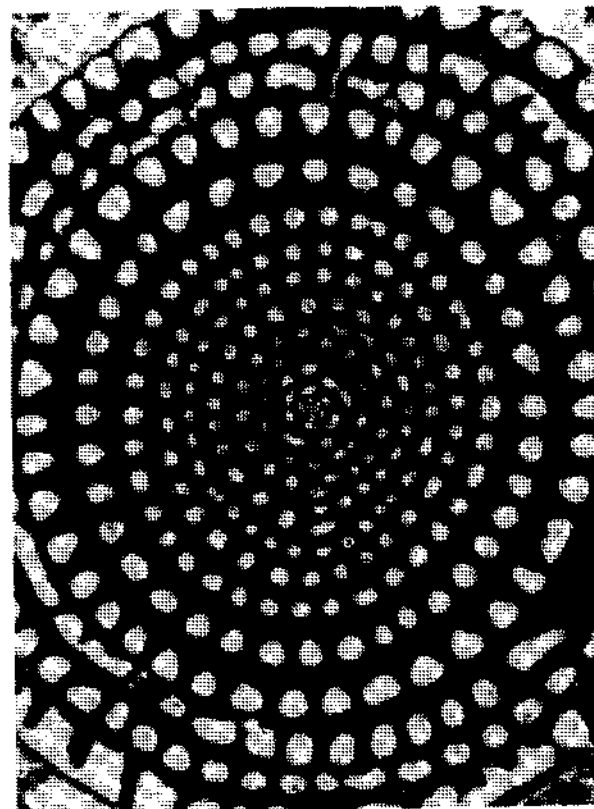
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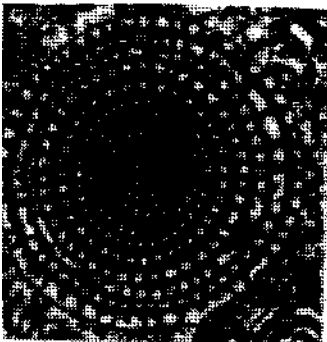
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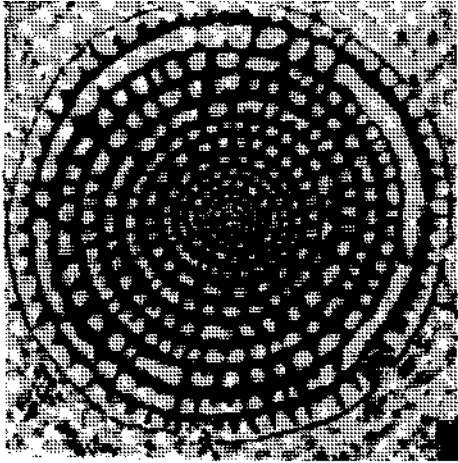
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**PLATE - II**

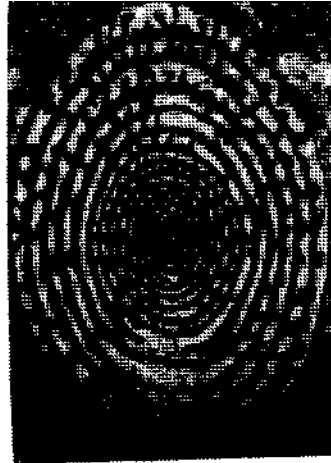
*Pseudolacazina oeztemueri* (Sirel) 1981

- Fig. 1 - Form B, axial section, all growth stages; figured in (Sirel) 1981, Pl. 4, fig. 6 (86-10023) X 18.
- Fig. 2 - Form B, oblique section, largest specimen, (86-10024), X 12.
- Fig. 3 - Form B, oblique section (86-10025), X 14.
- Fig. 4 - Form A, axial, equatorial and tangential sections (86-10026), X 22.
- Fig. 5 - Form A, equatorial section, showing 6 undivided chambers around the macrosphere and bicoline chambers (86-10027), X 34.
- Fig. 6 - Form B, equatorial section, trematophore with tooth (86-10028), X 18.
- Fig. 7 - Form B, oblique section (86-10029), X 17.
- Fig. 8 - Form A, axial section, figured in Sirel 1981 as *Fabulana donatae* Drobne, Pl. 5, fig. 7 (86-10030), X 23
- Fig. 9 - Form B, parallel section to the axial plane, passing close the trematophore; figured in Sirel 1981, Pl. 5, fig. 6 (86-10031), X 18.
- Fig. 10 - Form B, slightly oblique section to the equatorial section, figured in Sirel 1981, Pl. 5, fig. 4 (86-10032), X 19.

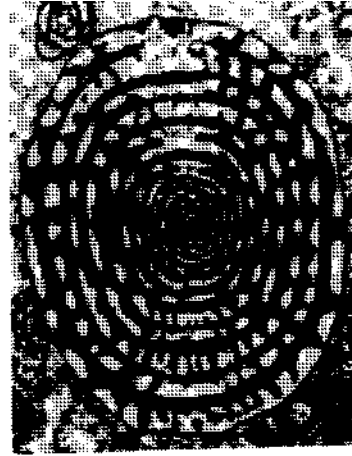




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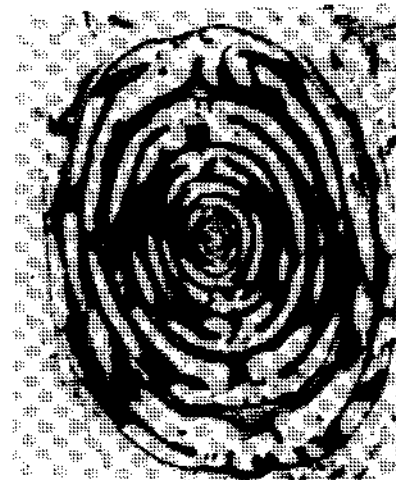
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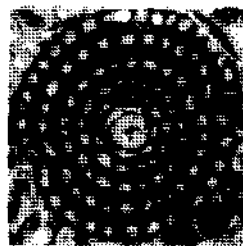
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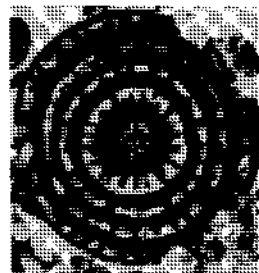
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PLATE - III

Microfacies, Algal limestone with foraminiferal association (86-10033), X 6.

PB - *Pseudolacazina oeztemueri* (Sirel), form B.

PA - *Pseudolacazina oeztemueri* (Sirel), form A.

B - *Bolkarina aksarayi* Sirel, form B.

La<sub>1</sub> - *Laffitteina mengaudi* (Astre), form B.

La<sub>2</sub> - *L. mengaudi* (Astre), magnification from La<sub>1</sub>. X 26.

I - *Idalina*

C - Corals

A - Algae

