

A. RAHAGHI

THE GEOGRAPHIC AND STRATIGRAPHIC RANGE OF THE GENUS LAFFITTEINA MARIE 1946, IN IRAN, WITH DESCRIPTION OF LAF- FITTEINA JASKII N.SP.

RESUMEN

Se considera la extensión geográfica del género *Laffitteina*, presente en depósitos del Maastrichtiense-Paleoceno.

Laffitteina melona, *L. compressa*, *L. khorassanica* y *L. Le Calvezae* han sido encontradas en depósitos del Paleoceno del N.E. de Irán. Se describe *Laffitteina Jaskii*, n.sp., del Maastrichtiense de la región de Shiraz, al S.O. del Irán.

Palabras clave: Foraminíferos, género *Laffitteina*, distribución estratigráfica y geográfica, descripción nueva especie, Irán.

ABSTRACT

The geographic extension of the genus *Laffitteina* has been cited. This genus has been observed in the Maastrichtian-Paleocene deposits. *Laffitteina melona*, *Laffitteina compressa*, *Laffitteina khorassanica* and *Laffitteina La Calvezae* have been collected from Paleocene deposits in N.E. Iran. *Laffitteina Jaskii* n. sp., here described, has been observed in the Maastrichtian sediments of the Shiraz region, S.W. Iran.

Key words: Foraminifera, genus *Laffitteina*, stratigraphic and geographic distribution, new species description, Iran.

INTRODUCTION

The genus *Laffitteina* and its type species *Laffitteina bibensis* Marie, 1946, have been described in the deposits of Vertus, France. These sediments consist of pseudoolitic limestones and they are, after the author, of Maastrichtian age. Later on *Laffitteina conica* (Drooger) 1952, *Laffitteina boulensis* (Dizer) 1957, and *Laffitteina marsicana* Farinacci, 1965, have been described in various localities. P.L. Blanc 1975, has studied the morphology, internal structure and the age of this genus. He has put all the described species of the genus *Laffitteina*, including the type species *Laffittei-*

na bibensis Marie, in the synonymy with *Laffitteina mengaudi* (Aster) 1923.

The latter species has been described as *Nummulites mengaudi* Aster. (See P.L. Blanc, 1975, pages 62-63 for synonymy). He has declared the age of Maastrichtian for these forms.

We have published, 1976, four new species of this genus from Paleocene of N.E. Iran. We have observed recently the presence of some specimens of the genus *Laffitteina* in the Maastrichtian deposits of S.W. Iran described, here, as *Laffitteina Jaskii* n.sp. (Fig. 1 and Table I).

AGE AND GEOGRAPHIC EXTENSION

The genus *Laffitteina* has been described by P. Marie, 1946, in the deposits of Vertus, Marne, France. The author has given the age of Montian to this genus. P.L. Blanc, 1975, has established a Maastrichtian age for this genus. The age of *Laffitteina* extends in Iran from Maastrichtian to Paleocene. The Paleocene species have been collected from Chehel-Kaman Formation of Kopet-Dagh region, N.E. Iran (see Rahaghi 1976). The deposits of this Formation consist of various limestones and marls. They are overlain by deposits of Khangiran Formation with Upper Paleocene-Lower Oligocene age (Rahaghi, 1978, page 9). The sediments of Chehel-Kaman Formation are underlain by deposits of Pesteh-leigh Formation, most probably of Low-

er Paleocene age. The following Foraminifera have been collected from the sediments of the Chehel-Kaman Formation, containing *Laffitteina* species: *Globigerina daubjergensis*, *Globorotalia pseudobulloides*, *Globorotalia varianta*, *Globorotalia compressa*, *Globorotalia primitiva*, *Globorotalia edita*, and *Globorotalia angulata* var. *conicotruncata* (see Rahaghi 1978, page 10). According to above mentioned assemblage the age of species of *Laffitteina* described from this area is Lower Paleocene (Montian).

The *Laffitteina* specimens with Maastrichtian age have been collected in the deposits of Sachun Formation in Shiraz region, S.W. Iran. These sediments come from the cuttings of an

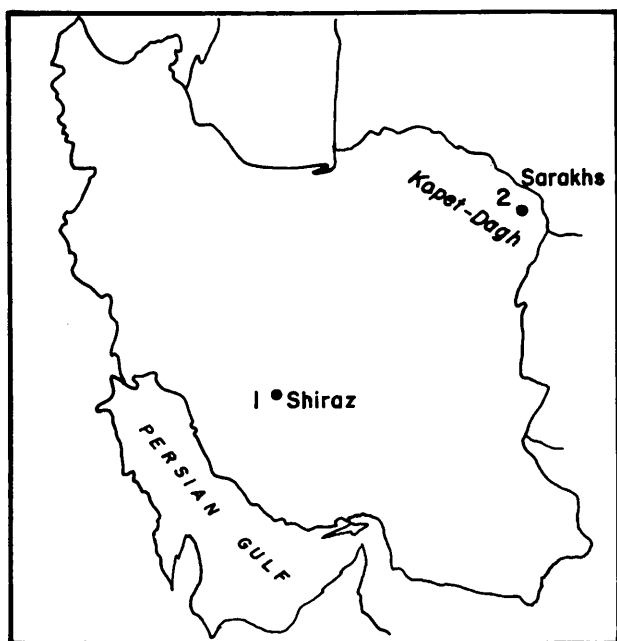


Fig. 1. Location map of the localities with *Laffitteina* in Iran.

1- Shiraz region.
Laffitteina Jaskii n.sp.
Age: Maastrichtian.

2- Kopet-Dagh region, Sarakhs.
Laffitteina Le Calvezae Rahaghi.
Laffitteina melona Rahaghi.
Laffitteina compressa Rahaghi.
Laffitteina khorassanica Rahaghi.
Age: Paleocene.

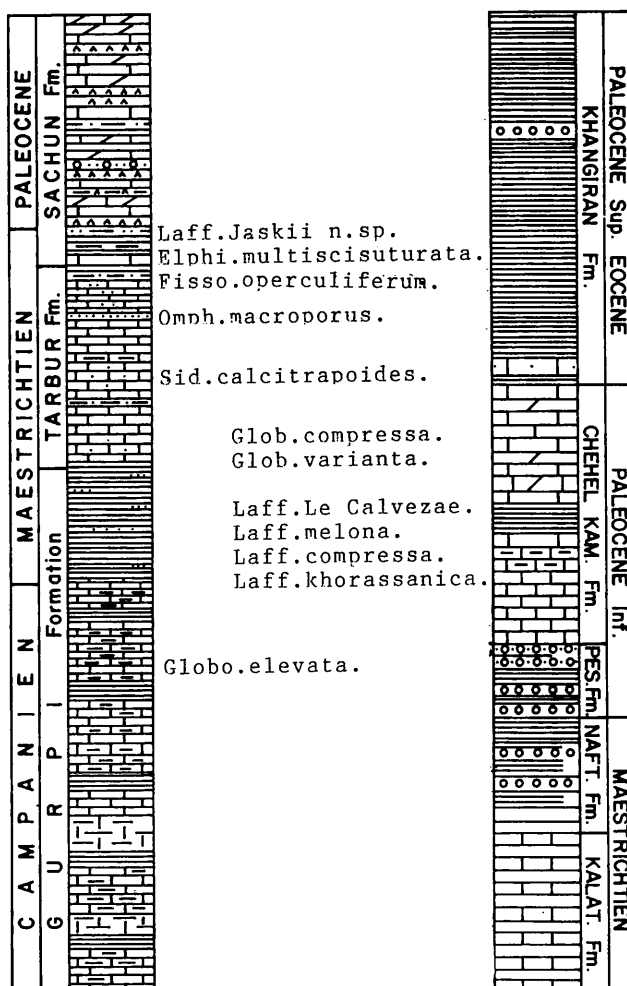


Fig. 2. Stratigraphic column showing the localities with the genus *Laffitteina* in Iran.

oil well, in Saadat-abad (SAA-2). We have observed associate with *Laffitteina* specimens the following microfossils: *Fissoelphidium operculiferum*, *Elphidiella multiscisuturata* and Ostracods. The underlying deposits, which belong to Tarbur Formation, contain *Loftusia persica*, *Omphalocyclus macroporus*, *Siderolites calci-trapoides* and *Orbitoides media* (Fig. 2).

Remarks on Genus *Laffitteina* Marie, 1946.

The genus *Laffitteina* is characterized by the presence of the pores, on double rows, along the sutures on both faces. The type description of the genus should be expanded if we consider the pore arrangement in the Iranian species and in the type species from France. In this case the pores are arranged on double rows and on both faces as in *Laffitteina bibensis* Marie (type species). They are missing on dorsal face as in *Laffitteina Le Calvezae* Rahaghi, and or they are in a single row and on both faces, as in *Laffitteina Jaskii* n.sp. (Table 1).

SYSTEMATIC

Family ELPHIDIIDAE Galloway, 1893

Genus *Laffitteina* Marie, 1946

Laffitteina Jaskii n.sp.
(Pl. 1, Figs. 1-9)

Origin of name. The name is dedicated to Dr. Brian Jaski MD, Sharp memorial hospital, San Diego, U.S.A., for his attempt to keep me alive by transplanting my new heart.

Holotype. Pl. 1. figs. 1-2. Deposited in the NIOC Geological Laboratories. RI. No. 256.

Paratypes. Pl. 1. figs. 3-9.

Type-locality. SAA-2, oil well, depth 1910 m. Shiraz, S.W. Iran.

Type-level. Maastrichtian.

Materials. Loose specimens.

Description. The test is free calcareous perfo-

rate and radiate. It is lenticular assymetric and trochospirally coiled. The periphery of the test is subacute and the contour is circular. Both dorsal and ventral faces are distinct, specially in the young specimens. The test of the young individuals is slightly thick with a diameter of 1.2 to 1.6 mm and a thickness of 0.7 to 0.9 mm. The ratio of diameter to thickness in the young forms is about 1.7.

The test of the adult specimens is larger and slightly compressed. Their diameter reaches up to 3.5 and their thickness up to 0.9 mm. The ratio of diameter to thickness is about 4.

Ventral face. The central part of this face is covered by the pores of variable sizes and shapes, which are regularly dispersed. The sutures of the last formed chambers are the only visible from this face. They are straight or inclined and they are marked by only a single row of round or elongate pores. The central part of the adult specimens are more developed and it is covered by more or less aligned pores.

Dorsal face. The last formed chambers are the only visible. There are about 29 chambers in the young individuals and 39 in the adult specimens. The sutures of the last formed chambers are straight or inclined and they are slightly curved near the periphery of the test. They are also marked only by a single row of pores. There are bout 12 round pores in the young specimens and 15-19 elongate pores in the adult forms. The central part of this face is occupied by an apical button. It is less developed and it has a whitish colour. This apical button produces, in vertical section, a few small pillars.

Vertical section. The test is trochospirally coiled and unequally biconvex. The dorsal side is more convex. The wall of the test is slightly thick and coarsely perforate, as in the genus *Miscellanea*. The apical button of dorsal face produces in vertical section a few pillars. There is pillars on ventral side which they may belong to a kind of central button but not seen on the ventral face. The wall of the test, in ventral side, is traversed by vertical canals.

The latter produce, on the surface, round and elongate orifices served for external communication.

Horizontal section. There are four successive whorls. The chambers are higher than broad. Their height increases gradually. The spiral lamina has a thickness of about 50 microns. Proloculus is more or less circular in outline and it has an internal diameter which varies from 100 to 125 microns. The second chamber is subcircular with an internal diameter of about 100 x 150 microns. The number of the chambers in the successive whorls is 6-11,

14-19. 22-29 and 36-39.

The septa are straight or inclined and they become curved near the periphery of the test. The height of the chambers, in the successive whorls, is 125, 200, 250, and 300 microns.

This new species is characterized, externally, by having only one single row of pores along the sutures and on both faces. This is the only species of the genus *Laffitteina* which shows such arrangement of pores along the sutures (Table 1).

PLATE 1

Fig. 1-9 *Laffitteina Jaskii* n.sp. Maastrichtian.

1-2. Holotype.

- 1 Dorsal face showing the pores along the sutures and apical button. X 30.
- 2 Ventral face showing the central part of the test and elongate pores along the sutures. X 30.

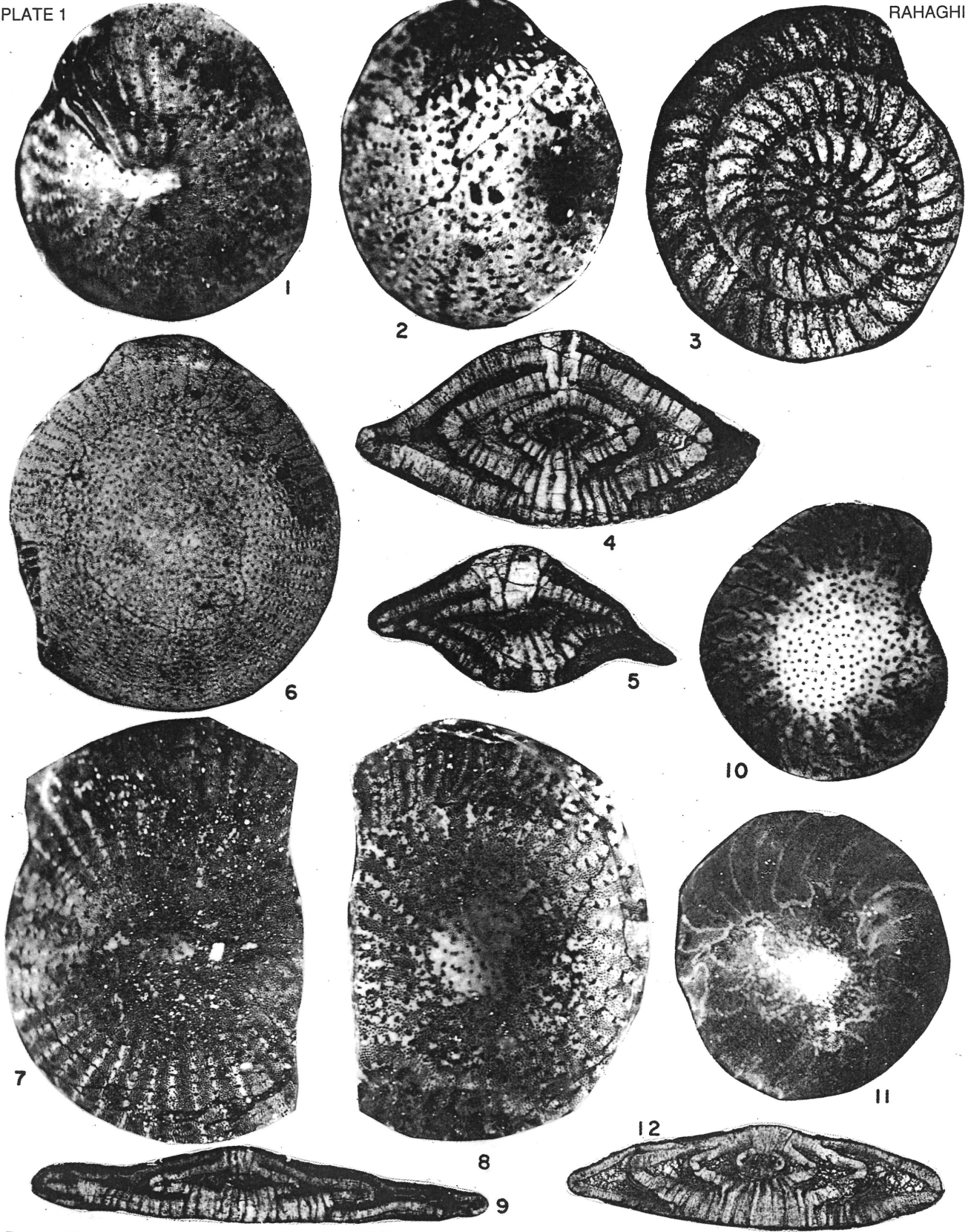
3-9 Paratypes.

- 3 Horizontal section showing the regular height of the spire, the chambers, proloculus and the septa. X 30.
- 4 Vertical section of an adult specimen showing the thick and coarsely perforate spiral lamina, pillars and vertical canals. X 40.
- 5 Vertical section of a young individual showing thick pillars from dorsal side. X 30.
- 6 Ventral face of a slightly compressed form showing the development of the central part of the test. X 20.
- 7-9 Compressed specimens considered as microspheric generation individuals.
- 7 Dorsal face showing apical button and sutures. X 36.
- 8 Ventral face showing the central coarsely perforate mass. X 36.
- 9 Vertical section showing the compressed character of the test, pillars, and vertical canals. X 36.

Fig. 10-12 *Laffitteina Le Calvezae* Rahaghi. Paleocene.

- 10 Ventral face showing the pores arrangement and the central part of the test. X 35.
- 11 Dorsal face. There is no pore along the sutures. X 35.
- 12 Vertical section showing pillars and vertical canals on ventral side and the pillars on dorsal side. X 45.

PLATE 1



Species of <i>Laffitteina</i> in Iran	<i>Laffitteina khorassanica</i>	<i>Laffitteina compressa</i>	<i>Laffitteina Le Calvezae</i>	<i>Laffitteina melona</i>	<i>Laffitteina Jaskii</i> n. sp.
Age	Paleocene	Paleocene	Paleocene	Paleocene	Maastricht.
External view	Thick lenticular Unequally biconvex	Lenticular Compressed Unequally biconvex	Lenticular Unequally biconvex	Subspherical	Thick lenticular Unequally biconvex
Pore along the sutures	? Thin section	2 rows on ventral face	2 rows on ventral face	? Thin section	1 row on both faces
Diameter mm.	1.9	3.4	2.3	0.7	3.5
Thickness mm.	1.3	0.7	0.5	?	0.9
Number of chambers	10, 11, 15 and 23	10, 13, 14 and 22	7, 14, 19 and 22	14 and 15	11, 19, 29 and 39
Proloculus diametr. Microns	50	100	70	50	125

TABLE 1. This table summarizes some characters of species of genus *Laffitteina* described in Iran.

We have observed associate with the above described forms of *Laffitteina Jaskii* n. sp., a few specimens with some following characters. The test is large and much compressed. Their diameter reaches up to 2 mm and their thickness up to 0.6 mm. The dorsal face shows the sutures of the last formed chambers. They are straight and they are marked by a single row of elongate pores. The central part of the ventral face is occupied by a large whitish perforate mass which produces, in vertical section, many pillars with vertical canals. The sutures, on this face, are straight or inclined and they are also marked by a single row of elongate pores. These specimens show some common characters with unequally biconvex individuals of *Laffitteina Jaskii* n. sp. There is not any horizontal section of such compressed forms available to show the first chamber for determining their generation. Meanwhile they

may be considered as the microspheric generation of *Laffitteina Jaskii* n. sp. (Pl. 1, Fig. 7-9).

Age and association. *Laffitteina Jaskii* n. sp. has been collected from the cuttings of SAA-2 oil well, Shiraz region S.W. Iran. It is associated with *Fissoelphidium ooperculiferum*, *Elphidiella multiscisuturata* and Ostracods. Age: Maastrichtian.

REFERENCES

- BLANC P.L.
1976 *Contribution à l'étude du genre Laffitteina, Elphidiidae du Crétacé terminale.* Rev. Micropal. Vol. 18. No. 2. pp. 61-68.
- BROWN N.K., BRONNIMANN P.
1957 *Some Upper Cretaceous Rotaliids from Caribbean region.* Micropaleontology, vol. 3, No. 1, pp. 29-38.

DROOGER C.W.

1952 *Foraminifera from Cretaceous-Tertiary transitional strata of the Honda mountains, Algeria*. Cont. Cushman, Found. Foram. Res., vol. 3, No. 2, pp. 89-103.

1960 *Some early Rotaliids Foraminifera*. I. Koninkl. Neder. Akad. Wet., Ser. B. 63, No. 3, pp. 278-334.

FARINACCI A.

1965 *Laffitteina marsicana, nuova specie di Rotalide nel calcare Maastrichtiano, 2. Rhapydionina liburnica di Monte Turchio (Marsica)*. Riv. Ital. Paleont., Milano, vol. 71, No. 4, pp. 1251-1262.

MARIE P.

1946 *Sur Laffitteina bibensis et Laffitteina monodi nouveau genre et nouvelles espèces de Foraminifères du Montien*. Bull. Soc. Géol. France. Paris. Ser. 15 (1945). pp. 419-434.

RAHAGHI A.

1976 *Contribution à l'étude de quelques grands Foraminifères de l'Iran*. N.I.O.C. publication, No. 6, pt. 1-3. pp. 32-44.

Manuscrito recibido el 28-V-1991
Manuscrito aceptado el 26-VI-1991

