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Vidalina radoicicae n. sp. and *Pseudorhapydionina* (?) *anglonensis* n. sp. (Foram.) from the Upper Cenomanian of Anglona region (NW Sardinia).

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ABSTRACT — Vidalina radoicicae *and* Pseudorhapydionina (?) anglonensis, *two new foraminifera from the Upper Cenomanian of Erula (Anglona, NW Sardinia) are described and figured.*

RIASSUNTO — Vengono descritti e figurati Vidalina radoicicae *e* Pseudorhapydionina (?) anglonensis, *due nuovi foraminiferi del Cenomaniano superiore di Erula (Anglona, Sardegna nord-occidentale).*

INTRODUCTION

The Upper Cenomanian of Erula (Anglona) — the only neritic deposits of this stage known until now in Sardinia — forms the basis of a small Upper Cretaceous erosional rest, situated approx. 400 m southwest of the village (cf. Cherchi & Schroeder 1976, pl. 1; 1985, text-fig. 60). The Upper Cenomanian sequence (3.40 m in thickness) which is underlain by Triassic (?) dolomites and overlain by Uppermost Turonian — Coniacian rudist limestones (Philip *et al.* 1978), has been subdivided by Cherchi & Schroeder into 3 levels (from bottom to top):

(1) 1.40 m grey-beige micritic, sometimes nodular limestones with miliolids, rare *Pseudolituonella reicheli* Marie and *Pseudorhapydionina dubia* (De Castro);

(2) 1.20 m grey-beige micritic limestones, characterized by abundant *Cisalveolina fraasi* (Gümbel). Other frequent larger foraminifera: *Pseudorhipidionina casertana* (De Castro), *Pseudorhapydionina dubia* (De Castro), *Chrysalidina gradata* D'Orbigny, *Cuneolina pavonia* D'Orbigny, etc.;

(3) 0.80 m light-grey micritic limestones with abundant *Praealveolina tenuis* Reichel (text-fig. 1). The very rich microflora and — fauna contain: *Acicularia* sp., *Heteroporella lepina* Praturlon, *Mayncina orbignyi* (Cuvillier & Szakall), *Charentia kosovica* Radoičić, *Chrysalidina gradata* D'Orbigny, *Pseudolituonella reicheli* Marie, *Dictyopsella libanica* Saint-Marc, *Nezzazata simplex* Omara, *Biplanata peneropliformis* Hamaoni & Saint-Marc, *Cuneolina pavonia* D'Orbigny, *Spiroloculina* sp., "*Cyclogyra*" sp. (*sensu* Radoičić 1972, pl. 2, figs. 1-2, 6-8; 1974, pl. 6, figs. 1-4), *Pseudorhapydionina dubia* (De Castro), *Pseudorhipidionina casertana* (De Castro), as well as the new species *Vidalina radoicicae* and *Pseudorhapydionina* (?) *anglonensis*, which are described below.

Superfamily MILIOLACEA Ehrenberg, 1839
Family FISCHERINIDAE Millett, 1898
Genus VIDALINA Schlumberger, 1900
VIDALINA RADOICICAE n. sp.
Pl. 1, figs. 1-3, 5

1972 *Vidalina* sp. 1 (nov. sp?) - RADOIČIĆ, pp. 91, 98; pl. 2, figs. 12-13.
1974 *Vidalina* sp. (sp. nov.?) - RADOIČIĆ, pp. 106,108; pl. 4, figs. 1-3.
1978 *Vidalina hispanica* Schlumberger - DECROUEZ *et al.*, p. 34, text-figs. a-c.
1984 *Vidalina* sp. - BARATTOLO, p. 9; pl. 8, figs. 6-7.
1985 *Vidalina radoicicae* Cherchi & Schroeder - CHERCHI & SCHROEDER, p. 190 [nom. nud.].

Derivatio nominis — In honour of Rajka Radoičić (Beograd), who had supposed for the first time (1972) that this form could be a new species.

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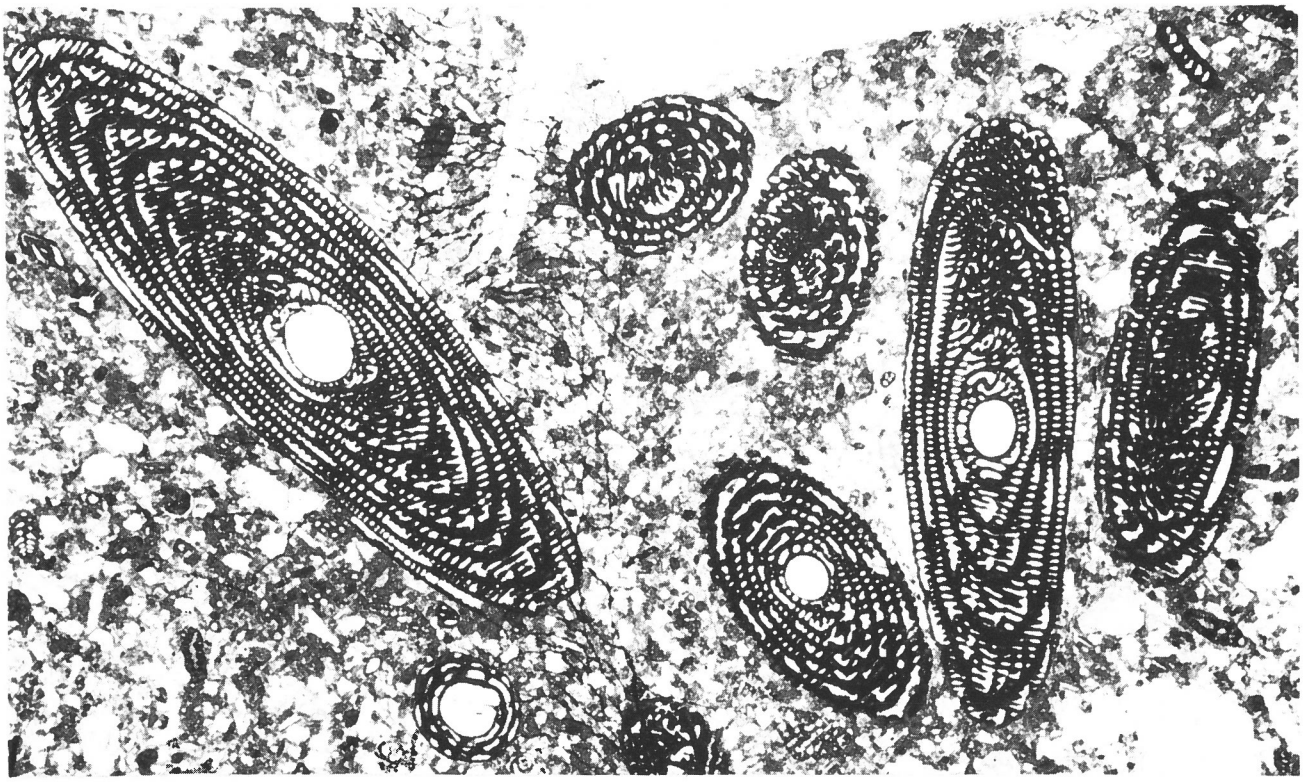


Text-fig. 1 — *Praealveolina tenuis* Reichel. Erula (Anglona) Upper Cenomanian. × 20.

Holotype — Oblique axial section, figured on pl. 1, fig. 3 (collection Cherchi & Schroeder, Frankfurt; ER 84-11-1).

Locus typicus — Approx. 400 m southwest of Erula (Anglona).

Stratum typicum — Upper Cenomanian with *Praealveolina tenuis* Reichel.

External form — Test lenticular, showing in axial sections (pl. 1, figs. 1-3) between the pole and the equatorial margin a plane or a very slightly concave surface. Axial diameter: 0.150-0.158 mm; equatorial diameter: 0.25-0.43 mm.

Internal structure — The subspherical proloculus (inner diameter: 0.031 mm) is followed by a planispirally enrolled, involute and nonseptate (pl. 1, fig. 5) second chamber. The involute character of the whorls (6-7 in adult specimens) results in umbonal thickening. Equatorial and axial sections show that the height as well as the width of the spiral postembryonic chamber increase regularly during the ontogenesis. The lumen of the spiral chamber is suboval to crescent-shaped in axial sections. In the last whorl of adult specimens it is 0.03-0.04 mm in height and 0.05-0.07 mm in width.

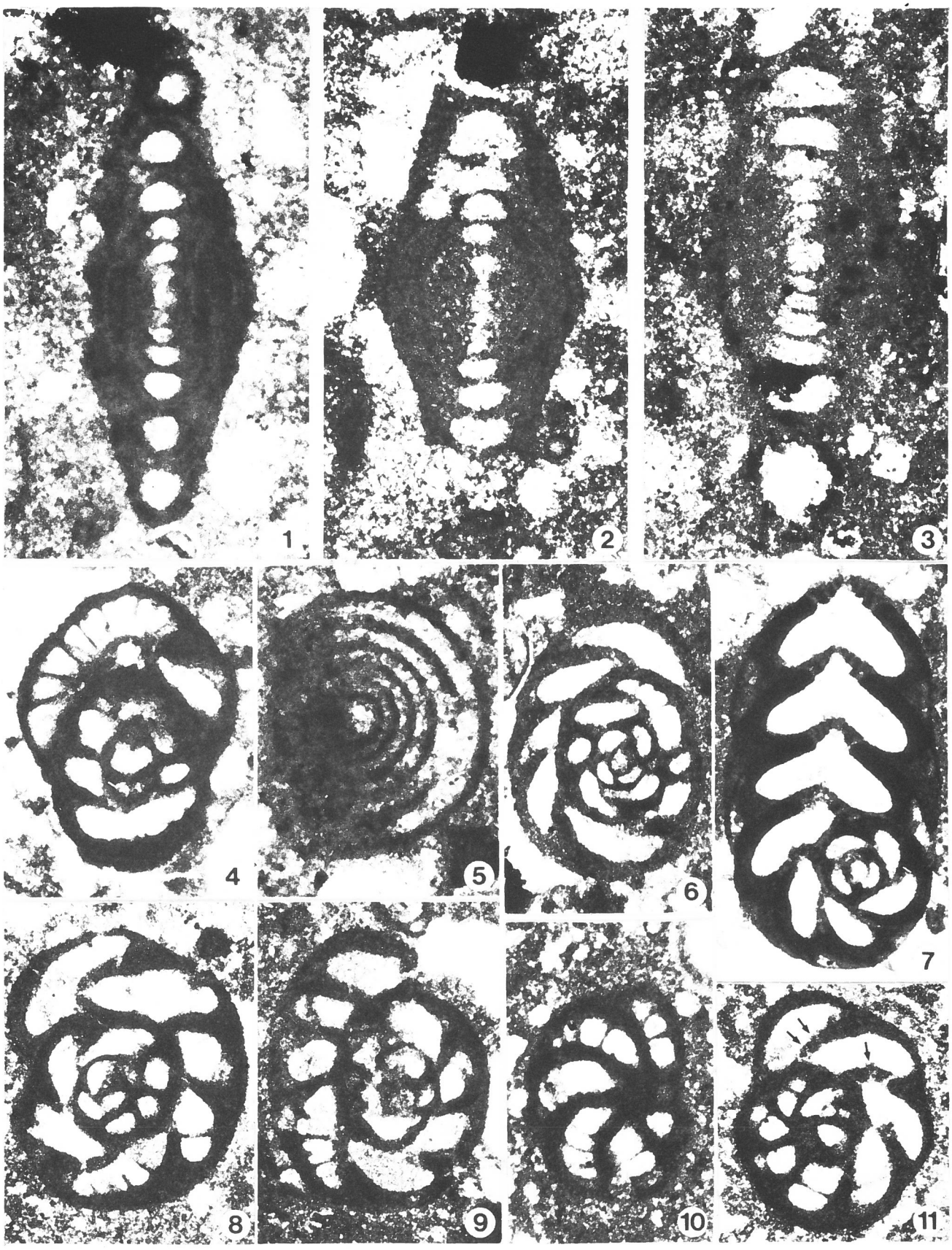
Remarks — *V. hispanica* Schlumberger, 1900, from the Santonian of the Spanish Pyrenees, differs from *V. radoicicae* by its outer form (disc-shaped with a central boss on both sides; see Loeblich & Tappan 1964, text-fig. 333-9), by its larger dimensions (adult specimens: 1.0 - 1.5 mm in diameter) and by its larger number of whorls (12-14). The dimensions of the postembryonic spiral chamber of *V. hispanica* increase rapidly after the formation of the initial lenticular stage of the disc (Loeblich & Tappan 1964, text-fig. 331-5; Decrouez *et al.* 1978, pl., figs. 1, 6); the last whorl is 0.07 mm in height (Decrouez *et al.* 1978, p. 33). For all these reasons *V. hispanica* is more develo-

EXPLANATION OF PLATE 1

Figs. 1-3, 5 - *Vidalina radoicicae* n. sp. × 200.
1) axial section, ER 84-29-1; 2) somewhat oblique axial section, ER 84-12-1; 3) somewhat oblique axial section, ER 84-11-1; 5) somewhat oblique equatorial section, ER 84-29-1.

Figs. 4, 6, 8-11 - *Pseudorhapydionina* (?) *anglonensis* n. sp. × 100.
4) subaxial section, ER 84-29-2; 6) equatorial section, ER 84-11-1; 8-9) subequatorial sections, ER 84-11-1; 10) tangential section, parallel to the equatorial plane, ER 84-11-1; 11) subequatorial section, ER 84-10-1.

Fig. 7 - *Pseudorhapydionina dubia* (De Castro). Median section. ER 84-29-2. × 100.
Erula (Anglona, NW Sardinia). Upper Cenomanian.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ped than *V. radoicicae* and could be a descendant of the Cenomanian species.

Geographical and stratigraphical distribution — Erula (Anglona): Upper Cenomanian with *Praealveolina tenuis* Reichel; Matese (Southern Appennines, Italy): Upper Cenomanian with *Cisalveolina fraasi* (Gümbel) (Barattolo 1984); Western Serbia (Yugoslavia): Cenomanian, level below beds with *C. fraasi* (Radoičić 1972, 1974); Greece: Cenomanian (Decrouez *et al.* 1978).

Family SORITIDAE Ehrenberg, 1839
Genus PSEUDORHAPYDIONINA De Castro, 1972
PSEUDORHAPYDIONINA (?) ANGLONENSIS n. sp.
Pl. 1, figs. 4, 6, 8-11

1985 *Pseudorhapydionina anglonensis* Cherchi & Schroeder - CHERCHI & SCHROEDER, p. 190 [nom. nud.].
1985 *Pseudorhapydionina dubia* (De Castro, 1965) - DE CASTRO, p. 90; pl. 42, figs. 6, 15.

Derivatio nominis — From the Anglona region (NW Sardinia).

Holotype — Subequatorial section, figured on pl. 1, fig. 8 (collection Cherchi & Schroeder, Frankfurt; ER 84-11-1).

Locus typicus — Approx. 400 m southwest of Erula (Anglona).

Stratum typicum — Upper Cenomanian with *Praealveolina tenuis* Reichel.

External form — Test subspherical, slightly compressed, biumbilicate (pl. 1, fig. 4). Axial diameter: 0.3-0.4 mm; equatorial diameter: 0.35-0.50 mm.

Internal structure — The subspherical proloculus (inner diameter: 0.020-0.037 mm) is followed by a series of 14-16 chambers, which are arranged in 2-2.5 whorls forming a planispirally enrolled test. The initial stage of specimens with very small proloculus may be streptospiral. In axial or subaxial sections (pl. 1, fig. 4) the chambers show arched outlines; in equatorial sections (pl. 1, figs. 6, 8-9, 11) they are generally crescent-shaped. Its outer part may be subdivided by thin septula, which are arranged perpendicularly to the septa (pl. 1, figs. 4, 8-11). The aperture is simple and interiomarginal in the older stages of the test, but probably multiple (cribrate?) in the last chambers (cf. pl. 1, fig. 11; arrows).

Remarks — *P.* (?) *anglonensis* differs from *P. dubia* (De Castro, 1965) (cf. pl. 1, fig. 7) by its more voluminous initial stage, by the absence of a rectilinear final stage and by a more developed system of septula. *P. laurinensis* (De Castro, 1965) shows a rectilinear final stage and a very developed system of narrowly spaced septula.

The presence of cribrate apertures in the final stage of *P.* (?) *anglonensis* is not sure; for this reason, the generic position of this species is still uncertain.

Geographical and stratigraphical distribution — Erula (Anglona): Upper Cenomanian with *Praealveolina tenuis* Reichel; Monte Cerreto near Caserta (Campania, Italy): Upper Cenomanian with *Cisalveolina fraasi* (Gümbel) (De Castro 1985, p. 90).

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