Bollettino della Società Paleontologica Italiana	23 (2)	1984	375-379	1 pl.	Modena, Settembre 1985

Emendation of genus *Uteria* Michelin, 1845 (Dasycladaceae)

Iginio DIENI

Istituto di Geologia
Università di Padova

Rajka RADOIČIĆ

Geološki Institut
Beograd

KEY WORDS — *Algae, Dasycladaceae,* Uteria, *Paleocene, Sardinia, Slovenia.*

ABSTRACT — *The study of Paleocene representatives from eastern Sardinia and from Slovenia provided new elements for a more complete knowledge of* Uteria *structure (Dasycladaceae). An emendation of the genus is proposed.*

RIASSUNTO — [Emendamento del genere *Uteria* Michelin, 1845 (Dasycladaceae)] — *Sulla base di nuovi elementi strutturali emersi dallo studio di materiale paleocenico della Sardegna orientale e della Slovenia viene proposto un emendamento del genere* Uteria *Michelin, 1845 (Alghe dasicladacee).*

Until recently the dasyclad representatives of genus *Uteria* Michelin, 1845 (with *U. encrinella* Michelin 1845, type-species of the genus, and *U. brocchii* L. & J. Morellet, 1922) had only been recorded from the Paris and Mons Basins and little was known about their structure.

L. & J. Morellet (1938) gave a definition of genus *Uteria* Michelin, 1845, which is substantially exact: « *Uteria* se composait d'une tige principale continue, calcifiée (tube axial) d'où partaient deux sortes de rameaux verticillés, disposés de la façon suivante: un verticille stérile, plusieurs verticilles fertiles, un verticille stérile et ainsi de suite... ».

Although Génot (1980, p. 11) and Deloffre & Génot (1982, pp. 180-181) have accepted L. & J. Morellet's definition, their interpretation of the article structure of *Uteria encrinella* differs greatly from that of the Morellet brothers.

New findings of Uterieae have been reported recently and some new species have been instituted. Clearly, the genus *Uteria* was widely distributed over the Tethyan area. In fact, apart from the original specimens of the Paris and Mons Basins, we may cite the following records of representatives of the genus *Uteria*:

— A dasycladacean termed « aff. *Uteria* » from Danian of Aquitaine by Deloffre (1980, pl. 2, fig. 2).
— Presence of *Uteria* recognized in the subsurface Paleocene from the western Iraqi Desert by Radoičić (1981, p. 124).
— The new species *Uteria sarda* described by Dieni, Massari & Radoičić (1983, p. 46, pl. 4, figs. 1 and 2) from Paleocene of Orosei, eastern Sardinia (Text-fig. 1).
— Presence of one *Uteria* in Slovenian Paleocene only mentioned by Dieni, Massari & Radoičić (1983, p. 47); this species, determined as *U.* cf. *brocchii* L. & J. Morellet, is here depicted in text-fig. 2.
— *Uteria* cf. *brocchii* L. & J. Morellet and two new species (*Uteria irregularis* and *Uteria medizzai*) from the above mentioned Sardinian Paleocene are described by Dieni, Massari & Radoičić (1985, pl. 13, figs. 8, 9, 11-13; pl. 19, figs. 1-18; pl. 20, figs. 1-20).
— Dieni, Massari & Radoičić (1983 and 1985) attributed the specimens described by Elliott (1955, p. 127, pl. 1, figs. 8 and 9; 1968, p. 35, pl. 4, figs. 2,

Research financially supported by the Italian Consiglio Nazionale delle Ricerche and Ministero della Pubblica Istruzione.

3, 7 and 8) as *Clypeina merienda* from Paleocene of north-eastern Iraq to the genus *Uteria*.

— Presence of *Uteria* in the Majevica (north-eastern Bosnia, Jugoslavia) Paleocene.

In the Paleocene dasycladalean assemblages of eastern Sardinia Uterias are particularly abundant. The study of this material from Sardinia (four species, of which three new; Dieni, Massari & Radoičić 1985) and the analysis of some specimens (one species) from Slovenian Paleocene have provided new elements for a more complete knowledge of the *Uteria* structure. On the basis of these data, we propose the following emended diagnosis.

Gen. *Uteria* Michelin, 1845, emended

Relatively large cylindrical thallus with rounded top and ample main axis bearing sterile and fertile verticils. Thallus may be differentiated into a short lower part consisting of sterile verticils only, and an upper part with usually irregularly alternate sterile and fertile verticils (mostly one sterile followed by one, two or more fertile verticils) (Text-fig. 1).

Sterile rosette-like verticils consisting of numerous fused tubular primary branches which end in short secondaries or tufts of secondaries (Pl. 1, fig. 2).

Fertile verticils with primary, secondary and tertiary branches. Primary branches tubular of the same shape but shorter than primary branches of sterile verticils; they give rise to secondaries which, probably laterally, bear fertile organs and, at the end, tufts of short tertiary branches (Text-fig. 2; pl. 1, figs. 1 and 2). Fertile organs are not known.

Calcification very variable, generally not strongly developed. Different parts of the thallus are calcified differentially. Usually sterile verticils are calcified or calcification occurs around sterile verticils, then around main axis and only on the distal part of fertile verticils (the so-called « vertical wall », i.e. around ends of secondaries and/or around tertiary branch tufts) (Text-figs. 1 and 2; pl. 1, fig. 2).

Quincunx arranged alveoli on the periphery of calcareous bodies correspond to external moulds of ends of the secondary and/or of the tertiary branch tufts; the horizontal rows of alveoli correspond to sterile verticils (as can be clearly observed in the specimens of *Uteria brocchii* L. & J. Morellet depicted by Deloffre & Génot 1982, pl. 19, figs. 7 and 8).

Stratigraphic range — For the time being the genus *Uteria* appears to be limited to the Danian-Bartonian interval. *U. encrinella* has been quoted from Cuisian to Bartonian but it is chiefly found in the Cuisian from the Paris Basin. *U. brocchii* is only known in the Montian of Belgium and of the Paris Basin. The most probable age of the Sardinian Paleocene species (*Uteria* cf. *brocchii, U. irregularis, U. medizzai* and *U. sarda*) is Dano-Montian. Finally *U.* cf. *brocchii* from Slovenia (in association with *Broeckella belgica* L. & J. Morellet, *Digitella jacquei* Deloffre, *Cymopolia* spp., *Orioporella* sp., etc.) also seems referable to Dano-Montian.

REFERENCES

DELOFFRE, R., 1980, Dasycladales (Algues vertes) du Danien récifal d'Aquitaine occidentale (France SW): Bull. Centr. Rech. Explor.-Prod. Elf-Aquitaine, v. 4, pp. 609-631, 2 figs., 3 pls., Pau.

—, & GÉNOT, P., 1982, Les Algues Dasycladales du Cénozoïque: Bull. Centr. Rech. Explor.-Prod. Elf-Aquitaine, Mém. 4, 205 pp., 9 figs., 20 pls., Pau.

DIENI, I., MASSARI, F. & RADOIČIĆ, R., 1983, New Palaeocene Dasyclads from the vicinity of Orosei (Sardinia): C.R. Séanc. Soc. Serbe Géol., 1982, pp. 41-50, 4 pls., Beograd.

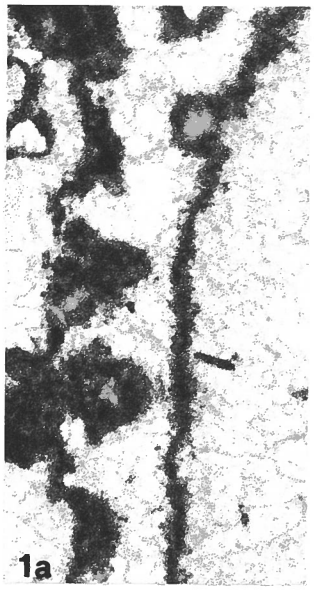
—, —, —, 1985, Palaeocene dasycladalean algae from Orosei (Eastern Sardinia): Mem. Sc. Geol., v. 38, 12 figs., 22 pls., Padova (in press).

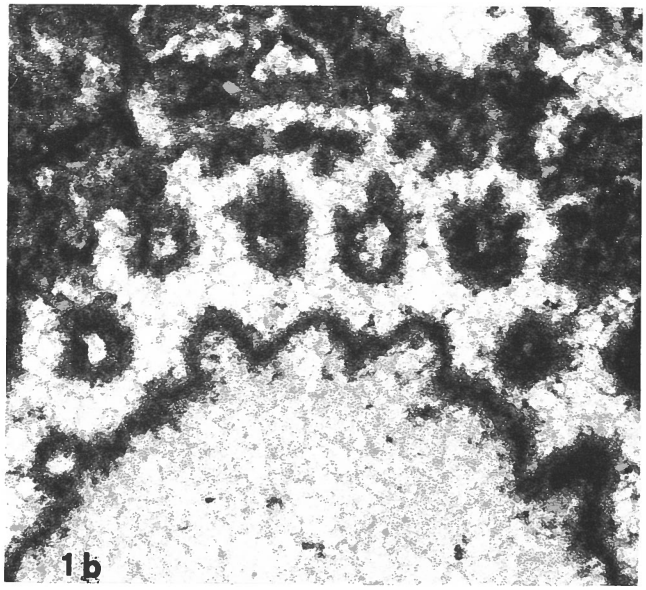
ELLIOTT, G.F., 1955, Fossil calcareous algae from the Middle East: Micropaleont., v. 1, pp. 125-131, 1 pl., New York.

EXPLANATION OF PLATE 1

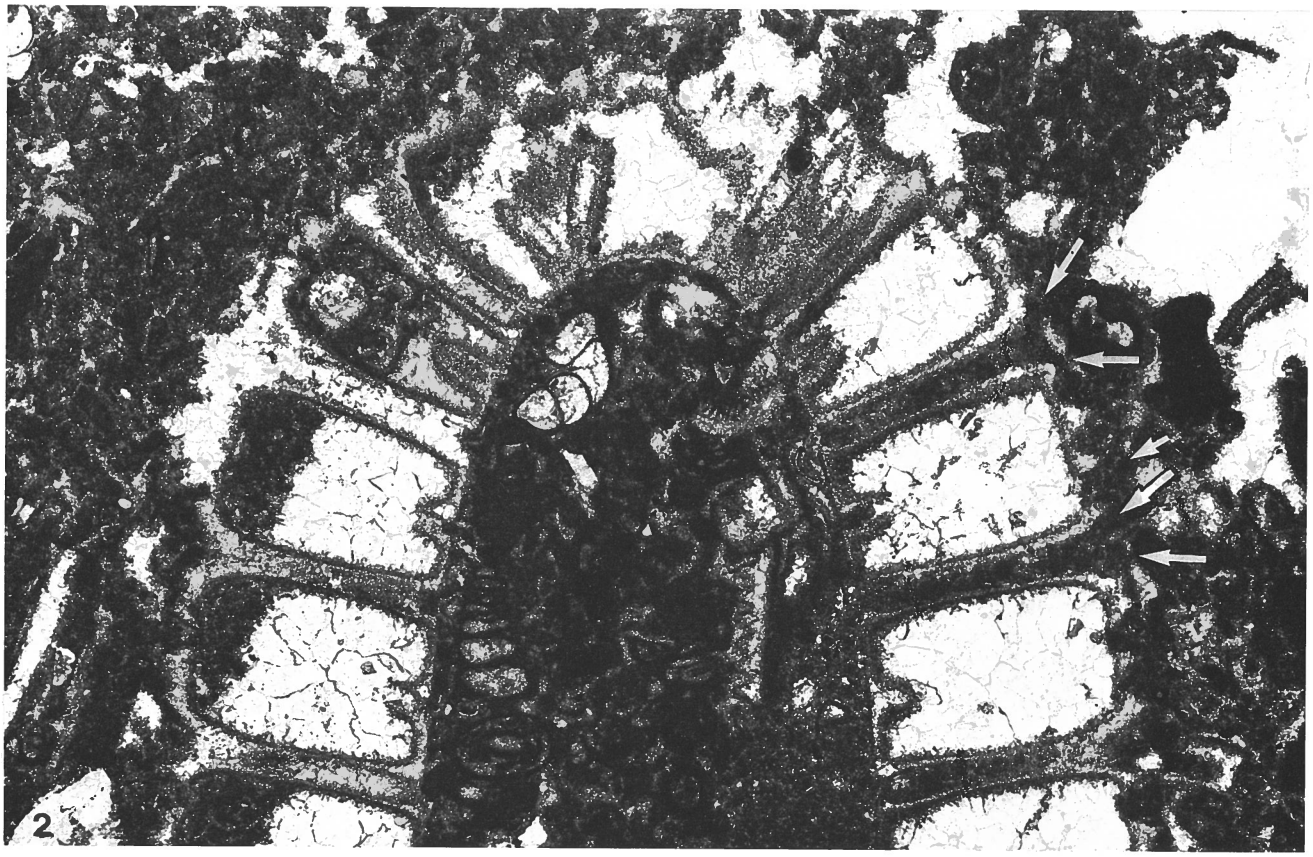
Figs. 1 a-c - *Uteria* cf. *brocchii* L. & J. Morellet, 1922.
Paleocene of Korada, Slovenia. Details of text-fig. 2; x 80.
Note that the vertical wall occupies the distal part of the secondary branches and the proximal part of the tertiary branch tufts.

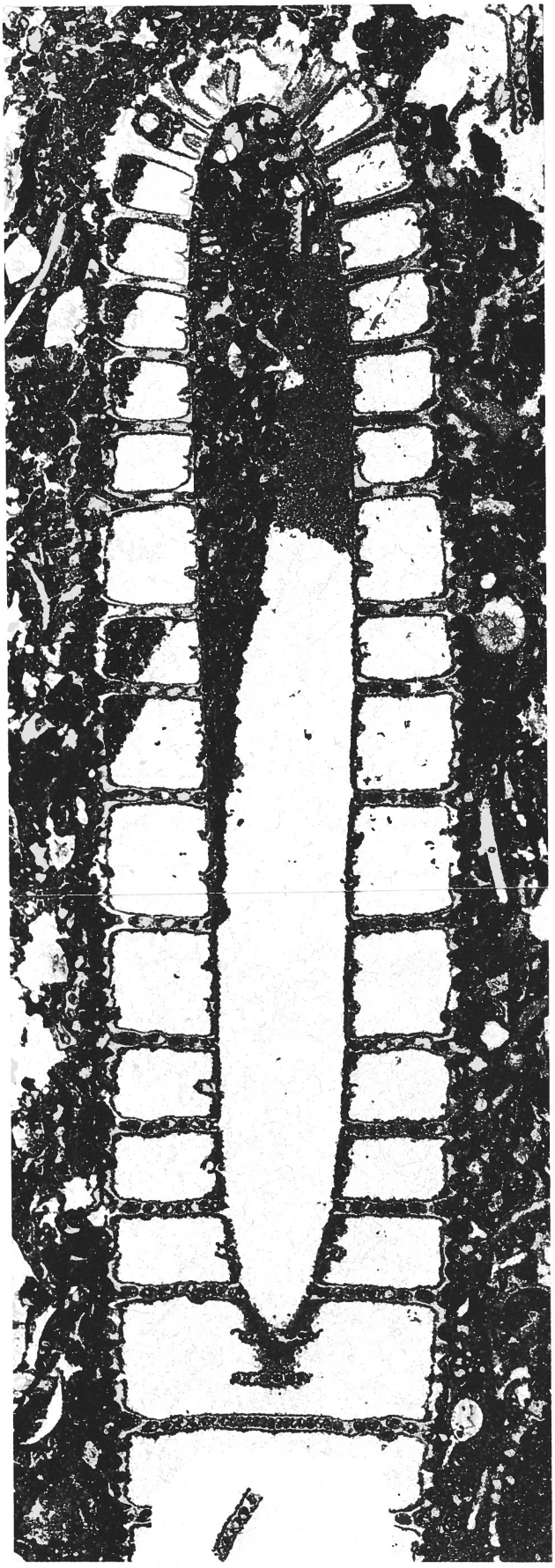
Fig. 2 - *Uteria sarda* Dieni, Massari & Radoičić, 1983.
Paleocene of Orosei, eastern Sardinia. Top of thallus; detail of text-fig. 1; x 32.
Long arrows indicate the division of primary branches of sterile verticils into secondary branches. The short arrow points to the section of an alveolus in the vertical wall corresponding to the base of a tertiary branch tuft belonging to a fertile verticil.


1a


1b


1c


2



Text-fig. 2 - *Uteria* cf. *brocchii* L. & J. Morellet, 1922. Oblique section; x 30. Paleocene of Korada, Slovenia. Tufts of tertiary branches are clearly visible; for details see Pl. 1, figs. 1 a-c. Thin section RR 3276.

--, 1968, Permian to Palaeocene calcareous algae (Dasycladaceae) of the Middle East: Bull. Brit. Mus. (Nat. Hist.), Geol., suppl. 4, 111 pp., 16 figs., 24 pls., London.

GÉNOT, P., 1978, Les Dasycladacées du Paléocène supérieur et de l'Eocène du Bassin de Paris: Thèse 3e cycle, Bordeaux, 403 pp., 47 figs., 26 pls., Bordeaux.

—, 1980, Les Dasycladacées du Paléocène supérieur et de l'Eocène du Bassin de Paris: Mém. Soc. géol. France, n. s., v. 59, n. 138, 37 pp., 15 figs., 25 pls., Paris.

MICHELIN, H., 1840-1847, Iconographie zoophytologique. Description par localités et terrains des Polypiers fossiles de France et pays environnants: Bertrand, 348 pp., 79 pls., Paris.

Text-fig. 1 - *Uteria sarda* Dieni, Massari & Radoičić, 1983. Slightly oblique axial section; x 12. Paleocene of Orosei, eastern Sardinia. Thin section RR 2980.

MORELLET, L. & MORELLET, J., 1922, Nouvelle contribution à l'étude des Dasycladacées tertiaires: Mém. Soc. géol. France, v. 25, n. 38, 35 pp., 6 figs., 2 pls., Paris.

—, —, 1938, Révision des collections H. Michelin. Les Algues siphonées calcaires: Bull. Mus. Nat. Hist. nat. Paris, s. 2, v. 10 (2), pp. 178-183, 4 figs., Paris.

RADOIČIĆ, R., 1981, Some new data about subsurface biostratigraphy of the western Iraqi Desert (Block 7): Bull. Acad. Serbe Sc. Arts., Cl. Sc. nat. Math., v. 75, n. 21, pp. 115-129, 2 figs., 7 pls., Beograd.

(manuscript received April 2, 1985
accepted May 2, 1985)

Iginio DIENI
Istituto di Geologia e Paleontologia
Università di Padova
Via Giotto 1, I-35137 Padova, Italia

Rajka RADOIČIĆ
Geoloski Institut
P.O. Box 275
Beograd - Yugoslavia