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Aequiloboidea: A new Early Jurassic ammonite superfamily of the Mediterranean Tethys☆

Aequiloboidea : une nouvelle superfamille d'ammonites du Jurassique inférieur de la Téthys méditerranéenne

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Abstract

A comprehensive outline of the Jurassic ammonoid superfamily Aequiloboidea is here presented: this group is known from? Rhaetian-early Hettangian to early Pliensbachian and it is exclusively found within the Mediterranean Tethys (Austrian Alps, Bavarian Prealps, Tuscany, Umbria-Marche and Abruzzi Apennines, Morocco, Tunisia, western Hungary). On the basis of the available documentation, it is composed by two families (Aequilobidae and Sinuiceratidae), to which five genera belong: *Aequilobus* Bilotta (previously informally indicated as ''genus from Monte Bove''), *Dudresnayiceras* Rakús, *Sinuiceras* Venturi and Ferri, and *Sphenoacanthites* Venturi, Nannarone and Bilotta, plus *Xenoloboceras* nov. gen., which position at the family level is uncertain. All of them share a peculiar combination of morpho-structural characters, which was never observed in any form referable to known groups. Due to the particularities presented by the Aequiloboidea and to the scarce documentation on the earliest Jurassic in the Mediterranean regions, it is currently impossible to demonstrate that this taxon originated within any of the already-known Jurassic ammonoid orders (Phylloceratida and Psiloceratida). An at least partially independent derivation cannot be excluded, as suggested also by the results of a cladistic analysis.

Keywords: Early Jurassic; Ammonites; Taxonomy; Tethys

Résumé

Nous proposons ici une vue d'ensemble de la superfamille d'ammonoïdes jurassiques Aequiloboidea, d'âge ? Rhétien-Hettangien inférieur-Pliensbachien inférieur, provenant de la Tethys méditerranéenne (Alpes autrichiennes, Préalpes bavaroises, Apennins de la Toscane, des Ombrie-Marches et des Abruzzes, Maroc, Tunisie, Hongrie occidentale). En se basant sur la littérature disponible, cette superfamille est composée de deux familles (Aequilobidae et Sinuiceratidae) comprenant cinq genres : *Aequilobus* Bilotta (précédemment indiqué comme « genre de Monte Bove »), *Dudresnayiceras* Rakús, *Sinuiceras* Venturi et Ferri, *Sphenoacanthites* Venturi, Nannarone et Bilotta, ainsi que *Xenoloboceras* nov. gen., un taxon dont la position familiale reste incertaine. Tous partagent une combinaison particulière de caractères morpho-structurels qui n'a jamais été observée dans aucune autre forme connue. En raison des caractères originaux des Aequiloboidea et d'une documentation insuffisante pour le Jurassique des régions méditerranéennes, il est actuellement impossible de démontrer que cette superfamille dérive d'un quelconque groupe d'ammonoïdes jurassiques déjà connu (Phylloceratida et Psiloceratida). Une origine au moins partiellement indépendante ne peut être exclue, comme cela est suggéré par les résultats d'une analyse cladistique.

Mots clés : Jurassique inférieur ; Ammonites ; Taxonomie ; Téthys

1. Introduction

Jurassic ammonoid classification at the superfamily, suborder and order levels is a matter closely connected to the knowledge of the phylogeny, still showing some

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controversial issues. An historical summary of the various hypotheses expressed on this subject can be found for instance in Ruzhentsev (1962: pp. 456–458), Guex (1987) and Donovan (1994). Until about the last decade, three major early Jurassic ammonoid groups were traditionally admitted: Phylloceratida, Lytoceratida and Ammonitida, or Phylloceratina, Lytoceratina and Ammonitina, depending on their attributed rank (order or suborder, respectively). Surely, this is a practical scheme, and possibly also for this reason it was accepted for long by most experts (Arkell et al., 1957; Schindewolf, 1961–1968; Wiedmann, 1970; Donovan et al., 1981; Schlegelmilch, 1992), despite some reservation chiefly due to the difficulties in reconstructing the lineages. In any case, more or less alternative opinions were also advanced, such as those in Houša (1965).

Recently, Page (2008) proposed the usage of four major groups (Phylloceratina, Lytoceratina, Psiloceratina and Ammonitina), but the current commonest tendency (Guex, 1982, 1987; Taylor, 1988; Dommergues, 2002; Bourillot et al., 2008) is to recognize only two Jurassic ammonite orders: the Phylloceratida (corresponding to the classic Phylloceratina) and the Psiloceratida (equivalent to the whole of the traditional Lytoceratina and Ammonitina). Compared to the previous ones, this system provides a better starting point. However, as already exposed by Venturi et al. (2005, 2007) and Venturi and Bilotta (2008), its internal organization at a superfamily and especially family level is sometimes very complex, if not problematic, also because the relations between various groups are poorly understood.

Concerning this matter, studies on the Mediterranean Tethys ammonoids suggest the existence of a suprafamiliar taxon, which cannot be safely assigned to any of the currently accepted major categories. It is composed by five genera sharing a very peculiar combination of morpho-structural characters: the so-called ‘‘genus from Monte Bove’’ (formally named *Aequilobus* Bilotta in Venturi et al., 2010) from the early Sinemurian, the late Sinemurian *Dudresnayiceras* Rakús, 1994, *Sinuiceras* Venturi and Ferri, 2001 and *Sphenoacanthites* Venturi et al., 2007, both from the early Pliensbachian, plus a new genus, most likely datable to the Rhaetian or early Hettangian, here described. These forms were found only within the Mediterranean area, where the earliest Jurassic (included the Rhaetian-Hettangian transition) is scarcely documented, and also for this reason it is still impossible to demonstrate that the group at issue was derived from any of the already-known Jurassic taxa. Apparently, an independent origin, or at least a partially independent one, cannot be excluded (Venturi and Bilotta, 2008), as evidenced also by the cladistic analysis described in Section 5.

All this, united with the distinctive co-occurrence of morphological and sutural traits, leads to regard this group as a separate, *incertae sedis* superfamily: in the present paper, we propose a comprehensive outline of it, considering all its currently-known members.

2. Provenance of the material

The examined documentation comes from three Umbria-Marche Apennines localities (Figs. 1 and 2). The first is Monte

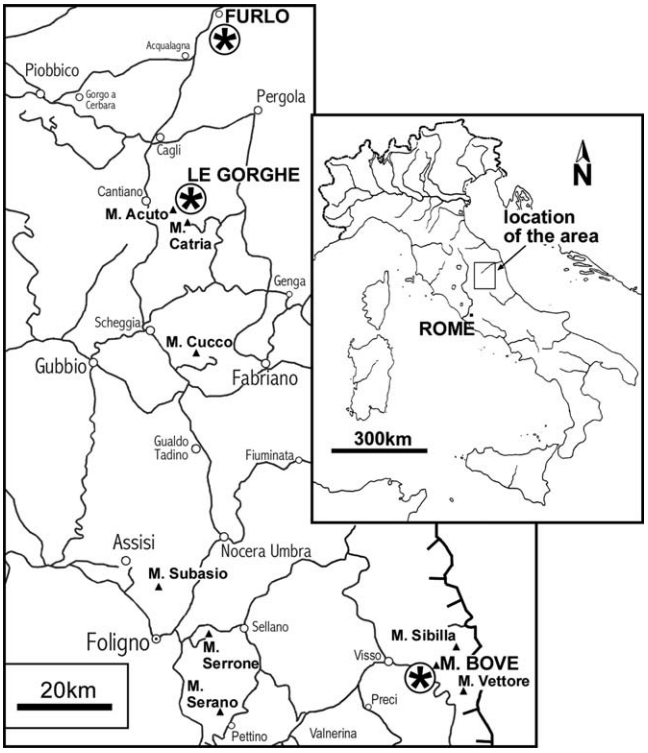

Fig. 1. Location of the Umbria-Marche sections from which the studied material comes (Monte Bove, Furlo Pass, ‘‘Le Gorghe’’).

Bove (Sibillini Mounts): here, within an isolated block made of ‘‘Calcare Massiccio’’ limestones, a rich shell bed was found, chiefly composed by ammonites (over 200 individuals, including more or less complete specimens and fragments), together with thin-shelled ribbed bivalves, some smooth brachiopods and a solitary coral. The fossils are cemented within the matrix, accumulated in a chaotic way, without evident orientation or reworking. The lumachella is almost exclusively formed by small-sized shells; ammonites exceeding the diameter of about 15 mm are rare, and are mostly found as fragments. All these features lead to think that the block at issue represents a shallow water deposit (perhaps a debrite), involved by a mechanic sorting. The ammonite assemblage includes (Fig. 3): *Aequilobus* (quantitatively predominant), some Phylloceratida (*Phylloceras* Suess, 1865 and *Paradasyceras* Spath, 1923), several Arietitidae as ‘‘*Megarietites*’’ *plicatella* (Fucini, 1902) and samples similar to ‘‘*Vermiceras*’’ *flexicostatum* Venturi and Nannarone, 2002, but also *Hyerifalchia* Fucini, 1906 and specimens comparable to *Pseudotropites* Wähner, 1894 and *Oxydiscoceras* Venturi and Nannarone, 2003. Further forms are enigmatic and hard to classify, perhaps representing new genera. Despite the absence of a stratigraphic reference, quite good similarities with the early Sinemurian assemblages described by Venturi and Nannarone (2002) for the Monte Cetona can be noticed. However, some differences do exist: for instance, the Monte Bove fauna lacks taxa as *Tmaegoceras* Hyatt, 1889, or ammonites clearly referable to the Lytoceratoidea (*Lytoceras* Suess, 1865) and/or to the genera *Analytoceras* Hyatt, 1900, *Ectocentrites* Canavari, 1888, *Tragolytoceras* Spath, 1924, and so on. This could depend