

**ATRACTITES JELETZKYI N. SP., A NEW XIPHOTEUTHIDID COLEOID
FROM THE LOWER LIAS OF TYROL (AUSTRIA)**

A new species of *Atractites*, *A. jeletzkyi* n. sp., is described from the Lower Lias of Pfonsojoch (Tyrol, Austria). The species is based on a single well-preserved telum, stored at the Naturhistorisches Museum of Wien. It has fusiform outline and profile, slightly expanding adorally of its middle portion, almost circular cross section, and apical angle of ca. 12°. The surface of the telum is finely sculptured with longitudinal and transversal striae, probably due to diagenesis. The differences between *A. jeletzkyi* n. sp. and *A. alpinus* Gümbel, 1861, *A. indunensis* (Stoppani, 1857), and *A. elongatus* (de la Beche, 1829) are discussed.

KEY WORDS: *Aulacocerida*, *systematics*, *new taxon*, *Lias*, *Austria*.

PAROLE CHIAVE: *Aulacocerida*, *sistematica*, *nuova specie*, *Lias*, *Austria*.

Introduction

In a series of previous papers (Mariotti & Pignatti, 1992-1996) we have proposed a supraspecific re-classification of the Xiphoteuthididae based in the main on the features of their tela. Well-preserved xiphoteuthidid tela are rather scarce; with the possible exception of some American representatives, the vast majority of taxa based on tela can be unambiguously assigned to genera discussed in the re-classification above.

The species-level taxonomy of this family remains instead largely unsettled, in particular because of the large number of taxa based on fragmentary phragmocones alone.

In order to clarify the systematics of the xiphoteuthidid genera, a revision of these taxa along with a redescription of relatively complete specimens recorded in the literature is necessary. This necessity is especially acute in *Atractites*, a genus with several dozens of nominal species (Riegraf, 1995), only few of which are sufficiently characterized as concerns the features of the telum, which are considered by us of primary importance for genus and species identification. On the base of lateral compression of the telum, in *Atractites* we have previously distinguished two groups, one with rounded to slightly compressed tela (as e.g. in *A. alpinus* Gümbel, 1861), the other with distinctly compressed tela, as in *A. applanatus* Steinmann, 1910 and in *A. depressus* (Hauer, 1855). The new species here introduced belongs to the first group.

Systematic part

Subclass Coleoidea Bather, 1888
Order Aulacocerida Stolley, 1919

Superfamily Xiphoteuthidoidea Bather in Blake, 1892
Family Xiphoteuthididae Bather in Blake, 1892
Genus *Atractites* Gümbel, 1861

***Atractites jeletzkyi* n. sp.** (Pl. 1, figs. 1-4)

1966 *Atractites* sp. aff. *A. alpinus* Gümbel - Jeletzky, p. 80, pl. 17, fig. 2A-F.

1994b *Atractites* sp. 1 aff. *A. alpinus* Gümbel - Mariotti & Pignatti, pl. 1, figs. 3-5.

Derivatio nominis: After J.A. Jeletzky, the prominent coleoid specialist who first recognized the specific difference of the present species from *A. alpinus* Gümbel, 1861.

Holotype: Specimen of Pl. 1, figs. 1-3; figured also in Jeletzky (1966: Pl. 17, fig. 2A-F) and in Mariotti & Pignatti (1994b: Pl. 1, figs. 3-5).

Material: Only one almost complete telum stored at the Naturhistorisches Museum Wien, Paläontologische Abteilung, n° 7473. Original label: "*Atractites liasicus* Gümb.".

Locus typicus: Pfonsojoch (Northern Tyrol, Austria).

Stratum typicum: Lower Lias (?Hettangian), "Caloceras beds", sensu Jeletzky (1966).

Diagnosis: Large-sized, slender, fusiform *Atractites*. Telum outline symmetrical, fusiform; profile slightly asymmetrical. Telum narrow-waisted, slightly expanding adorally of its middle portion. Cross section of telum almost circular, slightly compressed, circular at its proximal and distal ends. Apical angle ca. 12°.

Telum surface sculptured with dot-like pits and longitudinal and transverse striae (this is probably a diagenetic feature, and not a primary character). Telum lacking furrows.

Description: Telum large-sized, slender, elongated, fusiform. Telum narrow-waisted, narrowing adorally very strongly and becoming slim and cylindrical in the preserved anterior end. Outline symmetrical, fusiform. Profile slightly asymmetrical, being more convex on one side (venter) and less convex on the other (dorsum); the supposed position of the venter and dorsum is inferred based on convexity in analogy with other coleoids. Telum gently expanding slightly adorally of its middle portion. The apical angle measures ca. 12°; the tip of the apex is missing. Cross section of telum almost circular, slightly compressed, circular at its proximal and distal ends. Telum lacking furrows or grooves. Telum surface either smooth or primarily or diagenetically sculptured with irregular, closely spaced longitudinal striae and weak transverse striae; dot-like pits are aligned to form the longitudinal striae. Alveolar part of telum and phragmocone are missing. Telum structure recrystallized.

Dimensions of the holotype: The total length of the specimen is 144 mm; its maximum dorso-ventral diameter is 16 mm, and its maximum lateral diameter is 15.3 mm. The adoral end, which is almost circular in cross section has a diameter of 4 mm.

Remarks

The holotype is composed of five fragments glued together; the aboral portion of the telum is complete except for its tip, which is broken. Individual fragments could not be detached for further observation. Contrary to Jeletzky (1966), we were unable to detach the telum from the block; thus we refer to the figures given in Jeletzky (1966) for views not given in the present work.

The holotype is encased in a limestone block, on the surface of which two ammonites are visible (Pl. 1, fig. 3). Although these ammonites could not be determined with certainty, their general features support an Early Liassic age (?Hettangian), as indicated by Jeletzky (1966).

Few species of *Atractites* based on tela can be compared with *A. jeletzkyi* n. sp. These are *A. alpinus* Gümbel, 1861, *A. indunensis* (Stoppani, 1857), and *A. elongatus* (de la Beche, 1829) (see Fig. 1). *A. applanatus* Steinmann, 1910 and *A. depressus* (Hauer, 1855) are excluded from this comparison because they possess distinctly compressed tela.

The type species of *Atractites*, *A. alpinus* Gümbel, 1861, has been originally described without illustration. Although often recorded in the literature either

under this name or as *A. liasicus* (Gümbel, 1861), the precise definition of this taxon is complicated by a lectotype designation by Kühn (1964), the nomenclatural validity of which is questionable. This lectotype is missing in the Gümbel collection stored at the Bayerische Staatssammlung für Paläontologie und historische Geologie (München). However, in the same collection there are many other syntypes of *A. alpinus*; some of them have been already figured by Mariotti & Pignatti (1992: Pl. 1, figs. 1, 2; Pl. 2, figs. 3-5). They are close to the specimen figured as *A. cf. alpinus* by Mariotti & Pignatti (1994b: Pl. 1, figs. 1, 2). Because of the missing specimen selected as lectotype by Kühn (1964), for the purposes of the present work, we considered all the specimens extant in the Gümbel collection in order to define this species. The main distinctive features of *A. alpinus* in comparison to *A. jeletzkyi* n. sp. can be summarized as follows. In *A. alpinus* the telum is more compressed and reaches its maximum thickness well below its middle part or at mid length, the telum is distinctly thicker, the apical region of the telum tapers more sharply. In addition, the length of the telum is always much greater; due to the very different outline and profile of the two species (Fig. 1), we maintain that *A. jeletzkyi* n. sp. cannot be considered as a juvenile of *A. alpinus*.

As concerns *Atractites indunensis* (Stoppani, 1857), we interpret this taxon sensu Meneghini (1881). Stoppani (1857) erected four species (*Orthoceratites indunensis*, *O. obliquus*, *O. index*, and *O. erbaensis*) based on phragmocones from different Liassic outcrops from Lombardy. Meneghini (1881) grouped these species based on phragmocones and the majority of the co-occurring tela present of Stoppani's collection under the name *Aulacoceras indunense*, acting thus as first reviser in the meaning of the I.C.Z.N. (1985). He excluded from *A. indunensis* only two specimens showing longitudinal depressions. The original material could not be traced and is apparently lost. However, two tela are adequately illustrated by Meneghini (1881: Pl. 27, figs. 1a-d and 2a-d) and can be used for comparison (Fig. 1).

From the above it is clear that the question of the conspecificity of the various species erected by Stoppani on phragmocone fragments and that of the corresponding tela cannot be easily solved. We accept the opinion of Meneghini (1881) as valid for the purposes of the present work, because it allows us to utilize the tela figured by him. The main differences with *A. jeletzkyi* n. sp. are in the outline and profile. In *A. indunensis* the position of the maximum thickness of the telum is below its mid length and the aboral tapering is more conspicuous. Moreover, its adoral cross section as figured by Meneghini is distinctly compressed and asymmetrical (more convex on the supposed ventral side and less convex on the supposed dorsal side), and becomes circular or very slightly compressed at the aboral end. Therefore, the outline and the

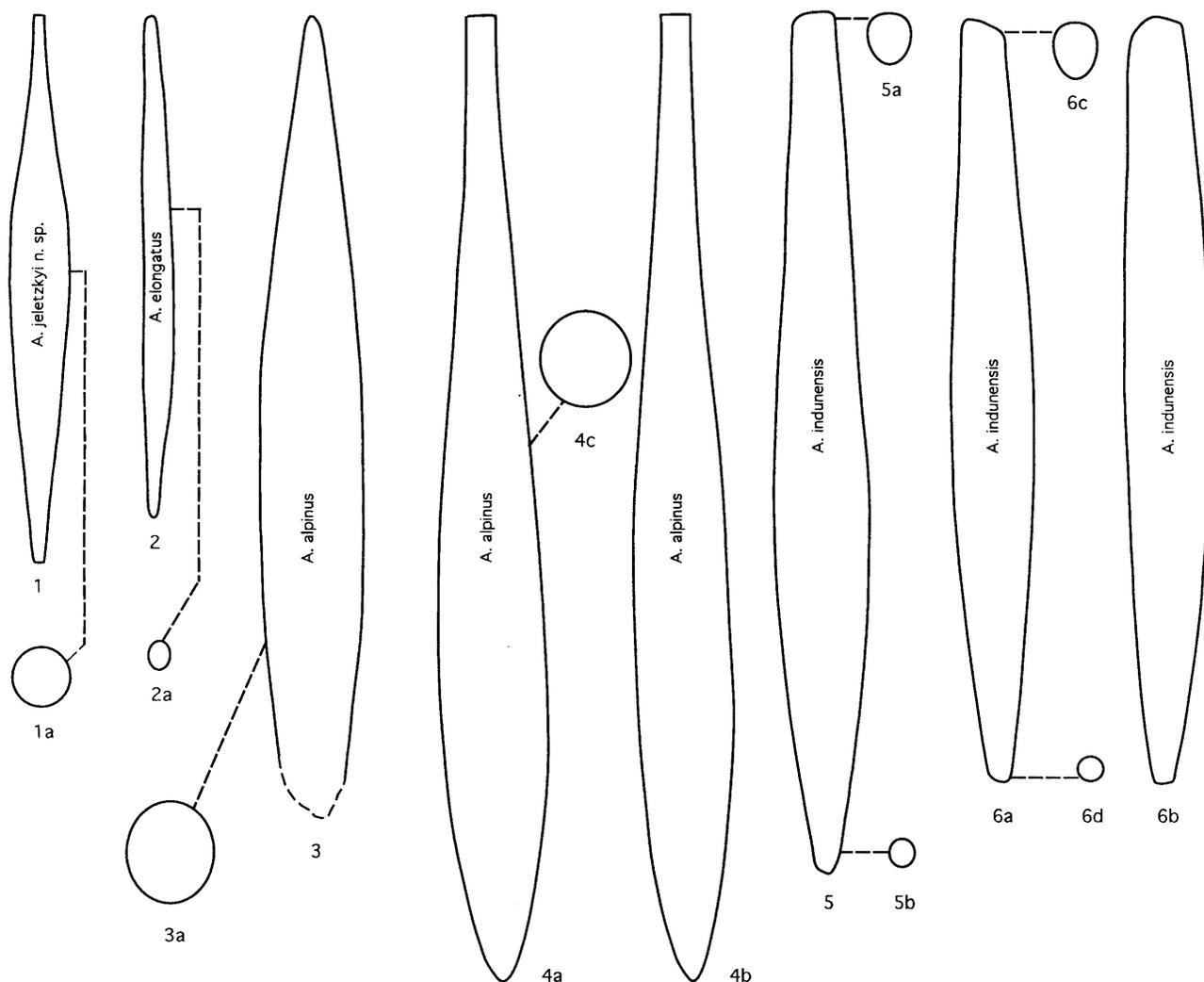


Fig. 1 – Profiles and outlines in different species of *Atractites*, drawn after original types and figures. In addition, some cross sections at selected levels are shown. Figures show in part reconstructed specimens. 1) *A. jeletzkyi* n. sp., holotype, profile; 2) *A. elongatus* (de la Beche, 1829), holotype of *A. claviformis* Müller-Stoll, 1936, profile (after Müller-Stoll, 1936: pl. 10, fig. 4a,b); 3) *A. alpinus* Gümbel, 1861, syntype n° 1929 XI 548, Gümbel collection, München, profile (aboral part of telum missing); 4) *A. alpinus* Gümbel, syntype n° 1929 XI 567, Gümbel collection, München, a - profile, b - outline (partially reconstructed); 5) *A. indunensis* (Stoppani, 1857), after Meneghini (1881: pl. 27, fig. 2a, c, d), profile (the actual length of the specimen does not reflect its bending, visible in the outline, as figured by Meneghini, 1881); 6) *A. indunensis* (Stoppani, 1857), after Meneghini (1881: pl. 27, fig. 1a-d), a - outline, b - profile. Enlargement: all ca. x 0.5, except fig. 2 (x 0.75).

– Norme laterali e dorso-ventrali in differenti specie di *Atractites*, disegnate dai tipi e dalle illustrazioni originali; si mostrano inoltre alcune sezioni trasversali a differenti livelli. Le illustrazioni sono schematiche e alcune parti mancanti sono interpretate. 1) *A. jeletzkyi* n. sp., olotipo, norma laterale; 2) *A. elongatus* (de la Beche, 1829), olotipo di *A. claviformis* Müller-Stoll, 1936, norma laterale (da Müller-Stoll, 1936: tav. 10, figg. 4a,b); 3) *A. alpinus* Gümbel, 1861, sintipo n° 1929 XI 548, collezione Gümbel, Monaco, norma laterale (mancante della parte aborale del telum); 4) *A. alpinus* Gümbel, sintipo n° 1929 XI 567, collezione Gümbel, Monaco, a - norma laterale, b - norma dorso-ventrale (in parte ricostruita); 5) *A. indunensis* (Stoppani, 1857), da Meneghini (1881: tav. 27, figg. 2a, c, d), norma laterale (la lunghezza dell'esemplare non riflette la deformazione visibile in norma dorso-ventrale, come illustrato da Meneghini, 1881); 6) *A. indunensis* (Stoppani, 1857), da Meneghini (1881: tav. 27, figg. 1a-d), a - norma ventrale, b - norma laterale. Ingrandimenti: x 0.5 ca., eccetto fig. 2 (x 0.75).

profile of the adoral part of the telum differ markedly in *A. indunensis* (Fig. 1; see also Meneghini, 1881: pl. 27, fig. 1a,b). These characters suggest that *A. indunensis* is closer to *A. alpinus* than to *A. jeletzkyi* n. sp.

Atractites elongatus (de la Beche, 1829) is based on an incomplete phragmocone with a preserved part of telum, as shown in the holotype figured by Müller-Stoll (1936). This author, however, figured and named

the tela conspecific with *A. elongatus* as *A. claviformis*. The holotype of the latter, figured by Müller-Stoll (1936), closely corresponds to portions of the forgeries studied by Huxley (1864). If we accept *A. elongatus* and *A. claviformis* as synonyms, the former has priority. *A. elongatus* is, as its name suggests, much more elongated and slender than *A. jeletzkyi* n. sp. The figures of *A. elongatus* and *A. claviformis* given by Mül-

ler-Stoll (1936) show that the tela of *A. elongatus* are generally crushed and deformed due to diagenetic factors; however, the probably less deformed section of telum shown by Müller-Stoll (1936: pl. 10, fig. 4b) shows that this species is much more compressed than *A. jeletzkyi* n. sp. (Fig. 1).

The Early Liassic (?Hettangian) *A. jeletzkyi* n. sp. probably predates all the species discussed above. It is older than *A. alpinus* Gümbel, 1861, whose syntypes are probably Toarcian, although this species may start as early as late Sinemurian (Müller-Stoll, 1936). Both *A. indunensis* (Stoppani, 1857), and *A. elongatus* (de la Beche, 1829) are Pliensbachian (Carixian-Domerian).

Conclusions

Differences between the specimen on which the new species is based and *A. alpinus* Gümbel had been already recognized by Jeletzky (1966). He considered that the telum discussed here differs from *A. alpinus* in its laterally compressed cross section, apparent absence of lateral depressions or furrows, and strongly and complexly sculptured surface, but underlined that the last two differences could be due to preservation. We agree with the opinion of Jeletzky (1966) in considering the ornamentation of the telum as a probably diagenetic feature, but differ from him in considering that

the cross section of *A. jeletzkyi* n. sp. is actually less compressed. Moreover, the profile and outline of these two species are very different (see above, and Fig. 1).

In the light of the rarity of well-preserved tela of *Atractites*, the description of a new species based on a single specimen appears justified. The same restriction affects also other xiphoteuthidid taxa, as e.g. *Atractites appianatus* Steinmann, 1910, *Delphinoteuthis aenigmatica* Mariotti & Pignatti, 1994, *Claviattractites claviger* (Bülow, 1915), and many others.

There are still many questions in generic and suprageneric classification of the Aulacocerida (Doyle et al., 1994; Pignatti & Mariotti, 1996). Species-level distinctions within the aulacocerid genera are still very poorly understood. The taxonomic revision of all available specimens stored in museum collections or recorded in the literature is a preliminary step in order to clarify the phylogeny and also the biostratigraphy of xiphoteuthidid genera and species. The new species is a representative of the little known Early Liassic xiphoteuthidid stock.

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SOMMARIO

Viene descritta la nuova specie *Atractites jeletzkyi* del Lias inferiore di Pflonjoch (Tirolo, Austria). La specie è istituita su un singolo rostro in buono stato di conservazione, depositato presso il Naturhistorisches Museum di Vienna. Il profilo in norma ventrale e laterale è fusiforme, con il punto di massimo rigonfiamento leggermente al di sopra della metà del rostro; la sezione trasversale è quasi circolare e l'angolo apicale è di circa 12°. La superficie del rostro è finemente

ornamentata con strie longitudinali e trasversali probabilmente originate dalla diagenesi. Vengono discusse le differenze tra *A. jeletzkyi* n. sp., *A. alpinus* Gümbel, 1861, *A. indunensis* (Stoppani, 1857) e *A. elongatus* (de la Beche, 1829).

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PLATE I

Figs. 1-4 – *Atractites jeletzkyi* n. sp., holotype; «*Caloceras beds*» sensu Jeletzky (1966), Lower Lias (?Hettangian); Pfonsjoch (Tyrol, Austria). Naturhistorisches Museum Wien, Paläontologische Abteilung, n° 7473. 1) Ventral view; 2) lateral view; 3) dorsal view; all x 1; 4) detail of fig. 3, showing the longitudinal and transversal striae on the surface of the telum and the shallow pits at their intersection; x 2.

TAVOLA I

Figg. 1-4 – *Atractites jeletzkyi* n. sp., olotipo; «*Caloceras beds*» sensu Jeletzky (1966), Lias inferiore (?Hettangiano); Pfonsjoch (Tirolo, Austria). Naturhistorisches Museum Vienna, Paläontologische Abteilung, n° 7473. 1) Norma ventrale; 2) norma laterale; 3) norma dorsale; tutti x 1; 4) dettaglio di fig. 3; sono visibili le strie longitudinali e trasversali sulla superfice del rostro e le fossette (pits) poco profonde in corrispondenza delle loro intersezioni; x 2.

