

A new *Anaptychus*-like jaw apparatus of Jurassic *?Lytoceras* from Argentina

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With 4 figures

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Abstract: A single, conical specimen from the Upper Bathonian of Chacay Melehue, west-central Argentina, displays the characteristic features of ammonoid lower jaws, inner pit and lateral platforms, as well as the beak of the upper jaw. There are no direct taxonomic clues but its large size, circular outline, and associated cephalopod fauna indicate that it belonged to *Lytoceratinae*, possibly *Lytoceras*.

Zusammenfassung: Ein kegelförmiges Fossil aus dem Ober-Bathonium von Argentinien zeigt den Ammoniten-Oberkiefer und einige Merkmale, die typisch für Unterkiefer sind, nämlich Lateralleisten und "inner pit". Direkte taxonomische Hinweise fehlen; aber beträchtliche Größe und kreisförmiger Umriß des Fossils, sowie die Begleitfauna machen es wahrscheinlich, daß ein *Lytoceraten*-Gebiß vorliegt.

Introduction

Since the work of STEHN (1923), the Middle Jurassic section of Chacay Melehue, Argentina, has remained a classic locality of the South American Jurassic. The rich ammonoid fauna described by STEHN (1923), RICCARDI et al. (1990), and RICCARDI & WESTERMANN (1991a, b) from that locality represents the best known Eurycephalitinae assemblage of the entire Andes. Perisphinctids and oppeliids, although less abundant, range throughout, and together with rare representatives of the Phylloceratina and *Lytoceratina*, are still to be monographed.

Cephalopod remains also include rare nautiloids and one specimen of an anptychus-like jaw apparatus found by two of us (GEGW and ACR) in 1965. The finding could not be repeated, although this section was examined many times in the following thirty years.

The specimen described herein is deposited in the Departamento Paleozoologia Invertebrados, Museo de la Plata (MLP).

Stratigraphy

The Jurassic beds exposed at Chacay Melehue (Fig. 1) form the eastern limb of the large, north-south oriented Cordillera del Viento brachyanticline. Its core consists of Triassic porphyritic rocks of the Choiyoi Group. At Chacay Melehue, the Choiyoi is overlain unconformably by 1300-1400 m of marine sediments, ranging from the Pliensbachian to the Oxfordian. The Lower Jurassic consists of 128-150 m black shales, limestones, and some conglomerates and volcanics. The Aalenian consists of approximately 100 m unfossiliferous black shales and argillites. Above follow 30-40 m mudstone, arkose and conglomerates, with early Bajocian ammonites; and approximately 990 m black shales with white tuffaceous sandstones, bearing a rich late Bajocian - early Callovian ammonoid fauna. The upper Toarcian through Callovian sequence is usually ascribed to the Los Molles Formation, although the Callovian shales have also been named Chacay Melehue Formation (see MARCHESE 1971, p. 361). This sequence is overlain by 4-15 m of white gypsum, the Tabanos Formation; about 150 m of dark-gray shales, mudstones and some sandstones, siltstones and limestones; and 40-60 m of gray micritic limestone and calcareous breccias, including the Lotena, La Manga and Auquilco Formations or equivalents. The whole sequence is overlain by continental red pelites, sandstones and conglomerates of the Tordillo Formation (Kimmeridgian), on top of which rests the marine Mendoza Group (Tithonian - Barremian).

The Bajocian-Callovian biostratigraphy has been dealt with by RICCARDI (1984), RICCARDI et al. (1990) and RICCARDI & WESTERMANN (1991a, b). The material here described came from "loc. 4" of WESTERMANN and RICCARDI (see RICCARDI & WESTERMANN 1991a) in the late Bathonian Steinmanni Zone. The 55 m interval has yielded *Lilloettia steinmanni* (SPATH), *L. australis*, *Iniskinites crassus*, *I. gulisanoi* RICCARDI & WESTERMANN spp., *I. ?* aff. *noetlingi* (BURCKHARDT), *I. n. sp.*, *Xenocephalites* cf. *neuquensis* (STEHN), *X. cf. araucanus* (BURCKHARDT) . *X. sp. indet.*, *Choffatia* aff. *aequalis* (ROEMER), *Ch. jupiter* (STEINMANN), *Neuquenicerias* cf. *biscissum* (STEHN), *Oxycerites obsoletoides* RICCARDI, WESTERMANN & ELMI, *Partschicerias* sp. and *Lytoceras* sp.

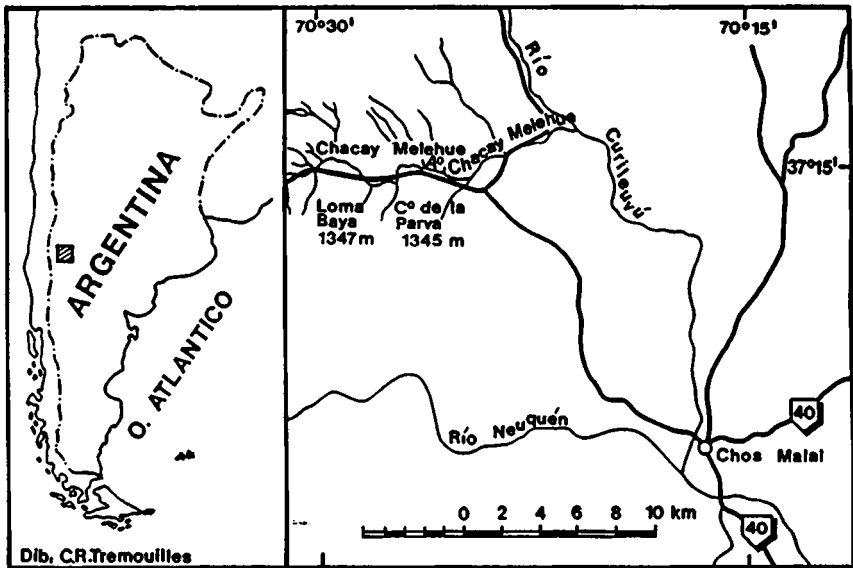


Fig. 1. Index map to Chacay Melehue section, Neuquen Province, Argentina.

Paleontology

Description: The single, conical specimen (MLP 27254) measures about 8 cm in length, 9 cm in width and 5 cm in height. It is a steinkern with only a few recrystallized remnants of the shell, thus showing the inner surface of the outer lamellae (Figs. 2a, 3a). A few fractures (Figs. 2b, 3b) indicate that the specimen was slightly flattened by compaction.

During preparation the parts situated in the upper wedge of Fig. 2a were removed, resulting in the view shown in Figs. 2c and 3c, exhibiting the part of the inner lamella closest to the beak (the frontal part), which consists of the lightly vaulted lateral platforms and the inner pit between them. The central platform and the rear part of the inner lamella are not clearly recognizable, probably not preserved. The foremost parts of the beak are broken away and missing. At the break the shell is about 2 mm thick. A slight indentation at the very base indicates the base of the structure, the "inner pit" of DAGYS et al. (1989, fig. 9A), and the shape of this area in our specimen may have been similar. Other figures in this publication offer more infor-

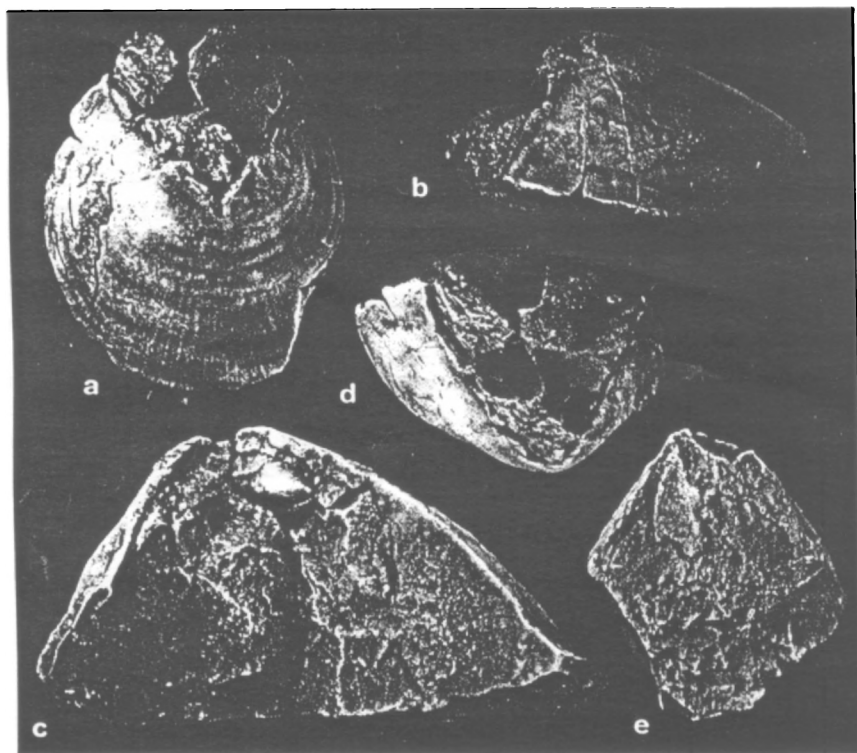


Fig. 2. Anptychus-like jaw apparatus, MLP 27254.

a: lower jaw as seen from the base, with the beak of the upper jaw positioned approximately in its normal position, $\times 0.43$. b: view of the lower jaw, right side, $\times 0.43$. c: view of the lower jaw beak from above after displacement of the upper jaw beak, showing the lateral platforms and the inner pit between them (cf. DAGYS et al., 1989, fig. 8 C, D), $\times 0.71$. d: upper jaw beak as in fig. a, seen somewhat more from the front, $\times 0.43$. e: preserved beak of the upper jaw, seen at same angle as in fig. a, $\times 2$.

mation about the position and shape of these structural elements in well preserved Triassic ammonoids. A three-dimensional reconstruction is given in Figure 4.

The inner part of the wedge at the apex of the anptychus (Figs. 2a, 3a) is occupied by an independent structural element, which is situated below the level of the lower jaw beak. This position makes it highly probable that this

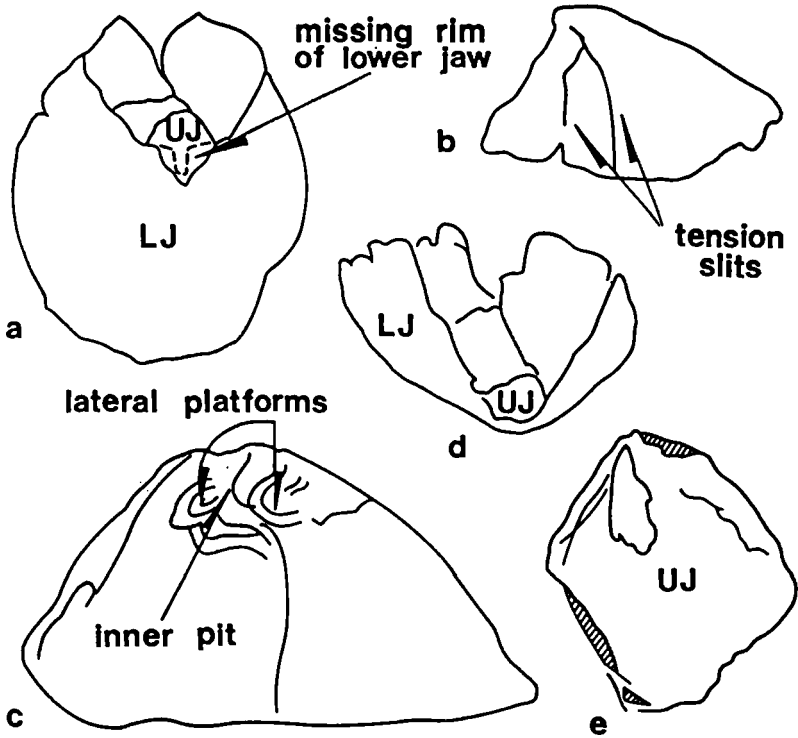


Fig. 3. Line drawings of photographs in Figure 2.

a: Anaptchus (LJ = lower jaw) as seen from the base (see Fig. 2a), with the beak of the upper jaw (UJ) positioned approximately in its normal position. **b:** lower jaw, right side (see Fig. 2b). **c:** lower jaw beak from above, after displacement of the upper jaw beak (see Fig. 2c), showing the lateral platforms and the inner pit between them (cf. DAGYS et al. 1989, fig. 8 C, D). **d:** preserved beak of the upper jaw (UJ) (see Figure 2d), seen at same angle as in Figure 2d. **e:** upper jaw (UJ) beak (see Fig. 2e) as in Figure 2, seen somewhat more from the front.

independent structural element is the beak of the upper jaw (Figs. 2d, 2e, 3d, 3e). Thus, it appears that only this small beak is preserved of the upper jaw, and even that only as a steinkern with tiny remnants of the shell. Originally, it must have been several times as long as wide and must have consisted of an additional inner and outer lamella, as shown by DAGYS et al. (1989, fig. 7).

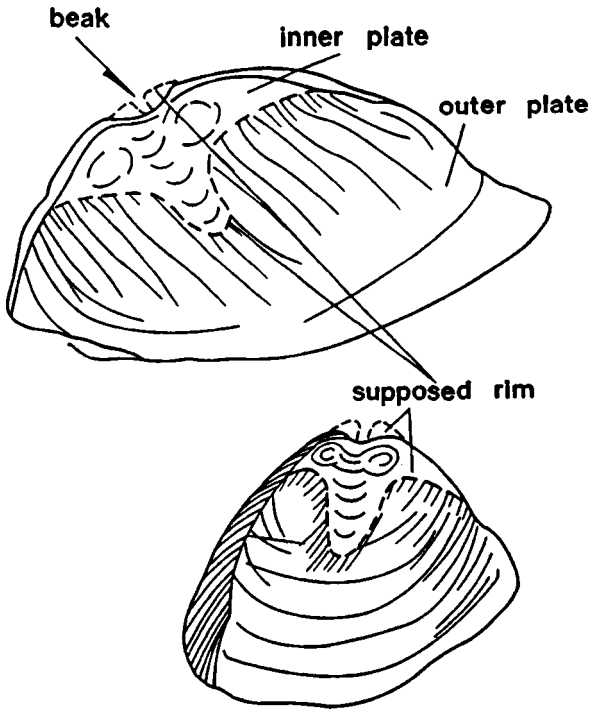


Fig. 4. Sketch of reconstructed jaws illustrated on Figures 2 and 3, right (above) and left (below) side views. Without scale.

Taxonomy: The present specimen displays the characteristic features of ammonoid lower jaws, inner pit and lateral platforms. The specimen from Yorkshire illustrated by DAGYS et al. (1989, figs. 9A, B) is labelled only "anptychus-type lower jaw" with no taxonomic assignment. The present specimen offers no direct taxonomic clue either. Somewhat similar structures are known from basal Triassic Ceratitida (DAGYS & WEITSCHAT 1988). Judging from the cephalopod fauna found in the Chacay Melchue section, there is a remote possibility that it may have belonged to a large specimen of Eurycephalitinae ammonites. But no jaw/operculum-like structures are known from Sphaeroceratidae and other Stephanocerataceae, e.g., Stephano-

ceratidae have the aptychus type (LEHMANN 1972, WESTERMANN 1954). Our jaw is also much too large and with a circular outline. It is therefore much more likely that it came from a lytoceratid. Scarce *Lytoceras* have been found in this outcrop that have a matching circular whorl-section.

More material is needed and, in future, close attention should be paid to the contents of body-chambers.

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