

A NEW AMMONITE SUBFAMILY ARGENTINICERATINAE SUBFAM. N.
(BERRIASELLIDAE, TITHONIAN — BERRIASSIAN)

T. G. Nikolov

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The representatives of the Berriasellidae family are dominant among the ammonite content of the Upper Tithonian and Berriasian in the Tethydan and Perigondwanian realms. The individual representatives reveal considerable morphological variety and definite bioprovincial attachment of relatively homogeneous groups from different genera. Among the considerable variety of the ammonites from the Berriasellidae family there is a typical group of similar genera which are genetically, ecologically and stratigraphically related, and for which a new subfamily is proposed here: Argentiniceratinae (type-genus *Argentiniceras* Spath, 1924; the type-species of *Argentiniceras* is *Odontoceras malarguense* Steuer, 1897, p. 55 (181), pl. 20, Fig. 1—3).

Diagnosis. Medium to large ammonites with moderately evolute conch. The whorls of the spire grow slowly in height and surround a moderately wide and relatively shallow umbilicus. The cross section of the early whorls is compressed, while at the last whorl it is subquadratic, elongated, or rounded rectangular. The ventral region is with or without groove or smooth band. The ribs are radial or slightly prorsiradiate and a little sinusoidal. The intensity and density of the ribs vary, but the ribs are usually finer and denser in the inner whorls, growing gradually strong and disperse in the last whorl. Dichotomous ribs are predominant, but there are also simple ribs as well as dichotomous and bidichotomous fascicles. There are also tripartite and rare intercalated ribs. There is also the development of umbilical and, more rarely, of mediolateral tubercles as well as bullae, which become predominant in the ribs of the last whorl of the conch in most genera. The suture line shows varying degrees of complexity.

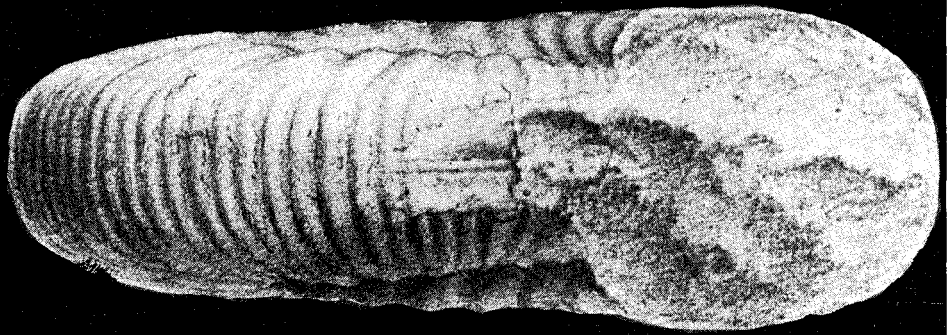
The development of umbilical tubercles, the fasciculation of the ribs, the formation of bullae, and the subquadratic, rounded rectangular, or polygonal whorl sections are typical symptoms for the representatives of this subfamily.

Stratigraphic occurrence. According to the existing data [1-3,5,11] the first representatives of the subfamily examined have appeared in the beginning of the Early Tithonian [Paraulacosphonctes transitorius Zone, Himalayites (*Micracanthoceras*) *microcanthus* Subzone; Calpionellid Zone A] and have become extinct at the end of the Berriasian (*Fauriella boissieri* Zone, *B. callisto* Subzone). The acme-zone of the subfamily coincides with the upper part of the Upper Tithonian substage and with the Berriasian stage.



Plate I. *Argentiniceratinae* subfam. n.

Fig. 1a. *Argentiniceras malarguence* [(Steuer, 1897), pl. 20, Fig. 1—3, holotype]. Berriasian, Malargue, Argentina
 Fig. 2. *Boncheviceras ardescensis* [(Mazenoit, 1939), pl. 23, Fig. 6abc, holotype]. Berriasian de Chomérac (Ardèche), France



1b



1a

Plate II. Argentiniceratinae subfam. n.

Fig. 1ab. *Andesites loncochensis* [(Steuer, 1897), pl. 2, Fig. 1-3, lectotype here designated], Berriasian, Loncoche, Argentina

Adaptation and bioprovincial attachment. The genetic constitution of the early representatives of subfamily Argentiniceratinae has provided broad opportunities for rapid spread and adaptation in the Himalayan, Ethiopian and Andean provinces of the Perigondwanian realm and in the Mediterranean province of the Tethydan realm. The Berriasian genera have a more limited geographic occurrence, mainly in the provinces of the Perigondwanian realm and more rarely in the Tethydan realm.

Composition, systemic position, and origin. The subfamily examined includes the following genera: *Argentiniceras* Spath, 1924 (type-genus of the subfamily); *Substeueroceras* Spath, 1923; *Lithohoplites* Spath, 1925; *Pseudargentiniceras* Spath, 1925 (incl. *Protothurmannia* Crickmay, 1932); *Protanthodiscus* Spath, 1923, *Raimondiceras* Spath, 1925; *Andesites* Gerth, 1925; *Boncheviceras* Nikolov, 1966; *Subthurmannia* Spath, 1931; ? *Somaliceras* Spath, 1925. Information about the type-species of this genera has been provided by Arkell, Kummel a. Wright [2] and by Nikolov [8].

In their shape, specificity of ornamentation, and character of the suture line the ammonites of subfamily Argentiniceratinae hold an intermediate systemic position between Berriasellinae and Himalayitinae. Their origin has not been clarified yet. The precursor of this high taxonomic category is a geographically isolated population probably from Himalayitinae (*Himalayites*) and (or) Berriasellinae (*Malbosiceras*, *Mazenoticeras*). The origin of the subfamily appears to be polytopic-monophyletic, connected with the acquisition of a new adaptive zone which has expanded gradually and reached its broadest range during the early Berriasian. The representatives of the Argentiniceratinae have attained extremely great variety in the Perigondwanian realm which offered the most favourable condition for their development.

The new subfamily of Argentiniceratinae, together with Pseudosubplanitinae Nikolov & Sapunov, 1977; Berriasellinae Spath, 1922; Himalayitinae Spath, 1925; and Neocomitinae Spath, 1924, provides a complete idea about the systemic content of the large ammonite family Berriasellidae Spath, 1922.

Department of Paleontology
Sofia University
Sofia, Bulgaria

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