

ON THE AMMONITE GENUS POMELICERAS GRIGORIEVA, 1938  
(BERRIASELLIDAE; TITHONIAN — BERRIASIAN)

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Among the ammonites of the Berriasellidae family there is a group of similar species of coarse ornamentation, strong main ribs with two rows of tubercles intermediate intercalated ribs, and earlier appearance of umbilication, compared with other groups of species. For this group of species with compressed conch in 1966 we proposed [4] the differentiation of genus *Mazenoticer* with type-species *Berriasella broussei* Mazenot (1939, pl. 12, fig. 5ab). The brief diagnosis then given for this taxon from the generic group was the following [4]: "Moderately large to large compressed ammonites with rather open umbilicus. The whorls increase rather rapidly in height. The ventral region is with a groove gradually passing into a smooth strip which disappears with age. Involution  $\frac{1}{4}$ — $\frac{1}{3}$ . Strong ribs, mostly branching off, bi- or trifurcate, retroradiate or slightly prorsiradiate. Two rows of tubercles: umbilical in the basis of the ribs and lateral at the spot of their branching-off. There are main, secondary and intercalated ribs."

The investigations carried out after 1966 increased our knowledge on the *Mazenoticer* which included many species of compressed cross section and similar features in the ornamentation. Parallel with that, the studies carried out in recent years of a rich new collection showed the close relation between *Mazenoticer* and the earlier differentiated *Pomeliceras* Grigorieva, 1938.

In a publication abounding in ideas, published in 1938, Grigorieva [6] differentiated *Pomeliceras* as a subgenus of *Protacanthodiscus* Spath, 1923, and pointed to the following basic features of *Pomeliceras* "a) large dimensions and considerably evolute shell; b) broad depressed form of cross section of the whorls; c) massive umbilical and lateral tubercles in particular; d) almost complete reduction of the outer tubercles; e) larger number of secondary ribs, compared with *Malbosicer* (2—4 per fascicle, with 1—3 intermediate ones in between)".

For quite some time *Pomeliceras* had been neglected (or forgotten) as a name of the (sub) generic group. A number of authors included the species from *Pomeliceras* to *Himalayites* Uhlig in Boehm, 1904. Le Hégarat [2] included the species similar to *Am. breveti* Pomel, 1889, in the composition of *Mzeanoticer*, while Himshiahsvili [7] assumed that *Pomeliceras* Grigorieva, 1939, is an independent genus. Besides the species originally included in this (sub) genus, this latter author added also *Am. kasbensis* Pomel, 1889. Himshiahsvili wrote ([7], p. 90) that "*Mazenoticer* Nikolov,

1966 has been differentiated subsequently, and that is why it partially falls into synonymy with *Pomeliceras*". By this inaccurate and unclear formulation this author left with undetermined systematic position an entire group of species which are related to the type-species of *Mazenoticeras* having a clearly compressed whorl section which is an antipod to the depressed section of *Pomeliceras*.

The abundance of new material investigated, as well as the revision undertaken of earlier taxonomic determinations, cast light on *Pomeliceras* Grigorieva, 1938, and on *Mazenoticeras* Nikolov, 1966, which must be considered as one genus with two subgenera: the nominate subgenus *P. (Pomeliceras)* Grigorieva, 1938, whose representatives have depressed whorl section, and subgenus *P. (Mazenoticeras)* Nikolov, 1966, whose representatives have compressed whorl section.

The new results necessitate further precision for the original diagnosis which must express the common features of the two groups of species distributed in the two subgenera.

**Diagnosis (emend.).** Ammonites of medium to large growth. The whorl section is between highly compressed to markedly depressed. The ventral region is flat or convex, with smooth band which is gradually lost, or without band. Strong main dichotomous and/or tripartite ribs with two rows of tubercles: umbilical and lateral, which are particularly strong. Intermediate simple ribs developed in the upper part of the lateral walls or, more rarely, in the entire space between the main ribs. The ribs are rectiradiate, prorsiradiate, or rectiradiate.

**Composition and origin.** Genus *Pomeliceras* Grigorieva, 1938, includes two subgenera: the nominate subgenus *P. (Pomeliceras)* and *P. (Mazenoticeras)* Nikolov, 1966, which differ in a number of features (Table, text — Figure).

The representatives of *P. (Mazenoticeras)* appear earlier (during the Late Tithonian). They have most of the common features of the genus and constitute closer realization of the main evolutionary potency of the genus. The representatives of the nominate subgenus *P. (Pomeliceras)* appear later on (during the Middle Berriasian), probably as a derivation of *P. (Mazenoticeras) malbosiforme* Le Hégarat, 1973, and quickly deviate from the common genetic plan, acquiring a coarser ornamentation and highly depressed whorl section.

*Pomeliceras* probably derived from *Malbosiceras* Grigorieva, 1938. These two genera have similar styles of orientation and of conch evolution. Besides that, the appearance of the first rare *Pomeliceras* takes place during the Late Tithonian, when the typical representatives of *Malbosiceras* are developed on a large scale. The ancestor of *Pomeliceras* [*P. (Mazenoticeras)*] is probably a geographically isolated population of *Malbosiceras chaperi* (Pictet, 1867), *Malbosiceras asper* (Mazenot, 1939), or *Malbosiceras nikolovi* Le

Table

<i>P. (Pomeliceras)</i>	<i>P. (Mazenoticeras)</i>
Ammonites of medium size	Ammonites of medium to large size
Depressed section and slowly growing whorls	Compressed section and rapidly growing whorls
More rapid ontogenetic development	Slower ontogenetic development

Hégarat, 1973. The evolution from the one genus to the other has proceeded toward acceleration of the ontogenetic development and early formation of the typical for *Pomeliceras* style of the conch which is developed only on the body chamber of *Malbosciceras*.



Fig. Whorl section of the ammonites of genus *Pomeliceras*  
Grigorieva, 1938.

1 — *P. (Mazenoticerias) broussei* (Mazenot, 1939);  
2 — *P. (Pomeliceras) breveti* (Pomel, 1889)

The ammonites of *P. (Mazenoticerias)* inhabited the deeper parts of the Mediterranean and Sub-Mediterranean provinces, while the representatives of the nominate subgenus preferred the shallower parts of these provinces.

**Occurrence.** Central and Southern Europe, Northern Africa, and the Caucasus. It is developed in the uppermost section of the Upper Tithonian substage and in the Berriasian stage, including in *M. paramimounum* Subzone.

Subgenus *Pomeliceras (Pomeliceras)* Grigorieva, 1938.

**Nomenclature.** The type-species, by original designation ([<sup>6</sup>], p. 104), is *Ammonites breveti* Pomel, 1889 (p. 74, pl. 9, Fig. 1—5, holotype). It originates from the Berriasian at Ouled Mimoun (ex Lamoricière), Algeria.

**Diagnosis.** The nominate subgenus includes those representatives of *Pomeliceras* which have depressed whorl section and coarse ornamentation with particularly strongly developed mediolateral tubercles. Relatively accelerated ontogenetic development.

**Systematic composition.** *P. (Pomeliceras)* includes the following species: *P. (P.) breveti* [(Pomel), 1889, p. 74, pl. 9, Fig. 1—5, holotype], *P. (P.) breveti* [(Pomel), 1889, var.?, p. 78, pl. 12, Fig. 1—4], *P. (P.) telloutensis* [(Pomel), 1889 p. 72, pl. 10, fig. 3—6, holotype], *P. (P.) kasbensis* [(Pomel), 1889, p. 79, pl. 10, Fig. 1, 2, lectotype here designated], *P. (P.) breveti* [(Pomel) var *caucasica* Khimchiachvili, 1976 (p. 92, pl. 14, Fig. 1)], *P. (P.) aff telloutensis* (Pomel) sensu Benest, Donze & Le Hégarat, 1977 (p. 207, pl. 1; fig. 6,7; pl. 12, fig. 1), *P. (P.) boisseti* sp. n. (holotype in Le Hégarat, 1973, pl. 14, fig. 3; pl. 45, fig. 1. FSL 128995).

**Occurrence.** The nominate subgenus is to be found in the middle part and in the basis of the upper part of the Berriasian in Algeria, the Caucasus, South-Eastern France, and Bulgaria.

Subgenus *Pomeliceras (Mazenoticerias)* Nikolov, 1966.

**Nomenclature.** The type-species, by original designation (Nikolov, 1966, p. 641) is *Berriasella broussei* Mazenot, 1939 (pl. 12, fig. 5, holotype) Berriasian, Gînestous, S. E. France.

**Diagnosis.** The subgenus includes ammonites of markedly compressed whorl section. It is always considerably higher than its width. The ornamentation is relatively poor. Slower ontogenetic development.

**Composition:** *P. (M.) tarini* (Kilian), 1890, p. 677, pl. 30, fig. 4, holotype), *P. (M.) broussei* [(Mazenot), 1939, p. 91, pl. 12, fig. 5, holotype)], *P. (M.) hegarati* sp. n. (holotype in Le Hégarat, 1973, pl. 17, fig. 1,2 FSL 129131), *P. (M.) malbosiforme* [(Le Hégarat), 1973, p. 126, pl. 19, fig. 1; pl. 44, fig. 3, holotype].

**Occurrence.** *P. (Mazenotiaceras)* is to be found in South-Eastern France, Southern Spain, Bulgaria and Algeria, in the upper part of the Upper Tithonian — Berriasian, including *M. paramimounum* Subzone.

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## REFERENCES

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