



**The Taxonomic Position
and Biostratigraphic Value
of the Genus *Pseudocrioceratites* EGOIAN, 1969
(Lytoceratina, Lower Cretaceous)**

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2 Text-Figures and 2 Plates

*Rumania
Lower Cretaceous
Cephalopods
Taxonomy*

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**Taxonomische Position und biostratigraphischer Wert
der Gattung *Pseudocrioceratites* EGOIAN, 1969
(Lytoceratina, Unterkreide)**

Zusammenfassung

Pseudocrioceratites EGOIAN, 1969 wurde ursprünglich aus dem Clansayesium mit zwei Arten beschrieben: *P. pseudoelegans* sp. nov. und *P. rotundus* sp. nov. In Rumänien tritt die Gattung auch im Barremium (mit einer neuen Art: *P. subcircularis*), im Bedoulium (mit einer weiteren neuen Art: *P. gradinarui*) sowie im Gargasium auf. Zu dieser gut definierten Gruppe werden mit Vorbehalt auch noch die folgenden Taxa gezählt: *Pseudocrioceras stentor* ANDERSON, 1938, *Crioceras* cf. *Munieri* DOUVILLE, 1916 (non SARASIN & SCHÖNDELMAYER, 1902) sowie auch „*Crioceras*“ *Munieri* SARASIN & SCHÖNDELMAYER, 1902, womit sich die Reichweite der Gattung auf Hauterivium (?) – Unteres Barremium – Oberaptium – (?) Albium erweitert.

Die nahe Verwandtschaft von *Pseudocrioceratites* EGOIAN und *Acantholytocerases* SPATH, 1923 ist sowohl durch die Gehäuseform als auch die Suturlinie erwiesen. Nach der äußeren Morphologie hatte EGOIAN (1969) seine Gattung mit Vorbehalt zur Familie „*Crioceratitidae* WRIGHT, 1952“ und WRIGHT (1996) die Gattung *Acantholytocerases* zur Unterfamilie *Crioceratitinae* GILL, 1871 gestellt. Beide Gattungen müssen nach der Gesamtsutur der neuen Familie der *Pseudocrioceratitidae* nov. fam. der *Lytocerataceae* NEUMAYR, 1875 zugerechnet werden.

Abstract

The genus *Pseudocrioceratites* EGOIAN, 1969, originally described with two Clansayesian species: *P. pseudoelegans* sp. nov. and *P. rotundus* sp. nov., has been recorded in Rumania in Barremian (with a new species: *P. subcircularis*), in Bedoulian (with another new species: *P. gradinarui*) and also in Gargasian rock-sequences. The species: *Pseudocrioceras stentor* ANDERSON, 1938, *Crioceras* cf. *Munieri* DOUVILLE, 1916 (non SARASIN & SCHÖNDELMAYER, 1902), and even „*Crioceras*“ *Munieri* SARASIN & SCHÖNDELMAYER, 1902, are to be cautiously added to this well defined group, thus the genus range being enlarged to the Hauterivian (?) – Lower Barremian – Upper Aptian – (?) Albian interval.

By the shell morphology and the suture line, the genus *Pseudocrioceratites* is highly related to *Acantholytocerases* SPATH, both belonging rather to a separate branch of the superfamily *Lytocerataceae* NEUMAYR, 1875 (as a new family: *Pseudocrioceratitidae*), than to the „*Crioceratitidae* WRIGHT, 1952“ as stated with question by EGOIAN (1969) or to the *Crioceratitinae* GILL, 1871 where they were cautiously included by WRIGHT (1996).

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1. Introduction

In 1969, EGOIAN proposed the genus *Pseudocrioceratites*, with two Clansayesian species recorded by the author in North Caucasus. After the original description, the genus displays middle to large-sized shell, coiled in a plane open spiral, its ornamentation consisting of strong trituberculate ribs and thin intercalatory ribs, like in the true *Crioceratites* LEVEILLE, 1837 but with floored tubercles, and a lytoceratoid suture-line composed of bifid median and first lateral lobes and of trifurcate second lateral and inner ones.

Although compared by EGOIAN with the genus *Acantholytoceras* SPATH, 1923 (included in the Suborder Lytoceratina, family Macroscaphitidae HYATT, 1900 by WRIGHT, 1957), the new genus was assigned by its author, with question, to the family "Crioceratitidae WRIGHT, 1952".

A similar interpretation was later preferred by WRIGHT (1996), who introduced cautiously the genus *Acantholytoceras* into the subfamily Crioceratitinae GILL, 1871 of the family Ancyloceratidae GILL, 1871, and considered (with question) the genus *Pseudocrioceratites* as a junior synonym of the former.

This last position cannot be accepted, at least for two reasons:

- 1) the two genera are clearly different from each other by ornamentation (especially the number and shape of the spines/tubercles they bear on the main ribs);
- 2) even if the suture of the genus *Acantholytoceras* is incompletely known (only the bifid lateral lobus was figured, by UHLIG, 1883), some complete sutures of the genus *Pseudocrioceratites* were added by EGOIAN (1969, Pl. XXV, Figs. 57–59) and they are typically lytoceratoid.

On this ground, the systematic position of both genera needs to be reconsidered once more. They constitute together a natural group, obviously related to the Lytoceratina (as it was stated by WRIGHT, in 1957), but not to the Ancyloceratina. Consequently, and consistent with CASEY'S assertion (1960, p. 16) that the "inclusion [of *Hamites* (*Pictelia*) *longispinus* UHLIG, the type-species of *Acantholytoceras*] in the Macroscaphitidae by WRIGHT (1957, p. L205) is inadmissible" this group is here interpreted as belonging to a separate family: Pseudocrioceratitidae n. fam. of the superfamily Lytocerataceae NEUMAYR, 1875.

A new palaeontologic material of the genus *Pseudocrioceratites*, gathered in Rumania in the Barremian and in the Lower and Middle Aptian rock-sequences, proves the remarkable homogeneity of this genus. The individuals in discussion have been recorded in the Low-

er and Upper Barremian sequences from the Svinita village area, SW Rumania (site no. 1 in Text-Fig. 1), the Bedoulian one has been found in the Dâmbovicioara region (site no. 2 in the same figure), while a Gargasian example comes from the northern Apuseni Mts. (site no. 3). They were interpreted as new species, except the Gargasian individual which was compared to one of EGOIAN'S Caucasian species. All these ammonites are housed in the Geological Institute of Rumania repository, in Bucharest.

2. Systematic Description

Family: Pseudocrioceratitidae n. fam.

Type genus: *Pseudocrioceratites* EGOIAN, 1969.

The here proposed family Pseudocrioceratitidae groups ammonoidea coiled in a regular plane open spiral, bearing rather similar ornamentation to that of the genus *Crioceratites*, but with lytoceratoid suture-line.

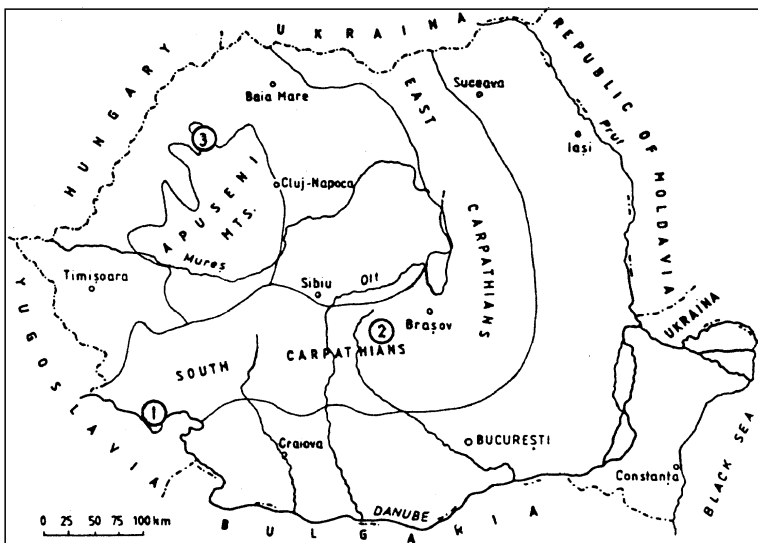
In this acceptance, the family includes up to now two genera: *Pseudocrioceratites* (displaying floored trituberculate main ribs) and *Acantholytoceras* (the main ribs of which bear four long spines on each side).

Genus: *Pseudocrioceratites* EGOIAN, 1969

Type species: *Pseudocrioceratites pseudoelegans* EGOIAN, 1969; Clansayesian, North Caucasus.

According to the original description (EGOIAN, 1969, p. 171), but with some features emphasized by the Rumanian material, the genus is characterized by the crioceratic coiling of the shell, by its ornamentation constituted of main strong trituberculate ribs (bearing large, floored tubercles, probably corresponding to hollow spines) and of thin, more or less numerous intercalatory ribs, and also by the lytoceratoid suture-line (a large bifid lateral lobe and the second lateral and inner trifurcate). Usually, the first intercalatory rib of each interval joins the tubercles of the primary rib located behind it (adapically); the main ribs are better defined on the sides and venter, but are turned into several ribbles on the dorsum. The dorsal lobe of the suture line, seen on the Rumanian individuals (Pl. 1, Fig. 2d; Pl. 2, Fig. 1a), is cruciform.

In this acceptance, the genus includes the species *Pseudocrioceratites pseudoelegans* and *P. rotundus* defined by EGOIAN, but also *P. subcircularis* and *P. gradinarui* proposed here below. Doubtfully (lacking the suture-lines), the examples figured by ANDERSON (1938) under *Crioceras* cf. *Munieri* SARASIN & SCHÖNDELMAYER, and even "*Crioceras*" *Munieri* SARASIN & SCHÖNDELMAYER, 1902, type, seem to belong to the same genus-group by their ornamentation (especially by the large, floored tubercles and looped ribs).



Text-Fig. 1.
Areas where the *Pseudocrioceratites* representatives were recorded in Rumania. 1 = Svinita (South Carpathians western end); 2 = Dâmbovicioara (South Carpathians eastern end); 3 = northern Apuseni Mts.

Occurrence: Hauterivian (?) – Lower Barremian – Upper Aptian – (?) Albian.

***Pseudocrioceratites cf. pseudoelegans* EGOIAN**

(Pl. 1, Fig. 1)

1960 *Crioceratites elegans* ORBIGNY, DRUSHCHITS (in D. & KUDR-JAVCEW), 1960, p. 290, Pl. XXXI, Figs. 4 a–b.

1969 *Pseudocrioceratites pseudoelegans* EGOIAN, EGOIAN, p. 172, Pl. XIII, Fig. 6, Pl. XIV, Figs. 1a–b and Pl. XXV, Fig. 58 = holotype; Pl. XIV, Figs. 2a–c, 3a–c, 4; Pl. XXV, Fig. 57.

Specific characters (according to EGOIAN, 1969): Large in size, with open crioceratid coiling and oval, compressed whorl-section ($H/W = 1,2$); ornamentation composed of straight, strong, rather rursiradate, trituberculate main ribs, and of thin nontuberculate intercalatories; the main ribs bear large oval scars of the floored tubercles and are divided into 2–3 thinner secondary ribs on the dorsal area (between the periumbilical lateral tubercles); the intercalatory ribs are in number of 4–8 in youth and 8–12 in mature stage, on each interval. Suture line with large bifid lateral lobe and trifurcate umbilical one (Pl. XXV, Figs. 57, 58, in EGOIAN, 1969).

Material: A single, crushed specimen (IG P 19166), recorded by BORDEA (in AVRAM et al., in press) from the Gargasian sequence of the Ecleja Formation on the Babei valley in northern Apuseni Mts. (site 3 in Fig. 1); it is deformed by lateral stress but preserves the main features of ornamentation like in *P. pseudoelegans*, except the fewer intercalatory ribs and faster growth of the shell-height.

Occurrence: Clansayesian, in North Caucasus; Gargasian (in assemblage with *Chelonicerias*, *Colombicerias* and *Mithoceras* species) in Rumania.

***Pseudocrioceratites subcircularis* n. sp.**

(Pl. 1, Figs. 2a–d, 3; Text-Fig. 2a)

1994 *Crioceratites* ? sp. aff. *C. munieri* SARASIN & SCHÖNDELMAYER, AVRAM, pp. 120, 122, Pl. 16, Figs. 5a–b, 6a–b, Text-Fig. 7, 8.

Holotype: the specimen figured in Pl. 1, Figs. 2a–d (the author's coll., IG P 16556).

Derivatio nominis: from the almost circular (slightly depressed) whorl section.

Locus typicus: Svinita village area (SW Rumania), in the cutting of Orsova-Svinita highway, some 200 m SE of the Vodiniciki valley (interval 2+40).

Stratum typicum: lower part of the Upper Barremian, below the beds with *Imerites* and *Eristavia*. Svinita Formation, Temeneacia Member.

Material: Seven specimens, generally fragments of phragmocone, almost all recorded by the author in the same area and interval as the holotype on the left slope of the Vodiniciki valley and the left bank of the Danube below the highway; only one crushed example comes from the Lower Barremian deposits exposed on the Vodiniciki valley (IG P 16556–16558; for detailed location of the fossiliferous sites in the Svinita village area, see AVRAM, 1994).

Specific characters: The holotype is a phragmocone of medium size, preserving 3/4 of a complete mature whorl. Its section is almost circular, slightly depressed

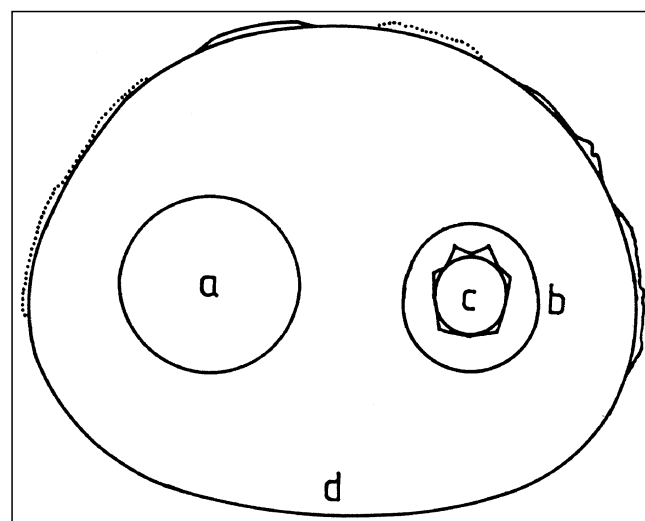
($W/H = 1.05$), wider in the lower third of the whorl-height. The shell is covered by rare, trituberculate main ribs and by 5–9 thin, nontuberculate intercalatories, on each interval between the primaries; the tubercles are typically floored, in periumbilical, ventro-lateral and perisiphonal position; on the dorsal area, the main ribs are divided into 2–3 ribbles, not thicker than the intercalatory ribs; all the latter are slightly rursiradate, parallel to the main rib located forward and the first intercalatory on each interval joins the tubercles of the main rib located adapically.

The suture line (Pl. 1, Fig. 2d) is very similar to that figured by EGOIAN for the type-species of the genus (1969, Pl. XXV, Fig. 58), but preserves the cruciform inner lobe.

Variability: Although usually depressed, the shape of the whorl section is, in some individuals, slightly compressed (IG P 16559 = Pl. 1, Figs. 4, 5a–b, 6; Text-Fig. 2b–c); these individuals are also apart from the *P. subcircularis* type by thinner main ribs, some more numerous intercalatories, and all ribs describe a large sinus forward on the dorsal area. All of them were initially considered to belong to an independent species, but their occurrence in the same levels like *P. subcircularis* and the minor differences in ornamentation do not allow such an interpretation; they are probably an extreme variation inside the here described species.

Among the *Pseudocrioceratites* species described by EGOIAN (1969) the most related is *P. rotundus*, of which *P. subcircularis* is different mainly by its fewer intercalatories, depressed whorl section (in typical individuals) and by its much earlier occurrence, without any obvious continuity through the uppermost Barremian and Lower Aptian. The Hauterivian species *P. (?) munieri* (SARASIN & SCHÖNDELMAYER) displays a more open spire, a slower growth of the whorls, and comparatively stronger and rarer ribs. Finally, the Barremian species *P. (?) stentor* (ANDERSON) is faster growing and with coarser ornamentation than *P. subcircularis* n.sp.

Occurrence: From the lowermost Barremian (with *Psilotissotia*) up to the Upper Barremian below the levels with *Imerites* and *Eristavia*.



Text-Fig 2. Whorl sections of the here proposed species of *Pseudocrioceratites*. a = *P. subcircularis* n. sp., holotype, at the whorl-diameters of 14.8/14.2 mm; b–c = *P. cf. subcircularis* n. sp. (b = Pl. 1, Fig. 5, in its younger end; c = Pl. 1, Fig. 6, in its aged extremity); d = *P. gradinarui* n. sp., holotype, at the whorl-height of 41.5 mm.

***Pseudocrioceratites gradinarui* n. sp.**

(Pl. 1, Fig. 7; Pl. 2, Figs. 1a–c)

Holotype: the only figured specimen (E. GRADINARU'S coll., IGP 19543).

Derivatio nominis: in honour of the excellent geologist Eugen GRADINARU, reader in the University of Bucharest.

Locus typicus: Dâbovicioara Basin, left bank of the Muierii valley, about 1 km upstream its mouth (side no 2 in Text-Fig. 1).

Stratum typicum: Lower Bedoulian (the Forbesi Zone: recorded in assemblage with *Deshayesites planus pyritosus* CASEY).

Material: Only the holotype.

Specific characters: Large in size, the holotype preserves the end of phragmocone and the beginning of the body chamber on almost half a whorl of a mature shell. It is uncoiled after an open crioceratic spire, with strongly depressed whorl-section (Text-Fig. 2d: W/H = 1,24); its ornamentation is rursiradate, composed of very large, but low trituberculate ribs on the sides and venter,

which bear the united scares of the periumbilical, ventrolateral and (almost smooth) perisiphonal tubercles; on the dorsal area, the main ribs are divided into numerous thin ribblets (Pl. 2, Fig. 1c) as thin as the dorsal segment of the intercalatory ribs; the latter are larger and stronger on the sides in youth (5–6 on each interval), thinner and more numerous (11–12) on the body chamber.

Remarks: Although the suture line is incompletely preserved (Pl. 2, Fig. 1), it exhibits the bifid and large first lateral lobe, the trifurcate second one and cruciform inner one, typical features of *Pseudocrioceratites*. *P. gradinarui* n. sp. is the only species of the genus displaying such depressed whorl-section and unified scares of the floored tubercles along the main ribs.

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Plate 1

Fig. 1: *Pseudocrioceratites* cf. *pseudoelegans* EGOIAN (IG P 19166). Gargasian, northern Apuseni Mts.

Figs. 2a–d, 3: *Pseudocrioceratites subcircularis* n. sp.

Fig. 2: Holotype (IG P 16556).

Upper Barremian, Svinita village area.

d: Suture line at the whorl-height of 14 mm).

Fig. 3: Lower Barremian from the same region.

Figs. 4,5a–b,6: *Pseudocrioceratites* cf. *subcircularis* n. sp. (IG P 16559).

From the same region and interval like the holotype.

Fig. 7: *Pseudocrioceratites gradinarui* n. sp..

Holotype (IG P 19543).

Bedoulian, Dâbovicioara.

Figs. 1, 2a–c, 3, 5, 6, 7: natural size.

Fig. 2d: × 4.



Plate 2

Fig. 1: *Pseudocrioceratites gradinarui* n. sp.
Holotype (IG P 19543).
Bedoulian, Dâmbovicioara.
1a: its last suture line, at the whorl-height of 41.7 mm.

All Figures: natural size (including the suture line).



1a



1b

1c

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