Notes on some rare Barremian/Aptian ancyloceratids from the Silesian Unit (Outer Western Carpathians, Czech Republic)

Poznámky k některým vzácně se vyskytujícím barremsko-aptským ancylocerátům ze slezské jednotky (vnější Západní Karpaty, Česká republika)

(2 figs, 2 plates)

ZDENĚK VAŠÍČEK – PETR SKUPIEN

Institute of geological engineering, VŠB – Technical University, 17. listopadu 15, 708 33 Ostrava-Poruba, Czech Republic; e-mail: zdenek.vasicek@vsb.cz

The Silesian Unit belongs to the system of nappes of the Outer, or also Flysch Western Carpathians. This unit, particularly its Lower Cretaceous deposits of the basinal Godula development, is well-known for abundant occurrences of ammonites in the Barremian and the Early Aptian. Sporadic finds of poorly known or unknown ancyloceratids from the Late Barremian and the lowermost Aptian are described in the submitted contribution. These finds, one of which justified description of a new species, broaden the existing knowledge of the composition of ammonite assemblages in the Silesian Unit and contribute to the knowledge of paleobiogeography and paleogeographic communication between European sedimentary areas at the time close to the Barremian/Aptian boundary.

Key words: Silesian unit, Lower Cretaceous, Barremian/Aptian, ammonites

Introduction

Fragments of ancyloceratids belonging to the category of rare, usually poorly known or unknown ammonites of the Silesian Unit were sporadically found by the present authors in the course of the last decades within the basic study of the Lower Cretaceous sediments of the Silesian Unit in the territory of the Czech Republic. Lately, attention was paid especially to the Barremian and Aptian with the aim to correlate ammonite zones with non-calcareous dinocysts (Skupien – Vašíček, in prep.). The submitted paper attempts to taxonomically describe the available, rather unfavourably preserved material, a part of which has been kept in the VŠB – Technical University of Ostrava for more than 30 years.

The described finds come from dark grey pelitic deposits of the Těšín-Hradiště Formation in the sense of lithostratigraphic subdivision of the Silesian Unit in the Czech Republic (e.g., Menčík *et al.* 1983, Klomínský *et al.* 1994). In addition to fragmentary preservation, the studied shells are rather strongly deformed. The most significant finds of ancyloceratids come from the localities of Malenovice (M-5) and Kunčice p. O. (KN-5, 7, 8, 11) situated in the Frýdlant nad Ostravicí area in the Moravian-Silesian Beskydy Mountains (Fig. 1). They belong to localities with abundant ammonite fauna. Geographic position and the basic composition of the accompanying ammonite assemblages of the first mentioned locality and of three additional localities were specified in more detail by Vašíček (1971, 1972); the latter mentioned locality (Kunčice p. O. – 11) was described by Skupien and Vašíček (2001).

Taxonomy

The basic systematic classification of finds described below is in accordance with the conception in the Treatise on Invertebrate Paleontology (Wright *et al.* 1996).

Suborder Ancyloceratina Wiedmann, 1966
Superfamily Ancyloceratacеae Gill, 1871
Family Ancyloceratidae Gill, 1871
Subfamily Ancyloceratinae Gill, 1871

Genus *Audouliceras* Thomel, 1964

Type species: *Ancyloceras audouli* Astier, 1851.

A detailed characteristic of the taxon at the subgenus level within the genus *Ancyloceras* d'Orbigny, 1842, its comparison with related genera and figures of the holotype of the type-species *Audouliceras audouli* were provided by Klinger – Kennedy (1977), though under a rather erroneously transcribed name *Adouliceras*. In accord with Kakabadze (1981), *Audouliceras* is herein regarded an independent genus. According to the diagnosis of Klinger – Kennedy (1977), the beginning of the shell is coiled into an open planispiral. Tuberculate main ribs alternate with simple ribs. The spiral part passes into a shaft that bears simple thin ribs without tubercles. The adult hooky part bears strong main ribs with three rows of tubercles. *Audouliceras* occurs in the Late Barremian to the Early Aptian after Klinger – Kennedy (1977) and Wright *et al.* (1996).

By virtue of the new finds in the Silesian Unit, one can state that the morphology of the old specimen *"Crioceras" fallauxi* (Uhlig, 1883) suits the diagnosis of the above mentioned genus.

Audouliceras fallauxi (Uhlig, 1883)

Pl. 1, Fig.1, Pl. 2, Fig. 1

1883 *Crioceras Fallauxi* sp. nov.; Uhlig, p. 265, Pl. 29, Fig. 1
1972 *Ancyloceras (?Audouliceras) fallauxi* Uhlig; Vašíček, p. 49, Pl. 7, Fig. 1 (cum syn.)
? 1992 *Audouliceras* sp. gr. *fallauxi* (Uhlig); Delanoy, p. 47, Pl. 32, Fig. 3

? 2000*? Ancyloceras (Audouliceras)* cf. *fallauxi* (Uhlig); Landra *et al.*, p. 336, Pl. 1, Fig. 12

Material: Two strongly deformed fragments bearing original calcareous shells, of which one – more complete – corresponds to the medium stage of growth (KN-11/8) and the other – poorly preserved in the form of two separate fragments that may belong to a single individual – pertains to the adult stage of growth (KN-11/21).

Occurrence: The newly found specimens come from the outcrops in the left bank of the Tichávka River at the village of Kunčice p. O. (KN-11) from deposits missing any convincing Aptian elements in the ammonite spectrum. Most likely, they belong to the uppermost Barremian (roughly to the ammonite zone with *Martelites sarasini*).

Description: Shells large, with juvenile whorls missing. What is preserved is only the transition of the part coiled in a spiral into a more or less straight shaft. The shaft bears rather dense and thin ribs that have no tubercles. At the more mature end of the shaft, ribs are conspicuously more robust.

Fragments of the adult shell belong to the area of the bend (flexus). Two types of ribs alternate here: thin simple ribs, usually free of tubercles, are inserted between massive trituberculate ribs with strong tubercles. The medium tubercles are the most robust on the main ribs. Somewhat weaker are uniformly developed marginal tubercles. Umbilical tubercles are the weakest but also the most variable. They may be weaker or stronger; they are absent from some ribs. However, they may be also developed in the form of simple tubercles on the adjacent subsidiary rib. On the other, substantially more incomplete fragment, 3 subsidiary ribs are clearly visible in addition to the main trituberculate rib.

Measurements: The deformed height of the whorl in the earliest preserved part reaches about 30 mm. At the end of the heavily deformed fragment, the height of the shaft is almost 85 mm. The distance between its end and the lowest part of the spire (in length) is 180 mm. The height of the whorl in the flexus is about 80 mm.

Remarks: The fragments found come from the same bedding surface.

The description of Uhlig (1883) was based on a specimen which is still the most complete but possesses only the earliest part of the shell, indicating a rather crioceratid coiling. Juvenile whorls of Uhlig's specimen bear trituberculate ribs. The newly found, though incomplete, adult shells indicate the presence of a hooky shell of ancyloceratid type in the continuation of the spiral part.

Other finds of equally named, but maybe only relative shells in their part, from localities outside the Silesian Unit show that the medium stage of growth of *A. fallauxi* lacks tubercles on ribs. This fact, as pointed out by Delanoy (1992), assigns *A. fallauxi* to the group of *Audoul-*

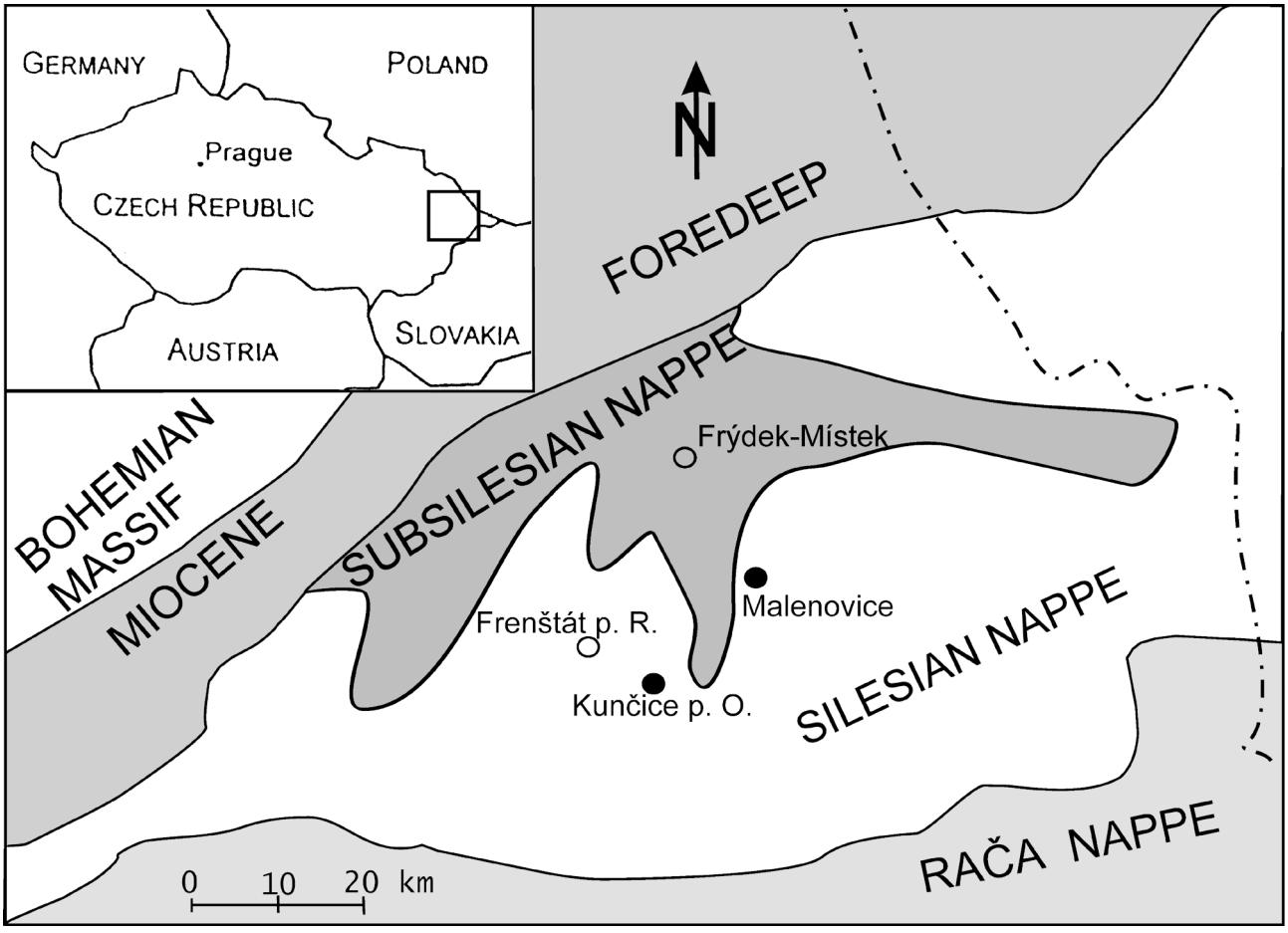

Fig. 1 A scheme of the geological setting showing the nappe structure in study area and locations of outcrops.

iceras renauxianum (d'Orbigny, 1841). The last mentioned species, however, differs especially in a higher number of simple inserted ribs between trituberculate main ribs in the area of the flexus.

Distribution: Older finds of *A. fallauxi* from the Silesian Unit described by Uhlig (1883) come from the deposits, for which the Barremian/Aptian boundary age can be considered. The following, rather uncertain finds that do not come from the Silesian Unit, indicate a similar age. Somewhat younger finds, somewhat uncertain from the viewpoint of species assignment (given in the synonymy), have been reported either from the lower Late Barremian or from the upper Early Aptian.

Subfamily Helicancylinae Hyatt, 1894

Genus *Toxoceratoides* Spath, 1924

Type species: *Toxoceras royerianum* d'Orbigny, 1842.

Genus *Toxoceratoides* Spath, 1924, was studied in detail by Casey (1961), Klinger – Kennedy (1977) and Aguirre Urreta (1986). None of the authors included the Uhlig's (1883) Silesian species within the species composition of this genus. Only Cecca – Landra (1994) reported these species under the names *Toxoceratoides silesiacus* (Uhlig) and *T. karsteni* (Uhlig) in connection with the present genus name. The all-inclusive distribution of representatives of the genus *Toxoceratoides* according to Aguirre Urreta (1986) corresponds to the Late Barremian to Late Aptian.

***Toxoceratoides karsteni* (Uhlig, 1883)**
Pl. 1, Fig. 3

1883 *Crioceras Karsteni* Hohenegger in coll.; Uhlig, p. 267, Pl. 28, Fig. 3
1955 *Acrioceras karsteni* (Hohenegger) Uhlig; Sarkar, p. 121
non 1973 *Acrioceras (Aspinoceras) karsteni* (Hohenegger in Uhlig); Vašíček, p. 56, Pl. 4, Fig. 2 (= *Toxoceratoides karstenioides* sp. nov.)
non 1994 *Toxoceratoides karsteni* (Uhlig); Cecca and Landra, Pl. 3, Fig. 2 (= *Toxoceratoides karstenioides* sp. nov.)

Material: The only strongly deformed specimen with remains of the original shell (KN-11/12). Juvenile part of the shell is not preserved; the bend (flexus) is preserved only fractionally.
Occurrence: The only specimen was found in an outcrop near the village of Kunčice p. O. (KN-11) in deposits of Late Barremian age.

Description: A small toxoceratoid shell with an arcuate shaft. The sculpture consists of thin and dense ribs. Numerous main ribs with tubercles and one to two subsidiary ribs alternate. The main ribs bear up to 4 rows of tubercles. In the lower part of the shaft, the main ribs do not differ in strength from the subsidiary ribs. The lowest row of tubercles that can be taken as umbilical tubercles is developed rather irregularly. These tubercles are situated rather high above the base of the shaft; they are small, sometimes missing, especially in the central part of the shaft. Thinner single ribs run from them occasionally in the juvenile part of the shaft. The most prominent group of tubercles occurs at about 2/3 height of the shaft. They are, however, close to each other in the case of lateral tubercles arranged into two rows. This makes them more conspicuous. Sometimes two subsidiary ribs enter into the lower tubercles of the pairs of tubercles. Imperfectly preserved marginal tubercles are indicated on the main ribs along the periphery.

The flexus is not preserved, with the exception of a small incomplete part around the mouth. Obvious umbilical tubercles can be seen at the base of the stated section; ribs in pairs usually run from these tubercles. Simple lateral tubercles are developed on all preserved ribs.
Measurements. The size of the whole shell was, very roughly estimated, less than 70 mm. The shaft is preserved to the height of 12 mm (the measured value is affected by deformation).
Remarks: The shell corresponds well to the Uhlig's holotype, which was preserved more completely than our specimen but probably no more exists. A characteristic feature of *T. karsteni* is the presence of two rows of lateral tubercles on the shaft, which are apparent from the Uhlig's illustration but are not mentioned in his species description; furthermore, simple lateral tubercles are typically developed on all ribs of the flexus as far as to the mouth. The last feature probably distinguishes *T. karsteni* from all other species of the genus *Toxoceratoides* (including *T. silesiacus* Uhlig) with the exception of *T. karstenioides* n. sp. described below in detail. The last mentioned species differs in its larger size and primarily in differently formed tubercles on the shaft. A specimen designated as *Acrioceras (Acrioceras)* ex gr. *karsteni* (Hoh.) by Kakabadze (1981, Pl. 8. Fig. 3a, b) bears also lateral tubercles on the flexus. In addition to the fact that the given specimen is smaller than *T. karsteni*, it differs from the latter especially in robust main ribs on the shaft and their tubercles. It should come from the Early Barremian.

If the holotype of the species is confirmed to be lost (see Vašíček 1973), the newly found specimen can serve as a neotype.
Distribution: *T. karsteni* is known with certainty merely from the Silesian Unit, probably only from the Late Barremian.

***Toxoceratoides karstenioides* sp. nov.**
Pl. 1, Fig. 2; Fig. 2

1973 *Acrioceras (Aspinoceras) karsteni* (Hohenegger in Uhlig); Vašíček, p. 56, Pl. 4, Fig. 2

Holotype: *Toxoceratoides karstenioides* illustrated here in Pl. 1, Fig. 2, will be deposited in the collections of the Ostrava Museum.
Material: In addition to the specimen given in the synonymy, a steinkern fossilised by siderite (KN-5a/20), better preserved than the first one, is available (although lacking a spiral part). This was chosen as the holotype of the newly erected species.
Type strata: Early Aptian.
Type locality: A natural outcrop on the bank of the Tichávka River near Kunčice p. O.
Diagnosis: A toxoceratoid shell with trituberculate main ribs on the shaft. Flexus bears umbilical tubercles from which ribs run in pairs. Lateral tubercles are present on all ribs of the flexus.

Occurrence: The two hitherto found specimens of *T. karstenioides* come from topographically and stratigraphically close localities at the village of Kunčice p. O. (KN-5 and KN-7). In both cases they were found in deposits with *Procheloniceras albrechtiaustriae* (Uhlig) characteristic of the Early Aptian.

Description: A shell with an arcuate shaft and open flexus. The sculpture on the shaft is represented by three types of ribs: stronger trituberculate main ribs, thin ribs bearing only marginal tubercles and subsidiary thin ribs without tubercles.

On the juvenile part of the shaft, umbilical tubercles are first missing on the main ribs. However, the tubercles soon appear and become stronger. Then they remain developed on the whole shell, including the area of the flexus. Two ribs often run together, the rear one being the main one, the frontal one being a simple subsidiary rib. Rather weak lateral tubercles occur on the main ribs approximately above one-half of the height of the shaft. A subsidiary rib splits off from these tubercles and merges with the marginal tubercles at the beginning. Ribs split off later do not merge with marginal tubercles any more. Marginal tubercles are the most conspicuous on the whole shaft. In only one case, a blunt, about 2 mm long, rather backward-orientated spine runs from the marginal tubercle to the surrounding rock. The spine is slightly longitudinally ribbed. Marginal tubercles, as already stated, are developed also on some ribs without umbilical and lateral tubercles. Two ribs having no tubercles on the sides often join these tubercles. Besides the ribs bearing tubercles or ending in marginal tubercles, one to two simple ribs without tubercles appear between these ribs.

Fig. 2 *Toxoceratoides karstenioides* sp. nov. Fragments of an adult suture line at H = 13.5 mm.

On the transition of the shaft into the flexus, which corresponds to the beginning of the body chamber, marginal tubercles considerably weaken and lateral tubercles even fade out for some distance. However, they soon appear on all ribs of the flexus that are equally strong. Ribs run in pairs from stronger umbilical tubercles on the flexus. A rather wide, flat furrow can be seen on the ventral side between these ribs on better preserved part of the flexus between weak marginal tubercles.

Suture: On the shell fossilised by siderite, several adult sutures were successfully prepared at the end of the phragmocone below the remains of the shell itself. The ability to observe the course of the sutures is also impaired, in addition to frequent weathering, the sharpness of ribs and the depth of intercostal furrows. A substantial part of the suture (except for lobe E and a wider area of lobe I) could be successfully illustrated by combining the incomplete last suture and the third suture from the end of the phragmocone. The E/L and L/U saddles are bipartite. Each part of them is also bipartite. Lobes L and U are trifid; L being very wide. The height of the shaft in the area of the sutures drawn is about 13.5 mm.

Measurements: The length of the whole shell, considerably incomplete in the holotype, can be estimated at more than 70 mm. The height of the flexus of the holotype is 16.5 mm.

Remarks: In its basic morphology *T. karstenioides* resembles the species *T. karsteni*, which motivated the name of the new species. The new species, however, differs in many special features of shaft sculpture: it bears three types of ribs; the ribs bifurcate or split off in umbilical and lateral tubercles of the main ribs. One simple rib is usually connected to marginal tubercles of the ribs that lack tubercles on the shaft sides. This feature is close to the Late Barremian species *T. sudalpinus* Cecca – Landra, 1994 which, however, lacks trituberculate main ribs as well as lateral tubercles on the flexus. Under the name *T. karsteni* (Uhlig), Cecca – Landra (1994) illustrated a specimen from the French Late Barremian that is morphologically definitely closer to *T. karstenioides* than to Uhlig's specimen. However, different ribbing on the shaft precludes identification with *T. karstenioides* with the exception of the similarly formed flexus.

Family Heteroceratidae Spath, 1922

***?Heteroceras* sp. juv.**
Pl. 1, Fig. 4

Material: The only poorly preserved, deformed juvenile shell (KN-8/20).

Occurrence: The only find from the locality KN-8 near Kunčice p. O. comes from the deposits where no more anahamulinids occur in the ammonite assemblage and still no *Pseudohaploceras liptoviense* (Zeuschner) is present. On the basis of these facts one can suppose that the specimen comes from the Late Barremian, from the Giraudi ammonite Zone.

Description: A juvenile shell coiled in a helicoid spiral. Clean-cut, arcuate simple ribs are developed on all whorls. The preserved part of the spatially coiled shell reaches the height of 15 mm.
Remarks: The incompleteness of the juvenile shell, the absence of adult whorls, and other problems make either species or closer genus determination impossible. The find is described in this paper as it is unique in the Silesian Unit.

Subfamily Crioceratitinae Gill, 1871

Genus *Spinocrioceras* Kemper, 1973

Type species: *Spinocrioceras polyspinosum* Kemper, 1973.

Spinocrioceras cf. *amadei* (Uhlig, 1883)
Pl. 2, Fig. 3

1992 *Spinocrioceras amadei* (Uhlig); Delanoy, p. 79, Pl. 14, Fig. 3, Pl. 40, Fig. 3, text-fig. 4 A, B (cum syn.)

Material: The only deformed fragment of an adult whorl with preserved original shell (M-5/220).
Occurrence: The fragment comes from the spoil tip near the village of Malenovice (M-5) from the assemblage of ammonite species that indicate the Feraudianus ammonite Zone.

Description: A fragment with strong simple ribs, whose robustness is not wholly equivalent. This fact is yet emphasized by the different strength of tubercles on the ribs. The majority of the ribs bear three rows of tubercles. The umbilical row of tubercles situated rather high above the line of coiling is the most uniform. Close to the umbilical tubercles, a medium row of tubercles of different strength is present; these tubercles can be as strong as the previous tubercles. However, they are more frequently weaker or may be merely indicated. The most obvious ventrolateral tubercles are farther from the lateral ones than the lateral tubercles from the umbilical ones. As for their strength, they are heterogeneous as well. The best developed tubercles are high and sharply clavate, the others are low and bluntly clavate. The height of the deformed whorl is about 32 mm.
Remarks: The absence of the sculpture of juvenile whorls does not permit a safe determination of the Silesian specimen. The described fragment differs from the typical *S. amadei* by a clavate shape of ventrolateral tubercles. Clavate shape of these tubercles in medium stage of growth was mentioned by Delanoy (1992) in the description of the species *S. polyspinosum* Kemper. The number of tubercles and the shape of the last tubercles may thus indicate their interrelationship.
Distribution: In addition to the Silesian Unit, where the precise stratigraphic position of *S. amadei* has been unclear so far, the mentioned species was described from the Late Barremian of southeast France recently, namely from the Feraudianus ammonite Zone.

***Spinocrioceras* sp.**
Pl. 2, Fig. 2

Material: A single fragment of an adult whorl, considerably incomplete and deformed, with its own shell preserved on the bedding surface of fine-grained quartzose sandstone (M-5/366).
Occurrence: The fragment comes from the same locality as *S.* cf. *amadei*, i.e., from the Late Barremian, probably from the Feraudianus Zone.

Description: The section of the whorl remains unknown due to the heavy deformation of the whorl. The fragment bears simple conspicuous ribs of different strength. Stronger ribs have the character of main ribs; weaker ribs have the character of subsidiary ribs. Three rows of tubercles are present on the main ribs. Umbilical tubercles are conical. Lateral tubercles, lying relatively far from them, are slightly clavate. Strongly clavate ventrolateral tubercles preserved on the periphery are the strongest. Subsidiary ribs are weaker and of different strength. They do not bear any umbilical tubercles, or these tubercles are merely indicated. Lateral tubercles are weaker than those on the main ribs. However, if observed, clavate ventrolateral tubercles are well developed. The height of the heavily deformed whorl is about 40 mm.
Remarks: The different strength of ribs is very apparent here. Particularly the clavate shape of ventrolateral tubercles indicates a certain relation of the fragment to the above described *S.* cf. *amadei* (Uhlig). However, the fragment not determined to the species level differs from the last mentioned in the spacing of tubercles: lateral tubercles are farther from umbilical tubercles than from ventrolateral ones. This fact makes their identification improbable either in the framework of the species variability.

Conclusions

The above described sporadic finds of ancyloceratids supplement significantly the present knowledge of the composition of ammonite assemblages of the Silesian Unit in the Late Barremian and around the Barremian/Aptian boundary. They contribute to our knowledge of paleobiogeography and to the ideas on the communication of the Lower Cretaceous Mediterranean and Boreal realms at the turn of the Late Barremian and Early Aptian in European scale.

Both from the systematic and palaeogeographic points of view, confirmation of the presence of the genus *Spinocrioceras* Kemper, 1973 in the Silesian Unit by these finds is very important. However, before suggesting the palaeogeographic importance of the genus, it is useful to remind some facts from the history of taxonomic concepts and species composition of the genus *Spinocrioceras*. Already Uhlig (1883) was concerned with historical finds of the spinocrioceratids in the Silesian Unit. He classified them, based on the knowledge of his time, to the genus *Acanthoceras* Neumayr, 1875. Later, the acanthoceratids de-

scribed by Uhlig were re-assigned to the genus *Prochelonicera* Spath, 1923, which is considered to be an Early Aptian genus. However, the basic problem of the original collection of ammonites from the Silesian Unit processed by Uhlig (1883) lies in the fact that no accurate stratigraphic position is known for absolute majority of the old finds. This caused more and more frequent stratigraphic problems (see, e.g., Kakabadze 1983, 1987) after information appeared on the occurrence of the first "prochelonicerati ds" deep in the Late Barremian already. Foundations for solving the given problem were laid merely by defining the genus *Spinocrioceras* (with the typical species *S. polyspinosum*) in the Late Barremian by Kemper (1973). This genus described from the deposits of the subboreal Lower Saxony Basin in Germany, in contrast to the morphologically close genus *Prochelonicera* (with two rows of tubercles on ribs), is characterized by three rows of tubercles. Another important step that followed was the systematic processing of rich French material by Delanoy (1992). He proved that *Spinocrioceras polyspinosum* together with Uhlig's species known from the Silesian Unit, i.e., *Spinocrioceras amadei* and *S. trachyomphalus* occurred in the Late Barremian of southeastern France.

The herein described finds of spinocrioceratids, coming from the locality of Malenovice, are characterized by three rows of tubercles as well. They occur in a rich ammonite assemblage containing common but stratigraphically important Late Barremian species, such as *Costidiscus recticostatus* (d'Orbigny) and *Macroscaphites yvani* (Puzos) on one hand, and also several species of the genus *Anahamulina* Hyatt, 1900 on the other hand. According to the last mentioned information it can be deduced that the representatives of the genus *Spinocrioceras* from the Silesian Unit most likely come from the ammonite Feraudianus Zone (according to the ammonite zonation of the Mediterranean Lower Cretaceous proposed by Hoedemaeker and Company eds. (1993).

It was Cecca (1998, Fig. 3) who illustrated European paleobiogeography of the genus *Spinocrioceras*. The presented distribution implies that the communication between the Mediterranean Tethys and the boreal Lower Saxony Basin in Germany started in the Early Barremian already. The newly opened path probably led through the so-called Atlantic corridor between northern France and southern England (Mutterlose 1992, 1997). This communication continued then in the Late Aptian, as documented similarly by the European distribution of the genus *Prochelonicera* (Vašíček – Michalík 2002).

The worldwide distribution of the genus *Toxoceratoides* (also both Americas, Africa, etc.) that occured around the Barremian/Aptian boundary (Aguirre Urreta, 1986) is of the same interest. In the Silesian Unit, this genus is represented exclusively by species of rather endemic nature.

Genus *Audouliceras* has an areal distribution similar to those of the previous genera at the given time, with the exception of the boreal realm. Moreover, it is also abundant in the Caucasus (Kakabadze 1976, 1981), which indicates a continuation of the marginal shelf along the southern side of Paleoeurope from western Europe far to the east, and migration of ammonite faunas in the east-west direction.

The last fragment determined merely as *?Heteroceras* sp. represents heteromorphic shells: the beginning is coiled in a spatial spiral, adult whorls are coiled planispirally. Heteroceratids and colchiditids form a prominent component of the Late Barremian deposits, especially in the Caucasus Mts., the Crimea, France or some areas outside Europe. Only a single imperfectly preserved find of an incomplete shell pertaining to this family has been, however, described from the Silesian Unit so far (*Argvethites* sp. in Vašíček 1972). The herein described fragment poses the second find from the Silesian Unit. Its assignment to the family Heteroceratidae is indisputable. As the described specimen is represented only by several initial spatially coiled whorls, the assignment to the genus level is considerably uncertain. It may equally belong to the genus *Colchidites* Djanélidzé, 1926 or to some other representatives of the family Heteroceratidae.

Acknowledgement. The submitted results were obtained within the solution of grant project No. 205/00/0985 of the Grant Agency of the Czech Republic, which covered a substantial part of publication costs connected with the contribution. Author's acknowledgements are then particularly due to the Grant Agency of the Czech Republic. In addition, we also express our thanks to Mrs. K. Mezihoráková from the University of Ostrava for producing high-quality photographs of ammonites.

Submitted January 31, 2002

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Poznámky k některým vzácně se vyskytujícím barremsko-aptským ancylocerátům ze slezské jednotky (vnější Západní Karpaty, Česká republika)

Slezská jednotka náleží k příkrovové soustavě vnějších neboli flyšových Západních Karpat. Tato jednotka, především její spodnokřídové uloženiny v godulském pánevním vývoji, jsou dobře známé bohatými výskytu amonitů v barremu až spodním aptu. V předloženém příspěvku jsou popsány ojedinělé nálezy svrchnobarremských a spodnoaptských nedokonale známých nebo dosud ve slezské jednotce neznámých ancylocerátů. Systematicky zpracované nálezy, mezi kterými je stanoven jeden nový amonitový druh, rozšiřují stávající vědomosti o složení amonitového společenství ve slezské jednotce a též přispívají k paleogeografii a k možným paleogeografickým komunikacím mezi evropskými sedimentačními prostory v časovém období kolem hranice barrem – apt.

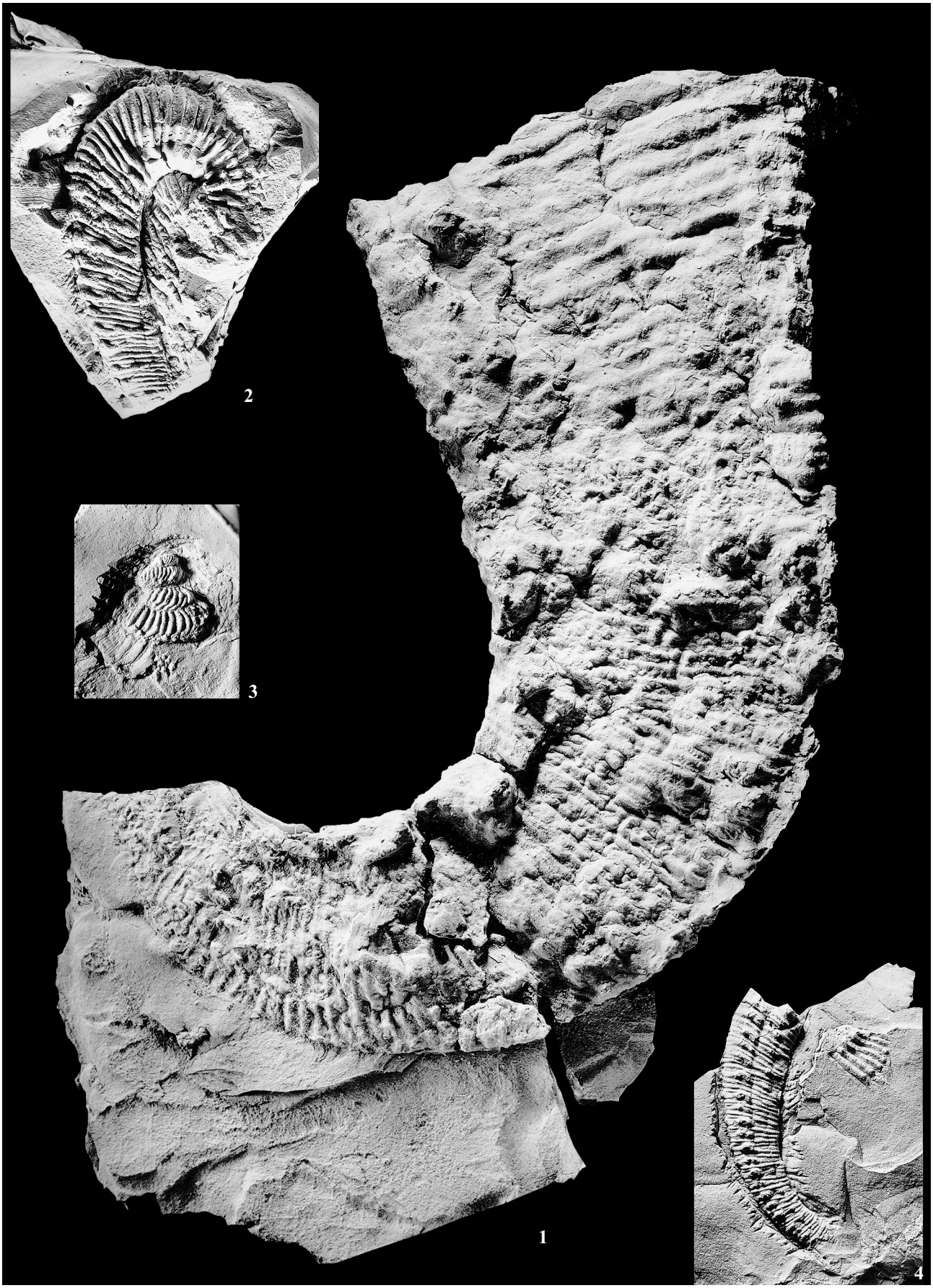
Explanations of plates

Plate I
1 – *Audouliceras fallauxi* (Uhlig). Spec. KN-11/8. Late Barremian, outcrop KN-11 near Kunčice p. O.
2 – *Toxoceratoides karstenioides* sp. nov. Spec. KN-5a/20. Early Aptian, outcrop KN-5 near Kunčice p. O.
3 – *Toxoceratoides karsteni* (Uhlig). Spec. KN-11/12. Late Barremian, outcrop KN-11 near Kunčice p. O.
4 – *?Heteroceras* sp. juv. Spec. KN-8/20. Late Barremian, outcrop KN-8 near Kunčice p. O.

Plate II
1 – *Audouliceras fallauxi* (Uhlig). Spec. KN-11/21, fragments of an adult shell. Late Barremian, outcrop KN-11 near Kunčice p. O.
2 – *Spinocrioceras* sp. Spec. M-5/366. Late Barremian, spoil tip M-5 near Malenovice.
3 – *Spinocrioceras* cf. *amadei* (Uhlig). Spec. M-5/220. Late Barremian, the same locality as *Spinocrioceras* sp.

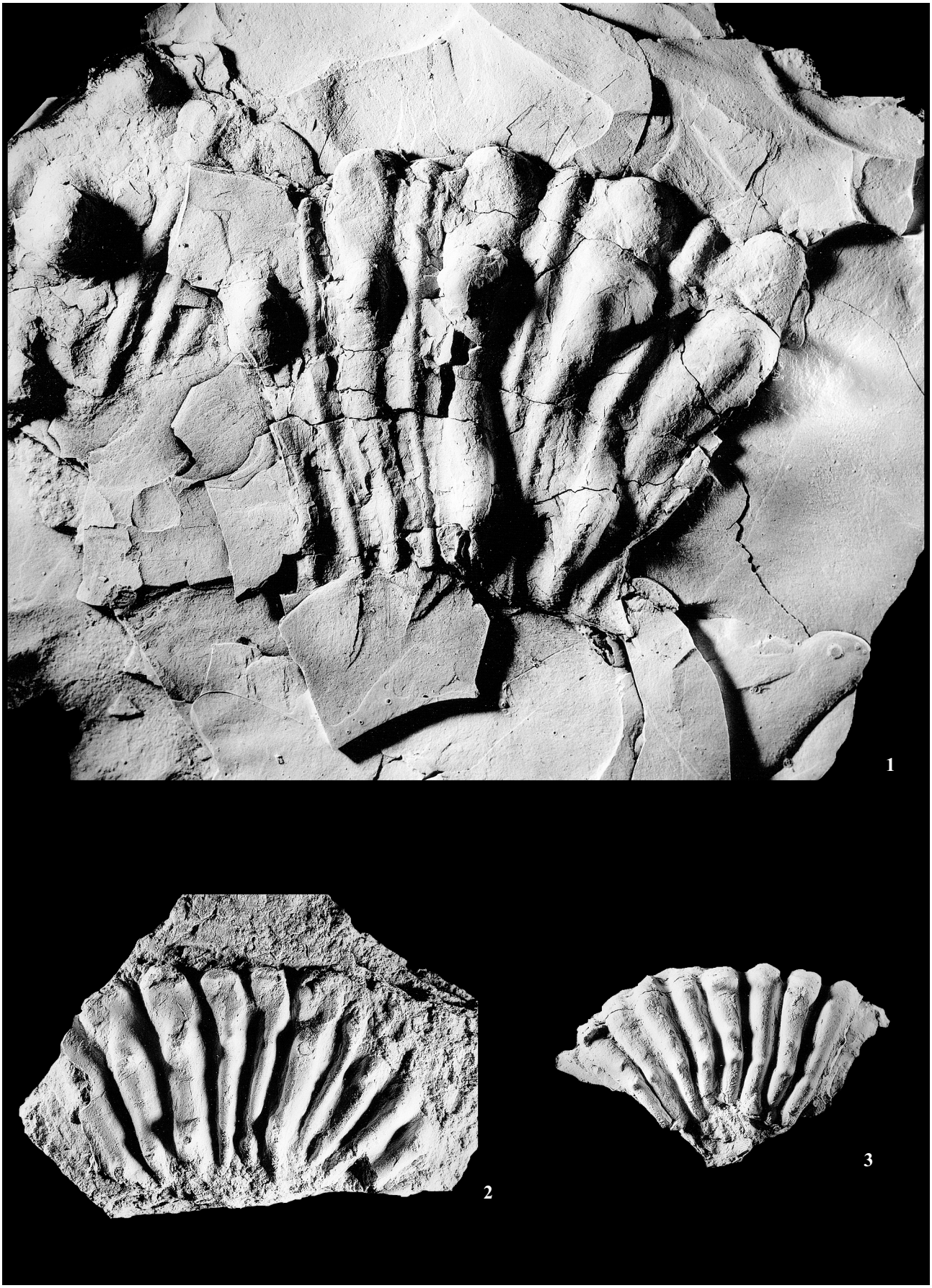
All figures x1.

Z. Vašíček – P. Skupien: Notes on some rare Barremian/Aptian ancyloceratids from the Silesian Unit (Outer Western Carpathians, Czech Republic) (Pl. I)



For explanation see p. 72

Z. Vašíček – P. Skupien: Notes on some rare Barremian/Aptian ancyloceratids from the Silesian Unit (Outer Western Carpathians, Czech Republic) (Pl. II)



For explanation see p. 72