

Bathonian brachiopods from Villány (South Hungary)

by
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Abstract —The Bathonian Stage is represented by a single thin (8–10 cm) layer in the incomplete and reduced Jurassic succession of the Villány Hills. This fine grained sandy limestone yielded abundant ammonoids and bivalves but only 11 brachiopod specimens. This small assemblage is, however, taxonomically diverse: six taxa have been identified and described in this paper. The identified species show NW-European faunal affinity.

Keywords — Brachiopoda, Bathonian, Villány, Hungary.

VÖRÖS, A. (2004): Bathonian brachiopods from Villány (South Hungary). — *Fragmenta Palaeontologica Hungarica*, **22**: 1–8.

Introduction

Villány is one of the most well-known classical Jurassic localities of Hungary. The quarries on the small hill called Templom-hegy in the northern part of the village Villány (Figure 1), worked around the turn of the 19th and 20th centuries, provided an extremely rich fossil material, primarily ammonoids (TILL 1906, 1910–11, LÓCZY 1915). The exposed sequence starts with Middle Triassic dolomites followed, after a long hiatus, by various Jurassic strata reaching up to the Oxfordian. It was believed that the richly fossiliferous beds all represent the Bathonian and Callovian Stages, until AGER & CALLOMON (1971) recognised that the lower few metres of the Jurassic sequence belong to the Pliensbachian. It turned out that the specimens giving the first record of Bathonian (“Cornbrash”) brachiopods in Villány (LÓCZY 1912, 1915) also came from the Pliensbachian. As a result of new excavations and repeated, bed-by-bed collections in the 1960’s and 70’s, the ammonoid faunas (GÉCZY 1982, 1984, 1998; GÉCZY & GALÁ CZ 1998, 1999), the bivalves (VÖRÖS 1971) and the stratigraphy (VÖRÖS 1972, 1990) of the Villány (Templom-hegy) sequence was revised. The Lower and Middle Jurassic sequence of Villány is very incomplete and reduced in thickness; the Bathonian Stage is restricted to a 8–10 cm thick, local lense of sandy limestone (Figure 2).

The Bathonian sandy limestone forms the lowermost part of the Villány Formation and is informally called the “Altáró Member”. It is a calcarenite with a great amount of small (0.1–2.0 mm) quartz sand and detrital dolomite grains and, despite the reduced thickness of the bed, it contains rather large fossils (ammonoids and bivalves of 10–15 cm diameter or length). It rests unconformably on the smooth or uneven, bioeroded surface of the Pliensbachian limestone (Somsichhegy Formation) and is covered by the next member of the Villány Formation (iron-oidal limestone of Lower Callovian age). The only, continuous occurrence of this thin layer was found in the middle part of the quarry on the Templom-hegy as a lense of a few metres in diameter and was completely exploited in the

course of our collecting works in 1970–71 (VÖRÖS 1972, GÉCZY & GALÁ CZ 1998).

The rich ammonoid fauna (nearly 170 specimens) of this Bathonian layer was described by GÉCZY & GALÁ CZ (1998, 1999), the description of the bivalves (around 30 specimens) was given by VÖRÖS (1971). The present paper is aimed at the description of the accessory, small brachiopod fauna of the layer. Preliminary faunal lists of this brachiopod fauna were published by VÖRÖS (1997, 2001).

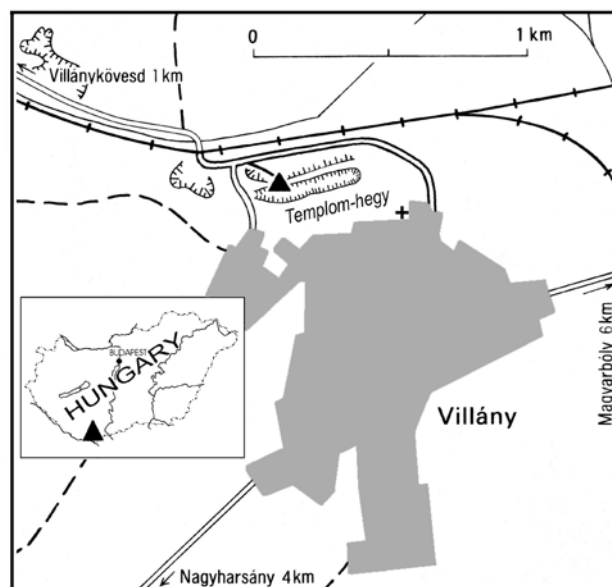


Figure 1 — Location of the fossiliferous Bathonian bed at Villány (black triangle).

The Bathonian sandy limestone layer at Villány yielded 11 specimens of mostly terebratulid brachiopods. One of them belongs to the classical collections of the Geological Institute of Hungary, the others were collected by G. VÍGH in 1962 (on the labels J. FÜLÖP is indicated as collector), and by A. GALÁ CZ, B. GÉCZY and A. VÖRÖS in 1970–1971.

Seven brachiopod specimens could be identified; the faunal list is given below:

- Acanthorhynchia* cf. *panacanthina* (BUCKMAN & WALKER, 1889)
Lacunaerhynchia palma (SZAJNOCHA, 1879)
Dorsoplicathyris cf. *dorsoplicata* (Suess in DESLONGCHAMPS, 1856)
Dorsoplicathyris ? sp.
Cererithyris intermedia (J. SOWERBY, 1812)
Aulacothyris cf. *pala* (BUCH, 1834)

The state of preservation of the brachiopods is rather poor. The sedimentological evaluation of the layer points to redeposition and synsedimentary reworking (VÖRÖS 1972), nevertheless, the majority of the collected brachio-

pods are articulated double valves. This may partly due to collecting bias (overlooking the fragmentary and/or single valves) or to the fact that the articulation in brachiopods is much stronger than in bivalves.

The identified brachiopod species occur frequently in the northwest European region, whereas they are not known from the Mediterranean faunal province. This gives the fauna an unambiguous northwest European faunal character which contrasts to the "Submediterranean" character of the Bathonian brachiopod fauna of the neighbouring Mecsek Mts (Hungary) (VÖRÖS 1995).

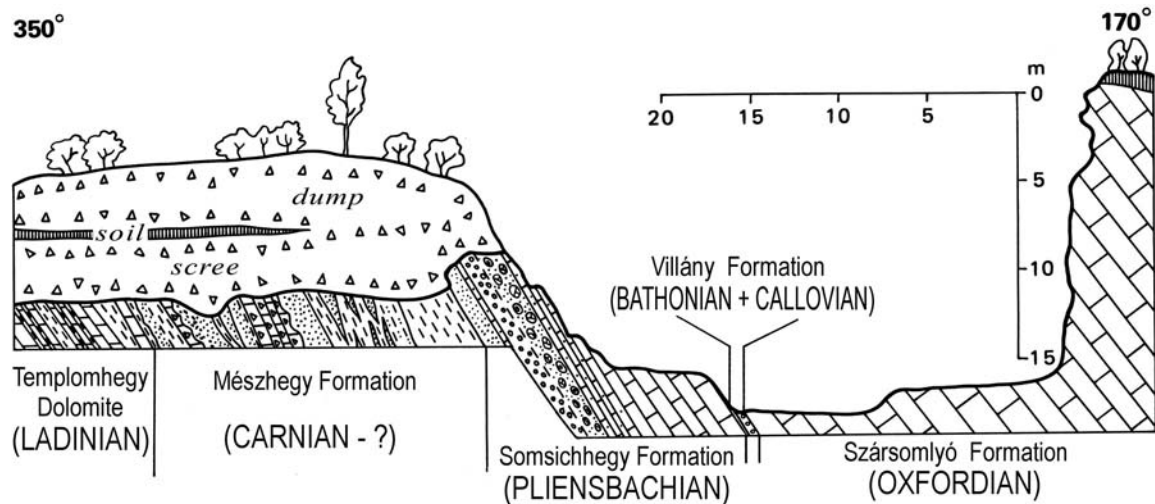


Figure 2 — Geological profile through the Templom-hegy at Villány (South Hungary) — (modified from VÖRÖS 1990).

Systematic descriptions

In the following descriptions the systematics of the revised "Treatise" (SAVAGE et al. 2002, and D. LEE, pers. comm.) is used except for the subordinal hierarchy of the Terebratulidina what is taken from the synthesising work by COOPER (1983).

The material is deposited in the collections (Geological Museum) of the Geological Institute of Hungary (Budapest) under the inventory numbers J.11466–J.11471.

The dimensions (L = length, W = width, T = thickness) are given in millimetres.

Phylum Brachiopoda DUMÉRIIL, 1806

Subphylum Rhynchonelliformea WILLIAMS, CARLSON, BRUNTON, HOLMER, & POPOV, 1996

Class Rhynchonellata WILLIAMS, CARLSON, BRUNTON, HOLMER, & POPOV, 1996

Order Rhynchonellida KUHN, 1949

Superfamily Rhynchonelloidea D'ORBIGNY, 1847

Family Acanthothirididae SCHUCHERT, 1913

Subfamily Acanthorhynchiinae SHI & GRANT, 1993

Genus *Acanthorhynchia* BUCKMAN, 1918

Acanthorhynchia cf. *panacanthina* (BUCKMAN & WALKER, 1889)

(Figure 3: 1)

1918: *A.[canthorhynchia] panacanthina*, BUCKMAN & WALKER sp. — BUCKMAN, p. 69, pl. XIX, figs 23ax, 24e.

1969: *A. (Acanthorhynchia) panacanthina* (BUCKMAN & WALKER) — CHILDS, p. 65, text-fig. 24, pl. 6, figs 5–7.

1978: *Acanthorhynchia* cf. *panacanthina* (BUCKMAN & WALKER, 1889) — TCHOUMATCHENCO, p. 199, pl. I, figs 4a–d.

1993: *Acanthorhynchia panacanthina* (BUCKMAN & WALKER) — PROSSER, p. 149, pl. I, figs 5a–c.

1993: *Acanthorhynchia* cf. *panacanthina* (BUCKMAN & WALKER, 1889) — TCHOUMATCHENCO, p. 162, figs 2/12a–d.

1994: *Acanthorhynchia panacanthina* (BUCKMAN & WALKER) — ALMÉRAS et al., p. 231, pl. 1, fig. 9.

v 1997: *Acanthorhynchia* cf. *panacanthina* (BUCKMAN & WALKER) — VÖRÖS, p. 26, Appendix, fig. 61.

v 2001: *Acanthorhynchia* cf. *panacanthina* (BUCKMAN & WALKER) — VÖRÖS, p. 179, fig. 3/5.

Material — One nearly complete pedicle valve (J.11466).

Dimensions (mm) — L = 19.1; W = 22.9; T = ?

Description — *External characters* — Medium sized *Acanthorhynchia* with transversely elongated, subelliptical outline. The pedicle valve is moderately inflated, regularly convex. The lateral margins are slightly concave and diverge with an apical angle of about 110°. The beak is suberect. Pedicle opening and delthyrium cannot be seen. Beak ridges are absent. The lateral commissures (as seen on the pedicle valve) are nearly straight; the anterior commissure shows a gentle, low uniplication. The surface of the shell is covered with dense, fine radial ribs. The equally spaced, rounded, dichotomosing ribs attain a number of 90 near the anterior margin. The outer layer of the shell is not preserved, therefore actual spines are not

seen; the possible presence of growth lamellae can be inferred from fine irregularities in the direction of the ribs.

Internal characters — Unknown.

Remarks — This is the type species of the genus *Acanthorhynchia* BUCKMAN, 1918. *A. panacanthina* (sometimes incorrectly cited as “*panacanathina*”) differs from other Middle Jurassic species of the genus by its relatively large size and fine ornamentation. *A. rogans* (SUESS in SZAJNOCHA, 1879) has similarly fine ornament but its pedicle valve is almost flat, with distinctly straight beak.

Distribution — Upper Bajocian and Lower Bathonian in Western Europe and North Africa, Lower and Middle Bathonian in Bulgaria. The Villány specimen came from the Upper Bathonian (Retrocostatum and Discus Zones).

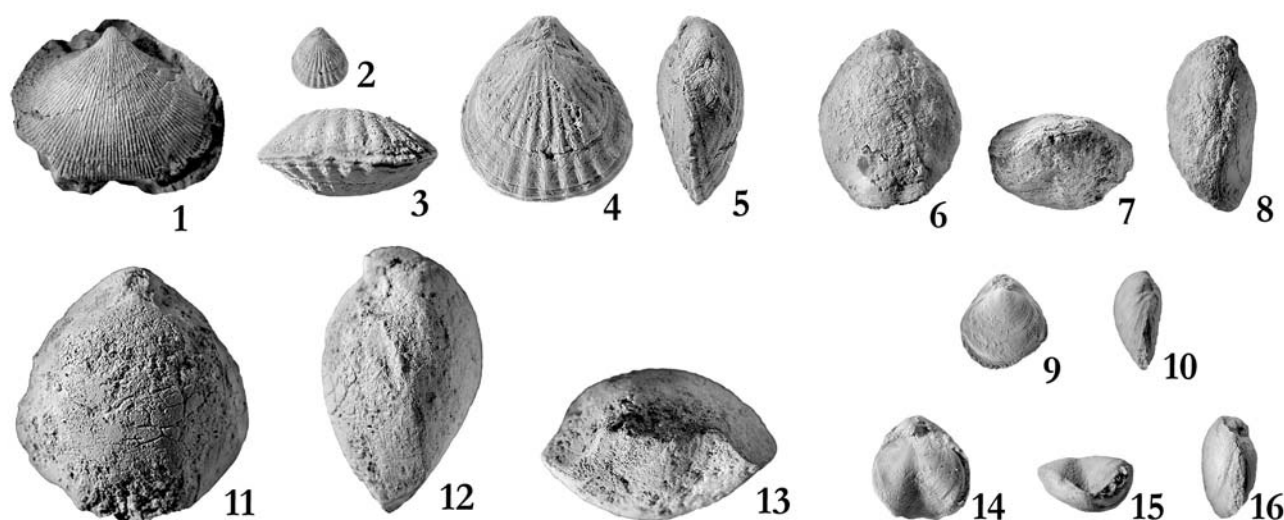


Figure 3 — Brachiopods from the Bathonian bed at Villány. — Figures are in natural size, unless otherwise indicated.

1 *Acanthorhynchia* cf. *panacanthina* (BUCKMAN & WALKER, 1889); (J.11466) — ventral view.

2–5 *Lacunaerhynchia palma* (SZAJNOCHA, 1879); (J.11467) — 2: dorsal view — 3: × 3; anterior view — 4: × 3; dorsal view — 5: × 3; lateral view.

6–8 *Dorsoplicatbyris dorsoplicata* (SUESS in DESLONGCHAMPS, 1856); (J.11468) — 6: dorsal view — 7: anterior view — 8: lateral view.

9–10 *Dorsoplicatbyris* ? sp.; (J.11469) — 9: dorsal view — 10: lateral view.

11–13 *Cererithyris intermedia* (J. SOWERBY, 1812); (J.11470) — 11: dorsal view — 12: lateral view — 13: anterior view.

14–16 *Aulacothyrus* cf. *pala* (BUCH, 1834); (J.11471) — 14: dorsal view — 15: anterior view — 16: lateral view.

Superfamily Hemithiridoidea RZHONSNITSKAIA, 1956

Family Cyclothyrididae MAKRIDIN, 1955

Subfamily Cyclothyridinae MAKRIDIN, 1955

Genus *Lacunaerhynchia* ALMÉRAS, 1966

Lacunaerhynchia palma (SZAJNOCHA, 1879)

(Figure 3: 2–5)

* 1879: *Rhynchonella palma* n. sp. — SZAJNOCHA, p. 233, pl. VII, figs 15a–d, 16a–d.

? 1879: *Rhynchonella subtilis* n. sp. — SZAJNOCHA, p. 234, pl. VII, figs 17a–d.

1978: *Formosarhynchia palma* (SZAJNOCHA, 1879) — WIŚNIEWSKA–ŻELICHOWSKA, p. 86, text–fig. 12, pl. V, figs 9–10.

1993: *Lacunaerhynchia palma* (SZAJNOCHA, 1879), new combination — SHI & GRANT, p. 89, pl. 8, figs 2, 6.

Material — One rather well-preserved, small (probably immature) double valve (J.11467).

Dimensions (mm) — L = 7.7; W = 7.2; T = 3.5

Description — *External characters* — This is a small-sized *Lacunaerhynchia* with oval to subtrigonal outline. The lateral margins are straight and diverge with an apical angle

of around 80°. They pass gradually to the arched anterior margin. The valves are equally convex; the maximum convexity is attained near the middle of the length. The beak is suberect. The pedicle opening is damaged; the delthyrium is triangular but mostly covered by matrix. The beak ridges are blunt; no planareas developed. The lateral commissures are nearly straight; the anterior commissure is rectimarginate. The surface of the shell is ornamented with low, rounded ribs which are wider than the interspaces, and a few, irregularly spaced growth lamellae. The number of the ribs increases by intercalation and reaches 24 at the anterior margin. Fine capillation can be seen near the anterior margin of the shell.

Internal characters — These were not studied in detail due to the lack of suitable material. Through the thin and transparent shell, the traces of the widely diverging dental plates are seen.

Remarks — This rhynchonellid is distinctive in its small size and flat valves; it has definite similarity to SZAJ-

NOCHA's (l. c.) species "*Rh.*" *palma* and *subtilis*, which stand very close in their morphology and may be taken as synonymous. From them, "*Rh.*" *palma* has the page priority therefore this name is used here. Other, similar species were described from Sicily by DI STEFANO (1884) as "*Rh.*" *szajnochae* and *tambusciana* but their brachial valves are more inflated.

"*Rhynchonella*" *palma* was placed into the genus *Formosarhynchia* SEIFERT, 1963 by WIŚNIEWSKA–ZELICHOWSKA (1978) (accepted also by SULSER 1993) which genus, in the revised "Treatise" (SAVAGE et al. 2002) was included to *Cymatorhynchia* BUCKMAN, 1918. A more convincing generic attribution of "*Rh.*" *palma* to the externally more similar *Lacunaerhynchia* ALMÉRAS, 1966 was suggested by SHI & GRANT (1993), whose opinion is accepted here.

Distribution — Upper Bathonian of England and France, Upper Bajocian and Bathonian of Poland. The Villány specimen came from the Upper Bathonian (Retrocostatum and Discus Zones).

Order Terebratulida WAAGEN, 1883
Suborder Terebratulidina WAAGEN, 1883
Superfamily Terebratuloidea GRAY, 1840
Family Tchegeththyrididae TCHORSZHEVSKY, 1972
Subfamily Lissajousithyridinae COOPER, 1983
Genus *Dorsoplicathyris* ALMÉRAS, 1971

Dorsoplicathyris dorsoplicata (SUESS in DESLONGCHAMPS, 1856)

(Figure 3: 6–8)

- 1859: *Terebratula dorsoplicata* (1) (SUESS, M. S.). — DESLONGCHAMPS, p. 17 (partim), pl. I, figs 5–7, 9–11, 13–14, 16–18 (non figs 8, 12, 15).
1879: *Terebratula dorsoplicata* SUESS MS. — SZAJNOCHA, p. 202 (partim), pl. I, figs 4–6 (non figs 7–9).
1917: *Terebratula dorsoplicata* SUESS, 1855 (in litteris) — COUFFON, p. 109 (partim), pl. III, fig. 7 (non fig. 8).
? 1932: *Terebratula dorsoplicata* SUESS (in litteris). — CORROY, p. 216, pl. XXIX, figs 4–6.
1947: *Terebratula dorsoplicata* SUESS. — CHOFFAT, p. 24 (partim), pl. X, fig. 1 (non figs 2–4).
non 1968: *Ptyctothyris dorsoplicata dorsoplicata* (SUESS), 1855 — PROSOROVSKAYA, p. 45, text-fig. 22, pl. IV, fig. 1.
1971: *Dorsoplicathyris dorsoplicata* (SUESS, 1855, M. S. — DESLONGCHAMPS, 1856). — ALMÉRAS, p. 441, pl. 84, figs 10–11; pls. 87A–B, 88–108; pl. 109, figs 1–10, 12–13; pl. 110, figs 1–9; pls. 111–131A–B.
? 1973: *Ptyctothyris dorsoplicata dorsoplicata* [sic] (SUESS, 1855) — KAMYSCHAN & BABANOVA, p. 123, pl. XV, figs 1, 2.
1983: *Dorsoplicathyris dorsoplicata* (SUESS) — COOPER, p. 75, pl. 33, figs 1–14, pl. 72, figs 1–2.
1984: *Dorsoplicathyris dorsoplicata* (DESLONGCHAMPS, 1856) — TCHORSZHEVSKY & RADULOVIC, p. 141, fig. 9, pl. I, figs 25–28.
1996: *Dorsoplicathyris dorsoplicata* (DESLONGCHAMPS, 1856) — ALMÉRAS et al., p. 612, fig. 5, pl. 77, figs 7, 8.
v 1997: *Dorsoplicathyris* cf. *dorsoplicata* (DESLONGCHAMPS) — VÖRÖS, p. 26.
1998: *Dorsoplicathyris dorsoplicata* (DESLONGCHAMPS, 1856) — ALMÉRAS & ELMI, p. 49, pl. IV, fig. 3.
? 1999: *Dorsoplicathyris dorsoplicata* (SUESS in EUDES–DESLONGCHAMPS 1856) — SULSER, p. 166, 1 (unnumbered) fig.
v 2001: *Dorsoplicathyris dorsoplicata* (DESLONGCHAMPS, 1856) — VÖRÖS, p. 179.

Material — One nearly complete (J.11468) and another, fragmentary double valve.

Dimensions (mm) — L = 20.5; W = 16.0; T = 10.3

Description — *External characters* — Medium sized specimens for the genus, with elongate oval outline. The lateral margins are gently convex and pass gradually into the rounded, narrow trapezoidal anterior margin. The pedicle valve is strongly and uniformly convex, with the maximum convexity at the middle of its length. The brachial valve is rather flat and shows gentle maximum of convexity near the posterior part (at about the one-fourth of its length). The beak is suberect to erect. The pedicle opening and the delthyrium is damaged and poorly preserved. The beak ridges are blunt. The lateral commissures are almost straight and pass gradually into the ante-

rior commissure. The anterior commissure shows a narrow uniplication with a tendency to incipient biplication. The surface of the shell is smooth, except for a few, irregularly spaced, fine growth lamellae near the anterior margin.

Internal characters — These were not studied in detail due to the lack of suitable material.

Remarks — This species, as the type species of his new genus *Dorsoplicathyris*, was profusely illustrated by ALMÉRAS (1971). He produced a detailed morphological analysis and a comprehensive taxonomical revision of *D. dorsoplicata*, further elaborated in a recent publication (ALMÉRAS & ELMI 1998). There is nothing to add to the above concept of the species on the basis of the poor material from Villány, therefore the present author simply accepted ALMÉRAS' opinion in most attributions of the syno-

nymy. The specimen figured by CORROY (l. c.) may correspond to the nearly rectimarginate variants of *D. dorsoplicata* demonstrated by ALMÉRAS (1971) but the latter author did not mention CORROY's item in his revision.

PROSOROVSKAYA's (l. c.) record from Turkmenia was excluded from the synonymy of *D. dorsoplicata* by ALMÉRAS (1971) on the basis of the differing internal features of the specimens.

Distribution — In Western Europe (Portugal, France, Germany) and Asia *D. dorsoplicata* frequently occurs in Lower to Middle Callovian beds but never in the Bathonian. In Poland and in the Eastern Carpathians it was found in the Upper Bathonian to Lower Callovian Balin Oolite, and in undivided Bathonian-Callovian beds. The studied material came from the Upper Bathonian of Villány (Retrocostatum and Discus Zones).

Dorsoplicathyris ? sp.

(Figure 3: 9, 10)

Material — One incomplete, small (probably immature) double valve (J.11469).

Dimensions (mm) — L = 11.4; W = 10.4; T = 5.4

Description — *External characters* — Small terebratulid with elongate oval to trigonal (drop-shaped) outline. The lateral margins are very slightly convex, almost straight and pass gradually to the semicircular anterior margin. The pedicle valve is uniformly convex, with the maximum convexity at the middle of its length. The brachial valve is nearly flat and shows a gentle maximum of convexity near the posterior part (at about the one-fifth of its length). The beak is broken off. The beak ridges are blunt. The lateral commissures are nearly straight, gently arched

ventrally; the anterior commissure is rectimarginate. The surface of the shell is smooth, except for the growth lines that are irregular in strength and spacing.

Internal characters — These were not studied in detail due to the lack of suitable material.

Remarks — This small terebratulid specimen could not be identified at the species level. It is clearly different from any other Bathonian specimens of the Villány fauna but seems to stand the closest to the representatives of the genus *Dorsoplicathyris* ALMÉRAS, 1971.

Distribution — The specimen came from the Upper Bathonian (Retrocostatum and Discus Zones) of Villány.

Subfamily Cererithyridinae COOPER, 1983

Genus *Cererithyris* BUCKMAN, 1918

Cererithyris intermedia (J. SOWERBY, 1812)

(Figure 3: 11–13)

- * 1812: *Terebratula intermedia*. — J. SOWERBY, p. 48, pl. 15, fig. 8.
- 1851: *Terebratula intermedia*, SOW. — DAVIDSON, p. 52, pl. XI, figs 1–5.
- 1859: *Terebratula intermedia* (var. *Fleischeri*), OPPEL. — DESLONGCHAMPS, p. 28 (partim), pl. IV, fig. 3 (non fig. 4).
- non 1859: *Terebratula intermedia* (SOW.). — DESLONGCHAMPS, p. 18, pl. I, figs 1–3.
- 1879: *Terebratula Fleischeri* OPPEL. — SZAJNOCHA, p. 206 (partim), pl. III, figs 2, 3, 5, 6 (? fig. 4).
- non 1882: *Terebratula intermedia*. SOW. 1812. — HAAS & PETRI, p. 260, pl. XI, figs 7, 8, 11, 13, 14, 17, pl. XII, fig. 3.
- non 1917: *Terebratula intermedia* SOWERBY, 1812. — COUFFON, p. 107, pl. III, fig. 6.
- 1918: *C. [Cererithyris] intermedia*, J. SOWERBY sp. — BUCKMAN, p. 109, pl. XX, fig. 28a.
- 1932: *Cererithyris intermedia* (J. SOWERBY) — DOUGLAS & ARKELL, p. 168, pl. XI, fig. 2.
- ? 1934: *Terebratula ex gr. intermedia* SOW. — MOISSEEV, p. 101, pl. XIX, figs 46–49.
- 1947: *Terebratula intermedia* SOW. — CHOFFAT, p. 24 (partim), pl. IX, figs 22a–d (non figs 21, 23, 24).
- 1969: *Cererithyris intermedia* (J. SOWERBY) — FISCHER, p. 71 (partim), pl. VIII, figs 3a–c, 5 (non figs 4, 6).
- 1971: *Cererithyris intermedia* (J. SOWERBY, 1812) — ALMÉRAS, p. 410, pl. 84, figs 4b–d.
- 1978: *Cererithyris intermedia* (J. SOWERBY, 1812) — TCHOUMATCHENCO, p. 217, text-figs 14, 15, pl. II, figs 4a–c.
- 1983: *Cererithyris intermedia* (J. SOWERBY) — COOPER, p. 64, pl. 41, figs 1–7, pl. 45, figs 26–33, pl. 70, figs 9, 10, 23, 24, pl. 76, fig. 2.
- 1988: *Cererithyris intermedia* (J. SOWERBY, 1812) — ALMÉRAS & MOULAN, p. 169, pl. 12, fig. 4.
- 1993: *Cererithyris intermedia* (SOWERBY, 1812) — TCHOUMATCHENCO, p. 165, figs 2/26a–c.
- v 1997: *Cererithyris* cf. *fleischeri* (OPPEL) — VÖRÖS, p. 26, Appendix, fig. 62.
- v 2001: *Cererithyris* cf. *fleischeri* (OPPEL) — VÖRÖS, p. 179, fig. 3/6.

Material — One almost complete double valve (J.11470).

Dimensions (mm) — L = 29.8; W = 27.0; T = 18.1

Description — *External characters* — This is a large sized *Cererithyris* with subrounded to subpentagonal outline. The lateral margins are slightly convex and pass gradually into the rounded, wide trapezoidal anterior margin. The pedicle valve is strongly and uniformly convex, with the maximum convexity at the posterior one-third of its length. The brachial valve shows similar convexity with a maximum near the middle of its length. The beak is slightly incurved.

The pedicle opening seems to be large but, together with the delthyrium, it is damaged and poorly preserved. The beak ridges are blunt. The lateral commissures are almost straight and turn abruptly to the biplicate anterior commissure. Partly due to the poor preservation, no ornamentation can be seen on the surface of the shell.

Internal characters — These were not studied in detail due to the lack of suitable material.

Remarks — *C. fleischeri* (OPPEL, 1857) stands very close to *C. intermedia*. In fact, they are hardly different in their

morphology except that the biplication develops a little later during the ontogeny in *C. intermedia*. The single distinction seems to be connected to the mean size, regularly smaller in *C. fleischeri* than in *C. intermedia* (~23 mm, and ~30 mm in length, respectively: ROLLET 1964, ALMÉRAS 1971). This method of differentiating the two species was applied apparently by TCHOUMATCHENCO (1978, 1993) and definitely in the revision made by ALMÉRAS (1971) whose opinion was accepted by the present author in most attributions of the synonymy. The length of the Villány specimen (29.8 mm) falls just in the mean of *C. intermedia*. It is somewhat dange-

rous to identify a species by its size in itself, but by the above principle, the Villány specimen belongs rather to *C. intermedia* than to *C. fleischeri* where it was placed previously (VÖRÖS 1997, 2001). The specimen figured by MOISSEEV (l. c.) is too much expanded laterally, moreover it came from Middle Callovian beds, therefore its attribution to *C. intermedia* is doubtful.

Distribution — Widespread in Middle Bathonian to Lower Callovian of Europe. The Villány specimen came from the Upper Bathonian (Retrocostatum and Discus Zones).

Suborder Terebratellidina MUIR–WOOD, 1955

Superfamily Zeillerioidea ALLAN, 1940

Family Zeilleriidae ALLAN, 1940

Subfamily Zeilleriinae ALLAN, 1940

Genus *Aulacothyris* DOUVILLÉ, 1879

Aulacothyris cf. *pala* (BUCH, 1834)

(Figure 3: 14–16)

1834: *Terebratula Pala*. — BUCH, p. 114, pl. III, figs 44a–c.

1879: *Waldheimia pala* BUCH. — SZAJNOCHA, p. 217, pl. V, figs 9a–b.

? 1917: *Aulacothyris pala* de BUCH, 1834 sp. — COUFFON, p. 105, pl. III, figs 4, 5.

? 1932: *Aulacothyris pala* v. BUCH sp. — CORROY, p. 220, pl. XXIX, figs 11, 12.

1934: *Aulacothyris pala* D'ORB. [sic] — MOISSEEV, p. 154, pl. XIX, figs 64–67.

1968: *Aulacothyris pala* (BUCH), 1833 — PROSOROVSKAYA, p. 128, text-fig. 90, pl. XX, fig. 2.

? 1973: *Aulacothyris pala* (BUCH, 1833) — KAMYSCHAN & BABANOVA, p. 144, fig. 38, pl. XVIII, figs 1–4.

1974: *Aulacothyris pala* — DELANCE, p. 351, fig. 17–1, pl. 7, fig. 6a.

v 1997: *Aulacothyris* cf. *pala* (BUCH) — VÖRÖS, p. 26, Appendix, fig. 63.

1999: *Aulacothyris pala* (BUCH, 1833) — SULSER, p. 215, 1 (unnumbered) fig.

v 2001: *Aulacothyris* cf. *pala* (BUCH) — VÖRÖS, p. 179, fig. 3/7.

Material — One partly crushed double valve (J.11471).

Dimensions (mm): — L = ~11; W = ~10; T = 6

Description — *External characters* — This is a small-sized *Aulacothyris* with subrounded triangular to subpentagonal outline. The lateral margins are convex and form a continuous curve with the somewhat trapezoidal anterior margin. The pedicle valve is crushed at the umbonal part but seems to be strongly convex and carinate (with a low median fold). The brachial valve is less convex and bears a median sulcus which is tiny but marked in the posterior part and becomes deep and wide anteriorly. The beak is crushed but seems to be slightly incurved. The beak ridges are exaggerated by the squeezing of the specimen. The lateral commissure is arched dorsally and passes gradually to the sulcate anterior commissure. The sulcus is deep and tends to be V-shaped. The surface of the shell is smooth, except for some growth lines that are irregular in strength and spacing.

Internal characters — These were not studied in detail due to the lack of suitable material. Through the thin and transparent shell, a very distinct and long median septum can be seen, reaching the anterior margin of the dorsal valve.

Remarks — The original figure by BUCH (l. c.) is not really informative. QUENSTEDT (1868–71, pl. 47, figs 71–83) gave a splendid illustration of *A. pala* setting wide limits to this variable species. One end-member is an elongate form, in some cases with almost quadrate outline, the other is

smaller, stout, rounded trigonal to subpentagonal in outline. Common morphological character is the rather deep and very long dorsal sulcus which forms a narrow, sharp furrow posteriorly. More recently, DELANCE (1974) demonstrated that *A. pala* has a very long sulcus and median septum and figured (l. c., pl. 7, fig. 6a) a very typical, stout specimen with sulcus starting from the very posterior part. The Villány specimen clearly shows the long median septum and stands close to the stout, subpentagonal variant of *A. pala*.

SZAJNOCHA's (l. c.) specimens represent the elongated variant of *A. pala* and they show nicely the long depression of the species; the same holds true for the figures of MOISSEEV (l. c.), PROSOROVSKAYA (l. c.) and SULSER (l. c.).

The specimens figured by COUFFON (l. c.) and CORROY (l. c.) are doubtfully included in this synonymy because they do not show the characteristic, long sulcus of *A. pala*. KAMYSCHAN & BABANOVA (l. c.) portrayed a widely divergent population under the name of *A. pala*. Most of them do not show the characteristic sulcus or too much trigonal in outline. One of their specimens (pl. XVIII, figs 4a–b) may correspond to the elongated variant of the species in question.

Distribution — *A. pala* is generally cited from the Lower Callovian of Europe; the record from Poland (Balin) may represent a slightly lower stratigraphic position. The Villány specimen came from the Upper Bathonian (Retrocostatum and Discus Zones).

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