

Comparative study of the Pliensbachian and Toarcian ostracods in the Gerecse and Mecsek Mountains, Hungary

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(with 11 plates)

This is a study on the Pliensbachian and Toarcian ostracods of the Gerecse and Mecsek Mountains (Transdanubian Central Range and southern Transdanubia, respectively), in comparison with the results of similar investigations made recently in the Bakony Mts. The ostracod fauna of the Gerecse is very similar to that in the Bakony, here Healdidae and Cytheridae disappear in the Toarcian also, due to the deepening of the basin. In the Mecsek the deep sublittoral Healdidae assemblage is replaced by an assemblage dominated by the shallow sublittoral Cytheridae above the Tenuicostatum Zone, indicating the water-depth changing to shallower.

Introduction

The Jurassic sequences in Transdanubian Hungary occur in two main areas: in the Transdanubian Central Range with the Bakony and the Gerecse Mountains, and in southern Transdanubia in the Mecsek Mountains and the Villány Hills. The Bakony and Gerecse Mts, having been belonged to the southern, Gondwana margin of the Jurassic Western Tethys display pelagic sequences, with ammonitico rosso limestones and marls as dominant lithofacies in the Early Jurassic. The studied Transdanubian localities are stratigraphically well known by recent works

based on ammonite studies in the Bakony and the Gerecse Mts (GALÁ CZ et al. 2008, GÉ CZY 1988, GÉ CZY & SZENTE 2006), and stratigraphic data on some Mecsek Mts sequences are also available (DULAI et al. 1992). Here the formations (spotted marls, siltstones, black shales, etc.) and the ammonite faunas indicate the European, i.e. northern margin of the Jurassic Western Tethys. A comparison of ostracod faunas from these two areas may shed light on some further differences in paleobiogeography and events in microfaunal development.

Presentation of faunas

Investigation of ostracods from the Tűzkövesárok (Bakonycsérnye, Bakony Mts) found profound change in the faunal composition at the Pliensbachian/Toarcian boundary (MONOSTORI in GALÁ CZ et al. 2008). Here Healdidae, which take a prominent part up to the Pliensbachian, disappear from the fauna.

In typical West European sequences this change occurs above the Tenuicostatum Zone. The Tenuicostatum Zone is represented in the Tűzkövesárok, but its fauna is free of Healdidae. In my opinion this difference is the result of a significant deepening of the sea around the Pliensbachian/Toarcian boundary. The deep-water environment was probably unsuitable for Healdidae. In the Tűzkövesárok section there is no trace of anoxia (the

facies are red limestones and marls), so the oxygen content could not be the cause of the change. (In West European areas anoxia is evidenced in some levels).

Other studied sections in Transdanubia were in the Gerecse Mts, where rich and well-preserved faunas occur. In the Tölgyhát quarry the ostracods occur in limestones and in the higher part of the section in marls. The following forms were identified:

Acratia sp.
Polycope aff. *pelta* FISCHER, 1961
Polycope sp. div.
Ogmoconcha amalthei (QUENSTEDT, 1858)
O. contractula TRIEBEL, 1941
O. sp. div.

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Ogmoconchella cf. *aequalis* HERRIG, 1969
Ledachia bispinosa GRÜNDEL, 1964
Cardobairdia liassica DREXLER, 1958
C. sp.
Lobobairdia rotundata MONOSTORI, 1996
Ptychobairdia szentgalensis MONOSTORI, 1996
P. sp.
Bairdia cf. *carinata* DREXLER, 1958
B. donzei HERRIG, 1979
B. cf. *herrigi* MONOSTORI, 1996
B. ex gr. *hilda* JONES, 1884
B. cf. *inflata* KNITTER, 1983
B. ex gr. *jurassica* JONES, 1884
B. longoarcuata MONOSTORI, 1996
B. michelseni HERRIG, 1979
B. michelseni arcuatocaudata MONOSTORI, 1996
B. thuringica HERRIG, 1979
Isobythocypris? postera HERRIG, 1979
I. sp.
Paracypris redcarensis (BLAKE, 1876)
P. sp. div.
 Ostracoda gen. et sp. indet.

The Pliensbachian ostracod fauna of the Pisznice quarry is less diverse. The following species are present:

Polycope sp. div.
Ogmoconcha amalthei (QUENSTEDT, 1858)
O. sp. div.
Cardobairdia harskutensis MONOSTORI, 1996
C. sp.
Lobobairdia rotundata MONOSTORI, 1996
Ptychobairdia szentgalensis MONOSTORI, 1996
P. sp. div.
Bairdia cf. *clio* BIZON, 1960
B. aff. *herrigi* MONOSTORI, 1996
B. michelseni arcuatocauda MONOSTORI, 1996
B. cf. *inflata* KNITTER, 1983
B. ohmerti KNITTER, 1984
B. trigonosymmetrica MONOSTORI, 1996
B. sp. div.
Isobythocypris? postera HERRIG, 1979
I. cf. *elongata* (BLAKE in TATE & BLAKE, 1876)
Paracypris redcarensis (BLAKE, 1876)

The ostracod faunas of the Toarcian beds yielded specimens in profusion, often they are more abundant than in the Pliensbachian, but the species number is low.

The Toarcian beds of the Tölgyhát quarry yielded the following species:

Bythocypris faba KNITTER, 1983
B. sp.

The Toarcian of the Pisznice quarry gave some more species:

Polycope sp.
Cardobairdia cf. *inflata* MONOSTORI, 1995
Bairdia donzei HERRIG, 1979
B. aff. *hilda* JONES, 1884
B. michelseni HERRIG, 1979
Bythocypris faba KNITTER, 1983
B. aff. *postera* HERRIG, 1979
B. sp. div.
Paracypris sp.
 Ostracoda gen. et sp. indet.

The Pliensbachian ostracod fauna of the Gerecse Mountains is very similar to that in the Bakony, and the Toarcian fauna indicates a change comparable to that recognized in the Bakony Mts: the Healdidae are missing, and also typical is the lack of Cytheridae.

The disappearance of the Healdidae is an extinction, but the lack of Cytheridae can be probably due to the radical subsidence of the basin. Recent Cytheridae are dominant in sublittoral environments, and they have even characteristic shallow bathyal forms, too.

In the Tölgyhát quarry there is a mangiferous black clay at base of the Toarcian, without any faunal elements. The underlying Pliensbachian limestone beds are characterised by the Healdidae, while the overlying Toarcian marl has a taxonomically poor, but abundant ostracod fauna, without Healdidae.

The third area of Lower Jurassic in Hungary is the Mecsek Mountains, where the Pliensbachian and Toarcian beds gave rich ostracod faunas. The following Pliensbachian ostracods were determined in the faunas from the Kasadó and the Réka valley:

Ogmoconcha amalthei (QUENSTEDT, 1858)
Ogmoconchella aequalis HERRIG, 1969
O. sp. div.
Pseudohealdia acuticauda MONOSTORI, 1996
P. septearia GRÜNDEL, 1964
Cardobairdia liassica (DREXLER, 1858)
Ptychobairdia lordi MONOSTORI, 1996
Bairdia donzei HERRIG, 1997
B. guttalae HERRIG, 1979
Bairdia sp. div.
Cytheropteron sp.
Acrocythere? sp.
Bythocypris faba KNITTER, 1983
B. sp.
Paracypris redcarensis (BLAKE in TATE & BLAKE, 1876)
Fabalitypris sp.
Bairdiacypris aff. *postera* HERRIG, 1979
B. sp.
 Ostracoda gen. et sp. indet.

The Toarcian ostracod fauna is richer. The species yielded by the the Cseresnyák and Réka Valley sections are as follows:

Cytherella perennis BLASZYK, 1967
C. toarcensis BIZON, 1959
C. sp.
Cardobairdia aff. *inflata* MONOSTORI, 1995
C. sp.
Bairdia cf. *herrigi* MONOSTORI, 1996
B. aff. michelseni arcuatocauda MONOSTORI, 1996
B. thuringica HERRIG, 1979
Gramanicythere aff. *aubachensis* RIEGRAF, 1984
Acrocythere troestleri RIEGRAF, 1984
A. sp. div.
Cytheropteron sp.
Gramanella? sp.
Kinkelinella (Ectyphocythere) cf. *knitteri* RIEGRAF, 1984
K. (E.) laqueata KLINGER & NEUWEILER, 1959
K. (E.) sp.
K. sermoisensis APOSTOLESCU, 1959

K. sp. div.
Paracypris sp. div.
Isobythocypris sp. div.
Bythocypris? faba KNITTER, 1984
B. sp. div.
 Ostracoda gen. et sp. indet.

This rich and diverse fauna is contained in clays and clayey siltsontes. Just as in Bakonycsérnye, the lowermost Toarcian Tenuicostatum Zone is represented (DULAI et al. 1992), but here in the anoxic clay only ammonites are present, determinable microfauna is missing. The overlying lower and higher Toarcian beds in the Cseresnyák and Réka Valley sections positively show the radical faunal change, i.e. the disappearance of the Healdidae and the dominance of the Cytheridae. These latter appear subordinately in the Upper Pliensbachian beds, but in the Toarcian the turn into dominant.

Comparisons

In the West European region most of the described ostracod faunas are from sublittoral zones of an epicontinental sea. MICHELSEN (1975) determined a Pliensbachian fauna of Denmark with rich representation of Healdidae of which some species (*Ogmoconcha amalthei*, *Ledachia bispinosa*, *Ogmoconchella aequalis*, *Pseudohealdia septenaria*) are known also from Hungary. In the Toarcian the rich representation of Cytheridae is characteristic. This group is represented in Hungary with *Kinkelinella sermoisensis*.

The Pliensbachian and Toarcian ostracods of Great Britain are known by LORD (1974), BATE & COLEMAN (1975), BOOMER (1991, 1992) and BOOMER & WHATLEY (1992). From the Pliensbachian forms *Ogmoconcha contractula*, from the Toarcian ones *Kinkelinella sermoisensis* are known also from Hungary.

The Pliensbachian and Toarcian ostracods of Switzerland were studied by RICHTER (1987). In the Pliensbachian *Ogmoconcha* and *Ogmoconchella* are characteristic and in the Toarcian Cytheridae are abundant, with *Kinkelinella sermoisensis*, a form occurring also in Hungary.

The Pliensbachian and Toarcian ostracods were investigated by KNITTER & OHMERT (1983), RIEGRAF (1985) and HARLOFF & JÄGER (1994) in Germany. Among the forms known to occur in Hungary, *Ogmoconcha amalthei* is present in the Pliensbachian and lowermost Toarcian, and *Kinkelinella sermoisensis* is frequent in the higher Toarcian.

EXTON & GRADSTEIN (1984) and BOOMER et al. (1998) reported on ostracods from Portugal. They mentioned the occurrence of *Ogmoconcha amalthei* in

the Pliensbachian and *Kinkelinella sermoisensis* from the Toarcian – two species known also from Hungary.

In the Toarcian ostracod fauna of Spain (see ARIAS 1991, 1997, ARIAS & COMAS-RENGIFO 1992) species *Kinkelinella sermoisensis*, which is known from Hungary, is frequent. The same is true for the Toarcian ostracod faunas of France known by GALBRUN et al. (1994), and ANDREU et al. (1995).

Ogmoconcha amalthei is reported also from Algeria (BALOGE 1980).

BODEGART (1977) has investigated the distribution of Lower Jurassic ostracods in Western Europe. He found *Ogmoconcha amalthei* as characteristic in the Pliensbachian, just as in Hungary. A further similarity of the Hungarian Pliensbachian faunas is the rich representation of Healdidae, with several species common.

In the Toarcian a radical change occurs with the disappearance of Healdidae at the end of the lowermost Toarcian Tenuicostatum Zone. However in Transdanubian Hungary the Healdidae are characteristically missing in the Tenuicostatum Zone, probably because of sudden deepening of the bottom of a sinking basin. This environmental change also resulted in the lack of Cytheridae in this region, in contrast to the West European communities which remained rich in Cytheridae in the higher Toarcian.

The Toarcian fauna of the Mecsek Mts yielded Cytheridae in profusion, with several species, just as in Western Europe. This can be due to the differences in water depth between the two Hungarian areas. The increase of water depth in Transdanubia is indicated by the change of diverse Pliensbachian communities into impoverished ones in the Toarcian. In the Mecsek Mts the Pliensbachian faunas with rich Healdidae

show similarities with those in the Bakony, possibly because of the deep sublittoral environments. The representation of shallow sublittoral Cytheridae as

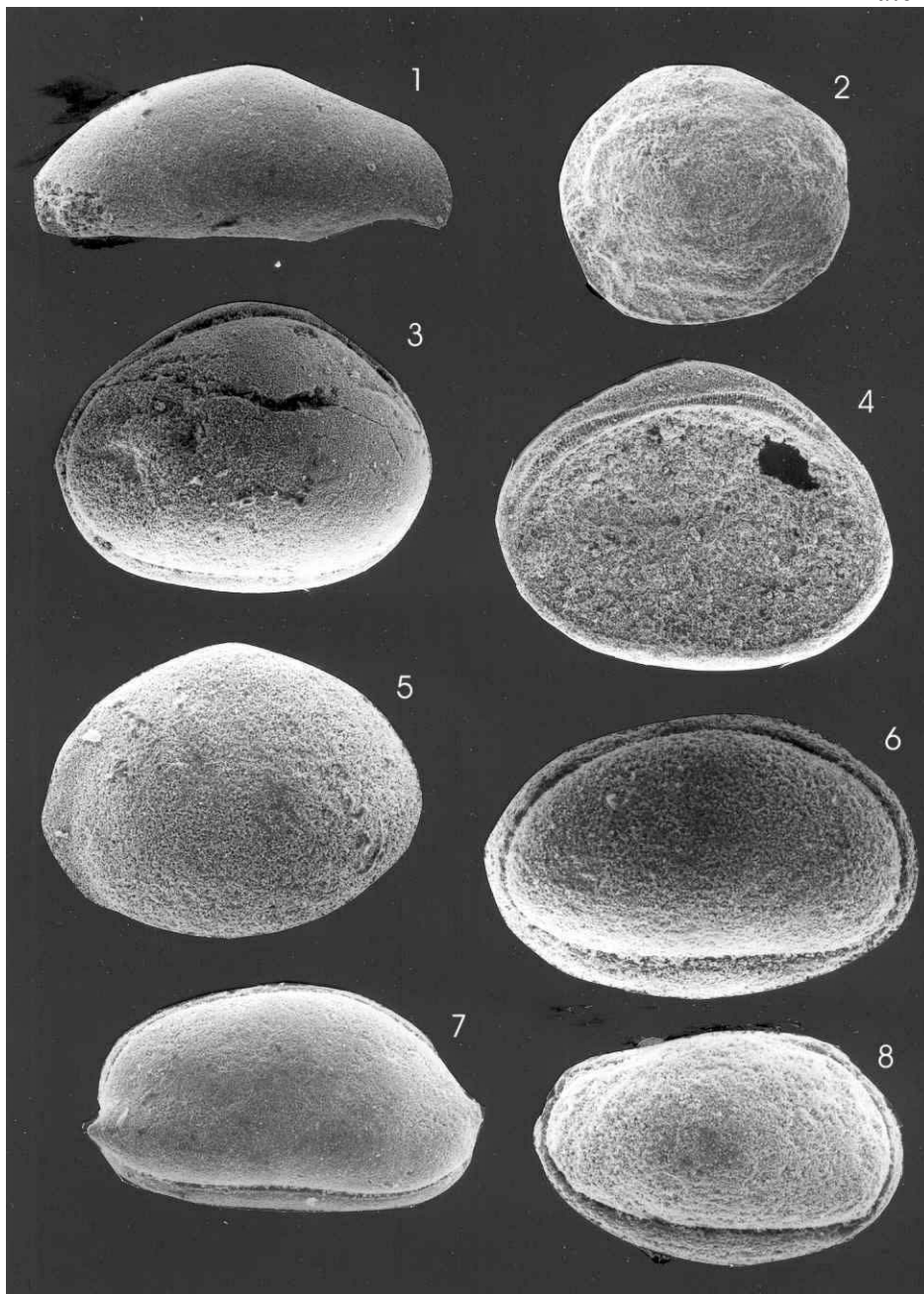
dominant group in the Toarcian suggests a shallowing of water above the Tenuicostatum Zone.

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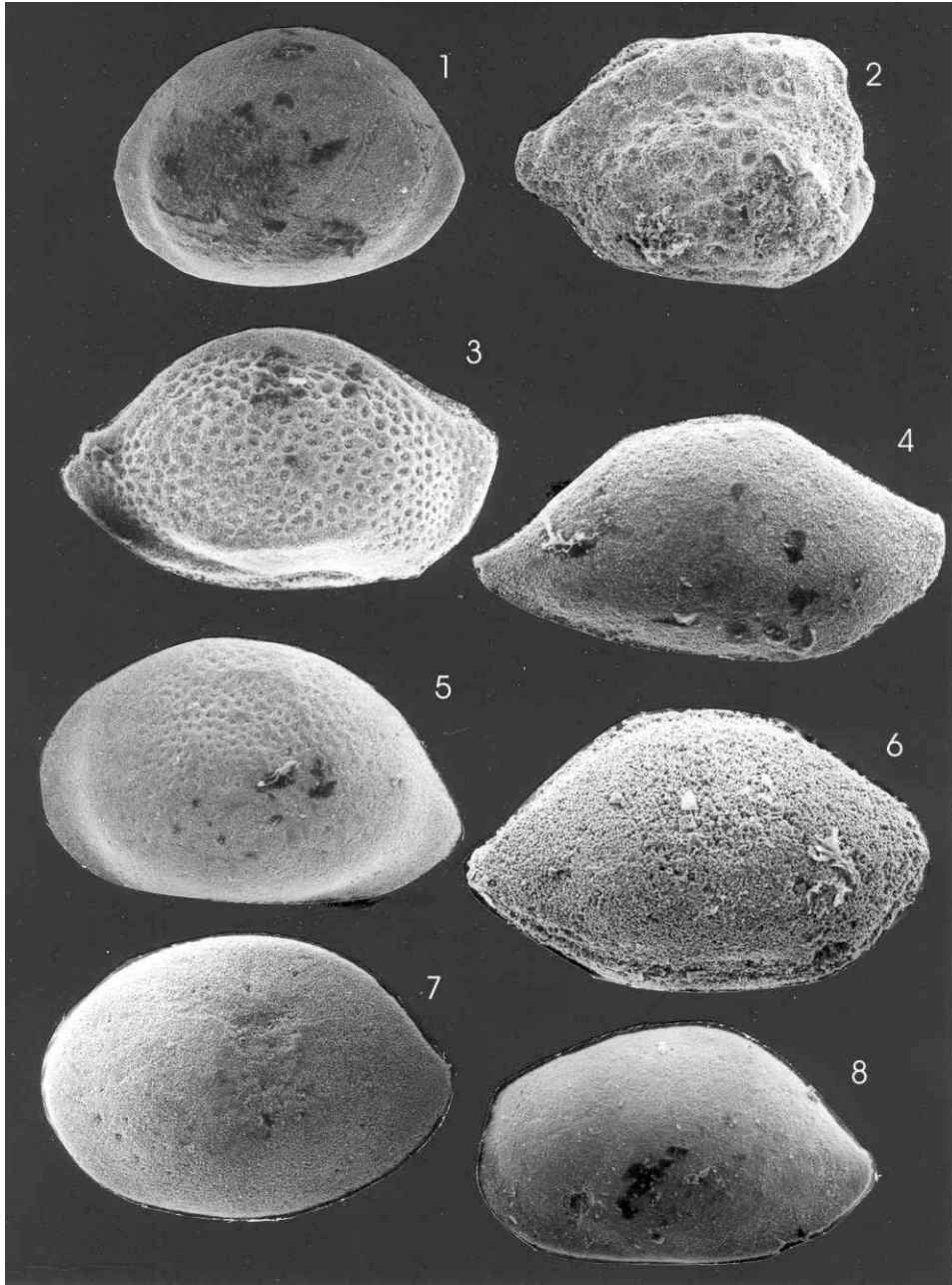
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Plate 1



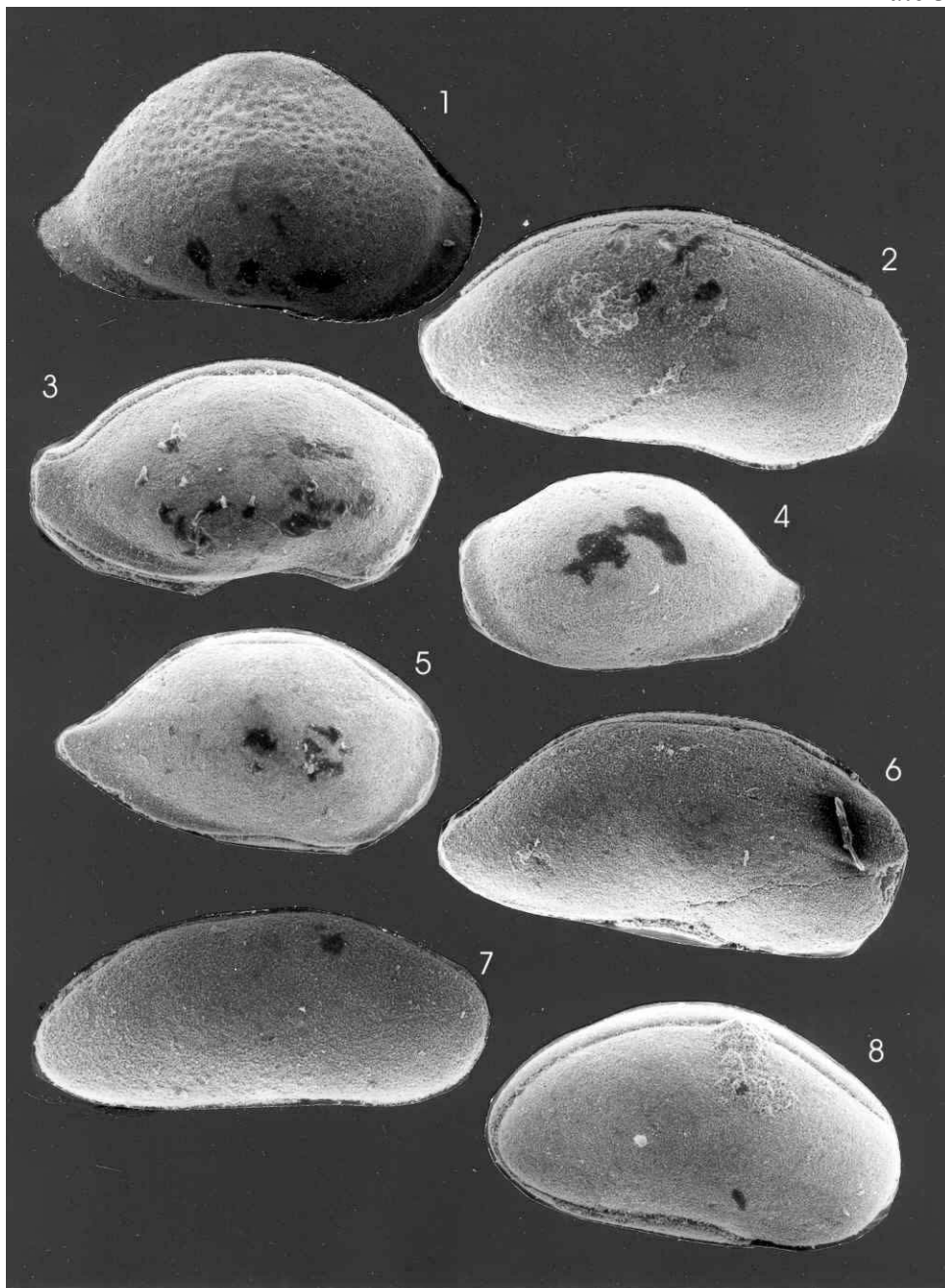
- Fig. 1. *Acratia* sp. Carapace from the right valve. 70x. Tölgyhát quarry. Pliensbachian.
 Fig. 2. *Polycope* aff. *pelta* FISCHER, 1961. Carapace. 90x. Tölgyhát quarry. Pliensbachian.
 Fig. 3. *Ogmoconcha amalthei* (QUENSTEDT, 1858). Carapace from the right valve. 60x. Tölgyhát quarry. Pliensbachian.
 Fig. 4. *Ogmoconcha amalthei* (QUENSTEDT, 1858). Inside of the left valve. 70x. Tölgyhát quarry. Pliensbachian.
 Fig. 5. *Ogmoconcha* aff. *contractula* TRIEBEL, 1941. Left valve. 90x. Tölgyhát quarry. Pliensbachian.
 Fig. 6. *Ogmoconchella* cf. *aequalis* HERRIG, 1969. Carapace from the right valve. 130x. Tölgyhát quarry. Pliensbachian.
 Fig. 7. *Ledachia bispinosa* GRÜNDEL, 1964. Carapace from the right valve. 80x. Tölgyhát quarry. Pliensbachian.
 Fig. 8. *Cardobairdia liassica* (DREXLER, 1958). Carapace from the right valve. 100x. Tölgyhát quarry. Pliensbachian.

Plate 2



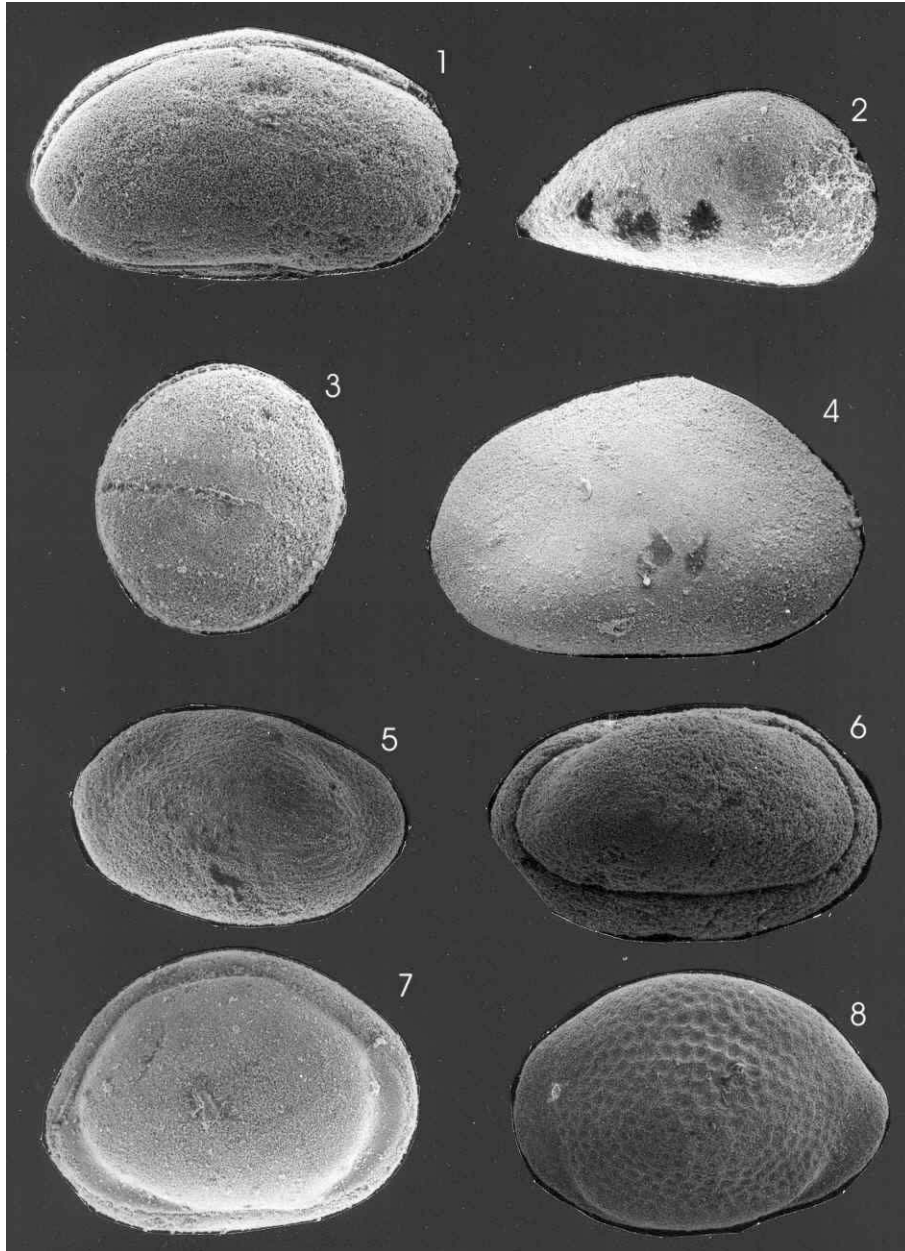
- Fig. 1. *Lobobairdia rotundata* MONOSTORI, 1996. Left valve. 70x. Tölgyhát quarry. Pliensbachian.
- Fig. 2. *Ptychobairdia szentgalensis* MONOSTORI, 1996. Right valve. 70x. Tölgyhát quarry. Pliensbachian.
- Fig. 3. *Ptychobairdia* sp. Right valve. 90x. Tölgyhát quarry. Pliensbachian.
- Fig. 4. *Bairdia* cf. *carinata* DREXLER, 1958. Right valve. 90x. Tölgyhát quarry. Pliensbachian.
- Fig. 5. *Bairdia donzei* HERRIG, 1979. Left valve. 60x. Tölgyhát quarry. Pliensbachian.
- Fig. 6. *Bairdia guttulae* HERRIG, 1979. Carapace from the right valve. 70x. Tölgyhát quarry. Pliensbachian.
- Fig. 7. *Bairdia herrigi* MONOSTORI, 1996. Left valve. 50x. Tölgyhát quarry. Pliensbachian.
- Fig. 8. *Bairdia* ex gr. *hilda* JONES, 1884. Left valve. 60x. Tölgyhát quarry. Pliensbachian.

Plate 3



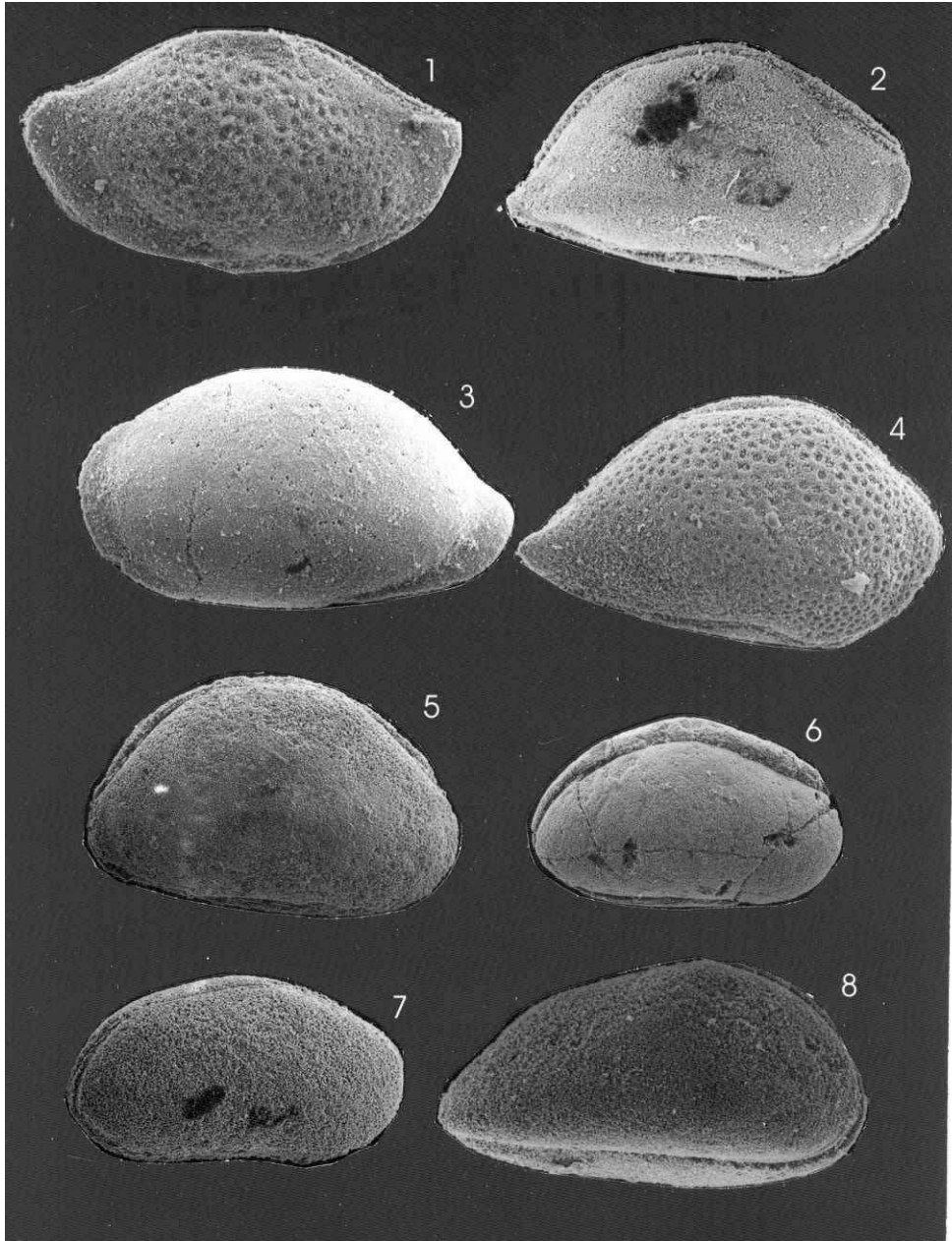
- Fig. 1. *Bairdia* cf. *inflata* KNITTER, 1983. Right valve. 70x. Tölgyhát quarry. Pliensbachian.
- Fig. 2. *Bairdia* cf. *jurassica* JONES, 1884. Carapace from the right valve. 85x. Tölgyhát quarry. Pliensbachian.
- Fig. 3. *Bairdia* *longoarcuata* MONOSTORI, 1996. Carapacae from the right valve. 60x. Tölgyhát quarry. Pliensbachian.
- Fig. 4. *Bairdia* *michelseni arcuatocauda* MONOSTORI, 1996. Left valve. 60x. Tölgyhát quarry. Pliensbachian.
- Fig. 5. *Bairdia* *guttulae* APOSTOLESCU, 1959. Carapace from the right valve. 50x. Tölgyhát quarry. Pliensbachian.
- Fig. 6. *Bairdia* *thuringica* HERRIG, 1979. Carapacae from the right valve. 60x. Tölgyhát quarry. Pliensbachian.
- Fig. 7. *Bythocypris* aff. *symmetrica* MONOSTORI, 1996. Carapace from the right valve. 85x. Tölgyhát quarry. Pliensbachian.
- Fig. 8. *Isobythocypris* *cylindrica* HERRIG, 1979. Carapace from the right valve. 50x. Tölgyhát quarry. Pliensbachian.

Plate 4



- Fig. 1. *Isobrythocypris? postera* HERRIG, 1979. Carapace from the right valve. 70x. Tölgyhát quarry. Pliensbachian.
- Fig. 2. *Paracypris redcarensis* (BLAKE in TATE & BLAKE, 1876). Left valve. 75x. Tölgyhát quarry. Pliensbachian.
- Fig. 3. *Polycypris* sp. Carapace. 70x. Pisznice Roman Quarry. Pliensbachian.
- Fig. 4. *Ogmococoncha amalthei* (QUENSTEDT, 1858). Right valve. 60x. Pisznice. Pliensbachian.
- Fig. 5. *Cardobairdia harskutensis* MONOSTORI, 1996. left valve. 60x. Pisznice. Pliensbachian.
- Fig. 6. *Cardobairdia harskutensis* MONOSTORI, 1996. Carapace from the right valve. 60x. Pisznice. Pliensbachian.
- Fig. 7. *Lobobairdia rotundata* MONOSTORI, 1996. Carapace from the right valve. 45x. Pisznice Roman Quarry. Pliensbachian.
- Fig. 8. *Ptychobairdia szentgalensis* MONOSTORI, 1996. Left valve. 40x. Pisznice. Pliensbachian.

Plate 5



- Fig. 1. *Bairdia* cf. *clio* BIZON, 1960. Carapace from the right valve. 75x. Pisznice. Roman Quarry. Pliensbachian.
- Fig. 2. *Bairdia guttulae* HERRIG, 1979. Carapace from the right valve. 70x. Pisznice. Pliensbachian.
- Fig. 3. *Bairdia michelseni arcuatocauda* MONOSTORI, 1996. Left valve. 70x. Pisznice. Pliensbachian.
- Fig. 4. *Bairdia ohmertii* KNITTER, 1984. Carapace from the right valve. 65x. Pisznice Pliensbachian.
- Fig. 5. *Bairdia trigonosymmetrica* MONOSTORI, 1996. Carapace from the right valve. 60x. Pisznice. Pliensbachian.
- Fig. 6. *Isobythocypris* cf. *elongata* (BLAKE, 1876). Carapace from the right valve. 40x. Pisznice. Pliensbachian.
- Fig. 7. *Isobythocypris postera* HERRIG, 1979. Carapace from the right valve. 75x. Pisznice. Pliensbachian.
- Fig. 8. *Paracypris redcarensis* BLAKE in TATE & BLAKE, 1876. Carapace from the right valve. 90x. Pisznice Roman quarry. Pliensbachian.

Plate 6

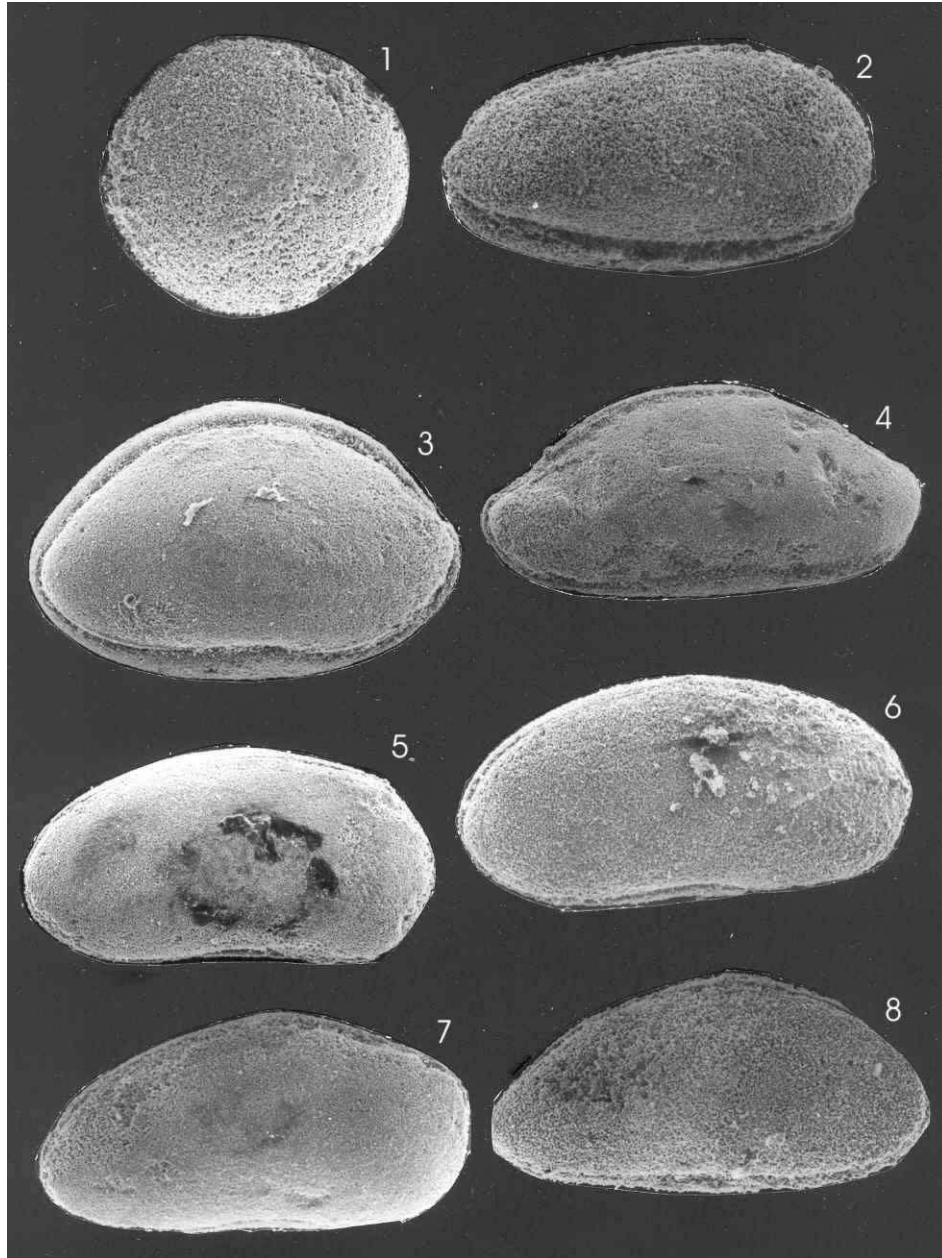


Fig. 1. *Polycope* sp. Carapace. 110x. Pisznice. Toarcian.

Fig. 2. *Cardobairdia* cf. *inflata* MONOSTORI, 1995. Carapace from the right valve. 95x. Pisznice Roman Quarry. Toarcian.

Fig. 3. *Bairdia donzei* HERRIG, 1979. Carapace from the right valve. 60x. Pisznice Roman Quarry. Toarcian.

Fig. 4. *Bairdia michelseni arcuatocauda* MONOSTORI, 1996. Carapace from the right valve. 50x. Pisznice. Roman Quarry. Toarcian.

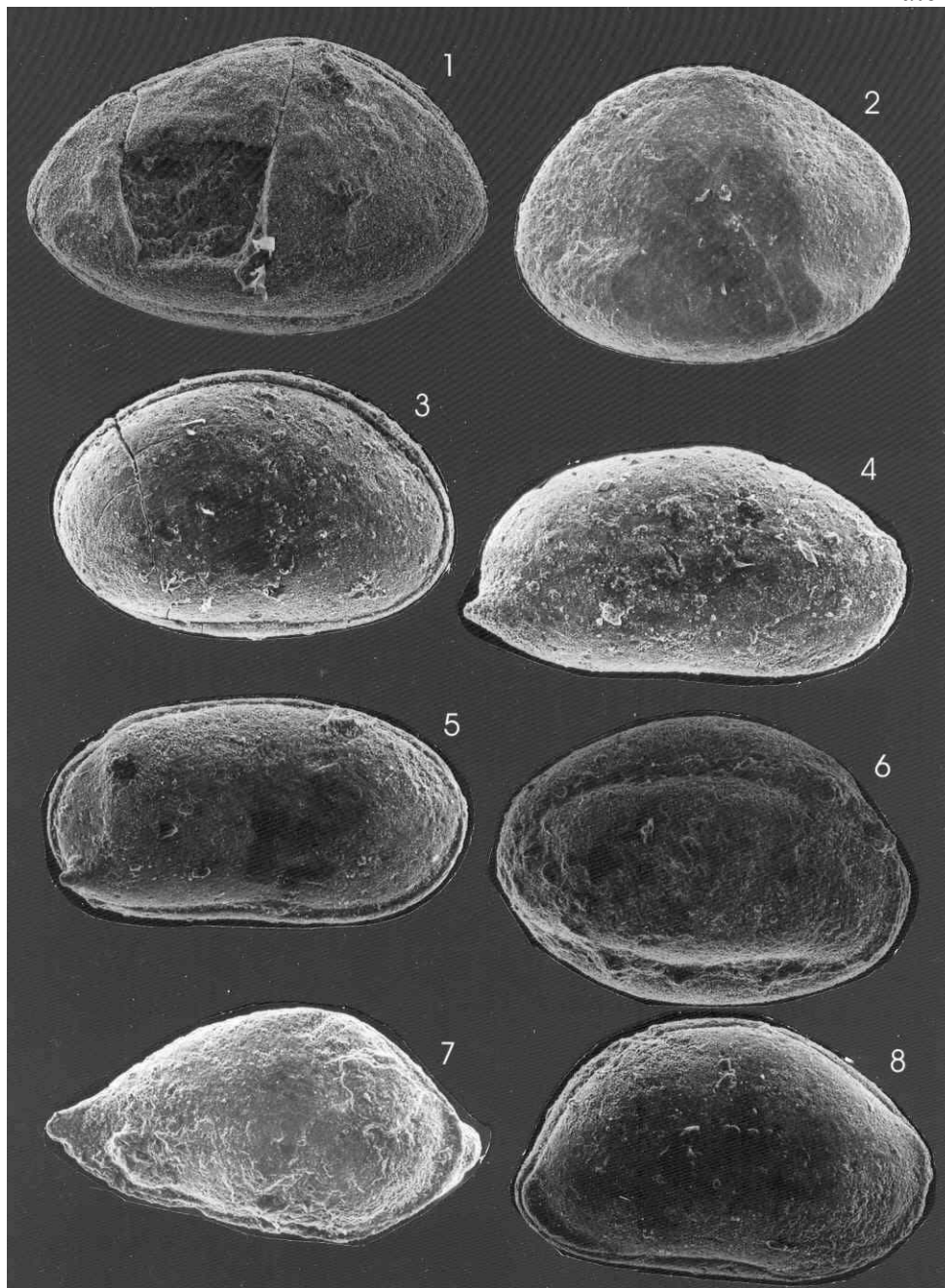
Fig. 5. *Bythocypris faba* KNITTER, 1983. Carapace from the right valve. 65x. Pisznice Roman Quarry. Toarcian.

Fig. 6. *Bythocypris faba* KNITTER, 1983. Carapace from the right valve. 90x. Tölgyhát quarry. Toarcian.

Fig. 7. *Bythocypris?* aff. *postera* HERRIG, 1979. Carapace from the right valve. 85x. Pisznice Roman quarry. Toarcian.

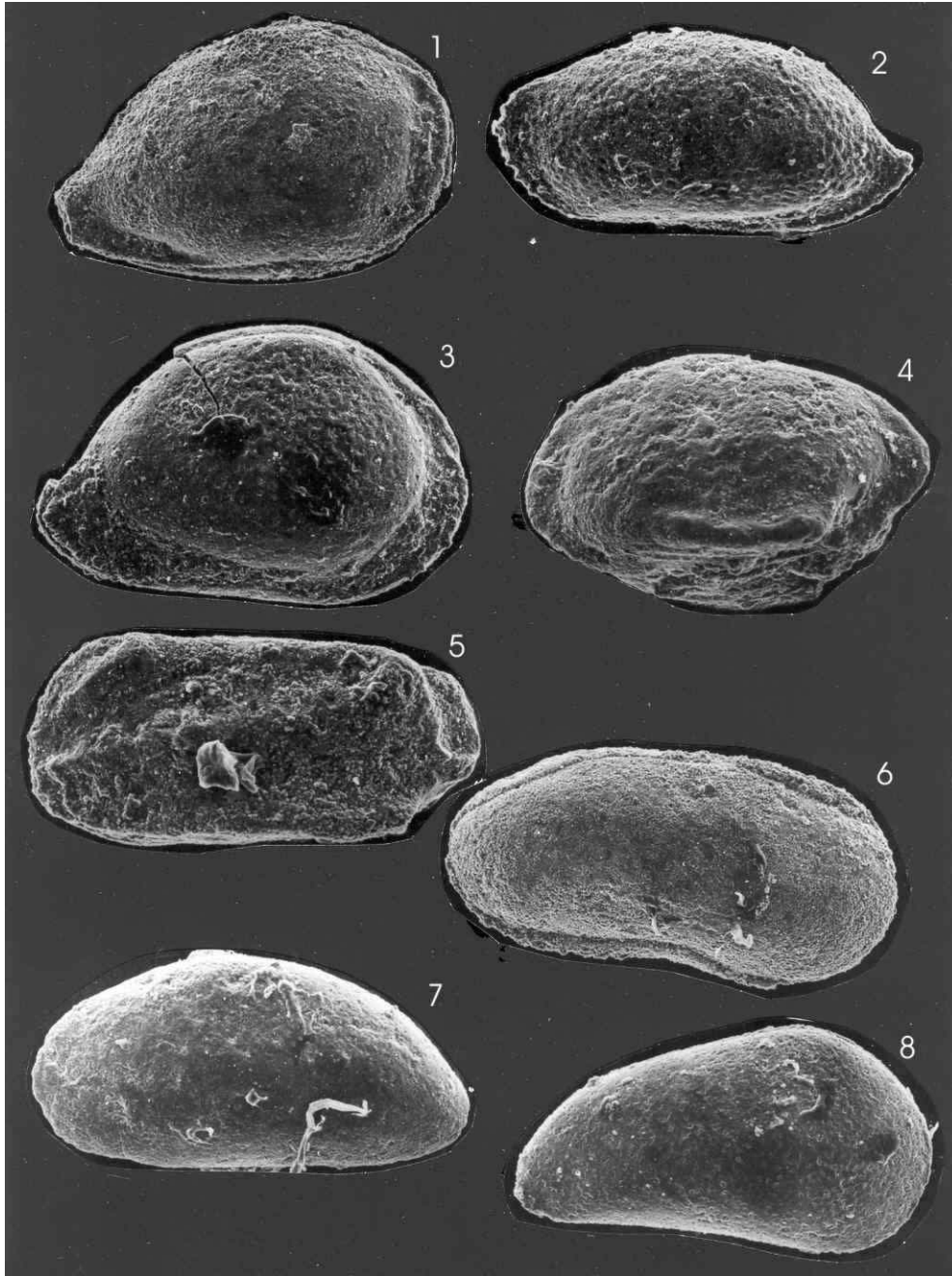
Fig. 8. *Paracypris* sp. Carapace from the right valve. 90x. Pisznice Roman quarry. Toarcian.

Plate 7



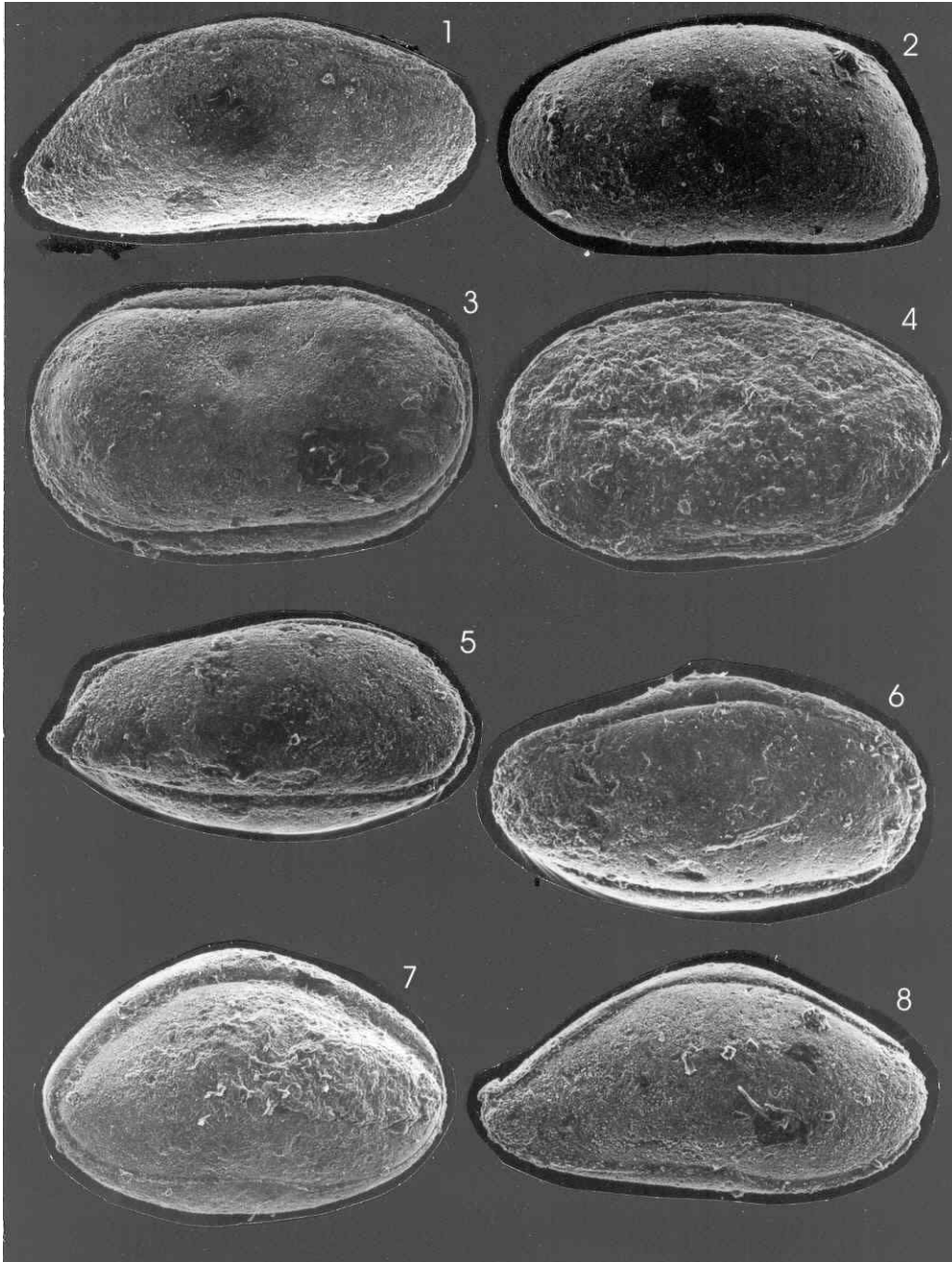
- Fig. 1. *Ogmoconcha amalthei* (QUENSTEDT, 1858). Carapace from the right valve. 75x. Kasado. Creek channel. Pliensbachian.
- Fig. 2. *Ogmoconcha amalthei* (QUENSTEDT, 1858). Left valve. 55x. Réka Valley. Pliensbachian.
- Fig. 3. *Ogmoconchella aequalis* HERRIG, 1969. Carapace from the right valve. 85x. Kasado. Creek channel. Pliensbachian.
- Fig. 4. *Pseudohealdia acuticauda* MONOSTORI, 1996. Right valve. 90x. Kasado. Creek channel. Pliensbachian.
- Fig. 5. *Pseudohealdia septenaria* GRÜNDEL, 1964. Carapace from the right valve. 100x. Kasado. Creek channel. Pliensbachian.
- Fig. 6. *Cardobairdia liassica* (DREXLER, 1958). Carapace from the right valve. 100x. Réka Valley. Pliensbachian.
- Fig. 7. *Ptychobairdia lordi* MONOSTORI, 1996. Right valve. 70x. Réka Valley. Pliensbachian.
- Fig. 8. *Bairdia donzei* HERRIG, 1979. Carapace from the right valve. 80x. Kasado. Creek channel. Pliensbachian.

Plate 8



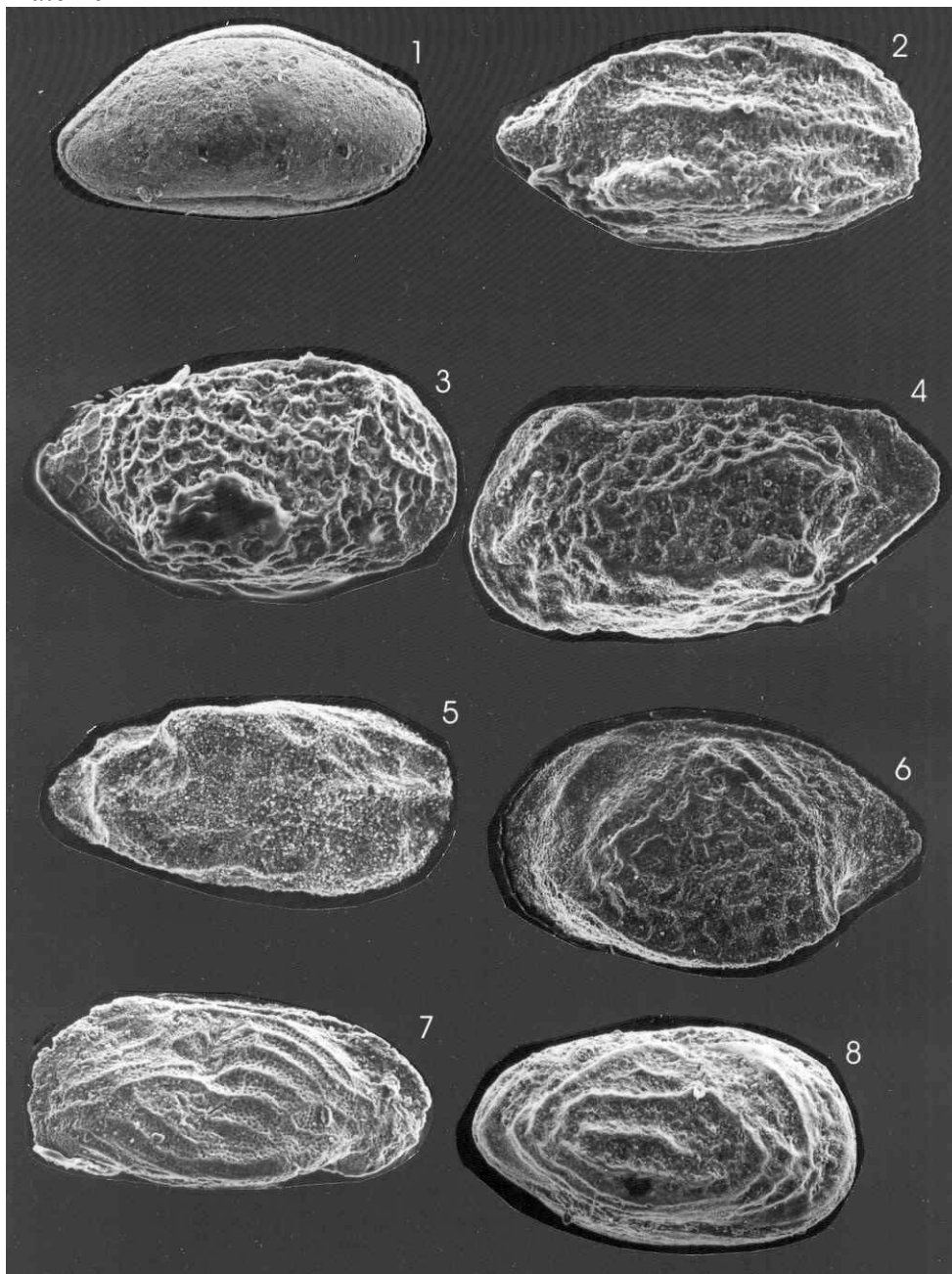
- Fig. 1. *Bairdia guttulae* HERRIG, 1979. Carapace from the right valve. 80x. Kasado. Creek channel. Pliensbachian.
- Fig. 2. *Bairdia* aff. *michelseni* HERRIG, 1979. Left valve. 90x. Kasado. Creek channel. Pliensbachian.
- Fig. 3. *Bairdia guttulae* HERRIG, 1979. Carapace from the right valve. 70x. Kasado. Creek channel. Pliensbachian.
- Fig. 4. *Cytheropteron* sp. Left valve. 135x. Kasado. Creek channel. Pliensbachian.
- Fig. 5. *Acrocythere* sp. Left valve. 80x. Réka Valley. Pliensbachian.
- Fig. 6. *Bythocypris? faba* KNITTER, 1983. Carapace from the right valve. 75x. Kasado. Creek channel. Pliensbachian.
- Fig. 7. *Bythocypris* sp. Left valve. 80x. Réka Valley. Pliensbachian.
- Fig. 8. *Paracypris redcarensis* (BLAKE in TATE & BLAKE, 1876). Right valve. 110x. Réka Valley. Pliensbachian.

Plate 9



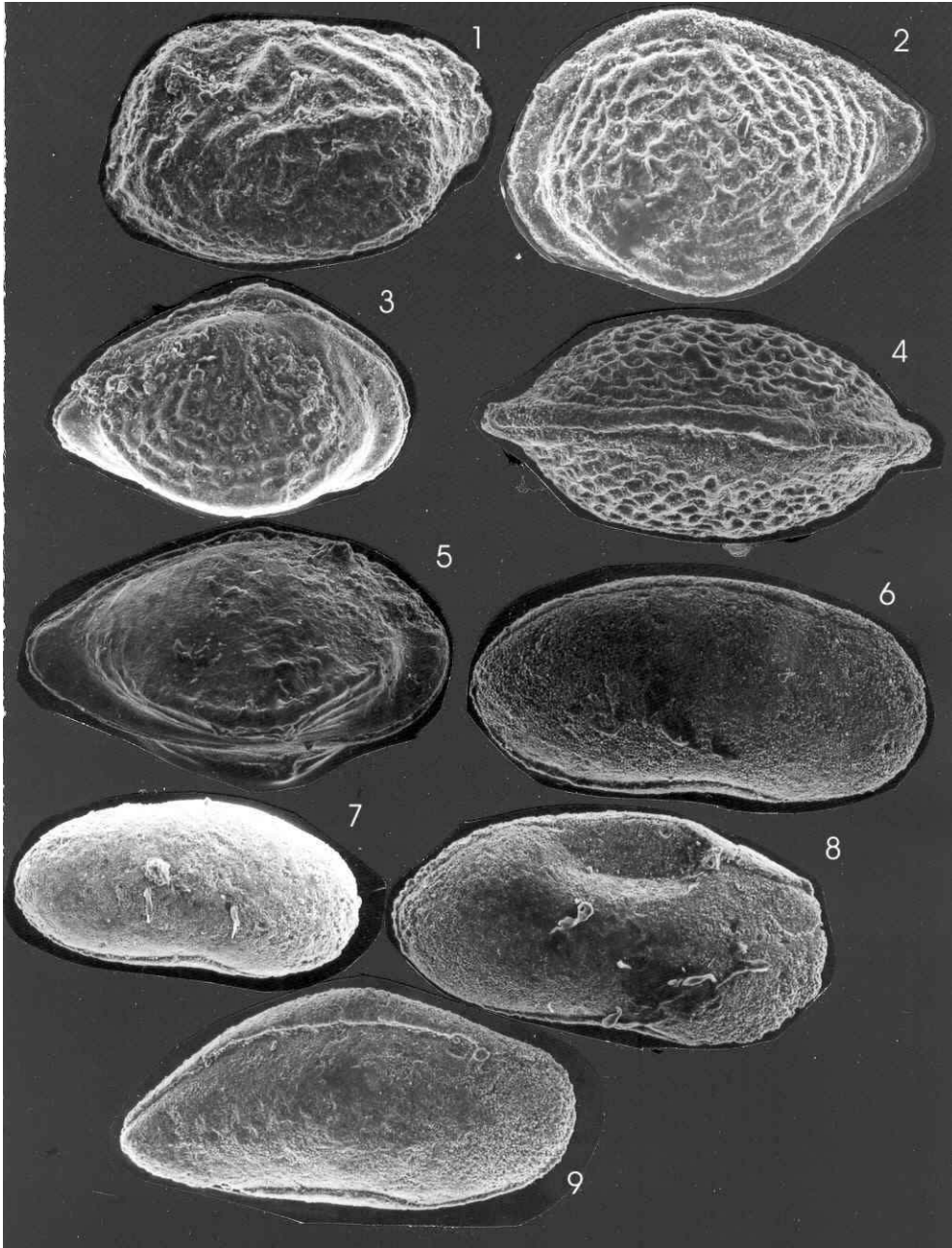
- Fig. 1. *Fabalicypriis* sp. Carapace from the right valve. 70x. Kasado. Creek channel. Pliensbachian.
 Fig. 2. *Bairdiacypriis* aff. *triassica postera* HERRIG, 1979. 65x. Kasado. Creek channel. Pliensbachian.
 Fig. 3. *Cytherella perennis* BLASZYK, 1967. Carapace from the left valve. 70x. Cseresnyák. Toarcian.
 Fig. 4. *Cytherella toarcensis* BIZON, 1959. Carapace from the left valve. 75x. Komló. Toarcian.
 Fig. 5. *Cardobairdia* aff. *inflata* MONOSTORI, 1995. Carapace from the right valve. 110x. Cseresnyák. Toarcian.
 Fig. 6. *Cardobairdia* sp. Carapace from the right valve. 120x. Cseresnyák. Toarcian.
 Fig. 7. *Bairdia* cf. *herrigi* MONOSTORI, 1996. Carapace from the right valve. 60x. Cseresnyák. Toarcian.
 Fig. 8. *Bairdia* aff. *michelseni arcuatocauda* MONOSTORI, 1996. Carapace from the right valve. 70x. Cseresnyák. Toarcian.

Plate 10



- Fig. 1. *Bairdia thuringica* HERRIG, 1979. Carapace from the right valve. 55x. Réka Valley 95.18.
- Fig. 2. *Gramanicythere* aff. *aubachensis* RIEGRAF, 1984. Carapace from the right valve. 160x. Cseresnyák. Toarcian.
- Fig. 3. *Gramanella?* sp. Carapace from the right valve. 160x. Cseresnyák. Toarcian.
- Fig. 4. *Acrocythere troestleri* RIEGRAF, 1984. Carapace from the left valve. 150x. Cseresnyák. Toarcian.
- Fig. 5. *Acrocythere* sp. Carapace from the right valve. 150x. Cseresnyák. Toarcian.
- Fig. 6. *Cytheropteron* sp. Carapace from the left valve. 90x. Cseresnyák. Toarcian.
- Fig. 7. *Kinkelinella* (*Ectyphocythere*) cf. *knitteri* RIEGRAF, 1984. Carapace from the right valve. 130x. Cseresnyák. Toarcian.
- Fig. 8. *Kinkelinella* (*Ectyphocythere*) *laqueata* KLINGLER & NEUWEILER, 1959. Right valve. Réka Valley 95.20.

Plate 11



- Fig. 1. *Kinkelinella (Ectyphocythere)* sp. Left valve. 110x. Cseresnyák. Toarcian.
 Fig. 2. *Kinkelinella sermoisensis* APOSTOLESCU, 1959. Left valve. 110x. Cseresnyák. Toarcian.
 Fig. 3. *Kinkelinella sermoisensis* APOSTOLESCU, 1959. Carapace from the right valve. 70x. Réka Valley 95.20. Toarcian.
 Fig. 4. *Kinkelinella sermoisensis* APOSTOLESCU, 1959. Carapace in dorsal view. 110x. Cseresnyák. Toarcian.
 Fig. 5. *Kinkelinella* sp. Carapace from the right valve. 80x. Cseresnyák. Toarcian.
 Fig. 6. *Bythocypris? faba* KNITTER, 1983. Carapace from the right valve. 95x. Cseresnyák. Toarcian.
 Fig. 7. *Bythocypris? faba* KNITTER, 1983. Carapace from the right valve. 70x. Réka Valley 95.17. Toarcian.
 Fig. 8. *Isobythocypris* sp. Carapace from the right valve. 80x. Cseresnyák. Toarcian.
 Fig. 9. *Paracypris* sp. Carapace from the right valve. 80x. Cseresnyák. Toarcian.

