

Documentation and revision of the index ostracods from the Lower and Middle Jurassic in SW Germany according to BUCK (1954)

MATTHIAS FRANZ, EKATERINA TESAKOVA & ELKE BEHER

Abstract

The ostracods from the unpublished table by BUCK (1954) are revised and figured by SEM photographs. Two new species, *Aphelocythere? asymmetrica* n. sp. and *Palaeocytheridea blaszykina* n. sp., are described. Three manuscript names are formally established here: *Neurocythere cingata* n. sp. BRAUN in FRANZ et al., *N. tricostata* n. sp. BRAUN in FRANZ et al. and *Bairdia pumicosa* n. sp. SHEPPARD in FRANZ et al. The stratigraphical distribution of all species in the BUCK table in SW Germany has been modified according to literature data.

Key words: Ostracods, Lower Jurassic, Middle Jurassic, SW Germany.

Kurzfassung

Die Ostrakoden der unveröffentlichten Tabelle von BUCK (1954) werden revidiert und mittels REM-Aufnahmen abgebildet. Zwei neue Arten, *Aphelocythere? asymmetrica* n. sp. und *Palaeocytheridea blaszykina* n. sp., werden aufgestellt; darüberhinaus werden drei Arten, *Neurocythere cingata* n. sp. BRAUN in FRANZ et al. und *N. tricostata* n. sp. BRAUN in FRANZ et al. sowie *Bairdia pumicosa* n. sp. SHEPPARD in FRANZ et al. hiermit veröffentlicht. Die stratigraphischen Reichweiten der Arten der BUCK-Tabelle in SW-Deutschland wurden anhand von Literaturdaten modifiziert.

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1. Introduction

In 1954 EBERHARD BUCK, the micropalaeontologist of the former Geologisches Landesamt Baden-Württemberg, produced a table "Stratigraphisch wichtige Ostrakoden im Lias u. Dogger von SW-Deutschland" (Fig. 1) with the vast majority of the figured species in open nomenclature (e. g. Ostr. 336). A sketch map of the area investigated in the "BUCK table" is given in Fig. 2. The table remained unpublished in consideration of the projected publication of "Leitfossilien der Mikropaläontologie" (Arbeitskreis Deutscher Mikropaläontologen 1962) as the author himself stated (BUCK et al. 1966: 37). The table was, however,

widely distributed and more than 50 years later it is still an important foundation for micropalaeontological studies in the Jurassic of Southern Germany.

Unfortunately, some of the figured ostracods (drawings by G. LUTZ) cannot be identified exactly. As a consequence, there exist differing opinions concerning their specific classification. In addition, subsequent researchers (FISCHER 1957, BRAUN 1958, DILGER 1963, DREXLER 1958, MALZ 1972 and others) as well as BUCK himself (1962, unpublished written information) stated that some of his index fossils should be assigned to several different species.

We felt that these circumstances demanded the publication of the originals from BUCK (1954) by using scanning

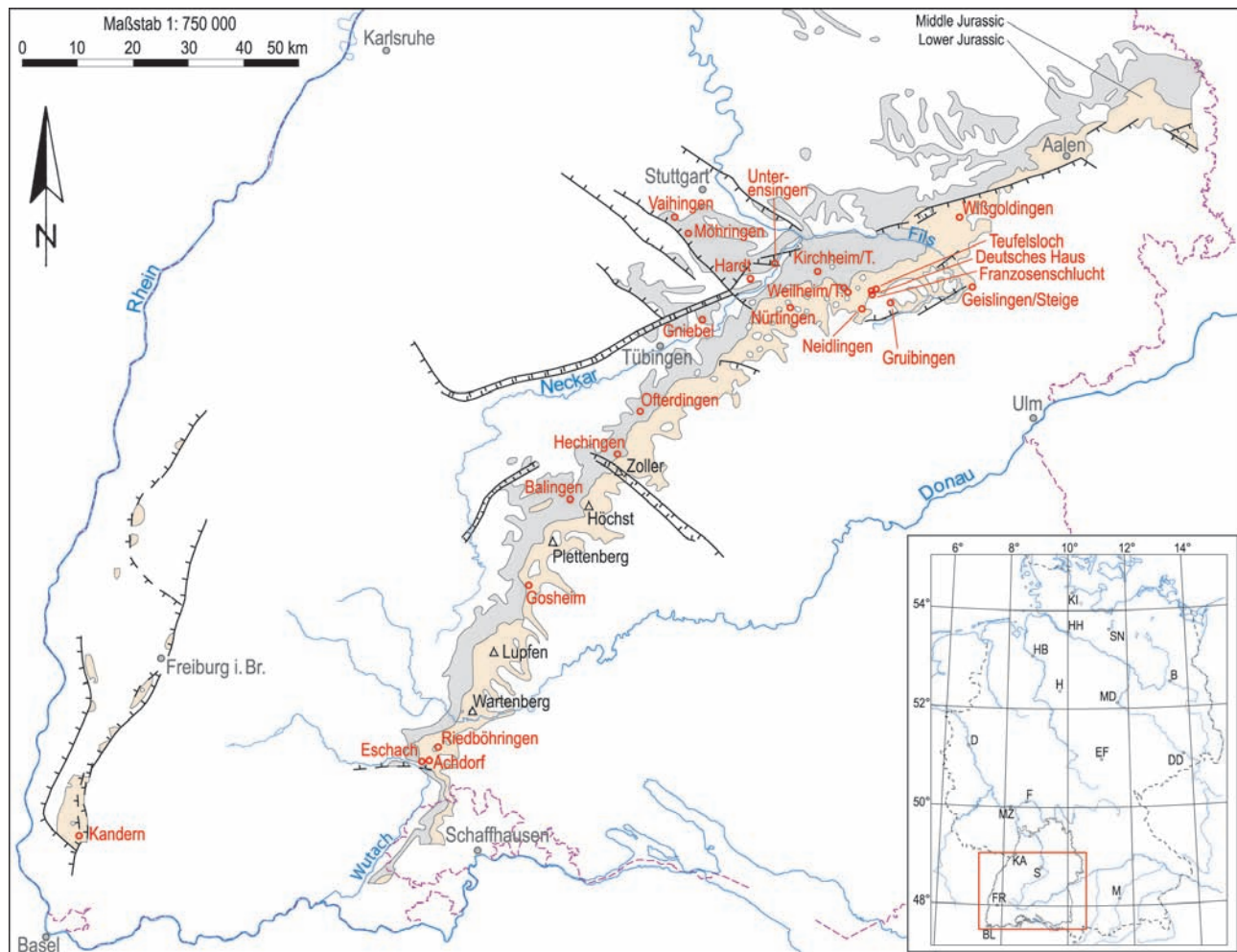


Fig. 2. Sketch map of the Lower and Middle Jurassic in Baden-Württemberg, showing the sections studied by BUCK (locality of the originals in this paper) and sections in Fig. 3. – ○ = village, △ = mountain.

electron microscope images. Our paper includes a revision of all species figured in the “BUCK table”.

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2. Stratigraphy

The “BUCK-table” (1954) comprises the Lower and Middle Jurassic of Baden-Württemberg in accordance with the then generally applied stratigraphical subdivision. With the objective of correlation, BUCK juxtaposed

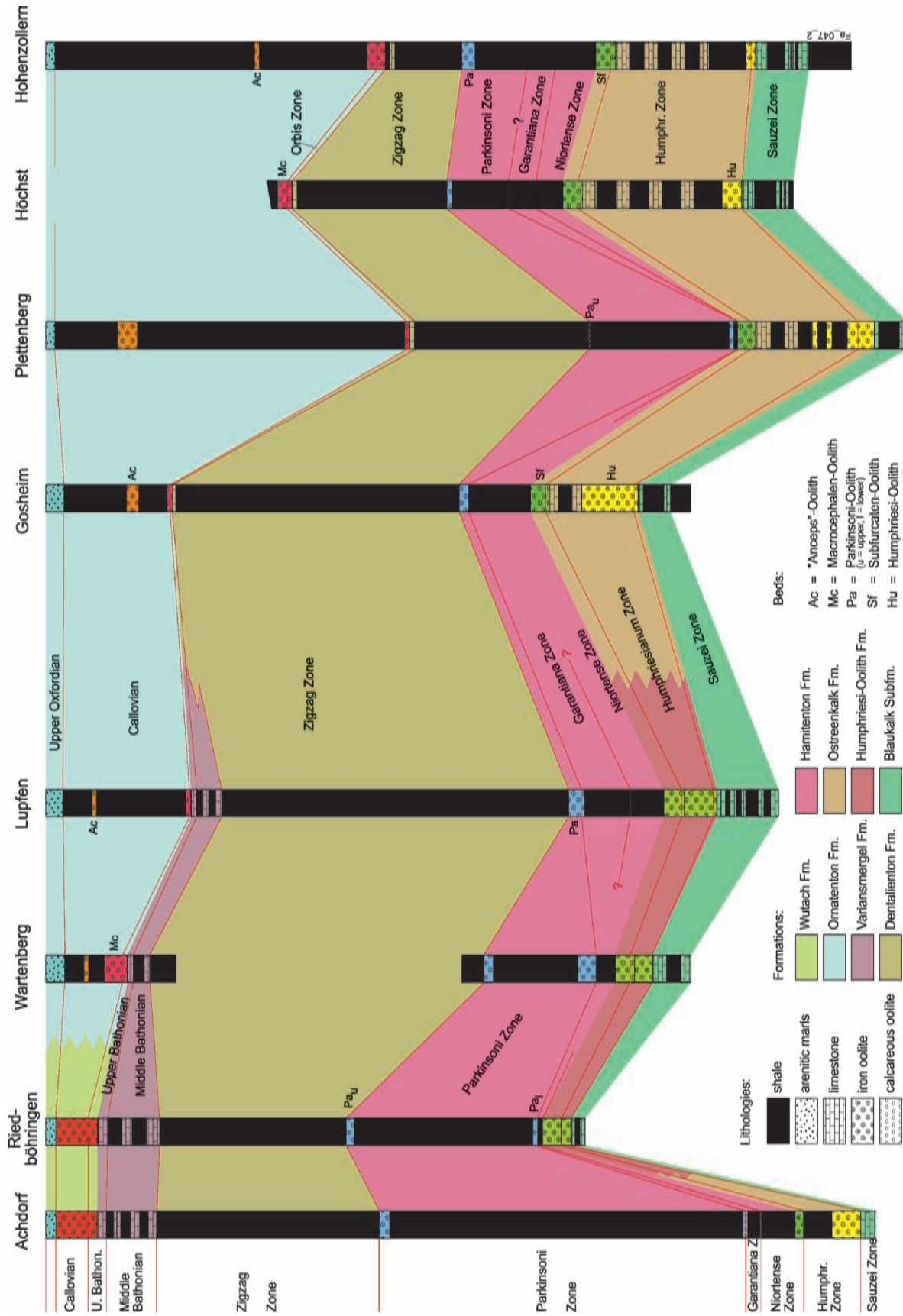


Fig. 3. Cross section in the western Swabian Alb, showing the Lower Bajocian (Sauzei Zone) through the Callovian. Compiled after BERZ (1987), BUCK et al. (1966), CALLOMON et al. (1989), DIETL (2006, 2007, 2008), DIETL et al. (1979, 1983), ETZOLD et al. (1975), FRANZ (1986, 1995), FRANZ & ROHN (2004), KIEFER (1984), OHMERT (1999), and SCHWEIZER (1994).

the Swabian subdivisions with the chronostratigraphical stages used in Northwestern Germany, England and France (Fig. 1). The formerly used Swabian subdivisions can be correlated with the “Symbolschlüssel Geologie” (LGRB 2007) and the “Stratigraphische Tabelle von Deutschland” (Deutsche Stratigraphische Kommission 2002) as well as with the standard chronostratigraphical subdivisions, apart from some corrections in the upper part of the Middle Jurassic (Tab. 1).

Thus, this subdivision was made up of a mixture of lithostratigraphical and biostratigraphical terms. Furthermore it does not reflect regional variations, which are most prominent from the upper Bajocian through the Callovian (Deutsche Stratigraphische Kommission 2002).

The Hamitenton, the Dentalienton and the Variansmergel (Tab. 1) formations have been described recently

by DIETL (2006, 2007, 2008). The Hamitenton Formation s. str. ranges from the Niortense Zone to the Parkinsoni Zone with remarkable regional variance. In the western Swabian Alb the Parkinsoni-Oolith regionally is subdivided by silty clays, up to 40 m thick, which belong to the Parkinsoni Zone (e. g. Lochen area, Wutach area; DIETL 2006). As a consequence, samples from the “Parkinsoni-Sch. (Hamitenton)” sensu BUCK (1954) can be of different ages (Fig. 3).

The Middle Bathonian – apart from a few local ammonite records – is represented by the Variansmergel Formation only in the Wutach/Klettgau region and the Upper Rhine Graben area (DIETL 2008). BUCK (1954) did not indicate Middle Bathonian in his table (Tab. 1); hence, the type horizons of Ostr. 1618 BUCK and Ostr. 1623 BUCK are lying in the Variansmergel Formation of the Wutach region. The

Tab. 1. Synopsis of BUCK’s (1954) stratigraphical scheme and the modern stratigraphic subdivision according to STD 2002 (Deutsche Stratigraphische Kommission 2002) and the Symbolschlüssel Geologie (LGRB 2005).

Lithostratigraphy		Stratigraphic scheme after BUCK (1954)			Chronostratigraphy			
Code	LGRB 2005 STD 2002	Swabia	England/France after KAYSER/BRINKMANN and NW-Germany after HOFFMANN		Stages			
cl	Ornatenton Fm.	Grenz-Glaukonit	α	Malm	Oxfordien	Lower Oxfordian		
		Lamberti-Zone				z	Upper Callovian	
		Anceps-Oolith	Callovien				Middle Callovian	
		Ornaten-Ton					Lower Callovian	
		Macrocephalen-Oolith	ε			Bathonien (Bath)	Upper Bathonian	
Aspidoides-Sch.	Lower Bathonian							
bt	Dentalienton Fm.	Württembergicus/Ferrugin.-Sch.	ε					
bj3	Hamitenton Fm.	Parkinsoni-Oolith					δ	Bajocien
bj2	Ostreenkalk Fm.	Parkinsoni-Sch. (Hamiten-Ton)	δ					
		Subfurch.-Oolith (Strenoc. + Garantiana)					Bajocien	Lower Bajocian
		Blagdeni-Sch.						
bj1	Wedelsandstein Fm.	Humphriesi-Oolith	γ					
		Dorsetensien-Sch.						
		Sauzei-Sch. (Blaukalk)						
al2	Achdorf Fm.	Sonninien-Sch.	β			Upper Aalenian		
		Sowerbyi-Oolith Concava-Sandstein						
al1	Opalinuston Fm.	Ludwigien-Schichten	α			Lower Aalenian		
		Wasserfall-Sch. Opalinus-Ton						
tc2	Jurensismergel Fm.	Torulosis-Zone	z			Upper Toarcian		
		Aalensis-Zone Jurensis-Mergel						
tc1	Posidoniensch. Fm.	Posidonien-Schiefer	ε	oberes unteres	Toarcien	Lower Toarcian		
pb2	Amaltheenton Fm.	Spinatus-Zone	δ	Domé- rien	oberes Charmouthien	Upper Pliensbachian		
		Amaltheen-Ton						
pb1	Numismalismergel Fm.	Davoei-Kalk	γ	Pliens- bachien	unteres Charmouthien	Lower Pliensbachian		
		Numismalis-Mergel						
si2	Obtususton Fm.	Raricostaten	β	Lotha- ringien	oberes Sinémourien	Upper Sinemurian		
		Oxynoten						
		Lacunaten						
		Obtus.-Sch. Beta-Kalkbank						
si1	Arietenkalk Fm.	Arieten-Sch.	α3	unteres Sinémourien		Lower Sinemurian		
he2	Angulatenton Fm.	Schlotheimien-Sch.	α2	Hettangien		Upper Hettangian		
he1	Psilonotenton Fm.	Psilonoten-Sch.	α1			Lower Hettangian		

3.2. Ostracod zonation in the Jurassic of Baden-Württemberg

Since the presentation of the BUCK table in 1954 several authors contributed to the ostracod biostratigraphy of the SW German Jurassic. Dominant and characteristic species were named by DREXLER (1958) for the Hettangian and Lower Sinemurian in SW Germany, by BUCK in BUCK et al. (1966) for the Upper Bajocian and Bathonian of Baden-Württemberg and by HARLOFF (1993) for the Uppermost Sinemurian and the Lower Pliensbachian. KNITTER (1983) was the first to define ostracod zones (I–VIII) in the Upper Toarcian, but he did not name index species. RIEGRAF (1985) gave an ostracod zonation for the Upper Pliensbachian and the Lower Toarcian, BEHER (2004) for the Upper Sinemurian and OHMERT (2004) for the Aalenian through the Lower Bajocian.

In the following we present an ostracod zonation for the Lower and Middle Jurassic stages (except the Callovian), resulting from compilation of data from the above mentioned publications and comparison with the BUCK table. Tabs. 4 and 5 show the correlation of these ostracod zones to the standard Northwest European ammonite zones (Groupe française d'étude du Jurassique 1997), slightly modified in the Toarcian after KNITTER (1983) and RIEGRAF (1985). The subdivision of the Bathonian must be regarded as preliminary, because it is based on a small number of sections. On the basis of present knowledge it is not possible to define ostracod zones for the Callovian above the Keppleri Subzone. Continuing studies by the authors intend to close this gap in the near future.

3.2.1. Hettangian to Lower Sinemurian

Aspinata Zone

Definition. – First appearance of *Ogmoconchella aspinata* to first appearance of *Ogmoconcha hagenowi* (corresponding to the Psiloceras planorbis Ammonite Zone).

Faunal association. – *Ogmoconchella aspinata*, *Cytherelloidea circumscripta*, *Bythocypris fabaeformis*, *Kinkelinella (Ektyphocythere) medioreticulata*.

Remark. – We chose *Ogmoconchella aspinata* as index species because of its dominance in all studied sections; very often it is the only ostracod found. The French Ellipsoidea Zone is named after the same species (*Ogmoconcha ellipsoidea* (JONES, 1872), see LORD (1971: 660)). We use *Ogmoconchella aspinata* as type species, because the original material of JONES (1872) has been lost and no neotype has been defined (LORD, pers. comm.).

Hagenowi Zone

Definition. – First appearance of *Ogmoconcha hagenowi* to first appearance of *Anchistrocheles? tuningensis* (base of the Alsatites laqueus Zone to the Microderoceras birchi Subzone).

Faunal association. – As before, new species: *Ogmoconcha hagenowi*, *Bairdia* cf. *hilda*, *Bairdia carinata*, *Bairdia molesta*, *Eucytherura elegans*, *Kraussella? liasica*, *Progonocythere* cf. *stilla*, *Isobythocypris elongata*, *Lophodentina pulchella*, *Paracypris? semidisca*, *Cytherelloidea pulchella*.

Remark. – *Ogmoconcha hagenowi* is very frequent in this interval; in the lower part accompanied by *Ogmoconchella aspinata*. In France *O. hagenowi* appears at the base of the Sinemurian and lasts to the base of the Pliensbachian (BODERGAT 1997).

Elegans Subzone

Definition. – First appearance of *Eucytherura elegans*, which is sometimes frequent in this interval, to first appearance of *Isobythocypris elongata* (base of the Schlotheimia angulata Zone to the base of the Arnioceras semicostatum Zone).

Faunal association. – As before; characterized by the first appearance of *Eucytherura elegans*, *Progonocythere* cf. *stilla* and *Paracypris? semidisca*.

Elongata Subzone

Definition. – First appearance of *Isobythocypris elongata* to first appearance of *Anchistrocheles? tuningensis* (Arnioceras semicostatum Zone to the base of the M. birchi Subzone).

Faunal association. – As before, *Isobythocypris elongata*, *Bairdia crassa*, *Lophodentina pulchella* and *Cytherelloidea pulchella* coming in.

3.2.2. Upper Sinemurian

The ostracod zones of this interval (Tab. 4, Tuningensis Zone to Acclivisulcata Zone) have been defined by BEHER (2004: 19 ff.).

Remark. – HARLOFF (1993) noted that *Grammanicythere acclivisulcata* did not appear in his material from the Pliensbachian and may serve as an index fossil at the Sinemurian/Pliensbachian boundary.

3.2.3. Lower Pliensbachian


Ubiquita Zone

Definition. – First appearance of *Gammacythere ubiquita* to first appearance of *Pleurifera vermiculata*

Tab. 4. NW European standard ammonite zonation in the Lower Jurassic and ostracod zonation.

		ammonites		ostracods	
		zone	subzone	zone	subzone
Toarcian	Upper Toarcian	Aalensis	Torulorum	Kuhni	
			Aalensis	Ramosa	
			Mactra	Ventriosa	
		Levesquei	Moorei	Punctulata	
			Levesquei	Furcata	
		Insigne	Dispansum	Callosa-Fischeri	
			Insigne		
		Thouarsense	Fallaciosum	Cribrata	
			Striatulum	Tenera-Aspera	
	Bingmanni				
	Variabilis	Vitiosa	Bucki		
		Variabilis			
	Lower Toarcian	Bifrons	Crassum	Debilis-Toarcina	
			Fibulatum	Gwashense-Verrucosa	
			Commune		
		Falciferum			
		Falcifer	Elegans		
			Exaratum		
Elegantulum					
Tenuicostatum		Semicelatum	Knitteri		
		Clevelandicum			
	Paltum				
Pliensbachian	U. Pliensbach.	Spinatum	Hawskerense	Ambo-Impressa	
			Apyrenum	Tubulosa Seratina-Cincta	
			Gibbosus	Persicaeformis	
	Margaritatus	Subnodosus			
		Stokesi			
		Davoei			
	Lower Pliensbachian	Davoei	Capricornus		Vermiculata
			Maculatum		
			Luridum		
	Ibex	Valdani	Ubiquita		
		Masseanum			
		Pettos			
	Jamesoni	Brevispina	Acclivisulcata		
		Polymorphus			
		Taylori			
		Aplanatum			
	Sinemurian	Upper Sinemurian	Raricostatum	Macdonelli	Oeresundensis
				Raricostatum	
Densinodulum					
Oxynotum					
Praecursor					
Obtusum			Denotatus	Sulcata	
		Stellare	Laqueata		
		Obtusum	Reticulata		
Lower Sinemurian		Turneri	Birchi	Multicostata	
			Sauzeanum	Tuningensis	
		Semicostatum	Scipionianum	Hagenowi	
			Charlesi		
	Bucklandi	Bucklandi	Elongata		
		Rotiforme			
Longidomus					
Hettangian	U. H.	Angulata	Depressa		Elegans
		Striatissima			
	L. Hett.	Laqueus	Aspinata		
		Hagenowi			
	Planorbis	Johnstoni			
Planorbis					

Tab. 5. NW European standard ammonite zonation in the Middle Jurassic and ostracod zonation.

		ammonites		ostracods			
		zone	subzone	zone	subzone		
Callovian	U. Call.	Lamberti	Lamberti				
			Henrici				
		Athleta					
	M. Callov.	Coronatum	Grossouvrei				
			Obductum				
		Jason	Medea				
	Lower Callovian	Calloviense	Enodatum				
			Calloviense				
	Koenigi		Galilaei				
			Curtilobus				
			Gowerianus				
			Kamptus				
	Herveyi		Terebratus				
			Keppleri				
		Cruciata					
Bathonian	U. Bathonian	Discus	Discus				
			Hollandi				
	Orbis	Hannoveranus	Plena				
						Blanazense	
		Hodsoni	Favosa			Caesa	
	M. Bath.	Morrisi					
		Subcontractus					
		Progracilis					
	L. Bathon.	Zigzag	Tenuiplicatus			Connexa	Capreolata
			Yeovilensis				
Macrescens							
Convergens							
Upper Bajocian	Parkinsoni	Bomfordi	Regularis	Projecta			
					Truellei		
					Acris		
	Garantiana	Tetragona					
						Dichotoma	
	Niortense	Baculata					
						Polygyralis	
						Banksi	
	Lower Bajocian	Humphriesianum			Blagdeni	Primitiva	
						Cycloides	
			Romani	"Plana"			
			Pinguis				
Sauzei		Propinquans	Sauzei	sp."A"			
			Kumaterum				
Laeviuscula		Laeviuscula	Triangula	Horrida Bicostata			
		Trigonalis		Triangulata			
	Ovale	Pusilla	Levata				
	Discites						
Aalenian	Upper Aalenian	Concavum	Formosum				
			Concavum				
			Gigantea		(? Media)		
	Bradfordensis	Bradfordensis					
					Murchisonae	Obtusa	
		Haugi	Modesta				
L. A.	Opalinum	Comptum	Kuhni				
		Opalinum					

(base of the *Phricodoceras taylori* Subzone to the base of the *Platyleuroceras brevispina* Subzone).

Faunal association. – *Gammacythere ubi-
quita*, *Pleurifera harpa harpa*, *Liasina vestibulifera*,
Gramannicythere bachi, *Ogmoconcha amalthei*, *Og-
moconcha* Form A, *Gramannella carinata*, *Pleurifera
harpa harpoidea*.

Remark. – We have chosen *G. ubiquita* as index species, because it is very common in SW Germany and because of its importance in Central and NW Europe (HARLOFF 1993, fig. 3).

Vermiculata Zone

Definition. – First appearance of *Pleurifera vermiculata* to first appearance of *Nanacythere persicaeformis* (base of the *Platyleuroceras brevispina* Subzone to the base of the *Beaniceras luridum* Zone).

Faunal association. – As before, *Pleurifera vermiculata* coming in.

Remark. – *Pleurifera vermiculata* appears for the first time, *Pleurifera harpa harpoidea* has disappeared, otherwise there is no great change in this interval.

Persicaeformis Zone

Definition. – First appearance of *Nanacythere persicaeformis* to first appearance of *Trachycythere tubulosa seratina* and *Ogmoconcha cincta* (base of the *Beaniceras luridum* Zone to the base of the *Pleuroceras spinatum* Zone).

Faunal association. – As before, with the new appearance of *Nanacythere persicaeformis*, *Ogmoconcha (Hermitella) klingleri*, *Bairdia hahni* and *Gramannella apostolescui*.

Remark. – According to HARLOFF (1993) *Nanacythere persicaeformis* is supposed to be supraregionally important. The appearance of *Gramannella apostolescui* in the *Subnodosus* Subzone could eventually be useful for further subdivision.

3.2.4. Upper Pliensbachian to Lower Toarcian

The ostracod zones of this interval (Tab. 4, *Tubulosa Seratina-Cincta* Zone to *Bucki* Zone) have been defined by RIEGRAF (1985: 31 ff.).

3.2.5. Upper Toarcian

The ostracod zones of this interval (Tab. 4, *Tenera-Aspera* Zone to *Kuhni* Zone) have been defined by KNITTER (1983: 232 ff.), who called them Zone I–VIII. When

comparing his results with RIEGRAF (1985), OHMERT (1996) and BUCK's material, we decided to choose index species for these zones as follows:

Tenera-Aspera Zone (Zone I/Ia)

This zone has been defined and named by RIEGRAF (1985: 34); the top of KNITTER's Zone I is marked by the disappearance of *Kinkelinella (Ekt.) debilis*.

Cribrata Zone (Zone II)

Cytheropterina cribrata is the most common stratigraphically important species. It was figured by BUCK (1954), so we've chosen it as index species.

Callosa-Fischeri Zone (Zone III)

According to KNITTER (1983: 233) *Kinkelinella fischeri* and *Otocythere callosa* are the only species that appear in this interval. *P. tenera* ranges through this zone.

Furcata Zone (Zone IV)

The base of this zone is defined by the appearance of *Kinkelinella (Ekt.) furcata*, whereas *Praeschuleridea tenera* disappears.

Punctulata Zone (Zone V/Va)

The only species coming in are *Praeschuleridea punctulata* and *Praeschuleridea gallemannica*; the end of KNITTER's Zone V is marked by the disappearance of *Praeschuleridea aspera*.

Ventriosa Zone (Zone VI/VIa)

The base of this zone is defined by the first appearance of *Praeschuleridea ventriosa*; *Praeschuleridea gallemannica* and *Kinkelinella (Ekt.) furcata* disappear at the end of Zone VI (KNITTER 1983: 234).

Ramosa Zone (Zone VII)

Aphelocythere ramosa is the only new species in this interval.

Kuhni Zone (Zone VIII)

The first appearance of *Aphelocythere kuhni* defines the base of this zone.

3.2.6. Lower Aalenian to Upper Bajocian

OHMERT (2004) presented an ostracod zonation for the interval from the Upper Toarcian (*Insigne* Zone) to the basal Upper Bajocian (*Niortense* Zone), which is the basis of the ostracod biostratigraphy in the SW German Middle Jurassic (Tab. 5).

3.2.7. Upper Bajocian to Lower Callovian

Regularis Zone

Definition. – First appearance of *Pleurocythere regularis* to first appearance of *Pleurocythere connexa* (base of the Niortense Zone to the base of the Parkinsoni Zone).

Faunal association. – *Pleurocythere regularis*, *Glyptocythere regulariformis*, *Fuhrbergiella (F.) projecta*.

Remark. – According to BUCK in BUCK et al. (1966) *Pleurocythere regularis* is an excellent index species for this interval. According to OHMERT (2004) *F. (F.) projecta* is the index ostracod of the Projecta Subzone, the upper boundary of which can not be defined at the present state of knowledge.

Connexa Zone

Definition. – First appearance of *Pleurocythere connexa* to first appearance of *Pleurocythere favosa* (base of the Parkinsoni Zone to the base of the Morrisi Zone).

Faunal association. – *Pleurocythere connexa*, *Pleurocythere impar*, *Pleurocythere richteri*, *Oligocythereis capreolata*, *Fissocythere variabilis*.

Remark. – *Pleurocythere connexa* is very common in all studied sections, in the Parkinsoni Zone often accompanied by *Pl. impar*, whereas *Pl. richteri* seems to be rare.

Capreolata Subzone

Definition. – First appearance of *Oligocythereis capreolata*.

Faunal association. – As for Connexa Zone.

Remark. – According to our own unpublished data, *O. capreolata* appears in the Tenuiplicatus Subzone and is very common there.

Favosa Zone

Definition. – First appearance of *Pleurocythere favosa* to first appearance of *Neurocythere plena* (base of the Morrisi Zone to the base of the Orbis Zone).

Faunal association. – *Pleurocythere favosa*, *Lophocythere caesa caesa*.

Remark. – The Middle Bathonian in Baden-Württemberg is restricted to the Wutach region and the southern Rhine valley; more sections need to be studied for a detailed subdivision in the other regions. The first appearance of *Lophocythere caesa caesa* defines the base of the Caesa Subzone.

Plena Zone

Definition. – First appearance of *Neurocythere plena* (base of the Orbis Zone).

Faunal association. – *Neurocythere plena*, *Oligocythereis capreolata*, *Pleurocythere elliptica*, *Pleurocythere favosa*, *Morkhovenicythereis bouvadenensis*, *Fissocythere concentrica*, *Parariscus octoporalis*.

Remark. – We chose *Neurocythere plena* as index species as proposed by BUCK in BUCK et al. (1966).

Cruciata Zone

Definition. – First appearance of *Neurocythere cruciata cruciata* (base of the Herveyi Zone).

Faunal association. – *Neurocythere cruciata cruciata*, *Neurocythere cruciata franconica*, *Oligocythereis capreolata*.

Remark. – The first appearance of *Neurocythere cruciata cruciata* clearly characterizes the Bathonian/Callovian boundary (BUCK et al. 1966: 43); single findings possibly point to first appearances in the Upper Bathonian (see BRAND & FAHRION 1962: 147).

3.3. Systematic descriptions

The terminology and classification employed throughout this paper are those of the Practical Handbook of Microfauna (SOKOLOV 1999).

Except for the five new species, the stratigraphical distribution of BUCK's index ostracods is indicated for southern Germany exclusively, revised according to literature and our own (unpublished) data. In most cases their vertical ranges differ more or less distinctly from those in other countries, which confines their stratigraphical value to southern Germany. The occurrence data refer only to BUCK's originals and his written notes.

In our descriptions of carapace features the term 'ridge' and 'rib' refer respectively to major and minor surface ornamental features.

Subclass Ostracoda LATREILLE, 1806

Order Platycopida SARS, 1866

Family Cytherellidae SARS, 1866

Genus *Cytherella* JONES, 1849

Cytherella callosa ampla BRAUN in DILGER, 1963

Pl. 1, Fig. 1

1954 Ostracode 1099b. – BUCK, Ostracodentabelle [unpublished].

1958 *Cytherella callosa ampla* n. ssp. – BRAUN, p. 5, pl. 1, fig. 2 [unpublished].

1963 *Cytherella callosa ampla* BRAUN n. ssp. – DILGER, p. 8, pl. 1, figs. 5–9.

Occurrence: Balingen (BK 1935), Weilheim/Teck (BK 845, 1099, 1452).

Distribution (SW Germany): Upper Toarcian (Vari-

abilis Zone) to upper Bathonian (Orbis Zone) respectively Renggeritton (BUCK 1959).

Remark. – According to BUCK (1962) Ostr. 1099b is a collective name for *Cytherella callosa callosa* FISCHER, *Cytherella callosa ampla* BRAUN and *Cytherella ascia incurvata* BRAUN (nom. nud.). In BUCK's original material we found two specimens of *C. callosa ampla* in the same slide: a broken right valve and the left valve figured in Pl. 1, Fig. 1.

Genus *Cytherelloidea* ALEXANDER, 1929

Cytherelloidea cadomensis BIZON, 1960

Pl. 1, Fig. 2

- 1954 Ostracode 1099c. – BUCK, Ostracodentabelle [unpublished].
 1960 *Cytherelloidea cadomensis* n. sp. – BIZON, p. 204, pl. 1, fig. 6, pl. 2, fig. 4.
 1963 *Cytherelloidea curva aequabilis* BRAUN n. sp. – DILGER, p. 13, pl. 1, figs. 14–18.
 1978 *Cytherelloidea cadomensis* BIZON. – LORD, pl. 2, fig. 6.
 1984 *Cytherelloidea cadomensis* BIZON. – KNITTER & RIEGRAF, p. 67, pl. 4, fig. 1.
 1987 *Cytherelloidea cadomensis* BIZON. – TRÖSTER, pl. 4, fig. 5.

Occurrence: Achdorf (BK 1489), Weilheim/Teck (BK 1099), Zillhausen (BK 1917).

Distribution (SW Germany): Upper Aalenian to lower Bajocian (Laeviuscula Zone).

Remark. – The BUCK collection contains two different species designated as Ostracod 1099c: *Cytherelloidea cadomensis* from the Upper Aalenian to Lower Bajocian and *C. curva cincta* (see below) from the Upper Toarcian to Lower Aalenian, as BUCK (1962) noted.

Cytherelloidea chonvillensis DÉPÊCHE, 1969

Pl. 1, Fig. 3

- 1949 aff. *Cytherella jugosa* JONES, 1884. – v. NOSTITZ, p. 62, pl. 4, figs. 1, 2 [unpublished].
 1954 Ostracode 528. – BUCK, Ostracodentabelle [unpublished].
 1969 *Cytherelloidea chonvillensis* n. sp. – DÉPÊCHE, p. 266, pl. 2, figs. 1, 2. – [1969a].
 1983 *Cytherelloidea* sp. – HERNGREEN et al., pl. 5, fig. 14.
 1984 *Cytherelloidea chonvillensis* DÉPÊCHE. – DÉPÊCHE, pl. 2, fig. 9 [unpublished].

Occurrence: Gosheim (BK 528), Kandern, boring Schliengen.

Distribution (SW Germany): Callovian.

Cytherelloidea circumscripta (BLAKE, 1876)

Pl. 1, Fig. 4

- 1876 *Cytherella circumscripta* spec. nov. – BLAKE in TATE & BLAKE, p. 434, pl. 17, fig. 14.

1954 Ostracode 336b. – BUCK, Ostracodentabelle [unpublished].

1958 *Cytherelloidea circumscripta* (TATE & BLAKE, 1876). – DREXLER, p. 503, pl. 21, fig. 3.

1967 *Cytherelloidea circumscripta* (TATE & BLAKE, 1876). – DONZE, p. 79, pl. 2, figs. 45, 46.

non 1970 *Cytherelloidea circumscripta* (BLAKE, 1876). – BOLZ, p. 248, pl. 2, figs. 19, 20.

1971 *Cytherelloidea circumscripta* (BLAKE, 1876). – LORD, p. 647, pl. 122, figs. 8, 9.

1978 *Cytherelloidea circumscripta* (BLAKE, 1876). – LORD, pl. 2, fig. 5.

1985 *Cytherelloidea circumscripta* (BLAKE, 1876). – DÉPÊCHE, pl. 21, figs. 5, 6.

1996 *Cytherelloidea circumscripta* (TATE & BLAKE, 1876). – BEUTLER et al., p. 132, pl. 8, fig. 1.

Occurrence: Hardt near Nürtingen (BK 336).

Distribution (SW Germany): Hettangian (Planorbis Zone to Angulata Zone).

Cytherelloidea curva cincta FISCHER in DILGER, 1963

Pl. 1, Fig. 5

1954 Ostracode 1099c. – BUCK, Ostracodentabelle [unpublished].

1957 *Cytherelloidea curva cincta* n. sp. – FISCHER, p. 16, pl. 1, figs. 5, 6, pl. 2, figs. 1–4 [unpublished].

1963 *Cytherelloidea curva cincta* FISCHER. – DILGER, p. 12, pl. 1, fig. 13.

Occurrence: Achdorf (BK 1489), Weilheim/Teck (BK 1099).

Distribution (SW Germany): Upper Toarcian (Variabilis Zone) to lower Aalenian (Opalinum Zone).

Cytherelloidea pulchella APOSTOLESCU, 1959

Pl. 1, Fig. 6

1954 Ostracode 1227. – BUCK, Ostracodentabelle [unpublished].

1959 *Cytherelloidea pulchella* n. sp. – APOSTOLESCU, p. 802, pl. 1, figs. 4–6.

1961 *Cytherelloidea pulchella* APOSTOLESCU. – COUSIN et al., tab. 1 bis. – [1961b].

1961 *Cytherelloidea pulchella* APOSTOLESCU. – BIZON & OERTLI, tab. 7.

1963 *Cytherelloidea* cf. *pulchella* APOSTOLESCU. – OERTLI, pl. 8, fig. 2, pl. 9.

1970 *Cytherelloidea circumscripta* (BLAKE 1876). – BOLZ, p. 248, pl. 2, fig. 19.

1970 cf. *Cytherelloidea circumscripta* (BLAKE 1876). – BOLZ, p. 248, pl. 2, fig. 20.

non 1970 *Cytherelloidea pulchella* APOSTOLESCU. – BOLZ, p. 253, pl. 2, figs. 28–30.

1971 *Cytherelloidea pulchella* APOSTOLESCU. – LORD, p. 648, pl. 122, figs. 5, 7.

1978 *Cytherelloidea pulchella* APOSTOLESCU. – LORD, pl. 2, fig. 4.

1985 *Cytherelloidea pulchella* APOSTOLESCU. – DONZE, pl. 21, fig. 7.

2004 *Cytherelloidea pulchella* APOSTOLESCU. – BEHER, p. 121, pl. 15, fig. 1.

Occurrence: Unterensingen (BK 1226, 1227).
 Distribution (SW Germany): Sinemurian (Bucklandi to Obtusum Zone).

Order Podocopida Sars, 1866
 Superfamily Bairdiacea Sars, 1888
 Family Bairdiidae Sars, 1888
 Genus *Bairdia* McCoy, 1844

Bairdia molesta APOSTOLESCU, 1959
 Pl. 1, Fig. 7

- 1954 Ostracode 785. – BUCK, Ostracodentabelle [unpublished].
 1958 *Bairdia* cf. *hilda* JONES. – DREXLER, p. 511, pl. 22, fig. 1.
 1959 *Bairdia molesta* n. sp. – APOSTOLESCU, p. 806, pl. 2, fig. 31.
 1961 *Bairdia molesta* APOSTOLESCU. – COUSIN et al., tab. 4 bis. – [1961a].
 1961 *Bairdia molesta* APOSTOLESCU. – COUSIN et al., tab. 1 bis. – [1961b].
 1963 *Bairdia molesta* APOSTOLESCU. – OERTLI, pl. 7, figs. 1c, 2c, pl. 8, fig. 1c, pl. 10, figs. 1c, 2f, pl. 11, fig. f, pl. 12, fig. 1f, pl. 14, figs. 1f, 2f, ? pl. 18, fig. 1f.
 1967 *Bairdia molesta* APOSTOLESCU. – DONZE, p. 80, pl. 2, fig. 50.
 1975 *Bairdia molesta* APOSTOLESCU. – MICHELSEN, p. 121, pl. 1, figs. 1, 2.
 1979 *Bairdia molesta* APOSTOLESCU. – HERRIG, p. 648, figs. 3–9, pl. 1, figs. 1–3.
 1980 *Bairdia molesta* APOSTOLESCU. – SIVHED, p. 40, text-fig. 23, pl. 1, figs. 2, 5, 6, 9.
 1984 *Bairdia molesta* APOSTOLESCU. – BATE et al., pl. 4, fig. 4.
 1993 *Bairdia molesta* APOSTOLESCU. – HARLOFF, p. 54, pl. 1, fig. 6.
 1999 *Bairdia molesta* (APOSTOLESCU, 1959). – ARIAS & LORD, p. 83, pl. 2, fig. 5. – [1999a].
 2001 *Bairdia molesta* APOSTOLESCU. – BEHER et al., p. 342, fig. 4.6.
 2004 *Bairdia molesta* APOSTOLESCU. – BEHER, p. 60, pl. 25, fig. 1.

Occurrence: Balingen (BK 1297), Gniebel (BK 785).
 Distribution (SW Germany): Lower Hettangian (Psilonotum Zone) to upper Pliensbachian (Margaritatus Zone).

Bairdia pumicosa n. sp. SHEPPARD in FRANZ et al.
 Pl. 1, Fig. 8, Pl. 6, Fig. 12

- 1954 Ostracode 1650. – BUCK, Ostracodentabelle [unpublished].
 1981 *Bairdia* sp. – SHEPPARD, pl. 2, fig. 8. – [1981a].
 1981 *Bairdia pumicosa* n. sp. – SHEPPARD, p. 44, pl. 4, figs. 1–7 [unpublished]. – [1981b].
 1984 *Bairdia pumicosa* SHEPPARD. – DÉPÊCHE, pl. 3, figs. 3, 4 [unpublished].
 1985 *Bairdia pumicosa* SHEPPARD. – DÉPÊCHE, pl. 29, fig. 1.

Derivation of name: pumicosa (lat.) = porous, referring to the pitted shell surface.

Holotype: Carapace, OS 11556 (Natural History Museum, London) (Pl. 6, Fig. 12).

Type horizon: Marnes de Port-en Bessin, Lower Bathonian.

Type locality: Port-en-Bessin, Normandy.

Occurrence: Weilheim/Teck (BK 1650), Schliengen.

Distribution: Callovian in SW Germany; entire Bathonian sequence in Normandy and Lower Bathonian of Dorset.

Material: Over 100 valves and carapaces.

Diagnosis. – A *Bairdia* with high-domed dorsal outline and pitted shell surface.

Description. – Large, thick shelled carapace, with a medium width, anteriorly and posteriorly flattened, with broadly arched dorsal margin that becomes concave terminally, especially towards posterior. The left valve is larger than the right, which it overreaches on all sides and overlaps midventrally. Carapace highest and widest medially and longest just ventral of midpoint (juveniles, however, are slender and are highest anteriorly, coinciding with anterior cardinal angle).

Right valve: Ventral margin slightly concave medially, the transition to the anterior marked by a well visible convexity. The angular rounded anterior is higher than the posterior, situated at midheight of the shell. The posterior is triangularly pointed, slightly elevated, just below mid-height of the valve.

Left valve: Ventral margin convex. Anterior and posterior are slightly higher than in the right valve and are more evenly rounded. Its ventral part can be ornamented by small denticles.

The shell surface is ornamented by numerous, densely arranged, small subcircular pits, evenly spaced over the carapace.

Hinge typically bairdiid; in some specimens bairdopilate structure is present. Muscle scars are built as in the type species of *Bairdia*.

Dimensions (mm):

		No.	L	H	Width
Holotype	carapace	OS 11556	0.96	0.51	0.42
Paratypes	LV	OS 11557	0.96	0.59	
	RV	OS 11558	0.92	0.50	
	RV	OS 11559	1.05	0.59	
	LV	OS 11560	0.96	0.61	
	juv. carapace	OS 11561	0.59	0.25	
	juv. carapace	OS 11562	0.74	0.38	
	carapace	Em 275	0.87	0.50	

Variation. – The height of the shell is variable, small denticles can be present or absent anteroventrally and posteroventrally. Pits are more pronounced in juvenile stages. The surface can be pitted completely or the pits concentrate around the centre while the anterior and posterior regions are smooth.

Comparison. – The only other distinctly pitted Bathonian bairdiid, *B. sherborni* BATE, 1969 is distinguished from *B. pumicosa* n. sp. on its more rectangular

lateral outline caused by a relatively long straight dorsal margin and steep anterodorsal slope.

B. pumicosa n. sp. further differs from *Bairdia hilda* JONES, 1884 from the Bajocian (BATE 1963: 188, pl. 2, figs. 9–12; pl. 3, figs. 1–4) and Bathonian (SYLVESTER-BRADLEY 1948a: 199, fig. 5; BATE 1969: 383, pl. 1, figs. 5, 6; pl. 4, fig. 5) of England, from the lower Bathonian of Ukraine (PYATKOVA & PERMYAKOVA 1978: 124, pl. 45, fig. 6) and from the upper Callovian of Tunisia (METTE 1995: 268, pl. 3, figs. 10, 11; pl. 4, figs. 1, 2) by its more elevated posterior and by the coarser pitting of the shell surface.

It is distinguished from *B. aff. hilda* JONES, 1884 from the Bajocian and Callovian of central Saudi Arabia (DÉPÊCHE et al. 1987: 228, pl. 1, fig. 12) and from *B. judiana* JONES, 1884 from the British Bathonian (BATE 1969, pl. 1, fig. 7) by the lower and less large shell, by the more elevated posterior and by the lower left valve, which overlaps the right valve ventrally much less. *Bairdia* sp. C from the middle Callovian of Tanzania (BATE 1975: 175, pl. 2, figs. 9, 13) has no pitted surface and a less elevated posterior.

Genus *Isobythyocypris* APOSTOLESCU, 1959

Isobythyocypris elongata (TATE & BLAKE, 1876)

Pl. 1, Fig. 9

- 1954 Ostracode 1222. – BUCK, Ostracodentabelle [unpublished].
- 1958 *Bythyocypris* cf. *elongata* (TATE & BLAKE). – DREXLER, p. 515, pl. 23, fig. 1, pl. 27, figs. 1, 2.
- 1959 ? *Isobythyocypris elongata* (TATE & BLAKE, 1876). – APOSTOLESCU, p. 808, pl. 2, figs. 24, 25.
- 1961 ? *Isobythyocypris elongata* (BLAKE). – COUSIN et al., tab. 4 bis. – [1961a].
- 1961 ? *Isobythyocypris elongata* (BLAKE). – COUSIN et al., tab. 1 bis. – [1961b].
- 1969 *Isobythyocypris* cf. *elongata* (TATE & BLAKE). – HERRIG, p. 1076, text-fig. 3, pl. 2, fig. 1.
- 1975 ? *Isobythyocypris elongata* (BLAKE, 1876). – MICHELSEN, p. 124, pl. 1, figs. 10, 11, pl. 3, figs. 31, 32.
- 1980 *Isobythyocypris* aff. *elongata* (BLAKE, 1876). – SIVHED, p. 41, text-fig. 24, pl. 2, figs. 10–12.
- 1980 *Isobythyocypris elongata* (BLAKE, 1876)? – SIVHED, p. 41, text-fig. 25, pl. 2, figs. 13–15.
- 1999 *Isobythyocypris* aff. *Isobythyocypris elongata* (BLAKE, 1876). – ARIAS & LORD, p. 86, pl. 3, fig. 1. – [1999a].

Occurrence: Balingen (BK 1297), Unterensingen (BK 1222).

Distribution (SW Germany): Lower Sinemurian (Semicostatum Zone) to upper Pliensbachian (Spinatum Zone). *Isobythyocypris elongata* is the index species of the Elongata ostracod Subzone.

Superfamily Cypridacea BAIRD, 1845

Family Paracyprididae SARS, 1923

Genus *Paracypris* SARS, 1866

Paracypris? semidisca DREXLER, 1958

Pl. 1, Fig. 10

- 1954 Ostracode 1222a. – BUCK, Ostracodentabelle [unpublished].
- 1958 *Paracypris? semidisca* n. sp. – DREXLER, p. 519, pl. 23, fig. 4.
- 1967 *Paracypris? aff. semidisca* DREXLER. – DONZE, p. 81, pl. 2, fig. 60.

Occurrence: Bad Langenbrücken, Unterensingen (BK 1222).

Distribution (SW Germany): Upper Hettangian (Angulata Zone) to upper Pliensbachian (Margaritatus Zone).

Superfamily Bythocytheracea SARS, 1926

Family Bythocytheridae SARS, 1926

Genus *Bythoceratina* HORNIBROOK, 1952

Bythoceratina (Praebythoceratina) scrobiculata

(TRIEBEL & BARTENSTEIN, 1938)

Pl. 1, Fig. 11

- 1938 *Monoceratina scrobiculata* n. sp. – TRIEBEL & BARTENSTEIN, p. 508, pl. 1, fig. 5, pl. 2, fig. 6.
- 1949 *Bythocythere calloveica* n. sp. – MANDELSTAM, p. 262, pl. 85, fig. 9.
- 1954 Ostracode 1132. – BUCK, Ostracodentabelle [unpublished].
- 1955 *Bythocythere calloveica* n. sp. MANDELSTAM in LYUBIMOVA. – LYUBIMOVA, p. 30, pl. 1, fig. 10.
- 1959 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – ZIEGLER, Beilage 2, fig. 1.
- 1959 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – OERTLI, p. 26, pl. 4, figs. 92–95. – [1959a].
- 1960 *Monoceratina* cf. *scrobiculata* TRIEBEL & BARTENSTEIN. – LUTZE, p. 433, pl. 37, fig. 7.
- 1962 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – FISCHER, p. 335, pl. 19, figs. 10–12.
- 1963 “*Monoceratina*” *scrobiculata* TRIEBEL & BARTENSTEIN. – OERTLI, pl. 35, fig. 2 l, pl. 36, fig. 1.
- 1969 *Monoceratina* cf. *scrobiculata* TRIEBEL, 1951. – DÉPÊCHE, pl. 2, fig. 9. – [1969a].
- 1970 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – WHATLEY, p. 318, pl. 3, figs. 1–7, 9, 10.
- 1976 *Monoceratina* cf. *scrobiculata* TRIEBEL & BARTENSTEIN. – KAEVER et al., p. 51, pl. 6, fig. 9.
- 1979 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – SHEPPARD, p. 113, pl. 114, figs. 1–3, pl. 116, figs. 1–5 [unpublished].
- 1979 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – EXTON, p. 56, pl. 11, fig. 6.
- 1980 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – BIELECKA et al., p. 247, pl. 73, fig. 4.

- 1981 *Bythoceratina* (*Praebythoceratina*) *scrobiculata* (TRIEBEL & BARTENSTEIN). – HERRIG, p. 873, pl. 1, fig. 3. – [1981c].
- 1983 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – HERNGREEN et al., pl. 5, fig. 12.
- 1983 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – KNITTER, p. 219, pl. 36, fig. 2.
- 1983 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – MORRIS, pl. 5, figs. 10, 11.
- non 1984 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – BATE et al., pl. 2, fig. 4.
- 1987 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – TRÖSTER, pl. 5, fig. 18.
- 1988 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – BIELECKA et al., p. 178, pl. 73, fig. 4. – [1988a].
- 1990 *Bythoceratina* (*Praebythoceratina*) *scrobiculata* (TRIEBEL & BARTENSTEIN). – BRAND, p. 154, pl. 2, fig. 10.
- 2001 *Bythoceratina* (*Praebythoceratina*) *scrobiculata* (TRIEBEL & BARTENSTEIN). – OLEMPKA & BŁASZYK, p. 573, fig. 13 A–D.
- 2001 *Monoceratina scrobiculata* TRIEBEL & BARTENSTEIN. – WHATLEY et al., p. 137, pl. 1, fig. 3.
- 2008 *Patellacythere calloveica* (MANDELSTAM). – TESAKOVA, figs. 2.8, 2.11.
- Occurrence: Neidlingen (BK 1132).
Distribution (SW Germany): Upper Toarcian (Variabilis Zone) to lower Aalenian (Opalinum Zone) and Callovian.

Genus *Patellacythere* GRÜNDEL & KOZUR, 1971

Patellacythere? gruendeli HERRIG, 1981

Pl. 1, Fig. 12

- 1954 Ostracode 1125a. – BUCK, Ostracodentabelle [unpublished].
- 1962 *Lophodentina?* sp. – GRAMANN, p. 195, pl. 3, fig. 8.
- 1981 *Patellacythere gruendeli* n. sp. – HERRIG, p. 875, pl. 1, figs. 1, 2. – [1981c].
- 2001 *Patellacythere gruendeli* HERRIG. – BEHER et al., p. 368, fig. 5.11.
- 2004 *Patellacythere gruendeli* HERRIG. – BEHER, p. 89, pl. 11, fig. 1.
- Occurrence: Ofterdingen (BK 1125).
Distribution (SW Germany): Upper Sinemurian (Obtusum Zone).

Superfamily Cytheracea BAIRD, 1850

Family Cytheridae BAIRD, 1850

Genus *Lophodentina* APOSTOLESCU, 1959

Lophodentina? pulchella (APOSTOLESCU, 1959)

Pl. 1, Figs. 13, 14

- 1954 Ostracode 820. – BUCK, Ostracodentabelle [unpublished].
- cf. 1959 *?Orthonotacythere pulchella* n. sp. – APOSTOLESCU, p. 815, pl. 4, figs. 62–64.

- 1985 *Lophodentina?* cf. *pulchella* (APOSTOLESCU, 1959). – DONZE, tab. 5, pl. 24, figs. 10–11.
- 1989 *Lophodentina?* cf. *Lophodentina pulchella* (APOSTOLESCU, 1959). – AINSWORTH, p. 131, pl. 2, figs. 14–17.
- 2001 *Lophodentina?* cf. *pulchella* (APOSTOLESCU, 1959). – BEHER et al., p. 370, fig. 5.4.
- 2004 *Lophodentina?* cf. *pulchella* (APOSTOLESCU, 1959). – BEHER, p. 90, pl. 11, figs. 9, 11, 12.

Occurrence: Boring „Salute“, Stuttgart-Möhringen (7.5–8.0 m), S-Vaihingen (BK 820).

Distribution (SW Germany): Upper Sinemurian.

Lophodentina? ultima (BRAUN) in DILGER, 1963

Pl. 1, Figs. 15–17

- 1954 Ostracode 1393c. – BUCK, Ostracodentabelle [unpublished].
- 1958 *Camptocythere ultima* n. sp. – BRAUN, p. 16, pl. 1, fig. 8 [unpublished].
- 1963 *Lophodentina ultima* (BRAUN) n. sp. – DILGER, p. 35, pl. 3, figs. 55–59, pl. 6, fig. 116.
- 1988 *Lophodentina? ultima* (BRAUN). – OHMERT, p. 334, pl. 4, figs. 31–33.
- 2004 *Lophodentina? ultima* (BRAUN) in DILGER. – OHMERT, p. 92, pl. 18, figs. 7, 8.

Occurrence: Geislingen a.d. Steige, Weilheim/Teck (BK 1393).

Distribution (SW Germany): Lower Bajocian (Laeviuscula to Humphriesianum zone).

Family Cytheruridae G. MÜLLER, 1894

Gattung *Cytheropterina* MANDELSTAM, 1956

Cytheropterina cribra (FISCHER, 1962)

Pl. 1, Fig. 18

- 1954 Ostracode 881a. – BUCK, Ostracodentabelle [unpublished].
- 1959 Ostracod Z 2061 ZIEGLER. – ZIEGLER, Beilage 2, fig. 5.
- 1962 Ostracod N 96 KLINGLER. – KLINGLER, p. 112, pl. 14, fig. 58.
- 1962 *Cytheropteron* (*Cytheropteron*) *bispinosum cribrum* n. ssp. – FISCHER, p. 339, pl. 20, figs. 8–11.
- 1963 *Cytheropteron* (*Cytheropteron*) *bispinosum cribrum* FISCHER. – PLUMHOFF, p. 39, pl. 8, figs. 117–119.
- 1963 *Procytheropteron trematon* n. sp. – DILGER, p. 29, pl. 2, figs. 42–46.
- 1981 *Cytheropterina cribra ziegleri* STÖRMER & WIENHOLZ. – HERRIG, p. 1018, pl. 1, figs. 2, 3. – [1981d].
- 1983 *Cytheropterina cribra* (FISCHER). – KNITTER, p. 221, pl. 37, fig. 2.
- 1983 *Cytheropterina cribra* (FISCHER). – KNITTER & OHMERT, pl. 5, fig. 1.
- 1987 *Cytheropterina cribra* (FISCHER). – TRÖSTER, pl. 5, fig. 17.

Occurrence: Herzogenau (BK 881).

Distribution (SW Germany): Lower Toarcian (Tenuicostatum Zone) to upper Bajocian (Garantiana Zone).

Cytheropterina bicuneata (BRAUN) in DILGER, 1963
Pl. 2, Fig. 1

- 1954 Ostracode 1379. – BUCK, Ostracodentabelle [unpublished].
1958 *Cytheropteron* (*Cytheropteron*) *bicuneata* n. sp. – BRAUN, p. 20, pl. 2, fig. 1 [unpublished].
1963 *Cytheropteron?* *bicuneata* (BRAUN) n. sp. – DILGER, p. 24, pl. 2, figs. 34–37, pl. 6, fig. 115.
2004 *Cytheropterina bicuneata* (BRAUN) in DILGER. – OHMERT, p. 89, pl. 18, fig. 2.

O c c u r r e n c e : Weilheim/Teck (BK 1379).

D i s t r i b u t i o n (SW Germany): Upper Aalenian to lower Bajocian (Sauzei Zone)

R e m a r k . – The specimens in the BUCK collection closely resemble those in OHMERT (2004); but differ from those in DILGER (1963) by a slightly coarser sculpture.

Genus *Eucytherura* MÜLLER, 1894

Eucytherura elegans (DREXLER, 1958)
Pl. 2, Fig. 2

- 1954 Ostracode 1208. – BUCK, Ostracodentabelle [unpublished].
1958 *Lophocythere elegans* n. sp. – DREXLER, p. 523, pl. 24, fig. 5, pl. 27, figs. 10–11.
?1962 Ostracod N 89 KLINGLER. – KLINGLER, p. 114, pl. 14, fig. 59.
1972 *Lophocythere elegans* DREXLER. – MICHELSEN, pl. 4, fig. 5.
1975 *Nanacythere* (*Goniocythere*) *elegans* (DREXLER). – MICHELSEN, p. 204, pl. 18, figs. 290–291.
2004 *Eucytherura elegans* (DREXLER, 1958). – WHATLEY & BALLENT, p. 83.

O c c u r r e n c e : Neuhausen/Fildern.

D i s t r i b u t i o n (SW Germany): Upper Hettangian (Angulata Zone) to lower Sinemurian (Oxynotum Zone), ? Upper Toarcian. *Eucytherura elegans* is the index species of the *Elegans* ostracod Subzone.

Superfamily Cytherideidacea SARS, 1925

Family Cytherideidae SARS, 1925

Genus *Aphelocythere* TRIEBEL & KLINGLER, 1959

Aphelocythere kanonica (DILGER, 1963)
Pl. 2, Fig. 3

- 1954 Ostracode 1496. – BUCK, Ostracodentabelle [unpublished].
1963 *Pleurocythere kanonica* n. sp. – DILGER, p. 41, pl. 3, figs. 63–65.
1996 *Aphelocythere kanonika* (DILGER). – OHMERT, fig. 30F.

O c c u r r e n c e : Balingen, Eschach (BK 1496).

D i s t r i b u t i o n (SW Germany): Aalenian.

Aphelocythere kuhni TRIEBEL & KLINGLER, 1959
Pl. 2, Figs. 4, 5

- 1954 Ostracode 881. – BUCK, Ostracodentabelle [unpublished].
1959 *Cytherelloidea* sp. – ZIEGLER, Beil. 2, fig. 3.
1959 *Aphelocythere kuhni* n. sp. – TRIEBEL & KLINGLER, p. 341, pl. 6, figs. 11–19, pl. 7, figs. 20, 21, pl. 12, figs. 59–61.
1962 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – KLINGLER, p. 112, pl. 14, fig. 55.
1962 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – BRAND & FAHRION, p. 139, pl. 20, fig. 2.
1963 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – DILGER, p. 43, pl. 3, figs. 66, 67.
1963 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – PLUMHOFF, p. 21, pl. 2, figs. 23, 24.
1967 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – PLUMHOFF, p. 553, pl. 1, figs. 10–14.
1981 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – HERRIG, p. 1023, pl. 2, fig. 7. – [1981d].
1983 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – KNITTER, p. 220, pl. 36, figs. 5, 6.
1983 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – KNITTER & OHMERT, pl. 5, fig. 8.
1987 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – TRÖSTER, pl. 5, fig. 8.
1996 *Aphelocythere kuhni* TRIEBEL & KLINGLER. – OHMERT, fig. 30E.
1999 *Aphelocythere* aff. *Aphelocythere kuhni* TRIEBEL & KLINGLER, 1959. – ARIAS & LORD, p. 226, pl. 2, fig. 6. – [1999b].

O c c u r r e n c e : Herzogenau (BK 881).

D i s t r i b u t i o n (SW Germany): Upper Toarcian to upper Aalenian. *Aphelocythere kuhni* is the index species of the Kuhni ostracod Zone (OHMERT 2004).

Aphelocythere? asymmetrica n. sp.
Pl. 2, Figs. 6–10

- 1954 Ostracode 1167. – BUCK, Ostracodentabelle [unpublished].

D e r i v a t i o n o f n a m e : From the apparent asymmetry between the left and the right valve in the posteroventral part.

H o l o t y p e : Em 293, a male carapace (Pl. 2, Fig. 7).

T y p e h o r i z o n : Achdorf Formation, bed no. BK 1167 (Upper Aalenian).

T y p e l o c a l i t y : Tiefenbachtal near Nürtingen.

D i s t r i b u t i o n : Upper Aalenian (Murchisonae Zone to Concavum Zone). Up to now this species has been found only in the Swabian Alb.

M a t e r i a l : 14 female and male carapaces resp. internal casts (adults and juveniles), partly well preserved.

D i a g n o s i s . – Shell medium sized, elongate oval, moderately convex, smooth (without any sculpture). With flat round muscle scar tubercle and a narrow vertical depression behind it. A faint posteroventral convexity is to be seen, more pronounced on the left valve.

D e s c r i p t i o n . – Shell medium sized, elongate oval, moderately convex, in dorsal view the anterior bluntly rounded, the posterior more gently sloping. The lateral surfaces are almost parallel in the first part of the shell, diverge slightly towards half of the posterior part, gently

converging towards the posterior. Greatest length in the lower third, greatest height antero-medially, greatest thickness posteroventrally. The larger left valve overlaps the right valve at the ventral and dorsal borders.

The dorsal border is subhorizontal, slightly arched, anteriorly straight to very weakly concave, posteriorly gently sloping. The convexity of the dorsal border is more apparent in the right valve. The ventral border is horizontal, in cases slightly concave in its median part, upturned in posterior third. The anterior and the posterior are flattened along their margins.

The anterior is high, evenly rounded, projecting a little above the dorsal and the ventral border. The posterior is lower, triangular rounded. In the right valve its dorsal part slopes more strongly than ventrally and gently passes into the dorsal and ventral borders (without any depression nor convexity). In contrast the left valve is more elevated and distinctly concave in its dorsal part.

On the lateral surface there is a scarcely visible, low, round muscle scar tubercle. Exactly behind this tubercle one can observe a weak narrow vertical depression, which is clearly visible in dorsal view. In the posteroventral part a weak curvature is to be seen, more pronounced on the left valve. This asymmetry in the posteroventral part between left and right valves is well developed even in juvenile specimens. Apart from these structures the surface does not carry other sculpture.

Sexual dimorphism pronounced, the male valves being more rectangular than the females by their higher posterior and their more horizontal dorsal border. Furthermore, the female valves are wider posteroventrally than the males, which is clear in dorsal view.

Dimensions (mm):

		No.	L	H	Width
Holotype	male carapace	Em 293	0,52	0,26	
Paratypes	male carapace	Em 292	0,65	0,29	
	female carapace	Em 294	0,64		0,34
	male carapace	Em 295	0,54		0,25
	female carapace	Em 296		0,25	0,21

Variation. – The muscle scar tubercle and the vertical depression can be strongly or weakly developed. A small ala can be present on the posterior part of the posteroventral curvature, in every case larger on the left valves. The curvature of the dorsal border can be more or less strongly developed.

Comparison. – The most characteristic feature is the asymmetry between the left and right valves in the posteroventral part. It differs from *Aphelocythere torosa* PLUMHOFF, 1967, the most similar species concerning form of shell, from the Upper Aalenian (Sinon Subzone) of NW Germany (PLUMHOFF 1963: 25, pl. 3, figs. 37, 48; PLUMHOFF 1967: 556, pl. 4, figs. 42–45) by absence of sculpture, the greater height and the more pronounced posteroventral curvature with an ala. It differs from *Aphelocythere ljobi-*

movae PLUMHOFF, 1963, which has a similar outline in dorsal view, from the Upper Aalenian of NW Germany (PLUMHOFF 1963: 24, pl. 2, figs. 37–39, 41, 42; PLUMHOFF 1967: 553, pl. 1, figs. 15–19, pl. 2, fig. 20) by absence of sculpture and presence of an ala on the posteroventral curvature.

Remarks. – This species is assigned to the genus *Aphelocythere* because of the resemblance of the outline of the shell, the dimensions, the very weak sculpture and the stratigraphic distribution. Nevertheless, this assignment is uncertain because our material consists only of complete carapaces (resp. internal casts) and observation of the hinge and other internal structures was impossible.

Family Schulerideidae MANDELSTAM, 1959

Genus *Praeschuleridea* BATE, 1963

Praeschuleridea subtrigona (JONES & SHERBORN, 1888)

Pl. 2, Figs. 11, 12

- 1888 *Cytheridea subtrigona* n. sp. – JONES & SHERBORN, p. 265, pl. 2, fig. 9a–c.
 1954 *Cytheridea punctulata* (Ostracode 1584). – BUCK, Ostracodentabelle [unpublished].
 1963 *Praeschuleridea subtrigona* (JONES & SHERBORN). – BATE, p. 207, pl. 12, figs. 12–16, pl. 13, figs. 1–9.
 1969 *Praeschuleridea subtrigona subtrigona* (JONES & SHERBORN). – BATE, p. 405, pl. 8, figs. 4–6.
 1978 *Praeschuleridea subtrigona* (JONES & SHERBORN). – BATE, p. 244, pl. 10, fig. 1.
 1981 *Praeschuleridea subtrigona subtrigona* (JONES & SHERBORN). – SHEPPARD, p. 151, pl. 26, figs. 11, 12 [unpublished].
 1984 *Praeschuleridea subtrigona* (JONES & SHERBORN). – DÉPÊCHE, p. 315, pl. 22, fig. 6.
 1990 *Praeschuleridea subtrigona* (JONES & SHERBORN). – BRAND, p. 200, pl. 10, fig. 11.

Occurrence: Achdorf (BK 1584), boring Schliengen.

Distribution (SW Germany): Upper Bajocian (Garantiana Zone) to Upper Callovian (Lamberti Zone).

Superfamily Progonocytheracea SYLVESTER-BRADLEY, 1948

Family Progonocytheridae SYLVESTER-BRADLEY, 1948

Genus *Gammacythere* MALZ & LORD, 1976

Gammacythere ubiquita MALZ & LORD, 1976

Pl. 2, Figs. 13, 14

- 1954 Ostracode 999. – BUCK, Ostracodentabelle [unpublished].
 1959 Ostracoda E. – APOSTOLESCU, p. 817, pl. 3, figs. 54, 55.
 1976 *Gammacythere ubiquita* n. sp. – MALZ & LORD, p. 252, pl. 1, figs. 1–6, pl. 2, figs. 7–19.
 1977 *Gammacythere ubiquita* MALZ & LORD. – LORD & MALZ, p. 49, pl. 4, 50, figs. 1, 2, pl. 4, 52, figs. 1, 2.
 1978 *Gammacythere ubiquita* MALZ & LORD. – LORD, pl. 4, fig. 1.
 1979 Ostracod sp. 1. – EXTON, p. 66, pl. 10, figs. 4, 5.

- 1982 *Gammacythere ubiquita* MALZ & LORD. – HERRIG, p. 1452, pl. 2, figs. 4–6.
 1984 *Gammacythere ubiquita* MALZ & LORD. – EXTON & GRADSTEIN, pl. 2, fig. 4.
 1985 *Gammacythere ubiquita* MALZ & LORD. – DONZE, pl. 25, figs. 17, 18.
 1993 *Gammacythere ubiquita* MALZ & LORD forma minor. – HARLOFF, p. 89, pl. 4, figs. 4, 5; pl. 7, fig. 8.
 1996 *Gammacythere ubiquita* MALZ & LORD. – BEUTLER et al., p. 133, pl. 8, figs. 13–17.

Occurrence: Kirchheim/Teck (BK 999), Oberboihingen (BK 2926, 2930).

Distribution (SW Germany): Pliensbachian (Jamesoni to Margaritatus Zone). *Gammacythere ubiquita* is the index species of the Ubiquita ostracod Zone.

Genus *Palaeocytheridea* MANDELSTAM, 1947

Palaeocytheridea blaszykina n. sp.

Pl. 2, Figs. 15–18

- 1954 Ostracode 1690. – BUCK, Ostracodentabelle [unpublished].
 1962 *Pleurocythere* sp., aff. *impar* TRIEBEL. – MALZ, pl. 24, fig. 5.
 1967 *Lophocythere* cf. *carinilia* SYLVESTER-BRADLEY. – BŁASZYK, p. 28, pl. 7, figs. 1–4.
 1984 *Palaeocytheridea carinilia* MALZ, 1962. – DÉPÊCHE, pl. 16, figs. 5, 6.
 1984 *Palaeocytheridea carinilia* (SYLVESTER-BRADLEY, 1948). – DÉPÊCHE, pl. 12, fig. 12 (non fig. 13).

Derivatio nominis: In honour of the polish micro-paleontologist JANUSZ BŁASZYK, who first described this species.

Holotype: Em 303, a male LV (Pl. 2, Fig. 17).

Type horizon: Ostreenkalk Formation, bed BK 1690 (Lower Bajocian).

Type locality: Teufelsloch SE Eckwälden near Weilheim/Teck.

Occurrence: Glems (BK 404, 405), Neidlingen (BK 1149), Weilheim/Teck (BK 1690).

Distribution: In SW Germany: Lower Bajocian (Humphriesianum Zone) to Upper Bathonian (Orbis Zone); in NW Germany, Poland, Paris Basin: Bathonian.

Material: 9 male and female valves (adults and juveniles), fairly well to well preserved from the Ostreenkalk Formation, bed no. BK 1690 (Lower Bajocian); Teufelsloch SE Eckwälden near Weilheim/Teck (BUCK collection).

Diagnosis. – Shell medium sized with trapezoidal shape, moderately convex, with flattened anterior and posterior. The shell exhibits two long longitudinal ridges: one in the middle area and one at the ventral margin. A third longitudinal rib at the dorsal margin is only present in the right valve. Some small subvertical ribs are commonly present in the posterior half of the shell.

Description. – Medium size and width, elongate trapezoidal, with both sides converging gently towards anterior and posterior. In dorsal view the shell's outline is oval with a weak dorsomedian depression. The greatest length is at mid-height, the greatest height in the anterior

third, the greatest width in the posteroventral part. The left, larger valve overlaps the right one at the antero- and posterodorsal angles and in the middle part of the ventral margin (BŁASZYK 1967: 28).

The straight dorsal margin slopes slightly towards the posterior. The ventral margin is horizontal, nearly parallel to the dorsal one, anteriorly slightly concave. The anterior and the posterior exhibit flattened marginal areas. The anterior end is high, obliquely rounded, clearly inclined in its dorsal part, the posterior, which has nearly the same height, is rounded triangular, weakly concave in its dorsal part. Both anterior and posterior margins build flat angles with the dorsal margin, whereas their transition into the ventral margin is smooth and without any angle. Two longitudinal ridges are located on the lateral surface. The longer, ventral ridge begins close to the posterior end and reaches the anterior margin. The median ridge also starts near the posterior with its rear end bent slightly downwards, and ends close to the anterior without reaching the margin. Below the ventral ridge there is another low rib, parallel to the ventral margin, which also starts close to the posterior end. This rib is a little shorter than the median ridge, slightly convex and difficult to see in lateral view. In the anterodorsal part a short, bifurcate, diagonal frontal rib is located. Its perpendicular branch reaches the median ridge in some specimens.

On the right valve a very fine low rib runs along the dorsal margin and touches the frontal rib with its anterior part at a low angle. The dorsal margin of the left valve bears a keel. In the posterior part above and below the median ridge there are one or two small ribs perpendicular to it, which cross the intercostal area. Another small rib sometimes crosses the anterior third of the valve, running from the median ridge towards the ventral ridge. It then extends the perpendicular branch of the bifurcate frontal rib. The entire intercostal area – except for the flattened anterior and posterior border zones – is covered with a polygonal meshwork of very fine ribs. In the median part of the valve two small tubercles are situated above the median ridge and another one below.

We here add BŁASZYK's description of the hinge structure, because in our specimens we could not observe any details: "In the right valve, the merodont type hinge has in its anterior and posterior elements 7 denticles each and – in the median element – 11 sockets." (BŁASZYK 1967: 29).

The female valves are higher, shorter and posteriorly wider than the males.

Dimensions (mm):

		No.	L	H
Holotype	male LV	Em 303	0,54	0,27
Paratypes	male LV	Em 301	0,57	0,30
	male carapace	Em 302	0,56	0,29
	juvenile LV	Em 304	0,46	0,24

Variation. – The number and the size of the subvertical ribs can differ as well as the extent to which the small tubercles are developed.

Comparison. – *P. blaszykina* n. sp. differs from *Palaeocytheridea carinilia* (SYLVESTER-BRADLEY, 1948) from the Bathonian of Dorset (SYLVESTER-BRADLEY 1948a: 197, pl. 13, figs. 6, 7, pl. 14, figs. 5, 6; MALZ 1975b, pl. 3, fig. 19) and the Paris Basin (DÉPÊCHE 1969b: 112, pl. 3, fig. 3; 1984, pl. 12, fig. 12, non fig. 13, pl. 16, figs. 5, 6), which has a similar shell form and sculpture by the presence of small tubercles in the median part of the valve and by the presence of small subvertical ribs. It differs from the very similar *Palaeocytheridea parabakirovi* MALZ, 1962 from the Bathonian of SW Germany (MALZ 1962: 236, pl. 24, figs. 2–4; non PYATKOVA & PERMYAKOVA 1978: 151, pl. 67, fig. 1) and the Callovian of boring Thören WA 1 (MALZ 1975b, pl. 3, fig. 20) by the much stronger reticulation, the presence of the subvertical ribs and the shorter median ridge.

Remarks. – In her thesis DÉPÊCHE (1984, pl. 12, fig. 13) figured the same specimen under the name *Palaeocytheridea carinilia* (SYLVESTER-BRADLEY, 1948), which she had named earlier as *Palaeocytheridea* sp. (DÉPÊCHE 1973, pl. 3, fig. 9). In 1969 she published an article concerning the ostracods from Lorraine, among which *Palaeocytheridea parabakirovi* MALZ, 1962 (DÉPÊCHE 1969b: 112, pl. 3, fig. 3) was given, which according to its form, length and position of the ridges and the strong reticulation must be assigned to *Palaeocytheridea carinilia* (SYLVESTER-BRADLEY, 1948). In the remarks concerning this species she wrote that her material in essence was represented by juveniles, but among the five adult specimens one was very elongate and further differed by its slightly concave ventral border. She named this specimen *Palaeocytheridea* sp. (DÉPÊCHE 1969b, pl. 3, fig. 2). This latter specimen is identical with *Palaeocytheridea* sp. (DÉPÊCHE 1973) and as such with *Palaeocytheridea carinilia* (SYLVESTER-BRADLEY, 1948) (DÉPÊCHE 1984).

However, by their higher and less wide anterior, by their right ventral border and their well developed reticulation, these two specimens from Lorraine and the Paris Basin must be assigned to *Palaeocytheridea bakirovi* MANDELSTAM, 1947 described from the Bathonian of Mangyshlak (MANDELSTAM 1947: 246, pl. 1, fig. 4) and from the lower Bathonian of Ukraine (PYATKOVA & PERMYAKOVA 1978: 151, pl. 66, fig. 3).

Palaeocytheridea sp. from the middle Bathonian of Buchberg near Blumberg, figured in LIEBAU (1987: 46, fig. 3/4, fig. 7/4, fig. 11/4) must also be assigned to *Palaeocytheridea bakirovi* MANDELSTAM, 1947.

Genus *Procytheridea* PETERSON, 1954

“Procytheridea” gublerae (BIZON, 1958)

Pl. 3, Fig. 5

- 1949 *Cytheridea?* sp. – v. NOSTITZ, p. 65, pl. 4, fig. 5 [unpublished].
 1954 Ostracode 1534. – BUCK, Ostracodentabelle [unpublished].
 1958 *Progonocythere (?) gublerae* n. sp. – BIZON, p. 28, pl. 4, figs. 14–16.
 1959 *Procytheridea gublerae* (BIZON). – OERTLI, p. 38, pl. 6, figs. 172–177, pl. 7, figs. 178–180. – [1959a].
 1959 *Procytheridea gublerae* (BIZON). – OERTLI, pl. 1, fig. 4. – [1959b].
 1960 Ostracode N 13 [aff. *Procytheridea gublerae* (BIZON, 1958)]. – LUTZE, p. 435, pl. 38, fig. 10.
 1963 *Procytheridea gublerae* (BIZON). – OERTLI, pl. 34, fig. k, pl. 35, fig. k, pl. 36, fig. K.
 1980 *Procytheridea gublerae* (BIZON). – BIELECKA et al., p. 511, pl. 165, fig. 2.
 1984 *Progonocythere gublerae* BIZON. – PIOTELAT, pl. 7, figs. 12, 13.
 1985 *Procytheridea gublerae* BIZON. – DÉPÊCHE, pl. 32, figs. 16–18.
 1987 *Procytheridea gublerae* (BIZON). – HUBER et al., fig. 3.
 1988 *Procytheridea gublerae* (BIZON). – BIELECKA et al., p. 366, pl. 165, fig. 2. – [1988b].
 2000 *Procytheridea gublerae* (BIZON). – SCHUDACK & SCHUDACK, p. 102, pl. 4, figs. 4, 5.
 2001 *“Procytheridea” gublerae* (BIZON). – OLEMPKA & BLASZYK, p. 560, fig. 4A–I.

Occurrence: Kandern (BK 1534), boring Schliengen.

Distribution (SW Germany): Upper Callovian (Lamberti Zone) to middle Oxfordian (Densiplicatum Zone).

“Procytheridea” teteimene DILGER, 1963

Pl. 3, Figs. 6–8

- 1954 Ostracode 1393a, b, d. – BUCK, Ostracodentabelle [unpublished].
 1958 *Clithrocytheridea* sp. inc. – BRAUN, p. 29, pl. 2, fig. 5a, e, f [unpublished].
 1963 *Procytheridea teteimene* n. sp. – DILGER, p. 46, pl. 4, figs. 72–78.

Occurrence: Weilheim/Teck (BK 1393).

Distribution (SW Germany): Lower Aalenian (Opalinum Zone) to upper Bajocian (Garantiana Zone).

Genus *Supratoarcina* KNITTER & RIEGRAF, 1984

Supratoarcina supratoarcensis KNITTER & RIEGRAF, 1984

Pl. 3, Fig. 9

- 1954 Ostracode 1083. – BUCK, Ostracodentabelle [unpublished].

- 1962 Ostracod N 86 KLINGLER. – KLINGLER, p. 106, pl. 14, fig. 47.
 1983 Gen. et sp. indet. 1. – KNITTER, p. 230, pl. 34, figs. 8, 9.
 1983 Gen. et sp. indet. 1 sensu KNITTER. – KNITTER & OHMERT, p. 230, pl. 5, fig. 2.
 1984 *Supratoarcina suptratoarcensis* n. gen. n. sp. – KNITTER & RIEGRAF, p. 70, pl. 5, figs. 1–3.
 1987 *Supratoarcina suptratoarcensis* KNITTER. – TRÖSTER, pl. 4, fig. 12.

Occurrence: Bad Boll, Herzogenau (BK 881), Weilheim/Teck (BK 1083).

Distribution (SW Germany): Upper Toarcian (Variabilis Zone) to upper Aalenian.

Genus *Glyptocythere* BRAND & MALZ, 1962

Glyptocythere dorsicostata BRAND & MALZ in BRAND & FAHRION, 1962
 Pl. 3, Figs. 10, 11

- 1954 Ostracode 1575. – BUCK, Ostracodentabelle [unpublished].
 1962 *Glyptocythere dorsicostata* BRAND & MALZ n. sp. – BRAND & FAHRION, p. 145, pl. 21, fig. 10.
 1966 *Glyptocythere dorsicostata* BRAND & MALZ in BRAND & FAHRION. – BRAND & MALZ, p. 511, pl. 58, figs. 76–81.
 1985 *Glyptocythere* cf. *dorsicostata* BRAND & MALZ. – DÉPÊCHE, pl. 30, fig. 21.

Occurrence: Achdorf (BK 1575, 3768).

Distribution (SW Germany): Upper Bajocian (Niortense Zone) to Lower Bathonian (Zigzag Zone).

Glyptocythere polita BATE, 1965
 Pl. 3, Fig. 12

- 1954 Ostracode 1614. – BUCK, Ostracodentabelle [unpublished].
 1965 *Glyptocythere polita* n. sp. – BATE, p. 107, pl. 5, figs. 8–11, pl. 6, figs. 1–9.
 1978 *Glyptocythere polita* BATE. – BATE, pl. 3, figs. 10–12.

Occurrence: Achdorf (BK 1614).

Distribution (SW Germany): Bathonian (Zigzag to Orbis Zone).

Genus *Cristacythere* MICHELSEN, 1975

Cristacythere betzi (KLINGLER & NEUWEILER, 1959)
 Pl. 3, Figs. 13–15

- 1954 Ostracode 1125. – BUCK, Ostracodentabelle [unpublished].
 1959 *Procytheridea betzi* n. sp. – KLINGLER & NEUWEILER, p. 374, pl. 13, figs. 1–5, 9.
 1962 *Procytheridea betzi* KLINGLER & NEUWEILER. – KLINGLER, p. 80, pl. 12, fig. 5.
 1975 *Cristacythere betzi* (KLINGLER & NEUWEILER). – MICHELSEN, p. 163, pl. 10, figs. 143–147, pl. 11, figs. 159–171.

- 1980 *Cristacythere betzi* (KLINGLER & NEUWEILER). – SIVHED, p. 46, pl. 4, figs. 37, 40, pl. 5, fig. 53.
 2001 *Cristacythere betzi* (KLINGLER & NEUWEILER). – BEHER et al., p. 355, fig. 5.14.
 2004 *Cristacythere betzi* (KLINGLER & NEUWEILER). – BEHER, p. 96, pl. 10, fig. 12.

Occurrence: Ofterdingen (BK 1125).

Distribution (SW Germany): Sinemurian (Turneri to Obtusum Zone).

Genus *Cloughtonella* BATE, 1965

Cloughtonella costata (BRAUN) in OHMERT, 2004
 Pl. 3, Figs. 16, 17

- 1954 Ostracode 1399. – BUCK, Ostracodentabelle [unpublished].
 1958 *Klieana (Praeklieana) costata* n. sp. – BRAUN, p. 49, pl. 3, fig. 4 (non fig. 5) [unpublished].
 2004 *Cloughtonella costata* BRAUN n. sp. – OHMERT, p. 87, pl. 16, figs. 10–12, pl. 18, figs. 5, 6.

Occurrence: Weilheim/Teck (BK 1399).

Distribution (SW Germany): Lower Bajocian (Laeviuscula to Humphriesianum Zone).

Genus *Kinkelinella* MARTIN, 1960

Kinkelinella malzi (DÉPÊCHE, 1973)
 Pl. 3, Fig. 18, Pl. 4, Fig. 1

- 1954 Ostracode 1460. – BUCK, Ostracodentabelle [unpublished].
 1973 *Glyptocythere? malzi* n. sp. – DÉPÊCHE, p. 222, pl. 2, figs. 9–13.
 1984 *Kinkelinella malzi* (DÉPÊCHE). – DÉPÊCHE, pl. 17, figs. 12, 13.
 1985 *Kinkelinella malzi* (DÉPÊCHE). – DÉPÊCHE, pl. 30, fig. 15.

Occurrence: Weilheim/Teck (BK 1460).

Distribution (SW-Germany): Upper Bajocian (Garantiana Zone) to upper Bathonian (Orbis Zone).

Subgenus *Ektyphocythere* BATE, 1963

Kinkelinella (Ektyphocythere) champeauae (BIZON, 1960)
 Pl. 4, Fig. 2

- 1954 Ostracode 1099a. – BUCK, Ostracodentabelle [unpublished].
 1960 *Procytheridea champeauae* n. sp. – BIZON, p. 206, pl. 1, fig. 1, pl. 2, fig. 1.
 1961 *Procytheridea* sp. 7 (Ostr. 1099a BUCK). – OERTLI & GROS-DIDIER, tab. 6.
 1974 *Procytheridea champeauae* BIZON. – LORD, p. 615, text-fig. 5, fig. 1.
 1983 *Ektyphocythere champeauae* (BIZON). – KNITTER & OHMERT, pl. 4, fig. 5.
 1985 *Kinkelinella (Ektyphocythere) champeauae* (BIZON). – RIEGRAF, p. 80, pl. 3, fig. 12.

Occurrence: Kirchheim/Teck (BK 2950), Weilheim/Teck (BK 1099).

Distribution (SW Germany): Lower Toarcian (Tenuicostatum Zone). *Kinkelinella (Ekt.) champeauae* is index species of the Michelseni-Champeauae ostracod Zone (RIEGRAF 1985).

Remark. – The BUCK collection contains two similar species designated as Ostracod 1099a: *Kinkelinella (Ektyphocythere) champeauae* and *Kinkelinella (Ektyphocythere) furcata* (see below). In our opinion the drawing in the table (BUCK 1954) shows *K. champeauae*.

Kinkelinella (Ektyphocythere) furcata (WIENHOLZ, 1967)
Pl. 4, Fig. 3

- 1954 Ostracode 1099a. – BUCK, Ostracodentabelle [unpublished].
1962 Ostracod N 85 KLINGLER. – KLINGLER, p. 107, pl. 14, fig. 48.
1967 *Procytheridea vitilis furcata* n. ssp. – STOERMER & WIENHOLZ, p. 548, pl. 2, figs. 19–20.
1974 *Ektyphocythere* aff. *champeauae* BIZON. – LORD, p. 614, pl. 90, fig. 16.
1983 *Kinkelinella (Ektyphocythere) furcata* (WIENHOLZ). – KNITTER, p. 226, pl. 39, fig. 2.
1983 *Ektyphocythere furcata* (WIENHOLZ). – KNITTER & OHMERT, pl. 5, fig. 5.
1987 *Kinkelinella (Ektyphocythere) furcata* (WIENHOLZ). – TRÖSTER, pl. 5, fig. 2.
1996 *Ektyphocythere furcata* (WIENHOLZ). – OHMERT, fig. 30b.

Occurrence: Kirchheim/Teck (BK 2950), Weilheim/Teck (BK 1099).

Distribution (SW Germany): Lower Toarcian (Bifrons Zone) to upper Toarcian (Aalensis Zone). *Kinkelinella (Ektyphocythere) furcata* is the index species of the Furcata ostracod Zone.

Kinkelinella (Ektyphocythere) laqueata (KLINGLER & NEUWEILER, 1959)
Pl. 4, Figs. 4, 5

- 1954 β-Ostracode. – BUCK, Ostracodentabelle [unpublished].
1959 *Procytheridea laqueata* n. sp. – KLINGLER & NEUWEILER, p. 382, pl. 15, figs. 37–47.
1962 *Procytheridea laqueata* KLINGLER & NEUWEILER. – KLINGLER, p. 85, pl. 12, fig. 11, tab. 7.
1975 *Kinkelinella (Klinglerella) laqueata* (KLINGLER & NEUWEILER). – MICHELSEN, p. 192, pl. 20, figs. 327–330, pl. 22, figs. 353–357.
1980 *Kinkelinella (Klinglerella)* cf. *laqueata* (KLINGLER & NEUWEILER). – SIVHED, p. 49, pl. 6, figs. 55, 57.
1982 *Kinkelinella (Ektyphocythere) laqueata* (KLINGLER & NEUWEILER). – HERRIG, p. 1450, pl. 1, figs. 4–7.
1996 *Kinkelinella laqueata* (KLINGLER & NEUWEILER). – BEUTLER et al., pl. 8, figs. 8, 9.
2001 *Kinkelinella (Ektyphocythere) laqueata* (KLINGLER & NEUWEILER). – BEHER et al., p. 358, fig. 5.5.
2004 *Kinkelinella (Ektyphocythere) laqueata* (KLINGLER & NEUWEILER). – BEHER, p. 98, pl. 9, figs. 10, 12.

Occurrence: Balingen (BK 1297, 1305), Kirchheim/Teck, Oberboihingen (BK 2911).

Distribution (SW Germany): Upper Sinemurian (Obtusum to Oxynotum Zone). *Kinkelinella (Ekt.) laqueata* is the index species of the Laqueata ostracod Zone (BEHER 2004).

Kinkelinella (Ektyphocythere) medioreticulata
(MICHELSEN, 1970)
Pl. 4, Fig. 9

- 1954 Ostracode 785a. – BUCK, Ostracodentabelle [unpublished].
1962 Ostracod N 108 KLINGLER. – KLINGLER, p. 79, pl. 12, fig. 3.
1971 *Kinkelinella* aff. *K. triebeli* (KLINGLER & NEUWEILER). – LORD, p. 655, pl. 123, figs. 1–3.
1975 *Kinkelinella (Klinglerella) medioreticulata* (MICHELSEN). – MICHELSEN, p. 183, pl. 14, figs. 211–215.
1996 *Kinkelinella medioreticulata* (MICHELSEN). – BEUTLER et al., p. 133, pl. 8, figs. 3, 5.

Occurrence: Gniebel (BK 785), boring 5 Stuttgart-Pfaffenwald (12.3–12.6 m).

Distribution (SW Germany): Lower Hettangian to upper Sinemurian (Obtusum Zone).

Kinkelinella (Ektyphocythere) triangula (BRAND in BRAND & MALZ, 1961)
Pl. 4, Fig. 6

- 1954 Ostracode 1709a. – BUCK, Ostracodentabelle [unpublished].
1961 *Procytheridea triangula* n. sp. BRAND. – BRAND & MALZ, p. 161, pl. 1, figs. 11–14.
1961 *Procytheridea* sp. 14. – BIZON & OERTLI, tab. 7.
1962 *Procytheridea triangula* BRAND. – BRAND & FAHRION, p. 133, pl. 20, figs. 27, 28.
1963 *Ektyphocythere triangula* (BRAND). – BATE, p. 214, pl. 15, figs. 5–18.
1963 *Procytheridea geometrica* n. sp. – DILGER, p. 60, pl. 5, figs. 103–106.
1978 *Kinkelinella (Ektyphocythere) triangula* (BRAND). – BATE, pl. 8, figs. 6, 7.
1980 *Ektyphocythere triangula* (BRAND). – BASHA, p. 248, pl. 4, figs. 2–4.
1983 *Ektyphocythere triangula* (BRAND). – MORRIS, pl. 9, figs. 3–6.
1985 *Kinkelinella (Ektyphocythere) triangula* (BRAND). – MALZ et al., pl. 7, figs. 77, 78.
2004 *Kinkelinella (Ektyphocythere) triangula* (BRAND). – OHMERT, p. 92, pl. 17, fig. 5.

Occurrence: Boring Hausen (6.5 m, 34.05–34.65 m).

Distribution (SW Germany): Upper Aalenian (Concavum Zone) to lower Bajocian (Humphriesianum Zone). *Kinkelinella (Ekt.) triangula* is the index species of the Triangula ostracod Zone (BATE 1978: 216, tab. 3, pl. 8, figs. 6, 7; BODERGAT 1997: 216, tab. 6).

Remark. – The BUCK collection contains two similar species designated as Ostracod 1709a: *Kinkelinella (Ektyphocythere) triangula* and *K. (Kinkelinella) fischeri* (see below). The drawing in BUCK (1954) obviously shows

K. (Ekt.) triangula, because it corresponds with the stratigraphical range of this species as described by several authors.

Subgenus *Kinkelinella* MARTIN, 1960

Kinkelinella (Kinkelinella) costata KNITTER, 1983

Pl. 4, Fig. 7

- 1954 Ostracode 1081. – BUCK, Ostracodentabelle [unpublished].
 1959 Ostracoda 1 APOSTOLESCU. – APOSTOLESCU, p. 817, pl. 4, figs. 67–68.
 1960 *Procytheridea sermoisensis* APOSTOLESCU, 1959. – BIZON, p. 210, pl. 1, figs. 7b, 7c, pl. 3, figs. 1c, 2b, 2d (non figs. 1a, 1b, 2a, 2c, 3a–d).
 1961 Ostracoda 1 APOSTOLESCU. – COUSIN et al., tab. 4 bis. – [1961a].
 1961 *Procytheridea?* sp. 1081 (BUCK). – BIZON & OERTLI, tab. 7.
 1962 Ostracod N 84 KLINGLER. – KLINGLER, p. 104, pl. 14, fig. 45.
 1974 *Kinkelinella* sp. 1 (APOSTOLESCU, 1959). – LORD, p. 613, pl. 90, fig. 10.
 1979 *Kinkelinella* sp. 1 (APOSTOLESCU). – EXTON, p. 60, pl. 12, figs. 5–7, pl. 13, figs. 6–12.
 1983 *Kinkelinella costata* n. sp. – KNITTER, p. 224, pl. 39, figs. 7–10.
 1983 *Kinkelinella costata* KNITTER. – KNITTER & OHMERT, pl. 4, fig. 6.
 1985 *Kinkelinella (Kinkelinella) costata* KNITTER. – RIEGRAF, p. 80, pl. 3, fig. 11.
 1987 *Kinkelinella (Kinkelinella) costata* KNITTER. – TRÖSTER, pl. 4, figs. 14, 15.
 1996 *Kinkelinella costata* KNITTER. – OHMERT, fig. 30a.

Occurrence: Weilheim/Teck (BK 1081), Weingarten.

Distribution (SW Germany): Lower Toarcian (Bifrons Zone) to Upper Aalenian.

Kinkelinella (Kinkelinella) fischeri MALZ, 1966

Pl. 4, Fig. 8

- 1954 Ostracode 1709a. – BUCK, Ostracodentabelle [unpublished].
 1962 Ostracod N 94 KLINGLER, 1962. – KLINGLER, p. 110, pl. 11, fig. 6, pl. 14, fig. 53.
 1966 *Kinkelinella fischeri* n. sp. – MALZ, p. 389, pl. 48, figs. 4–14.
 1978 *Kinkelinella fischeri* MALZ. – PYATKOVA & PERMYAKOVA, p. 152, pl. 67, fig. 5.
 1982 *Kinkelinella (Kinkelinella) fischeri* MALZ. – HERRIG, p. 1450, pl. 1, figs. 1, 2.
 1983 *Kinkelinella (Kinkelinella) fischeri* MALZ. – KNITTER, p. 225, pl. 39, figs. 3, 4.
 1983 *Kinkelinella fischeri* MALZ. – KNITTER & OHMERT, pl. 5, fig. 4.
 1985 *Kinkelinella fischeri* MALZ. – DÉPÊCHE, pl. 27, fig. 9.
 1987 *Kinkelinella fischeri* MALZ. – TRÖSTER, pl. 4, figs. 16, 17.

- 1992 *Kinkelinella fischeri* MALZ. – ARIAS et al., p. 14, pl. 2, fig. 15.

Distribution (SW Germany): Upper Toarcian (Fallacium Zone) to lower Aalenium (Opalinum Zone). *Kinkelinella (Kink.) fischeri* is one of the index species of the Callosa-Fischeri ostracod Zone.

Remark. – The stratigraphical range of *K. (Kink.) fischeri* does not coincide with that of Ostr. 1709a in BUCK (1954). We therefore suggest that these specimens were added later to the collection of BUCK originals.

Kinkelinella (Kinkelinella) sermoisensis (APOSTOLESCU,

1959)

Pl. 4, Fig. 10

- 1954 Ostracode 1099. – BUCK, Ostracodentabelle [unpublished].
 1959 *Procytheridea sermoisensis* n. sp. – APOSTOLESCU, p. 812, pl. 3, figs. 37, 38.
 1960 *Procytheridea sermoisensis* APOSTOLESCU. – BIZON, p. 210, pl. 1, fig. 7a, c, d, pl. 3, figs. 1a, 2a.
 1961 *Procytheridea sermoisensis* APOSTOLESCU. – COUSIN et al., tab. 4 bis. – [1961a].
 1962 Ostracod N 81 KLINGLER. – KLINGLER, p. 108, pl. 14, fig. 50.
 1963 *Procytheridea sermoisensis* APOSTOLESCU. – OERTLI, pl. 20, fig. b, pl. 21, figs. 1a, 2b, pl. 22, fig. F.
 1963 *Procytheridea sermoisensis* APOSTOLESCU. – DILGER, p. 59, pl. 5, figs. 96–102.
 1974 *Kinkelinella sermoisensis* (APOSTOLESCU). – LORD, pl. 90, figs. 6–9.
 1975 *Kinkelinella (Kinkelinella) sermoisensis* (APOSTOLESCU). – BATE & COLEMAN, p. 16, pl. 4, figs. 1–11.
 1978 *Kinkelinella sermoisensis* (APOSTOLESCU). – LORD, p. 202, pl. 3, figs. 7, 8.
 1978 *Kinkelinella sermoisensis* (APOSTOLESCU). – PYATKOVA & PERMYAKOVA, p. 152, pl. 67, fig. 6.
 1979 *Kinkelinella sermoisensis* (APOSTOLESCU). – EXTON, p. 59, pl. 12, figs. 1–4.
 1983 *Kinkelinella sermoisensis* (APOSTOLESCU). – KNITTER, p. 225, pl. 39, figs. 5, 6.
 1983 *Kinkelinella sermoisensis* (APOSTOLESCU). – MORRIS, pl. 9, figs. 10, 12–15.
 1984 *Kinkelinella sermoisensis* (APOSTOLESCU). – EXTON & GRADSTEIN, pl. 2, figs. 7, 8.
 1985 *Kinkelinella sermoisensis* (APOSTOLESCU). – DÉPÊCHE, pl. 27, figs. 12, 13 (non fig. 6).
 1985 *Kinkelinella (Kinkelinella) sermoisensis* (APOSTOLESCU). – RIEGRAF, p. 79, pl. 3, figs. 7–10.
 1987 *Kinkelinella (Kinkelinella) sermoisensis* (APOSTOLESCU). – TRÖSTER, pl. 4, figs. 18, 19.
 1992 *Kinkelinella sermoisensis* (APOSTOLESCU). – ARIAS et al., p. 14, pl. 2, fig. 17.
 1999 *Kinkelinella sermoisensis* (APOSTOLESCU). – ARIAS & LORD, p. 232, pl. 3, fig. 6. – [1999b].

Occurrence: Weilheim/Teck (BK 1081, 1099).

Distribution (SW Germany): Lower Toarcian (Bifrons Zone) to lower Bajocian (Laeviuscula Zone).

Family Pleurocytheridae MANDELSTAM, 1960

Genus *Pleurocythere* TRIEBEL, 1951*Pleurocythere connexa* TRIEBEL, 1951

Pl. 2, Fig. 19

- 1951 *Pleurocythere connexa* n. sp. – TRIEBEL, p. 92, pl. 46, figs. 17–18.
- 1954 *Pleurocythere connexa* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].
- 1962 *Pleurocythere connexa* TRIEBEL. – BRAND & FAHRION, p. 136, pl. 21, fig. 21.
- 1963 *Pleurocythere connexa* TRIEBEL. – OERTLI, pl. 25, fig. 1g, pl. 26, fig. 2, pl. 27, fig. 1g.
- 1967 *Pleurocythere favosa* TRIEBEL. – BŁASZYK, p. 23, pl. 5, fig. 1 (non fig. 2, 3).
- non 1978 *Pleurocythere (Pleurocythere) connexa* TRIEBEL. – PYATKOVA & PERMYAKOVA, p. 149, pl. 64, fig. 2.
- 1980 *Pleurocythere connexa* TRIEBEL. – BIELECKA et al., p. 237, pl. 68, fig. 1.
- 1981 *Pleurocythere connexa* TRIEBEL. – SHEPPARD, figs. 5–10 [unpublished].
- 1984 *Pleurocythere connexa* TRIEBEL. – DÉPÊCHE, p. 289, pl. 16, fig. 8 [unpublished].
- 1988 *Pleurocythere connexa* TRIEBEL. – BIELECKA et al., p. 172, pl. 68, fig. 1. – [1988a].
- 1990 *Pleurocythere connexa* TRIEBEL. – BRAND, p. 202, pl. 12, figs. 15, 16.
- 2008 *Pleurocythere connexa* TRIEBEL. – TESAKOVA et al., pl. 1, fig. 14.

Occurrence: Achdorf, Glems (BK 459–462).

Distribution (SW Germany): Upper Bajocian (Parkinsoni Zone) to upper Bathonian (Orbis Zone). *Pleurocythere connexa* is the index species of the Connexa ostracod Zone.*Pleurocythere elliptica* BŁASZYK, 1967

Pl. 3, Fig. 1

- 1954 Ostracode 1617. – BUCK, Ostracodentabelle [unpublished].
- 1967 *Pleurocythere elliptica* n. sp. – BŁASZYK, p. 24, pl. 6, figs. 1–4.
- 1978 *Pleurocythere (Pleurocythere) connexa* TRIEBEL. – PYATKOVA & PERMYAKOVA, p. 149, pl. 64, fig. 2.
- 1980 *Pleurocythere elliptica* TRIEBEL. – BIELECKA et al., p. 237, pl. 68, fig. 2.
- 1988 *Pleurocythere elliptica* TRIEBEL. – BIELECKA et al., p. 173, pl. 68, fig. 2. – [1988a].
- 1990 *Pleurocythere elliptica* BŁASZYK. – BRAND, p. 202, pl. 12, figs. 17–20.

Occurrence: Achdorf (Bk 1617).

Distribution (SW Germany): Lower Bathonian (Zigzag Zone) to lower Callovian (Koenigi Zone).

Pleurocythere favosa TRIEBEL, 1951

Pl. 3, Fig. 2

- 1951 *Pleurocythere favosa* n. sp. – TRIEBEL, p. 93, pl. 46, figs. 19–22.

1954 *Pleurocythere favosa* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].

1967 *Pleurocythere favosa* TRIEBEL. – BŁASZYK, p. 23, pl. 5, figs. 2, 3 (non fig. 1).

non 1978 *Pleurocythere (Pleurocythere) favosa* TRIEBEL. – PYATKOVA & PERMYAKOVA, p. 149, pl. 64, fig. 4.

1980 *Pleurocythere favosa* TRIEBEL. – BIELECKA et al., p. 237, pl. 68, fig. 3.

1988 *Pleurocythere favosa* TRIEBEL. – BIELECKA et al., p. 173, pl. 68, fig. 3. – [1988a].

Occurrence: Achdorf (samples BK 3801, 3802), Glems (BK 467), boring 404 Gruibingen.

Distribution (SW Germany): Upper Bajocian (Parkinsoni Zone) to upper Bathonian (Orbis Zone). *Pleurocythere favosa* is the index species of the Favosa ostracod Zone.

Pleurocythere impar TRIEBEL, 1951

Pl. 3, Fig. 3

- 1951 *Pleurocythere impar* n. sp. – TRIEBEL, p. 91, pl. 45, figs. 8–12.
- 1954 *Pleurocythere impar* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].
- 1962 *Pleurocythere impar* TRIEBEL. – BRAND & FAHRION, p. 135, pl. 21, fig. 6.
- 1967 *Pleurocythere impar* TRIEBEL. – BŁASZYK, p. 24, pl. 5, figs. 4–7.
- 1978 *Pleurocythere (Pleurocythere) impar* TRIEBEL. – PYATKOVA & PERMYAKOVA, p. 149, pl. 65, fig. 1.
- 1980 *Pleurocythere impar* TRIEBEL. – BIELECKA et al., p. 238, pl. 68, fig. 4.
- 1988 *Pleurocythere impar* TRIEBEL. – BIELECKA et al., p. 173, pl. 68, fig. 4. – [1988a].

Distribution (SW Germany): Upper Bajocian (*garantiana* to ? *parkinsoni* zone). *Pleurocythere impar* is one of the index species of the Impar-Richteri ostracod subzone.

Pleurocythere regularis TRIEBEL, 1951

Pl. 3, Fig. 4

- 1951 *Pleurocythere regularis* n. sp. – TRIEBEL, p. 92, pl. 45, figs. 13–16.
- 1954 *Pleurocythere regularis* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].
- 1958 *Pleurocythere regularis* TRIEBEL. – BRAUN, p. 47, pl. 3, fig. 3 [unpublished].
- 1962 *Pleurocythere regularis* TRIEBEL. – BRAND & FAHRION, p. 136, pl. 21, fig. 4.
- 1978 *Pleurocythere (Pleurocythere) regularis* TRIEBEL. – PYATKOVA & PERMYAKOVA, p. 150, pl. 65, fig. 4.
- ? 1978 *Pleurocythere (Pleurocythere) favosa* TRIEBEL. – PYATKOVA & PERMYAKOVA, p. 149, pl. 64, fig. 4.
- 1980 *Pleurocythere regularis* TRIEBEL. – BIELECKA et al., p. 238, pl. 68, fig. 5.
- 1987 *Pleurocythere regularis* TRIEBEL. – LIEBAU, p. 45, pl. 3, figs. 5, 6, pl. 7, figs. 5, 6, pl. 11, figs. 5, 6.
- 1988 *Pleurocythere regularis* TRIEBEL. – BIELECKA et al., p. 173, pl. 68, fig. 5. – [1988a].
- non 2003 *Pleurocythere regularis* TRIEBEL, 1951. – TESAKOVA, p. 204, pl. 15, figs. 6–9.

Occurrence: Achdorf, Weilheim/Teck.

Distribution (SW Germany): Bajocian (Blagdeni to Garantiana Zone, ? Parkinsoni zone). *Pleurocythere regularis* is the index species of the Regularis ostracod Zone (OHMERT 2004).

Pleurocythere richteri TRIEBEL, 1951

- 1951 *Pleurocythere richteri* n. sp. – TRIEBEL, p. 89, pl. 44, figs. 1–7.
 1954 *Pleurocythere richteri* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].
 1962 *Pleurocythere richteri* TRIEBEL. – BRAND & FAHRION, p. 134, pl. 21, fig. 13.
 1978 *Pleurocythere (Pleurocythere) richteri* TRIEBEL. – PYATKOVA & PERMYAKOVA, p. 150, pl. 65, figs. 5, 6.
 1980 *Pleurocythere richteri* TRIEBEL. – BIELECKA et al., p. 239, pl. 68, fig. 6.
 1988 *Pleurocythere richteri* TRIEBEL. – BIELECKA et al., p. 173, pl. 68, fig. 6. – [1988a].

Occurrence: Achdorf, Balingen, Glems, Weilheim/Teck.

Distribution (SW Germany): Upper Bajocian (Parkinsoni Zone) to lower Bathonian. *Pleurocythere richteri* is one of the index species of the Impar-Richteri ostracod Subzone.

Genus *Pleurifera* GRAMANN, 1962

Pleurifera harpa (KLINGLER & NEUWEILER, 1959)

Pl. 4, Fig. 11

- 1954 Ostracode 999a. – BUCK, Ostracodentabelle [unpublished].
 1959 *Procytheridea harpa* n. sp. – KLINGLER & NEUWEILER, p. 396, pl. 18, figs. 87, 91, 92, 95, 96.
 1959 Ostracoda F. – APOSTOLESCU, p. 817, pl. 4, figs. 65, 66.
 1961 *Procytheridea harpa* KLINGLER & NEUWEILER. – COUSIN et al., tab. 4 bis. – [1961a].
 1961 *Procytheridea harpa* KLINGLER & NEUWEILER. – COUSIN et al., tab. 1 bis. – [1961b].
 1962 *Procytheridea harpa* KLINGLER & NEUWEILER. – KLINGLER, p. 92, pl. 12, fig. 20.
 1962 *Procytheridea (Pleurifera) harpa* KLINGLER & NEUWEILER. – GRAMANN, p. 189, pl. 1, fig. 6, text-fig. 1.
 1975 *Pleurifera harpa* (KLINGLER & NEUWEILER). – MICHELSEN, p. 214, pl. 21, figs. 339–341, pl. 24, figs. 378–380.
 1978 *Pleurifera harpa* (KLINGLER & NEUWEILER). – GRÜNDEL, fig. 2.
 1978 *Pleurifera harpa* (KLINGLER & NEUWEILER). – LORD, pl. 3, fig. 1.
 1980 *Pleurifera harpa harpa* (KLINGLER & NEUWEILER). – SIVHED, p. 52, pl. 7, figs. 77–81.
 1982 *Pleurifera harpa harpa* (KLINGLER & NEUWEILER). – HERIG, p. 1452, pl. 2, fig. 9.
 1985 *Pleurifera harpa* (KLINGLER & NEUWEILER). – DONZE, pl. 24, figs. 20, 21.
 1993 *Pleurifera harpa harpa* (KLINGLER & NEUWEILER). – HARLOFF, p. 102, pl. 4, figs. 7, 8.
 1999 *Pleurifera harpa harpa* (KLINGLER & NEUWEILER). – ARIAS & LORD, p. 234, pl. 4, fig. 3. – [1999b].
 2000 *Pleurifera harpa* (KLINGLER & NEUWEILER). – WALTSCHEW, p. 60, pl. 2, fig. 27.

2001 *Pleurifera harpa harpa* (KLINGLER & NEUWEILER). – BEHER et al., p. 363, fig. 5.8.

2004 *Pleurifera harpa harpa* (KLINGLER & NEUWEILER). – BEHER, p. 108, pl. 13, fig. 7.

Occurrence: Kirchheim/Teck (BK 999), Oberboihingen (BK 2924, 2926).

Distribution (SW Germany): Pliensbachian (Taylori to Stokesi Subzone).

Family Neurocytheridae GRÜNDEL, 1975

Genus *Fissocythere* MALZ, 1959

Fissocythere bucki MALZ, 1972

Pl. 4, Fig. 12

- 1954 Ostracode 1615. – BUCK, Ostracodentabelle [unpublished].
 1972 *Fissocythere bucki* n. sp. – MALZ, p. 84, pl. 2, figs. 12, 13.
 1984 *Nophrecythere* cf. *bucki* MALZ. – DÉPÊCHE, pl. 10, figs. 9, 14.
 1987 *Fissocythere bucki* MALZ. – LIEBAU, p. 46, pl. 6, figs. 3, 4, pl. 10, figs. 3, 4, pl. 14, figs. 3, 4.

Occurrence: Achdorf (BK 1615).

Distribution (SW Germany): Lower Bathonian (Zigzag Zone).

Fissocythere variabilis MALZ, 1959

Pl. 4, Fig. 13

- 1954 Ostracode 1615a. – BUCK, Ostracodentabelle [unpublished].
 1959 *Fissocythere variabilis* n. sp. – MALZ, p. 325, pl. 2, figs. 17–22.
 1960 *Lophocythere?* aff. Ostr. 1615a BUCK. – LUTZE, p. 432, pl. 37, fig. 4.
 1969 *Fissocythere variabilis* MALZ. – DÉPÊCHE, pl. 3, fig. 9. – [1969b].
 1984 *Fissocythere variabilis* MALZ. – DÉPÊCHE, pl. 10, figs. 10, 11 [unpublished].
 1987 *Fissocythere variabilis* MALZ. – LIEBAU, p. 46, pl. 6, figs. 1, 2, pl. 10, figs. 1, 2, pl. 14, figs. 1, 2.

Occurrence: Achdorf (BK 1615), Glems (BK 469).

Distribution (SW Germany): Bathonian.

Genus *Fuhrbergiella* BRAND & MALZ, 1962

Fuhrbergiella (Fuhrbergiella) gigantea gigantea BRAND & MALZ, 1962

Pl. 4, Figs. 14, 15

- 1954 Ostracode 1575a. – BUCK, Ostracodentabelle [unpublished].
 1962 *Fuhrbergiella (Fuhrbergiella) gigantea gigantea* n. ssp. – BRAND & MALZ, p. 4, pl. 1, figs. 1–7, pl. 2, fig. 9, pl. 6, fig. 56.
 1962 *Fuhrbergiella (Fuhrbergiella) gigantea gigantea* BRAND & MALZ. – BRAND & FAHRION, p. 140, pl. 20, figs. 39, 40.

2004 *Fuhrbergiella gigantea* BRAND & MALZ. – WHATLEY & BALLENT, p. 93, pl. 1, fig. 9.

Occurrence: Achdorf (BK 1575, 3768), Glems (BK 466).

Distribution (SW Germany): Upper Bajocian (Gartiana Zone) to Lower Bathonian (Zigzag Zone).

Fuhrbergiella (Fuhrbergiella) primitiva BRAND & MALZ, 1962

Pl. 6, Figs. 7–11

1954 Ostracode 2244a. – BUCK, Ostracodentabelle [unpublished].

1958 *Lophocythere furcata* n. sp. – BRAUN, p. 82, pl. 4, fig. 6 [unpublished].

1962 *Fuhrbergiella (Fuhrbergiella) primitiva* n. sp. – BRAND & MALZ, p. 13, pl. 2, figs. 15–21.

Occurrence: Achdorf (BK 2244)

Distribution (SW Germany): Bajocian (Humphriesianum Zone, Romani Subzone to Niortense Zone). *Fuhrbergiella (Fuhrb.) primitiva* is the index species of the Primitiva ostracod Zone (OHMERT 2004).

Remark. – BRAUN (1958) described *Lophocythere furcata* with two subspecies, which he distinguished by the following characters: The lowermost ventral ridge of *L. furcata furcata* rises anteriorly and touches the upper ventral ridge, whereas the ventral ridge of *L. furcata divisa* reaches the anterior border. As a second difference, the frontal rib of *L. furcata furcata* touches the upper ventral ridge, whereas in *L. furcata divisa* there is a small gap between these two ribs. We examined BRAUN's type collection (the 'holotypes' and 'paratypes' of these two subspecies are refigured in this paper; see Pl. 6, Figs. 7–11) and found the primary difference to be an individual variation (e. g., the lowermost ventral ridge of the holotype of *L. furcata furcata* reaches the anterior border (Pl. 6, Fig. 7)). Furthermore, we could not observe a gap between the frontal and the ventral ridge at *L. furcata divisa*. Thus, the two subspecies cannot be distinguished by these two characters.

Fuhrbergiella (Praefuhrbergiella) sauzei BRAND & MALZ, 1962

Pl. 4, Fig. 16

1954 Ostracode 727. – BUCK, Ostracodentabelle [unpublished].

1962 *Fuhrbergiella (Praefuhrbergiella) sauzei* n. sp. – BRAND & MALZ, p. 22, pl. 3, fig. 30, pl. 4, figs. 31, 32, pl. 5, figs. 41–45.

1962 *Fuhrbergiella (Praefuhrbergiella) sauzei* BRAND & MALZ. – BRAND & FAHRION, p. 141, pl. 20, fig. 31.

1963 *Fuhrbergiella (Praefuhrbergiella) sauzei* BRAND & MALZ. – PLUMHOFF, pl. 3, figs. 50, 51.

? 1965 *Fuhrbergiella (Praefuhrbergiella) horrida horrida* BRAND & MALZ. – BATE, p. 104, pl. 4, figs. 2, 7, 8, 12.

? 1978 *Fuhrbergiella (Praefuhrbergiella) horrida horrida* BRAND & MALZ. – BATE, pl. 4, fig. 8.

1988 *Fuhrbergiella (Praefuhrbergiella) sauzei* BRAND & MALZ. – OHMERT, p. 335, pl. 4, figs. 36, 37.

2004 *Fuhrbergiella (Praefuhrbergiella) sauzei* BRAND & MALZ. – WHATLEY & BALLENT, p. 93.

Occurrence: Achdorf, boring Hausen (33.2–33.4 m), Ringsheim, Wißgoldingen (BK 727).

Distribution (SW Germany): Lower Bajocian (Sauzei to Humphriesianum Zone). *Fuhrbergiella (Praefuhrb.) sauzei* is the index species of the Sauzei ostracod Zone (OHMERT 2004).

Fuhrbergiella (Praefuhrbergiella) lurida BŁASZYK, 1967

Pl. 4, Fig. 17

1954 Ostracode 1581. – BUCK, Ostracodentabelle [unpublished].

1967 *Fuhrbergiella (Praefuhrbergiella) lurida* n. sp. – BŁASZYK, p. 37, pl. 10, figs. 4–11.

2001 *Glabellacythere reticulata* WHATLEY, 1970. – OLEMPKA & BŁASZYK, p. 558, fig. 2A–C.

2004 *Fuhrbergiella (Praefuhrbergiella) lurida* BŁASZYK. – WHATLEY & BALLENT, p. 93.

Occurrence: Achdorf (BK 1581).

Distribution (SW Germany): Upper Bajocian (Gartiana Zone) to lower Bathonian (Zigzag Zone).

Genus *Lophocythere* SYLVESTER-BRADLEY, 1948

Lophocythere concentrica (BŁASZYK, 1967)

Pl. 4, Fig. 18

1954 Ostracode 1593. – BUCK, Ostracodentabelle [unpublished].

1958 *Lophocythere acuticosta* n. sp. – BRAUN, p. 86, pl. 5, fig. 2 [unpublished].

1967 *Fuhrbergiella (Fuhrbergiella?) concentrica* n. sp. – BŁASZYK, p. 35, pl. 10, figs. 1–3.

2004 *Fuhrbergiella (Fuhrbergiella?) concentrica* BŁASZYK. – WHATLEY & BALLENT, p. 93.

Occurrence: Achdorf (BK 1593), Glems (BK 469).

Distribution (SW Germany): Upper Bajocian (Niortense Zone) to upper Bathonian (Orbis Zone).

Lophocythere karpinskyi (MANDELSTAM, 1949)

Pl. 5, Fig. 1

1949 *Protocythere karpinskii* n. sp. – MANDELSTAM, p. 261, pl. 85, fig. 5.

1954 *Lophocythere scabra* 2. U.-Art. – BUCK, Ostracodentabelle [unpublished].

1955 *Protocythere karpinskyi* MANDELSTAM, n. sp. – LYUBIMOVA, p. 71, pl. 8, fig. 5.

1960 *Lophocythere scabra bucki* n. ssp. – LUTZE, p. 430, pl. 37, figs. 2, 3.

1962 *Lophocythere scabra bucki* LUTZE. – MALZ, p. 240, pl. 24, fig. 6 c.

- 1962 *Lophocythere scabra bucki* LUTZE. – BRAND & FAHRION, p. 148, pl. 21, fig. 33.
- 1962 *Lophocythere scabra bucki* LUTZE. – KLINGLER et al., p. 185, pl. 25, fig. 3.
- 1970 *Lophocythere (Lophocythere) scabra bucki* LUTZE. – WHATLEY, p. 334, pl. 8, figs. 15–24, pl. 9, figs. 1, 5.
- 1975 *Lophocythere karpinskyi* (MANDELSTAM in LJUBIMOVA, 1955). – MALZ, p. 130, pl. 1, fig. 4, pl. 2, fig. 9, pl. 3, figs. 14–16, pl. 5, fig. 36. – [1975b].
- 1976 *Lophocythere scabra bucki* LUTZE. – KAEVER et al., p. 62, pl. 9, fig. 4.
- 1978 *Lophocythere scabra bucki* LUTZE. – KILENYI, pl. 10, figs. 8–11.
- 1978 *Lophocythere karpinskyi* (MANDELSTAM). – PYATKOVA & PERMYAKOVA, p. 145, pl. 60, fig. 6.
- 1980 *Lophocythere karpinskyi* (MANDELSTAM in LJUBIMOVA, 1955). – BIELECKA et al., p. 235, pl. 67, fig. 4.
- 1983 *Lophocythere karpinskyi* (MANDELSTAM in LJUBIMOVA, 1955). – HERNGREEN et al., pl. 3, fig. 10.
- 1984 *Lophocythere scabra* TRIEBEL. – DÉPÊCHE, pl. 7, figs. 11–13 [unpublished].
- 1984 *Lophocythere scabra* BUCK. – PIOTELAT, pl. 7, fig. 15.
- 1985 *Lophocythere scabra* TRIEBEL. – DÉPÊCHE, pl. 32, figs. 2, 3.
- 1988 *Lophocythere karpinskyi* (MANDELSTAM in LJUBIMOVA, 1955). – BIELECKA et al., p. 171, pl. 67, fig. 4. – [1988a].
- 1994 *Lophocythere karpinskyi* (MANDELSTAM in LJUBIMOVA, 1955). – SCHUDACK, p. 104, pl. 17, figs. 7–8.
- 1996 *Lophocythere karpinskyi* (MANDELSTAM, 1949). – GERASIMOV et al., pl. 5, figs. 9–12.
- 1999 *Lophocythere karpinskyi* (MANDELSTAM, 1955). – NIKOLAEVA et al., pl. 32, fig. 64.
- 2001 *Lophocythere karpinskyi* (MANDELSTAM in LJUBIMOVA, 1955). – OLEMPKA & BŁASZYK, p. 570, fig. 10.
- 2001 *Lophocythere karpinskyi* (MANDELSTAM in LJUBIMOVA, 1955). – WHATLEY et al., p. 148, pl. 3, figs. 14–17.
- 2003 *Lophocythere karpinskii* (MANDELSTAM). – TESAKOVA, p. 186, pl. 10, figs. 5–16.
- 2004 *Lophocythere karpinskyi* (MANDELSTAM in LJUBIMOVA, 1955). – WHATLEY & BALLENT, p. 90
- 2008 *Lophocythere karpinskyi* (MANDELSTAM). – TESAKOVA, figs. 3.6, 3.7.

Distribution (SW Germany): Lower Callovian to Oxfordian.

Lophocythere scabra TRIEBEL, 1951

Pl. 5, Fig. 2

- 1951 *Lophocythere scabra* n. sp. – TRIEBEL, p. 95, pl. 46, figs. 26–30, pl. 47, figs. 31–34.
- 1954 *Lophocythere scabra* 1. U.-Art. – BUCK, Ostracodentabelle [unpublished].
- 1957 *Lophocythere scabra* TRIEBEL. – OERTLI, fig. 2 (2), fig. 3 (4).
- 1960 *Lophocythere scabra scabra* TRIEBEL. – LUTZE, p. 429, pl. 37, fig. 1.
- 1962 *Lophocythere scabra scabra* TRIEBEL. – BRAND & FAHRION, p. 147, pl. 21, fig. 32.
- 1963 *Lophocythere scabra* TRIEBEL. – OERTLI, p. 43, pl. 26.1, fig. w, pl. 28.1, fig. w, pl. 29, fig. r, pl. 30.1, fig. w.
- 1967 *Lophocythere scabra scabra* TRIEBEL. – BATE, p. 52, pl. 15, fig. 6.

- 1969 *Lophocythere scabra* TRIEBEL. – DÉPÊCHE, pl. 3, fig. 10. – [1969b].
- 1975 *Lophocythere scabra* TRIEBEL. – MALZ, p. 126, pl. 1, fig. 5, pl. 4, fig. 27, pl. 5, fig. 38. – [1975b].
- 1978 *Lophocythere scabra* TRIEBEL. – PYATKOVA & PERMYAKOVA, p. 145, pl. 61, figs. 1, 2.
- 1980 *Lophocythere scabra* TRIEBEL. – BIELECKA et al., p. 236, pl. 67, fig. 6.
- 1983 *Lophocythere scabra* TRIEBEL. – HERNGREEN et al., pl. 3, figs. 11, 12.
- 1988 *Lophocythere scabra* TRIEBEL. – BIELECKA et al., p. 172, pl. 67, fig. 6. – [1988a].
- 2003 *Lophocythere scabra* TRIEBEL. – TESAKOVA, p. 187, pl. 11, figs. 1–7.
- 2004 *Lophocythere scabra* TRIEBEL. – WHATLEY & BALLENT, p. 88.

Distribution (SW Germany): Callovian.

Genus *Platylophocythere* OERTLI, 1959

Platylophocythere hessi OERTLI, 1959

Pl. 5, Fig. 3

- 1954 Ostracode 1539. – BUCK, Ostracodentabelle [unpublished].
- 1959 *Platylophocythere hessi* n. sp. – OERTLI, p. 955, pl. 1 (2), pl. 2, figs. 1–8. – [1959b].
- 1984 *Platylophocythere hessi* OERTLI. – DÉPÊCHE, pl. 16, figs. 3, 4 [unpublished].
- 1987 *Platylophocythere hessi* OERTLI. – HUBER et al., fig. 3.

Occurrence: Kandern (BK 1539).

Distribution (SW Germany): Upper Callovian (Athleta zone) to lower Oxfordian (Cordatum Zone).

Genus *Neurocythere* WHATLEY, 1970

Neurocythere caesa caesa (TRIEBEL, 1951)

Pl. 5, Fig. 4

- 1951 *Lophocythere caesa* n. sp. – TRIEBEL, p. 96, pl. 48, figs. 42–45.
- 1954 *Lophocythere caesa* (Ostracode 1623). – BUCK, Ostracodentabelle [unpublished].
- 1960 *Lophocythere caesa caesa* TRIEBEL. – LUTZE, p. 431, pl. 35, fig. 7.
- 1962 *Lophocythere caesa caesa* TRIEBEL. – MALZ, pl. 24, fig. 6e.
- 1969 *Lophocythere caesa* TRIEBEL. – DÉPÊCHE, p. 271, pl. 3, figs. 1, 2. – [1969a].
- 1973 *Neurocythere caesa* (TRIEBEL). – GRÜNDEL, p. 583.
- 1976 *Neurocythere caesa* TRIEBEL. – ASCOLI, pl. 8, fig. 1.
- 1983 *Lophocythere caesa caesa* TRIEBEL. – HERNGREEN et al., pl. 3, figs. 6, 7.
- 2004 *Neurocythere caesa* (TRIEBEL). – WHATLEY & BALLENT, p. 100.

Occurrence: Achdorf (sample BK 1623).

Distribution (SW Germany): Bathonian (Zigzag to Orbis Zone). *Neurocythere caesa caesa* is the index subspecies of the Caesa ostracod Subzone.

Neurocythere cingata n. sp. BRAUN in FRANZ et al.

Pl. 5, Fig. 5; Pl. 6, Figs. 1–3

1954 Ostracode 2248. – BUCK, Ostracodentabelle [unpublished].

1958 *Lophocythere cingata* n. sp. – BRAUN, p. 94, pl. 5, fig. 5 [unpublished].

Derivation of name: *cingatus* (lt.) = framed; the median area is surrounded by ridges on all sides.

Holotype: Male carapace; Ar 1134/179; Pl. 6, Fig. 1.

Type locality: Achdorf (Eichberg).

Type horizon: Hamitenton Formation, (Upper Bajocian, Garantiana Zone).

Distribution (SW-Germany): Upper Bajocian (Garantiana to Parkinsoni Zone).

Material: 2 well preserved, adult valves (BUCK collection, sample BK 2248); 4 valves and 2 carapaces (adults, well preserved; BRAUN collection), all from the type locality, Eichberg near Achdorf.

Diagnosis. – A species of the genus *Neurocythere* with the following characteristic: the large central zone is surrounded on all sides by high ridges.

Description. – The medium-sized carapace is oval to rectangular with a medium width. The left valve is larger than the right, which it overlaps at the antero- and posterodorsal angles. Greatest height in the anterior half, greatest length through midpoint and greatest width in the posteroventral part.

Dorsal margin horizontal, straight, in the right valves slightly convex in the middle, in the left valves slightly concave; the straight ventral margin is parallel to the dorsal margin.

The anterior is high, evenly rounded. The posterior, which has the same height as the anterior, is pointedly triangular, a little more inclined in its ventral part. Anterior and posterior are both flattened.

The eye tubercle is flat and barely visible. Two longitudinal ridges parallel the ventral margin, starting close to the posterior end. Whereas the lower (ventral) ridge reaches the anterior margin, the upper (ventro-lateral) ridge bends up towards the dorsal margin and reaches the eye tubercle.

The dorsal ridge runs parallel to the dorsal margin for a short distance in the median region. Its oblique anterior branch crosses the anterior half of the valve and reaches the anterior margin. Its posterior branch is subvertical, separating the posterior third of the valve and reaches the ventro-lateral ridge. Therefore, the large central part of the valve is surrounded by ridges. A third longitudinal ridge starts in the centre of the central zone and ends before the posterior. Its front and rear parts are well developed, in contrast to the parts in the vicinity of the subvertical rib, giving the appearance that there are two short ribs on the same line instead of a single ridge.

All the ribs are thin. The surface between the ribs is completely reticulated, except for the smooth anterior and

posterior areas. Hinge and marginal zone are built as in the type species of *Neurocythere*. The valves of females are shorter and higher than the males.

Dimensions (mm):

		No.	L	H	W
Holotype	carapax, male	Ar 1134/179	0,66	0,40	0,37
Paratypes	LV	Ar 1134/180	0,65	0,40	
	LV	Ar 1134/181	0,80	0,40	
	RV	Ar 1134/182	0,72	0,37	
	RV	Ar 1134/183	0,72	0,38	
	carapax, female	Ar 1134/184	0,70	0,42	0,37
	carapax, female	Em 347	0,63	0,36	

Variation. – The length of ribs and the reticulation between the ribs vary slightly.

Comparison. – *Neurocythere cingata* n. sp. differs from *Neurocythere bessinensis* (DÉPÊCHE, 1973) from the lower Bathonian of France (top of Parkinsoni to Zigzag Zone) (DÉPÊCHE 1973: 217, pl. 1, figs. 3–8; 1984, pl. 10, figs. 4–6, pl. 11, figs. 1, 9; 1985, pl. 30, fig. 3), the most similar species concerning shell shape and the number of ribs and their position, by the stronger anterior branch of the arcuate dorsal ridge, often arriving at the meeting point of the ventral and anterior ridge, and by the weaker posterior branch of this ridge. Secondly, by the stronger posterior vertical branch of this rib, visible not only above the median ridge, as in *N. bessinensis*, but also below it, separating the posterior part from the rest of the valve. Moreover, by the absence of the second ventral ridge, situated between the main ventral ridge and the median ridge. *N. cingata* n. sp. further differs from *N. bessinensis* by the broken median ridge – exhibiting only a small “zigzag” rib in its central part – and by the coarser and more regular reticulation in the dorsal half of the valve.

It differs from *Neurocythere* cf. *variabilis* (MALZ, 1959) from the Lower Bathonian of France (DÉPÊCHE 1984, pl. 10, figs. 12, 13, pl. 11, fig. 6; 1985, pl. 30, figs. 1, 4, 5), which is similar in its sculpture, by the presence of the ventral branch of the bifurcate median ridge and by the broken median ridge, by the absence of the small short rib, which anteriorly joins the anterior branch of the arcuate dorsal ridge with the ventral ridge.

Neurocythere cruciata cruciata (TRIEBEL, 1951)= *N. catephracta* (MANDELSTAM, 1949)

Pl. 5, Figs. 6, 7

1949 *Protocythere catephracta* n. sp. – MANDELSTAM, p. 261, pl. 85, fig. 7.1951 *Lophocythere cruciata cruciata* n. ssp. – TRIEBEL, p. 99, pl. 49, figs. 53–56.1954 *Lophocythere cruciata cruciata* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].1954 *Lophocythere cruciata franconica* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].

- 1955 *Protocythere catephracta* MANDELSTAM n. sp. – LUBIMOVA, p. 70, pl. 8, fig. 4.
 1958 *Lophocythere cruciata cruciata* TRIEBEL. – BIZON, p. 24, pl. 3, fig. 10.
 1959 *Lophocythere cruciata cruciata* TRIEBEL. – OERTLI, p. 32, pl. 4, figs. 128–132. – [1959a].
 1959 *Lophocythere cruciata cruciata* TRIEBEL. – OERTLI, pl. 1, fig. 3. – [1959b].
 1962 *Lophocythere cruciata cruciata* TRIEBEL. – BRAND & FAHRION, p. 146, pl. 21, fig. 29.
 1962 *Lophocythere cruciata cruciata* TRIEBEL. – MALZ, pl. 24, fig. 6b.
 1963 *Lophocythere cruciata* cf. *cruciata* TRIEBEL. – OERTLI, pl. 33.
 1970 *Lophocythere (Neurocythere) cruciata cruciata* TRIEBEL. – WHATLEY, p. 340, pl. 11, figs. 18–22.
 1973 *Neurocythere cruciata cruciata* (TRIEBEL). – GRÜNDEL, p. 583, fig. 2.
 1975 *Crucicythere cruciata cruciata* (TRIEBEL). – MALZ, pl. 5, fig. 35. – [1975b].
 1978 *Neurocythere cruciata oxfordiana* (LUTZE). – KILENYI, pl. 11, figs. 3, 4.
 1978 *Crucicythere cruciata* (TRIEBEL). – PYATKOVA & PERMYAKOVA, p. 146, pl. 61, fig. 4.
 1987 *Nophrecythere cruciata* form B. – HUBER et al., fig. 3.
 1987 *Nophrecythere cruciata* form C. – HUBER et al., fig. 3.
 1996 *Crucicythere catephracta* (MANDELSTAM). – GERASIMOV et al., pl. 5, figs. 1–4.
 1999 *Nophrecythere catephracta* (MANDELSTAM). – NIKOLAEVA et al., p. 65, pl. 32, fig. 7.
 2003 *Nophrecythere catephracta* (MANDELSTAM, 1949). – TESAKOVA, p. 193, pl. 12, figs. 1–10 (non figs. 11–15), pl. 13, figs. 1–3.
 2004 *Neurocythere cruciata cruciata* (TRIEBEL). – WHATLEY & BALLENT, p. 100, pl. 2, figs. 4–6.
 2008 *Neurocythere catephracta* (MANDELSTAM). – TESAKOVA, figs. 2.18, 3.1.

Occurrence: Kandern, Schliengen.

Distribution (SW Germany): ? Upper Bathonian (Orbis Zone) to lower Oxfordian (Mariae Zone). *Neurocythere cruciata cruciata* is the index subspecies of the Cruciate ostracod Zone.

Remarks. – This species was first published by M. I. MANDELSTAM in 1949 as *Protocythere catephracta* (TESAKOVA 2003: 193), but his “Atlas of Index Forms of the Fossil faunas of the USSR” was not publicly available because it contained “secret information” and it was necessary to have special permission to use this edition. For this reason ostracodologists in Western Europe could not know of or use this species. A decision was made to republish the work in 1955 by LYUBIMOVA. In the meantime, TRIEBEL (1951) had described the same species under the name *Lophocythere cruciata cruciata*, together with some other subspecies of *L. cruciata*. This publication was by far better known to the majority of scientists than the Russian original. *L. cruciata cruciata* is a junior synonym of *P. catephracta*! For two reasons we concede priority to *L. cruciata cruciata*: First, as an historical fact the majority of European ostracodologists’ have become familiar with this species, and secondly, if priority is given to *catephrac-*

ta then a number of taxonomical problems with the other subspecies of *cruciata* would arise.

BUCK (1954) figured a form in his table which he named *L. cruciata franconica* TRIEBEL. In our image (Pl. 5, Fig. 6) this specimen shows the following characteristic features: A single small rib crossing the anterior margin, a strong frontal rib and a rather strong anterodorsal rib, which is why we assigned this specimen to *N. cruciata cruciata* (TRIEBEL).

Neurocythere cruciata intermedia (LUTZE, 1960)

Pl. 5, Fig. 8

- 1954 *Lophocythere cruciata* 3. U.-Art. – BUCK, Ostracodentabelle [unpublished].
 1960 *Lophocythere cruciata intermedia* n. ssp. – LUTZE, p. 423, pl. 34, figs. 5, 6.
 1963 *Lophocythere cruciata intermedia* LUTZE. – OERTLI, pl. 34, fig. 1f, pl. 35, figs. 1f, 2f.
 1970 *Lophocythere (Neurocythere) cruciata intermedia* LUTZE. – WHATLEY, p. 338, pl. 10, figs. 6, 7, 9–21, pl. 11, figs. 1, 4.
 1978 *Neurocythere cruciata intermedia* (LUTZE). – KILENYI, pl. 11, figs. 9–12.
 1978 *Crucicythere intermedia* (TRIEBEL). – PYATKOVA & PERMYAKOVA, p. 146, pl. 62, figs. 3, 4.
 1980 *Lophocythere cruciata intermedia* LUTZE. – BIELECKA et al., p. 234, pl. 67, fig. 1.
 1983 *Lophocythere cruciata intermedia* LUTZE. – HERNGREEN et al., pl. 3, figs. 1–5.
 1987 *Nophrecythere cruciata* form A. – HUBER et al., fig. 3.
 1988 *Lophocythere cruciata intermedia* LUTZE. – BIELECKA et al., p. 234, pl. 67, fig. 1. – [1988a].
 2001 *Neurocythere cruciata intermedia* (LUTZE). – WHATLEY et al., p. 153, pl. 5, figs. 4–9.
 2001 *Nophrecythere intermedia* (LUTZE). – OLEMPKA & BŁASZYK, p. 568, fig. 9A–H.
 2004 *Neurocythere cruciata intermedia* (LUTZE). – WHATLEY & BALLENT, p. 100.

Occurrence: Neidlingen (BK 1130), boring Schliengen.

Distribution (SW Germany): Callovian to Oxfordian.

Neurocythere plena (TRIEBEL, 1951)

Pl. 5, Fig. 9

- 1951 *Lophocythere plena* n. sp. – TRIEBEL, p. 100, pl. 49, figs. 60–63.
 1954 *Lophocythere plena* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].
 1960 *Lophocythere plena* TRIEBEL. – LUTZE, p. 420, pl. 34, figs. 1, 3.
 1962 *Lophocythere plena* TRIEBEL. – BRAND & FAHRION, p. 147, pl. 21, fig. 28.
 1981 *Lophocythere plena* TRIEBEL. – BIELECKA & STYK, p. 39, pl. 6, fig. 12.
 1990 *Nophrecythere plena* (TRIEBEL). – BRAND, p. 223, pl. 15, fig. 20.
 2004 *Neurocythere plena* (TRIEBEL). – WHATLEY & BALLENT, p. 100.

Occurrence: Achdorf (sample BK 3802), Riedlingen near Kandern.

Distribution (SW Germany): Upper Bathonian (Orbis Zone) to lower Callovian (Koenigi Zone). *Neurocythere plena* is the index species of the Plena ostracod Zone.

Neurocythere tricostata n. sp. BRAUN in FRANZ et al.

Pl. 5, Figs. 10, 11; Pl. 6, Figs. 4–6

1954 Ostracode 2244. – BUCK, Ostracodentabelle [unpublished].

1958 *Lophocythere tricostata* n. sp. – BRAUN, p. 84, pl. 4, fig. 7, pl. 5, fig. 1 [unpublished].

1987 *Neurocythere?* sp. BUCK 2244. – LIEBAU, p. 45, pl. 3, figs. 1, 2, pl. 7, figs. 1, 2, pl. 11, figs. 1, 2.

Derivation of name: *tricostata* – from the three ribs in the postero-dorsal and lateral area.

Holotype: Male carapace; Ar 1134/159; Pl. 6, Fig. 4.

Type locality: Achdorf (Eichberg).

Type horizon: Ostreenkalk Formation, Blagdeni-Schichten.

Distribution (SW Germany): Ostreenkalk Formation to Hamitenton Formation, Bajocian (Humphriesianum Zone, Blagdeni Subzone and Niortense Zone).

Material: 3 valves and 4 carapaces from the BUCK collection (BK 2244); 2 valves and 2 carapaces from the BRAUN collection (Tübingen); all specimens well preserved adults. Eichberg near Achdorf, Blagdeni-Schichten (Lower Bajocian, Upper Humphriesianum Zone).

Diagnosis. – A species of the genus *Neurocythere* with the following characteristic: carapace small, three short longitudinal ridges run over the rear lateral surface and break off at the edge of a large central zone.

Description. – The medium-sized carapace is rounded trapezoidal with a medium width. The left valve is slightly larger than the right and overlaps at the antero- and posterodorsal angles. Greatest height in the anterior half of the valve, greatest length through midpoint and greatest width in the posteroventral part.

The straight dorsal margin is horizontal, slightly concave in the middle; the slightly convex ventral margin is parallel to the dorsal margin.

The anterior is high, broadly rounded, a little more inclined in its dorsal part. The posterior has the same height as the anterior and is pointedly triangular, symmetrically inclined in its dorsal and ventral parts. Anterior and posterior are both flattened.

The eye tubercle is flat, crossed by an oblique convex rib.

The shell surface is ornamented by five thin longitudinal ribs.

Two long, slightly convex ridges run parallel along the ventral margin. Both of them start near the posterior and proceed to the anterior, which they cross, but they do not touch the anterior margin. The posterior part of the shell is ornamented by another three short ribs. They are vertically staggered, the highest one being the longest and

slightly convex. The middle rib is shorter, a small elongate tubercle is situated along the extension of its course. The lowest rib is the shortest and finest one.

A short diagonal rib, that crosses the anterior half of the shell, runs towards the middle of the dorsal margin but does not reach it. In the anterior part it touches the upper of the two longitudinal ventral ridges. The complete surface between the ribs is reticulate with the exception of the smooth posterior.

Hinge and marginal zone are built as in the type species of *Neurocythere*.

The valves of females are shorter and higher than the males.

Dimensions (mm):

		No.	L	H	W
Holotype	carapax, male	Ar 1134/159	0,55	0,30	0,27
Paratypes	RV, juvenile	Ar 1134/160	0,50	0,25	
	LV, female	Ar 1134/161	0,57	0,32	
	carapax	Ar 1134/162	0,52	0,27	0,25
	carapax, female	Em 351	0,53	0,31	
	carapax, female	Em 352	0,47	0,25	

Variation. – The development of the three horizontal ribs in the posterior part of the valve is slightly variable. Additionally, the uppermost of these three ribs can be longer than the two others and, in this case, its anterior part descends across the centre of the valve, parallel to the anterior diagonal rib.

Comparison. – Concerning the form of the shell and the sculpture, this species is very similar to *Ektyphocythere* cf. *renatae* BŁASZYK (DÉPÊCHE 1969b: 112, pl. 3, fig. 5) from the Bathonian of France, from which it differs by three horizontal ribs in its posterior half (instead of two) and by the connexion of the anterior diagonal rib with the uppermost ventral ridge in the anterior. In *E.* cf. *renatae* the uppermost ventral ridge slopes and reaches the anterior border. It differs from *Procytheridea minuta* OERTLI, 1959 (OERTLI 1959c: 122, pl. 3, figs. 37–40 (renamed *Procytheridea parva* OERTLI, 1960 (OERTLI 1960: 70), later assigned to another genus *Kinkelinella parva* (OERTLI) (DÉPÊCHE, 1984, pl. 17, fig. 9)), also known from the Bathonian of England as *Ektyphocythere parva* (OERTLI) (BATE 1969: 430, pl. 14, figs. 1, 3) by the horizontal (not diagonal) position of the uppermost of three short ribs in the posterior part of the valve. It further differs from *Lophocythere cuvillieri* DÉPÊCHE, 1969 (DÉPÊCHE 1969a: 272, pl. 1, figs. 8, 9) from the middle Callovian of Lorraine, which is similar in the form of the shell, the position of ribs and the connexion of the anterior diagonal rib and the uppermost ventral ridge, by the presence of three short horizontal ribs in the posterior part of the valve, which are absent at *L. cuvillieri*. Another difference is a diagonal rib in the posterior part of *L. cuvillieri*, running from the centre of the posterior to the middle of the dorsal border.

Genus *Terquemula* BŁASZYK & MALZ, 1965*Terquemula flexicosta flexicosta* (TRIEBEL, 1951)

Pl. 5, Fig. 12

- 1951 *Lophocythere flexicosta* n. sp. – TRIEBEL, p. 97, pl. 48, figs. 46–48.
 1954 *Lophocythere flexicosta* TRIEBEL. – BUCK, Ostracodentabelle [unpublished].
 1960 *Lophocythere flexicosta flexicosta* TRIEBEL. – LUTZE, p. 428, pl. 35, fig. 8.
 1962 *Lophocythere flexicosta flexicosta* TRIEBEL. – MALZ, pl. 24, fig. 6d.
 1962 *Lophocythere flexicosta flexicosta* TRIEBEL. – BRAND & FAHRION, p. 149, pl. 21, fig. 34.
 1976 *Lophocythere flexicosta flexicosta* TRIEBEL. – KAEVER et al., p. 63, pl. 9, fig. 7.
 1978 *Crucicythere flexicosta* (TRIEBEL). – PYATKOVA & PERMYAKOVA, p. 146, pl. 62, fig. 1.
 1980 *Lophocythere flexicosta* TRIEBEL. – BIELECKA et al., p. 235, pl. 67, fig. 3.
 1988 *Lophocythere flexicosta* TRIEBEL. – BIELECKA et al., p. 171, pl. 67, fig. 3. – [1988a].
 1996 *Crucicythere flexicosta* (TRIEBEL). – GERASIMOV et al., pl. 5, figs. 5, 6.
 2003 *Nophrecythere flexicosta* (TRIEBEL, 1951). – TESAKOVA, p. 197, pl. 13, figs. 13–17.
 2004 *Terquemula flexicosta* (TRIEBEL). – WHATLEY & BALLENT, p. 83.

Distribution (SW Germany): Upper Bathonian (Orbis Zone) to lower Callovian (Koenigi Zone).

Superfamily Trachyleberidacea SYLVESTER-BRADLEY, 1948

Family Trachyleberididae SYLVESTER-BRADLEY, 1948

Genus *Morkhovenicythereis* GRÜNDEL, 1975*Morkhovenicythereis woodwardi* (SYLVESTER-BRADLEY, 1948)

Pl. 5, Fig. 13

- 1948 *Oligocythereis woodwardi* n. sp. – SYLVESTER-BRADLEY, p. 796, pl. 122, figs. 7–12. – [1948b].
 1954 Ostracode 1618. – BUCK, Ostracodentabelle [unpublished].
 1962 *Oligocythereis?* cf. *woodwardi* SYLVESTER-BRADLEY. – BRAND & FAHRION, p. 151, pl. 21, fig. 20.
 1984 *Morkhovenicythereis woodwardi* (SYLVESTER-BRADLEY). – DÉPÊCHE, pl. 15, fig. 15 [unpublished].
 1985 *Morkhovenicythereis woodwardi* (SYLVESTER-BRADLEY). – DÉPÊCHE, pl. 29, fig. 13.

Occurrence: Achdorf (sample BK 1618).

Distribution (SW Germany): Bathonian (Zigzag to Orbis Zone).

Genus *Oligocythereis* SYLVESTER-BRADLEY, 1948*Oligocythereis capreolata* SHEPPARD in BRAND, 1990

Pl. 5, Fig. 14

- 1954 Ostracode 1613. – BUCK, Ostracodentabelle [unpublished].

1962 *Oligocythereis* cf. *fullonica* (JONES & SHERBORN, 1888). – BRAND & FAHRION, p. 150, pl. 21, fig. 27.

1981 *Oligocythereis capreolata* n. sp. – SHEPPARD, p. 130, pl. 22, figs. 6–10, pl. 23, figs. 1, 2 [unpublished].

1984 *Oligocythereis capreolata* SHEPPARD. – DÉPÊCHE, p. 279, pl. 15, figs. 5, 7 [unpublished].

1990 *Oligocythereis capreolata* n. sp., “SHEPPARD in BRAND”. – BRAND, p. 225, pl. 15, fig. 27.

Occurrence: Achdorf (samples BK 1613, BK 3801).

Distribution (SW Germany): Lower Bathonian (Zigzag Zone) to lower Callovian (Koenigi Zone). *Oligocythereis capreolata* is the index species of the Capreolata ostracod Subzone.

Order Metacopida SYLVESTER-BRADLEY, 1961

Superfamily Healdiacea HARLTON, 1933

Family Healdiidae HARLTON, 1933

Genus *Ogmoconcha* TRIEBEL, 1941*Ogmoconcha (Hermiella) ambo* LORD & MOORLEY, 1974

Pl. 5, Fig. 15

- 1954 Ostracode 1114. – BUCK, Ostracodentabelle [unpublished].
 1962 Ostracod N 12 KLINGLER. – KLINGLER, p. 104, pl. 14, fig. 42, tab. 7.
 1974 *Ogmoconcha ambo* n. sp. – LORD & MOORLEY, p. 9, pl. 2,3,10, figs. 1, 2, pl. 2,3,11, figs. 1, 2.
 1975 *Ogmoconcha ambo* LORD & MOORLEY. – MALZ, p. 490, pl. 1, figs. 1, 2, pl. 2, figs. 15–22. – [1975a].
 non 1979 *Ogmoconcha ambo* LORD & MOORLEY. – EXTON, p. 62, pl. 9, figs. 6, 7.
 1983 *Ogmoconcha ambo* LORD & MOORLEY. – KNITTER & OHMERT, pl. 4, fig. 4.
 1985 *Ogmoconcha ambo* LORD & MOORLEY. – RIEGRAF, p. 74, pl. 1, fig. 13.

Occurrence: Aselfingen (sample BK 1326), Hechingen (sample BK 1114).

Distribution (SW Germany): Upper Pliensbachian (Spinatum Zone) to Lower Toarcian (Tenuicostatium Zone). *Ogmoconcha ambo* is one of the index species of the Ambo-Impressa ostracod Zone (RIEGRAF 1985).

Ogmoconcha hagenowi DREXLER, 1958

Pl. 5, Fig. 16

- 1954 Ostracode 1227a. – BUCK, Ostracodentabelle [unpublished].
 1958 *Ogmoconcha hagenowi* n. sp. – DREXLER, p. 508, pl. 21, fig. 8, pl. 26, figs. 1, 2.
 1959 Ostracoda A. – APOSTOLESCU, p. 816, pl. 1, figs. 9–11.
 1962 *Ogmoconcha hagenowi* DREXLER. – KLINGLER, p. 80, pl. 12, fig. 4, tab. 7.
 1967 *Ogmoconcha hagenowi* DREXLER. – DONZE, p. 75, pl. 1, fig. 20.
 1971 *Ogmoconcha hagenowi* DREXLER. – MALZ, pl. 4, fig. 17.
 1971 *Ogmoconcha hagenowi* DREXLER. – LORD, p. 661, pl. 123, figs. 14–16.
 1972 *Ogmoconcha hagenowi* DREXLER. – MICHELSEN, pl. 4, fig. 1.

- 1975 *Ogmoconcha hagenowi* DREXLER. – MICHELSEN, p. 230, pl. 28, figs. 419–425, pl. 29, figs. 428–430.
 1978 *Ogmoconcha hagenowi* DREXLER. – LORD, pl. 1, fig. 4.
 1981 *Ogmoconcha hagenowi hagenowi* DREXLER. – HERRIG, p. 210, fig. [without no.]. – [1981a].
 1985 *Ogmoconcha hagenowi* DREXLER. – DONZE, pl. 21, figs. 14, 15.
 1996 *Ogmoconcha hagenowi hagenowi* DREXLER. – BEUTLER et al., pl. 7, fig. 13.

Occurrence: Unterensingen (sample BK 1227).

Distribution (SW Germany): Lower Hettangian to upper Sinemurian. *Ogmoconcha hagenowi* is the index species of the Hagenowi ostracod Zone.

Ogmoconcha (Hermiella) klingleri MALZ, 1971

Pl. 5, Fig. 17

- 1954 Ostracode 1032. – BUCK, Ostracodentabelle [unpublished].
 1962 Ostracod N 1 KLINGLER. – KLINGLER, p. 103, pl. 13, fig. 39, tab. 7.
 1971 *Ogmoconcha klingleri* n. sp. – MALZ, p. 440, pl. 1, fig. 1, pl. 2, fig. 6.
 1981 *Ogmoconcha klingleri* MALZ. – HERRIG, p. 212, pl. 3, fig. 7. – [1981a].
 1993 *Ogmoconcha (Hermiella) klingleri* MALZ. – HARLOFF, p. 131, pl. 8, figs. 1–4.
 2000 *Ogmoconcha (Hermiella) klingleri* MALZ. – WALTSCHEW, p. 62, pl. 2, fig. 40.

Occurrence: Aselfingen (sample BK 1326), Kirchheim/Teck (sample BK 1032).

Distribution (SW Germany): Pliensbachian (Valdani to Spinatum Zone).

Genus *Ogmoconchella* GRÜNDEL, 1964

Ogmoconchella aspinata (DREXLER, 1958)

Pl. 5, Fig. 18

- 1954 Ostracode 336. – BUCK, Ostracodentabelle [unpublished].
 1958 *Healdia aspinata* n. sp. – DREXLER, p. 505, pl. 21, fig. 5, pl. 25, figs. 1–4.
 1959 Ostracoda B. – APOSTOLESCU, p. 817, pl. 2, figs. 20–23.
 1961 Ostracoda B APOSTOLESCU. – COUSIN et al., p. 428, tab. 1. – [1961c].
 1962 *Healdia aspinata* DREXLER. – KLINGLER, p. 79, pl. 12, figs. 1, 2, tab. 7.
 1964 *Ogmoconchella aspinata* (DREXLER). – GRÜNDEL, p. 470, pl., figs. 5–7.
 1967 *Ogmoconchella aspinata* (DREXLER). – DONZE, p. 76, pl. 1, figs. 21–24.
 1971 *Ogmoconchella aspinata* (DREXLER). – MALZ, pl. 5, figs. 21, 22.
 1971 *Ogmoconcha ellipsoidea* (JONES). – LORD, p. 658, pl. 123, figs. 9–13.
 1972 *Ogmoconchella aspinata* (DREXLER). – MICHELSEN, pl. 4, fig. 4.
 1975 *Ogmoconchella aspinata* (DREXLER). – MICHELSEN, p. 238, pl. 31, fig. 450, pl. 33, figs. 470–471, fig. 41.
 1981 *Ogmoconchella aspinata* (DREXLER). – HERRIG, p. 563, figs. 1, 2. – [1981b].

1985 *Ogmoconchella aspinata* (DREXLER). – DONZE, pl. 21, fig. 10.

1996 *Ogmoconcha aspinata* (DREXLER). – BEUTLER et al., pl. 7, fig. 12.

1999 *Ogmoconchella* aff. *Ogmoconchella aspinata* (DREXLER, 1958). – ARIAS & LORD, p. 80, pl. 1, fig. 8. – [1999a].

Occurrence: Boring Balingen-Endingen, Hardt near Nürtingen (sample BK 336).

Distribution (SW Germany): Lower Hettangian (Planorbis Zone) to Lower Sinemurian (Bucklandi Zone). *Ogmoconchella aspinata* is the index species of the Aspinata ostracod Zone.

Remark. – The vertical range of Ostr. 336 in BUCK (1954) is too wide; the specimens belong to several different species (BUCK 1962).

4. Conclusions

We have revised and illustrated the ostracods from the BUCK table (1954) in order to facilitate the use of this stratigraphical tool for the Lower and Middle Jurassic in SW Germany. Since BUCK's pioneer work a number of authors named stratigraphically important ostracods (BUCK et al. 1966, DREXLER 1958) or proposed ostracod zonation for certain time intervals in the SW German Jurassic (BEHER 2004, HARLOFF 1993, KNITTER 1983, OHMERT 1996, 2004, RIEGRAF 1984). In a compilation of these data, Tabs. 4 and 5 show ostracod zonation for the Lower and Middle Jurassic in Baden-Württemberg. Further revisions (e.g. BRAUN 1958, DILGER 1963), the integration of newer studies (e.g. BEHER 2004, HARLOFF 1993, KNITTER 1983, OHMERT 1996, 2004, RIEGRAF 1984) and investigation of more material would help to refine the systematics and biostratigraphy of Jurassic ostracods. A number of sections should be (re)investigated on the basis of modern ammonite biostratigraphy (DIETL 2007, 2008) to reveal more precise data on the stratigraphical distribution of index Ostracoda.

Continuing investigations by the authors should allow us to define ostracod zonation for the Bathonian and Callovian. They may help to close the gap between the Middle and the Upper Jurassic (SCHUDACK & SCHUDACK 2000) in order to define a biostratigraphy based on ostracods for the complete Jurassic system in SW Germany.

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Adresses of the authors:

Dr. MATTHIAS FRANZ, Regierungspräsidium Freiburg, Abt. 9: Landesamt für Geologie, Rohstoffe und Bergbau, Ref. 92: Landesgeologie; Albertstr. 5, 79341 Freiburg i. Br., Germany
E-mail: Matthias.Franz@rpf.bwl.de

EKATERINA TESAKOVA, Moscow State University, Geological Faculty, Palaeont. Dep., Leninskie Gory, Moscow 119991, Russia
E-mail: ostracon@rambler.ru

Dr. ELKE BEHER, Göbelstr. 4, 68775 Ketsch, Germany
E-mail: ebeher@gmx.de

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Plate 1

Fig. 1. *Cytherella callosa ampla* BRAUN in DILGER, 1963; Em 268, LV; ? Jurensismergel Formation, bed no. BK 1099 (Upper Toarcian); ? Weilheim/Teck.

Fig. 2. *Cytherelloidea cadomensis* BIZON, 1960; Em 269, LV; Wedelsandstein Formation (Lower Bajocian); locality unknown.

Fig. 3. *Cytherelloidea chonvillensis* DÉPÊCHE, 1969; Em 270, RV; Ornatenton Formation, bed no. BK 528 (Callovian); Gosheim.

Fig. 4. *Cytherelloidea circumscripta* (TATE & BLAKE, 1876); Em 271, RV; Pilonotenton Formation, ? bed no. BK 336 (Lower Hettangian); ? Hardt near Nürtingen.

Fig. 5. *Cytherelloidea curva cincta* FISCHER in DILGER, 1963; Em 272, LV; ? Jurensismergel Formation, bed no. BK 1099 (Upper Toarcian); ? Weilheim/Teck.

Fig. 6. *Cytherelloidea pulchella* APOSTOLESCU, 1959; Em 273, RV; Arietenkalk Formation, ? bed no. BK 1227 (Lower Sinemurian); ? Unterensingen.

Fig. 7. *Bairdia molesta* APOSTOLESCU, 1959; Em 274, carapace, right lateral view; Pilonotenton Formation, ? bed no. BK 785 (Lower Hettangian); ? Gniebel near Pliezhausen.

Fig. 8. *Bairdia pumicosa* n. sp. SHEPPARD in FRANZ et al.; Em 275, RV; Ornatenton Formation, bed no. BK 1650 (Lower Callovian); Teufelsloch SE Eckwälden near Weilheim/Teck.

Fig. 9. *Isobythocypris elongata* (TATE & BLAKE, 1876); Em 276, carapace, right lateral view; Arietenkalk Formation, ? bed no. BK 1222 (Lower Sinemurian); ? Unterensingen.

Fig. 10. *Paracypris? semidisca* DREXLER, 1958; Em 278, LV; Arietenkalk Formation, ? bed no. BK 1222 (Lower Sinemurian); ? Unterensingen.

Fig. 11. *Bythoceratina (Praebythoceratina) scrobiculata* (TRIEBEL & BARTENSTEIN, 1938); Em 279, LV; Ornatenton Formation, bed no. BK 1132 (Lower Callovian); Erkenberg near Neidlingen.

Fig. 12. *Patellacythere? gruendeli* HERRIG, 1981; Em 280, LV; Arietenkalk Formation, ? bed no. BK 1125 (Lower Sinemurian); ? Oftringen.

Fig. 13–14. *Lophodentina? pulchella* (APOSTOLESCU, 1959); Arietenkalk Formation (Lower Sinemurian), borehole “Salute” high-rise building, Stuttgart-Moehringen, 7.5–8.0 m.

Fig. 13. Em 361, carapace, left lateral view.

Fig. 14. Em 362, LV, internal view.

Fig. 15–17. *Lophodentina? ultima* (BRAUN) in DILGER, 1963; Unterer Wedelsandstein, bed no. BK 1393 (Lower Bajocian); Weilheim/Teck.

Fig. 15. Em 283, carapace, dorsal view.

Fig. 16. Em 281, LV.

Fig. 17. Em 282, RV, internal view.

Fig. 18. *Cytheropterina cribra* (FISCHER, 1962); Em 284, carapace, left lateral view; Opalinuston Formation, bed no. BK 881 (Lower Aalenian); Teufelsloch SE Eckwälden near Weilheim/Teck.

Scales = 100 µm.

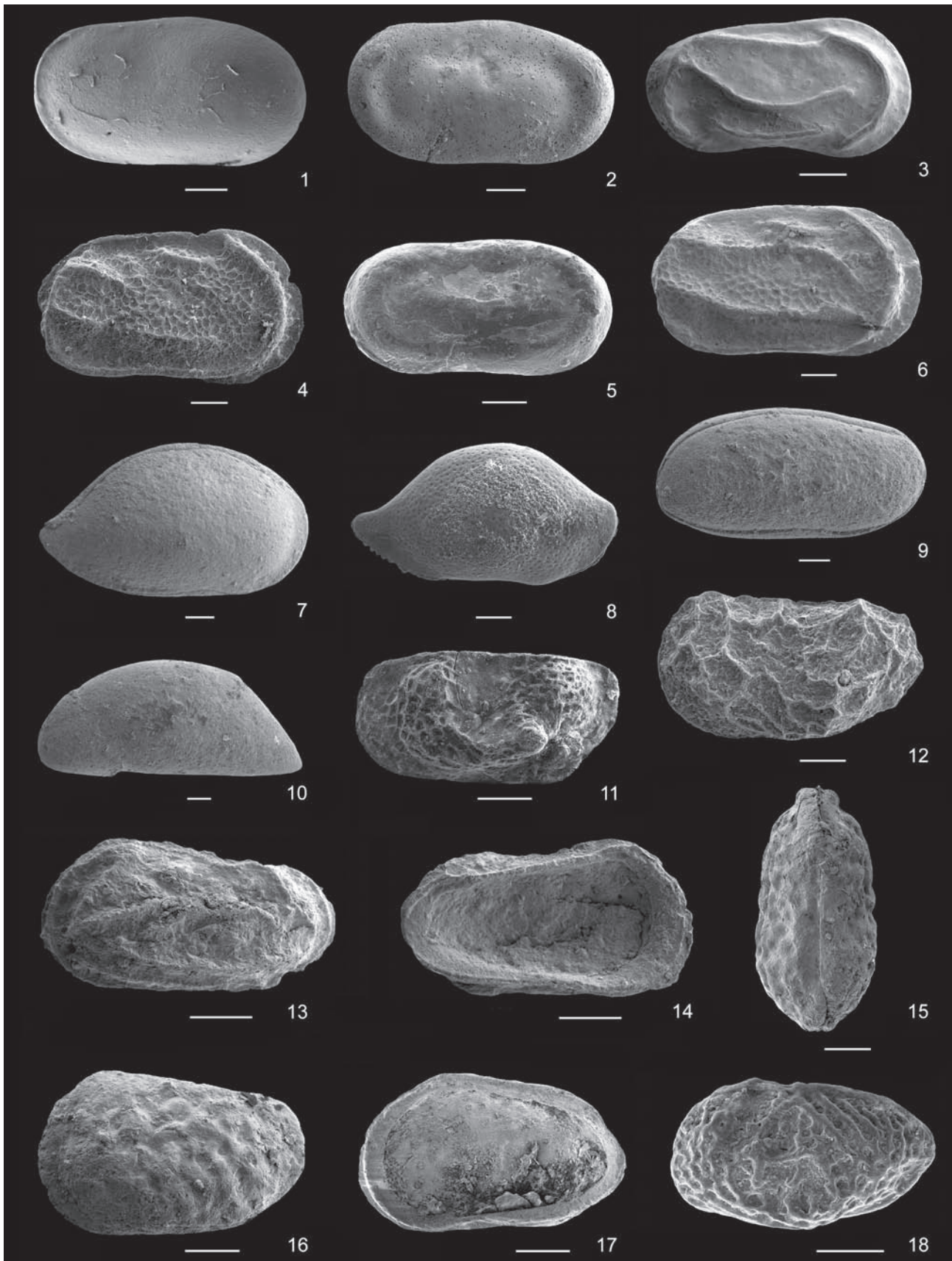


Plate 2

Fig. 1. *Cytheropterina bicuneata* (BRAUN) in DILGER, 1963; Em 285, RV; ? Achdorf Formation, bed no. BK 1379 (Upper Aalenian); ? Weilheim/Teck.

Fig. 2. *Eucytherura elegans* (DREXLER, 1958); Em 332, carapace, left lateral view; Angulatenton Formation, ? bed no. BK 1208 (Upper Hettangian); locality unknown.

Fig. 3. *Aphelocythere kanonica* (DILGER, 1963); Em 289, LV; Opalinuston Formation, ? bed no. BK 1496 (Lower Aalenian); ? Scheffheu near Eschach.

Fig. 4–5. *Aphelocythere kuhni* TRIEBEL & KLINGLER, 1959; Opalinuston Formation, bed no. BK 881 (Lower Aalenian); Teufelsloch SE Eckwälden near Weilheim/Teck.

Fig. 4. Em 290, LV.

Fig. 5. Em 291, carapace, right lateral view.

Fig. 6–10. *Aphelocythere? asymmetrica* n. sp.; Achdorf Formation, bed no. BK 1167 (Upper Aalenian, Murchisonae Zone, Sinon Subzone); Tiefenbachtal near Nürtingen.

Fig. 6. Em 292, male internal cast, right lateral view.

Fig. 7. holotype, Em 293, male carapace, left lateral view.

Fig. 8. Em 294, female internal cast, ventral view.

Fig. 9. Em 295, male internal cast, dorsal view.

Fig. 10. Em 296, female internal cast, posterior view.

Fig. 11–12. *Praeschuleridea subtrigona* (JONES & SHERBORN, 1888); Parkinsoniton, bed no. BK 1584 (Upper Bajocian, Parkinsoni Zone); Eichberg near Achdorf.

Fig. 11. Em 297, carapace, right lateral view.

Fig. 12. Em 298, LV.

Fig. 13–14. *Gammacythere ubiquita* MALZ & LORD, 1976; ? Numismalmergel Formation, bed no. BK 999 (Lower Pliensbachian); ? Kirchheim/Teck.

Fig. 13. Em 299, carapace, left lateral view.

Fig. 14. Em 300, LV.

Fig. 15–17. *Palaeocytheridea blaszykina* n. sp.; Ostreenkalk Formation, bed no. BK 1690 (Lower Bajocian); Teufelsloch SE Eckwälden near Weilheim/Teck.

Fig. 15. Em 301, male LV.

Fig. 16. Em 302, male carapace, right lateral view.

Fig. 17. Holotype, Em 303, male LV.

Fig. 18. *Palaeocytheridea blaszykina* n. sp.; Em 304, juvenile LV; Ostreenkalk Formation, bed no. BK 1149 (Lower Bajocian); Neidlingen.

Fig. 19. *Pleurocythere connexa* TRIEBEL, 1951; Em 305, carapace, left lateral view; ? Dentalienton Formation (Bathonian); locality unknown.

Scales = 100 µm.

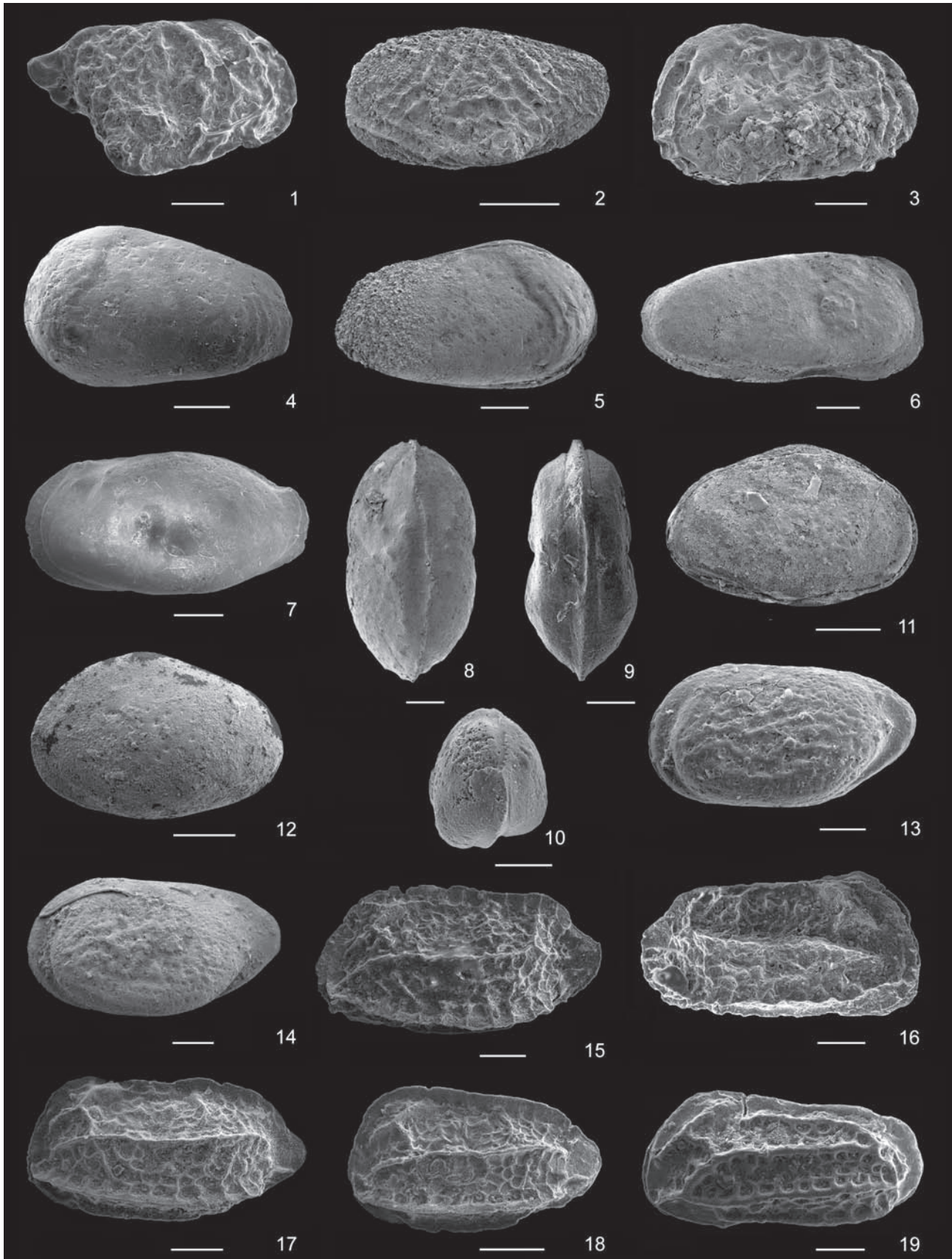


Plate 3

Fig. 1. *Pleurocythere elliptica* BŁASZYK, 1967; Em 306, carapace, right lateral view; Dentalienton Formation, bed no. BK 1617 (Lower Bathonian, Zigzag Zone); Eichberg near Achdorf.

Fig. 2. *Pleurocythere favosa* TRIEBEL, 1951; Em 307, LV; ? Dentalienton Formation (Bathonian); locality unknown.

Fig. 3. *Pleurocythere impar* TRIEBEL, 1951; Em 308, LV; Hamitenton Formation (Upper Bajocian); locality unknown.

Fig. 4. *Pleurocythere regularis* TRIEBEL, 1951; Em 309, carapace, left lateral view; Bajocian; locality unknown.

Fig. 5. “*Procytheridea*” *gublerae* (BIZON, 1958); Em 310, LV; Renggeriton, bed no. BK 1534 (Upper Callovian to Oxfordian); Kandern.

Fig. 6–8. “*Procytheridea*” *teteimene* DILGER, 1963; Unterer Wedelsandstein, ? bed no. BK 1393 (Lower Bajocian); ? Weilheim/Teck.

Fig. 6. Em 286, female LV.

Fig. 7. Em 287, female RV, internal view.

Fig. 8. Em 288, female LV.

Fig. 9. *Supratoarcina supratoarcensis* KNITTER & RIEGRAF, 1984; Em 311, carapace, left lateral view; Jurensismergel Formation, ? bed no. BK 1083 (Upper Toarcian); ? Weilheim/Teck.

Fig. 10–11. *Glyptocythere dorsicostata* BRAND & MALZ in BRAND & FAHRION, 1962; Parkinsonien-Ton, bed no. BK 3769 (Upper Bajocian, Parkinsoni Zone); Eichberg near Achdorf.

Fig. 10. Em 312, juvenile carapace, left lateral view.

Fig. 11. Em 313, carapace, right lateral view.

Fig. 12. *Glyptocythere polita* BATE, 1965; Em 314, carapace, right lateral view; Dentalienton Formation, bed no. BK 1614 (Lower Bathonian, Zigzag Zone); Eichberg near Achdorf.

Fig. 13–14. *Cristacythere betzi* (KLINGLER & NEUWEILER, 1959); Arietenkalk Formation, bed no. BK 1123 (Lower Sinemurian); Ofterdingen.

Fig. 13. Em 315, carapace, left lateral view.

Fig. 14. Em 317, LV.

Fig. 15. *Cristacythere betzi* (KLINGLER & NEUWEILER, 1959); Em 316, LV; Arietenkalk Formation (Lower Sinemurian); locality unknown.

Fig. 16–17. *Cloughtonella costata* (BRAUN) in OHMERT, 2004; Wedelsandstein Formation, ? bed no. BK 1399 (Lower Bajocian); Weilheim/Teck.

Fig. 16. Em 318, carapace, left lateral view.

Fig. 17. Em 319, carapace, right lateral view.

Fig. 18. *Kinkelinella malzi* (DÉPÊCHE, 1973); Em 320, carapace, right lateral view, ? Ostreenkalk Formation, bed no. BK 1460 (Lower Bajocian); ? Franzosenschlucht near Gruibingen.

Scales = 100 µm.

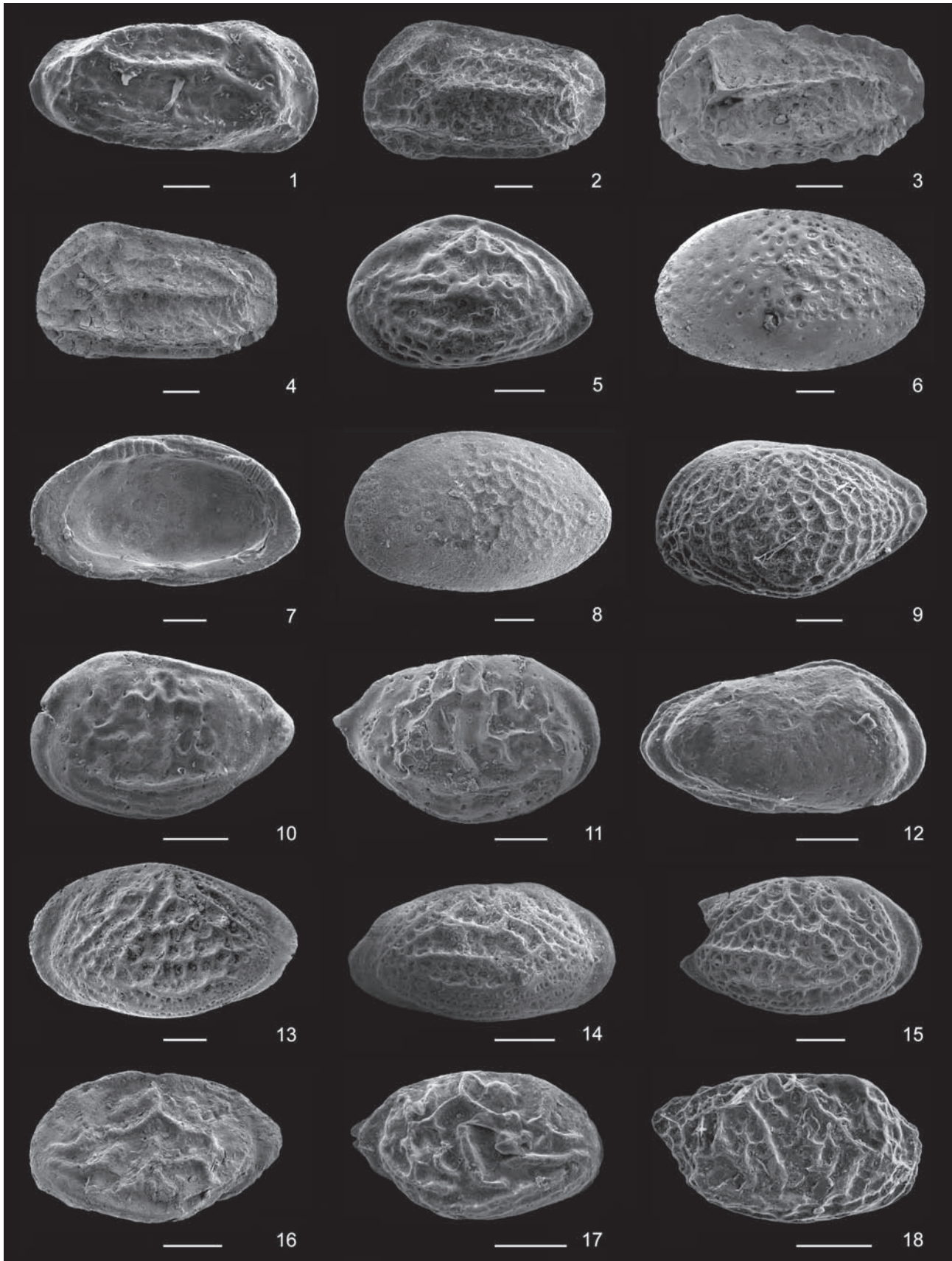


Plate 4

Fig. 1. *Kinkelinella malzi* (DÉPÊCHE, 1973); Em 321, LV; ? Ostreenkalk Formation, bed no. BK 1460 (Lower Bajocian); ? Franzosenschlucht near Gruibingen.

Fig. 2. *Kinkelinella (Ektyphocythere) champeauae* (BIZON, 1960); Em 322, LV; Jurensismergel Formation, ? bed no. BK 1099 (Upper Toarcian); ? Weilheim/Teck.

Fig. 3. *Kinkelinella (Ektyphocythere) furcata* (WIENHOLZ, 1967); Em 323, carapace, right lateral view; Jurensismergel Formation, ? bed no. BK 1099 (Upper Toarcian); ? Weilheim/Teck.

Fig. 4–5. *Kinkelinella (Ektyphocythere) laqueata* (KLINGLER & NEUWEILER, 1959); Obtususton Formation, bed no. BK 962 (Upper Sinemurian); Kirchheim/Teck.

Fig. 4. Em 324, LV.

Fig. 5. Em 330, carapace, right lateral view.

Fig. 6. *Kinkelinella (Ektyphocythere) triangula* (BRAND in BRAND & MALZ, 1961); Em 325, carapace, left lateral view; Wedelsandstein Formation, bed no. BK 1709 (Lower Bajocian); Geislingen.

Fig. 7. *Kinkelinella (Kinkelinella) costata* KNITTER, 1983; Em 326, LV; Jurensismergel Formation, ? bed no. BK 1081 (Upper Toarcian); ? Weilheim/Teck.

Fig. 8. *Kinkelinella (Kinkelinella) fischeri* MALZ, 1966; Em 327, carapace, left lateral view; Jurensismergel Formation (Upper Toarcian) or Opalinuston Formation (Lower Aalenian); locality unknown.

Fig. 9. *Kinkelinella (Ektyphocythere) medioreticulata* (MICHELSEN, 1970); Em 328, LV; Pilonotenton Formation, bed no. BK 784 (Lower Hettangian); Gniebel near Pliezhausen.

Fig. 10. *Kinkelinella (Kinkelinella) sermoisensis* (APOSTOLESCU, 1959); Em 329, carapace, left lateral view; Jurensismergel Formation, ? bed no. BK 1099 (Upper Toarcian); ? Weilheim/Teck.

Fig. 11. *Pleurifera harpa* (KLINGLER & NEUWEILER, 1959); Em 331, RV; Numismalismsergel Formation, ? bed no. BK 999 (Lower Pliensbachian); ? Kirchheim/Teck.

Fig. 12. *Fissocythere bucki* MALZ, 1972; Em 333, LV; Dentalienton Formation, bed no. BK 1615 (Lower Bathonian, Zigzag Zone); Eichberg near Achdorf.

Fig. 13. *Fissocythere variabilis* MALZ, 1959; Em 334, LV; Dentalienton Formation, bed no. BK 1615 (Lower Bathonian, Zigzag Zone); Eichberg near Achdorf.

Fig. 14, 15. *Fuhrbergiella (Fuhrbergiella) gigantea gigantea* BRAND & MALZ, 1962; Parkinsoniton, bed no. BK 1575 (Upper Bajocian, Parkinsoni Zone); Eichberg near Achdorf.

Fig. 14. Em 335, carapace, right lateral view.

Fig. 15. Em 336, LV.

Fig. 16. *Fuhrbergiella (Praefuhrbergiella) sauzei* BRAND & MALZ, 1962; Em 337, LV; Ostreenkalk Formation, bed no. unknown (Lower Bajocian, Humphriesianum Zone); Teufelsloch SE Eckwälden near Weilheim/Teck.

Fig. 17. *Fuhrbergiella (Praefuhrbergiella) lurida* BŁASZYK, 1967; Em 338, RV; Parkinsoniton, bed no. BK 1581 (Upper Bajocian, Parkinsoni Zone); Eichberg near Achdorf.

Fig. 18. *Lophocythere concentrica* (BŁASZYK, 1967); Em 341, carapace, left lateral view; Blagdenischichten, bed no. BK 2244 (Lower Bajocian, Humphriesianum Zone); Eichberg near Achdorf.

Scales = 100 µm.

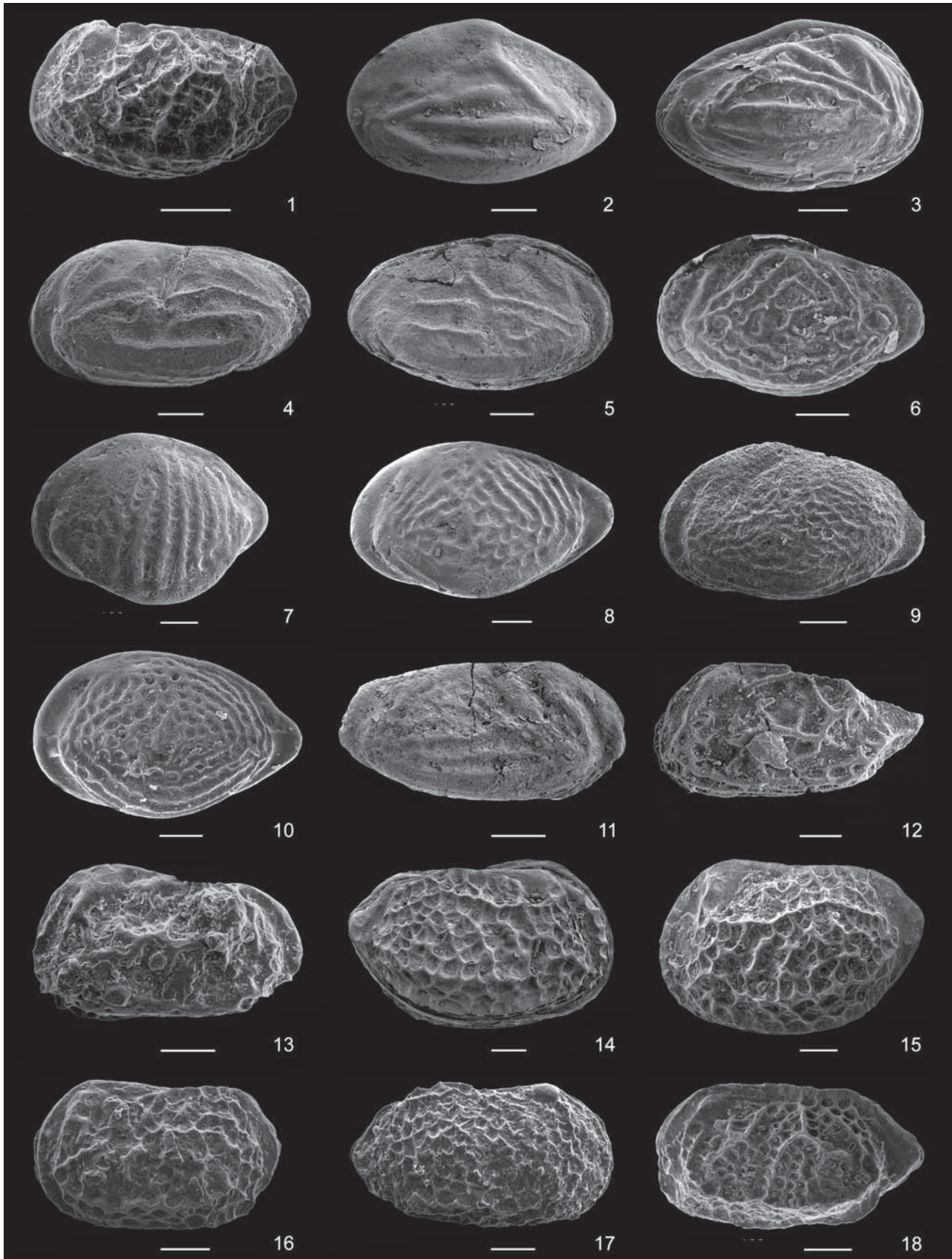


Plate 5

- Fig. 1.** *Lophocythere karpinskyi* (MANDELSTAM, 1949); Em 343, LV; Oberer Ornatenton (Upper Callovian); Kandern.
- Fig. 2.** *Lophocythere scabra* TRIEBEL, 1951; Em 344, LV; Unterer Ornatenton (Lower to ? Middle Callovian); locality unknown (? Kandern).
- Fig. 3.** *Platylophocythere hessi* OERTLI, 1959; Em 345, LV; Renggeriton, bed no. BK 1539 (Upper Callovian); Kandern.
- Fig. 4.** *Neurocythere caesa caesa* (TRIEBEL, 1951); Em 346, LV; Variansmergel Formation, bed no. BK 1623 (Middle Bathonian, Subcontractus Zone); Eichberg near Achdorf.
- Fig. 5.** *Neurocythere cingata* n. sp. BRAUN in FRANZ et al.; Em 347, carapace, left lateral view; Hamitenton Formation, bed no. BK 2248 (Upper Bajocian, Niortense Zone); Eichberg near Achdorf.
- Fig. 6–7.** *Neurocythere cruciata cruciata* (TRIEBEL, 1951).
- Fig. 6.** Em 360, LV (*Lophocythere cruciata franconica* TRIEBEL sensu BUCK, 1954); Lower Ornatenton Formation (Lower to ? Middle Callovian); Kandern.
- Fig. 7.** Em 348, LV; Ornatenton Formation, ? Macrocephalen-Oolith (Lower Callovian); locality unknown (? Kandern).
- Fig. 8.** *Neurocythere cruciata intermedia* (LUTZE, 1960); Em 349, LV; Renggeriton, well 8/51, sample 118/121 (Upper Callovian); Kandern.
- Fig. 9.** *Neurocythere plena* (TRIEBEL, 1951); Em 350, LV; Variansmergel Formation or Ornatenton Formation (Upper Bathonian/Lower Callovian); locality unknown.
- Fig. 10–11.** *Neurocythere tricostata* n. sp. BRAUN in FRANZ et al.; Blagdenischichten (Lower Bajocian, Humphriesianum Zone); Eichberg near Achdorf.
- Fig. 10.** Em 351, carapace, left lateral view.
- Fig. 11.** Em 352, carapace, right lateral view.
- Fig. 12.** *Terquemula flexicosta flexicosta* (TRIEBEL, 1951); Em 353, LV; Ornatenton Formation (Upper Bathonian to Lower Callovian); Kandern.
- Fig. 13.** *Morkhovenicythereis woodwardi* (SYLVESTER-BRADLEY, 1948); Em 354, carapace, left lateral view; Variansmergel Formation, bed no. BK 1618 (Middle Bathonian, Progracilis Zone); Eichberg near Achdorf.
- Fig. 14.** *Oligocythereis capreolata* SHEPPARD in BRAND, 1990; Em 355, carapace, left lateral view; Dentalienton Formation, bed no. BK 1613 (Lower Bathonian, Zigzag Zone); Eichberg near Achdorf.
- Fig. 15.** *Ogmoconcha (Hermiella) ambo* LORD & MOORLEY, 1974; Em 356, LV; Costatenkalk, ? bed no. BK 1114 (Upper Pliensbachian, Spinatum Zone); locality unknown (? Hechingen).
- Fig. 16.** *Ogmoconcha hagenowi* DREXLER, 1958; Em 357, LV; ? Arietenkalk Formation (Lower Sinemurian); locality unknown.
- Fig. 17.** *Ogmoconcha (Hermiella) klingleri* MALZ, 1971; Em 358, carapace, right lateral view; ? Amaltheenton Formation (Upper Pliensbachian); locality unknown.
- Fig. 18.** *Ogmoconchella aspinata* (DREXLER, 1958); Em 359, carapace, right lateral view; Psilonotenton Formation, borehole BO 7719/311, 18 m (Lower Hettangian); Endingen near Balingen.

Scales = 100 μ m.

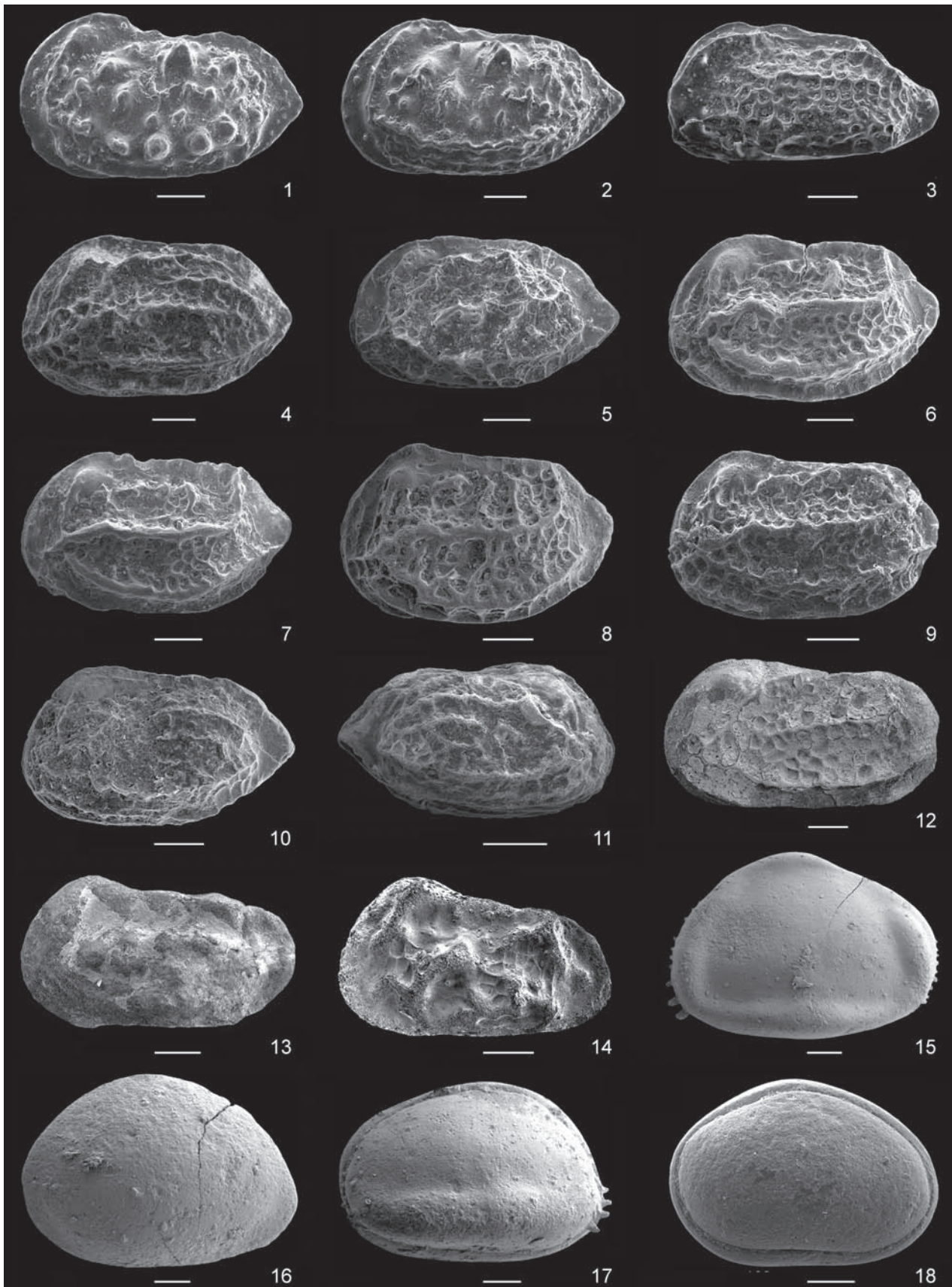


Plate 6

Fig. 1–3. *Neurocythere cingata* n. sp. BRAUN in FRANZ et al.; Hamitenton Formation (Upper Bajocian, Niortense Zone); Eichberg near Achdorf.

Fig. 1. Holotype, Ar 1134/179, male carapace, left lateral view.

Fig. 2–3. Ar 1134/184, female carapace. **Fig. 2.** Dorsal view. **Fig. 3.** Right lateral view.

Fig. 4–6. *Neurocythere tricostata* n. sp. BRAUN in FRANZ et al.; Blagdenischichten (Lower Bajocian, Humphriesianum Zone); Eichberg near Achdorf.

Fig. 4. Holotype, Ar 1134/159, male carapace, left lateral view.

Fig. 5. Ar 1134/161, female LV.

Fig. 6. Ar 1134/160, juvenile RV.

Fig. 7–9. *Fuhrbergiella (Fuhrbergiella) primitiva* BRAND & MALZ, 1962 (= *Lophocythere furcata furcata* BRAUN, 1958 (unpublished)); Giganteuston, sample no. 21 (Lower Bajocian, Humphriesianum Zone); Beuren near Hechingen.

Fig. 7, 9. Holotype, Ar 1134/148, male carapace. **Fig. 7.** Right lateral view. **Fig. 9.** Dorsal view.

Fig. 8. Ar 1134/150, female LV.

Fig. 10–11. *Fuhrbergiella (Fuhrbergiella) primitiva* BRAND & MALZ, 1962 (= *Lophocythere furcata divisa* BRAUN, 1958 (unpublished)); Hamitenton, sample no. 193 (Upper Bajocian, Garantiana Zone); Rietheim near Tuttlingen.

Fig. 10. Holotype, Ar 1134/153, male carapace, left lateral view.

Fig. 11. Ar 1134/155, female LV.

Fig. 12. *Bairdia pumicosa* n. sp. SHEPPARD in FRANZ et al.; Holotype OS 11556, carapace, right lateral view; Marnes de Port-en-Bessin (Lower Bathonian); Port-en-Bessin (reproduction from SHEPPARD 1981).

Scales = 100 µm.

