A C T A P A L A E O N T O L O G I C A P O L O N I C A
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CARDOBAIRDIA INFLATA N.SP. FROM THE MIDDLE JURASSIC OF POLAND AND ITS TAXONOMIC POSITION WITHIN OSTRACODA

Abstract. — The taxonomic position of the genus *Cardobairdia* van den Bold, 1960 and its importance to the systematics of Ostracoda are analyzed. The assignment of *Cardobairdia* to the order Podocopida Müller, 1894 (within the superfamily Healdiacea Harlton, 1933) is confirmed. *Cardobairdia inflata* n.sp. from the Middle Jurassic of Central Poland is described.

INTRODUCTION

The taxonomic position of the genus *Cardobairdia* van den Bold, 1960 and its importance to the systematics of Ostracoda are analyzed in the present paper. As a result of their studies on the species *Cardobairdia inflata* n.sp., the present writers have been able to confirm the assignment of the genus *Cardobairdia* to the order Podocopida Müller, 1894, suborder Metacopina Sylvester-Bradley, 1960 and superfamily Healdiacea Harlton, 1933. With a certain reservation, it has been assigned to the family Saipanellidae McKenzie, 1967.

Cardobairdia inflata n.sp., described in the present paper, comes from sandy silts of the environs of Częstochowa, Central Poland. Valves of this species have been found in borings, made by the Geological Institute, at Jaworznik, Choroń and Iwanowice Wielkie. They occur in the following ammonite zones:

Bathonian	Upper	*Parcecotraustes heterocostatus*
	Middle	*Morrisiceras morrisi*
	Lower	*Perisphinctes tenuiplicatus*
Kuiavian	Upper	*Parkinsonia parkinsoni*
	Middle	*Parkinsonia compressa*

Ostracods, coming from the borings mentioned above and assigned to Platycopa and Podocopa (32 species representing 20 genera), have been

described by Błaszyk (1967) who accurately determined the situation, lithology and stratigraphy of these borings.

During the preparation of the present paper, very helpful and valuable were the remarks of Professor R. Kozłowski (Palaeozoological Institute of the Polish Academy of Sciences, Warsaw) and Docent A. Urbanek (University of Warsaw), as well as comparative materials kindly sent in by Dr. P. S. Lubimova (VNIGRI, Leningrad, USSR), and Dr. H. J. Oertli (SNPA, Pau, France). A warm gratitude and thanks are expressed to all these persons.

J. Błaszyk is the author of photographs. The material described is housed at the Palaeozoological Institute of the Polish Academy of Sciences for which an abbreviation Z. Pal. is used.

MATERIAL

About 1000 specimens of the species *Cardobairdia inflata* n.sp., in this number both complete carapaces and single valves, representing both adult and juvenile individuals, were available to the present authors. A considerable number of valves are either deformed or filled with pyrite, but all characters of the external and internal morphology are clearly visible in many individuals.

Both transparent, glossy, amber-coloured and opaque, mat, almost white valves occur in the material examined. Such a differentiation seems to be related to the manner of fossilization under different conditions.

HISTORY OF STUDIES ON THE GENUS *CARDOBAIRDIA* VAN DEN BOLD, 1960

The genus *Cardobairdia* has been erected by van den Bold (1960) on the basis of the species *C. ovata* van den Bold, 1960 from the Middle Eocene of Trinidad[1]. In the diagnosis of the genus *Cardobairdia,* this author emphasizes an oval shape of its carapace and larger dimensions of the left valve which — along the entire margin — overlaps the right valve, „strongly infolded margin and a hinge consisting of slightly curved elongate sockets at both ends of the dorsal margin of the left valve, separated by a shallow groove, which is obscured by incurved dorsal margin" (*l.c.*, p. 155). According to van den Bold, the valves of *Cardobairdia ovata* have „muscle scar area circular, consisting of about 15 scars, typical *Bairdia*-like... The appearance of the marginal area is rather *Cytherella*-like" (*l.c.*, p. 155).

[1] This species also occurs in the Middle Eocene deposits of Yugoslavia (Kollmann, 1962).

Van den Bold erected the genus *Cardobairdia* as independent of the genus *Krausella* Ulrich, 1894, but he emphasized that the difference between two species he assigned to the genus *"Krausella"*, i.e. *„K." minuta* Triebel, 1936 from Cretaceous of the Netherlands and *"K." asymmetrica* van den Bold from Oligomiocene of Cuba and the genotype of the genus *Cardobairdia* concerns only a different shape of the posterior part of valve. According to van den Bold, the valves representing the above mentioned species of *Krausella* and the form described as *Krausella?* sp. Oertli, 1958 from the Lower Cretaceous of France, have a posterior spine in contradistinction to a rounded posterior end of the valves of *Cardobairdia ovata*. Van den Bold (1960) believes that the species of the genus *Krausella*, described from Mesozoic and Tertiary, are related to *Cardobairdia*. The genera *Krausella* and *Cardobairdia* have been assigned by this author to the family Bairdiidae Sars, 1888.

The genus *Krausella* has been erected by Ulrich (1894) on the basis of the species *K. inaequalis* Ulrich, 1894 from Ordovician of Illinois, U.S.A., and assigned by him to the Paleozoic family Beecherellidae Ulrich, 1894. It results from Berdan's (1961) diagnosis of the genus *Krausella* that this genus has "LV suboval in outline, overlapping RV ventrally, RV being produced posteriorly in short, blunt spine. Hinge line may coincide with dorsal margin, may be entrenched below dorsal margin of both valves, or LV may overreach RV along hinge line" (*l.c.* p. Q372).

In addition to a few species of the genus *Krausella* described from Paleozoic, a few species of this genus have also been described from the Mesozoic and Tertiary deposits. Their assignments were almost entirely based on the external morphology of the carapace. Thus, for instance, in 1936, Triebel erected the species *"?Krausella" minuta*[2] from Albian of Germany. Afterwards, this species was found in the Upper Cretaceous of the Netherlands and for the first time described from these deposits by van Veen (1936). Van Veen assigned Triebel's species, to the genus *Krausella* and included it in the family Cytheridae Baird, 1850.

In 1958, Oertli described *Krausella?* sp. from the Lower Cretaceous of France and, in 1959, *Krausella? argoviensis*[3] from the Upper Jurassic of Switzerland. In the latter species, he observed a primitive hinge more strongly developed in the posterior part of the hinge margin. These species, together with *Krausella* sp. Oertli, described in 1961 from Miocene of Italy, were assigned by Oertli to the family Cypridiidae. A newly erected species *Krausella? liassica* Drexler, 1959 and the species *Krausella*

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[2] Bonnema (1940) described *Krausella ovata* Triebel, 1936 from the Upper Cretaceous of the Netherlands, and van den Bold (1946), in addition to *K. asymmetrica* van den Bold from Oligomiocene of Cuba, described *K. minuta* from Paleocene of Honduras. Both these authors assigned the genus *Krausella* to the family Cypridae (recte Cypridiidae) Baird, 1894.

[3] *Krausella argoviensis* is mentioned among other species of Ostracoda from Oxfordian of Poland (Bielecka & Styk, 1966).

sp. inc. Fischer, 1962, both from Liassic of Germany, were assigned by these authors to the same family. Apostolescu (1959) re-established the previous systematic assignment of the genus *Krausella,* including *Krausella? lanceolata* Apostolescu from Liassic of the Paris Basin in the family Beecherellidae.

Taking into account van den Bold's (1960) suggestion, Herrig (1966), describing *Cardobairdia minuta* (Triebel, 1936) and *Cardobairdia* sp. from the Upper Cretaceous of the Island of Rügen, Germany, transferred a Cretaceous form, so far assigned to *Krausella*, to the genus *Cardobairdia.* He found that, in the ontogenetic development of *Cardobairdia ovata*, the shape of the carapace and in particular the process in the posterior part of the right valve, characteristic of the genus *Krausella*, develops gradually and, moreover, that it is a variable character in adult forms; it has no diagnostic importance concerning the generic rank. According to Herrig (1966), *Cardobairdia* represents the family Bairdiidae.

McKenzie (1967) included the genus *Cardobairdia*, together with the Recent genus *Saipanella* McKenzie, 1967, to a newly erected family Saipanellidae. On the basis of the shape of carapace and type of muscle scars, observed in studied species which represent the genera *Cardobairdia* and *Saipanella*, McKenzie assigned the Saipanellidae to the superfamily Healdiacea Harlton, 1933 and — on the basis of the development of the posterior part of valve, i.e. the presence or absence of mid-posterior spine in the right valve, in *Cardobairdia* — he compared this genus with the representatives of the families Krausellidae Berdan, 1961 and Cavellinidae Egorov, 1950.

According to McKenzie (1967), the most important difference between Saipanellidae, which he derives from Cretaceous [4] and other Healdiacea, to which he ascribes the Ordovician-Jurassic time range, consists in the structure of the hinge margin, i.e. a tripartite merodont hinge which occurs in Saipanellidae and a simple, terminally not differentiated hinge observed in other families of Healdiacea.

In 1957, Mandelstam erected the genus *Rubracea* assigned to the family Cytheridae with *R. artis* Lubimova (in Mandelstam *et al.*, 1957) from the Middle Jurassic of the Saratov Region on the Volga River being its genotype. Judging by the description and illustrations of the genotype of *Rubracea* and in particular by the appearance of the *R. artis* Lubimova topotypes, received by the authors, *Rubracea* strongly resembles *Cardobairdia.* In both these genera, the shape of carapace and structure of the hinge margin are similar. Unfortunately, the Soviet authors do not describe the muscle scars of *Rubracea*, any reliable identification of

[4] The presence of an indubitable representative of the genus *Cardobairdia*, i.e. *C. inflata* in the Middle Jurassic of Poland, gets down the lower boundary of the time range of Saipanellidae

Rubracea and *Cardobairdia* being thus impossible. In comparing both genera, an additional doubt is aroused by the fact that the Recent genera *Strandesia* Stuhlmann, 1888 and *Cypricercus* Sars, 1895, undoubtedly belonging to the Cypridiidae, contain forms which, in their external morphology, are similar to the genus *Krausella* and, consequently, to *Cardobairdia* and *Rubracea,* which has already been earlier pointed out by Triebel (1941) and van Morkhoven (1963). The genus *Rubracea* was assigned by van den Bold (1961) to the superfamily Cytheracea (Podocopina) but of an uncertain family.

SYSTEMATIC POSITION OF THE GENUS *CARDOBAIRDIA* VAN DEN BOLD, 1960

As results from the review of the history of the genus *Cardobairdia,* it was variously placed within the systematics of Ostracoda in which it was assigned not only to different families, but also to different orders. On the basis of the structure of valves in Miocene species representing *Cardobairdia,* McKenzie (1967) assigned this genus to the new family Saipanellidae, superfamily Headiacea Harlton, 1933 (emend. Mandelstam, 1960), suborder Metacopina and order Podocopida.

The present writers believe that *Cardobairdia* is correctly assigned to the Healdiacea since *C. inflata* n.sp. from Jurassic of Poland has muscle scars which quite unequivocally determine its assignment to this superfamily. A certain doubt is, however, aroused by the fact that the genus *Cardobairdia* has been included in the family Saipanellidae which, almost exclusively on the basis of the structure of the hinge margin in its representatives, was separated from other Healdiacea. The structure of the hinge margin does not seem to be a character sufficiently important to the taxons of Ostracoda of the family rank. However, it seems to be sufficient to separate two genera, e.g. *Krausella* and *Cardobairdia.* A considerable similarity of the rest of morphological characters in the representatives of Saipanellidae and Krausellidae suggests that Saipanellidae have unnecessarily been distinguished as separate families. The separation of these families as two different taxons is better justified by the presence of duplicature in Saipanellidae and lack of a calcified inner lamella in Krausellidae (Berdan, 1961). A final solution of this problem requires, however, additional studies. This is precisely the reason why the genus *Cardobairdia* has only tentatively been assigned by the present writers to Saipanellidae.

In recently suggested systematics of Ostracoda, Healdiacea take varying positions. Thus, they have been assigned by Zanina, Kashevarova and Polenova (1960) to the suborder Podocopa, whereas Scott (1961), the same as Adamczak (1967) and Gründel (1967), placed them within the

suborder Metacopina, erected by Sylvester-Bradley (1961). Hartmann (1964) assigned Healdiacea to Platycopina which, together with Podocopina, he included, however, in Podocopida. On the other hand, according to Sohn (1965), Healdiacea represent an "unknown suborder" (*l.c.*, p. B71) of the order Podocopida.

The divergent opinions on the systematic position of Healdiacea result mostly from a varying viewpoint of different authors concerning a mutual relationship of Podocopa and Platycopa. Podocopida are divided by Mandelstam (1960) and Hartmann (1964) into the two suborders, i.e. Podocopa and Platycopa, the last-named being considered by Gründel (1967) to be independent orders. According to Scott (1961), in addition to the suborders Podocopina and Platycopina, Podocopida also include the suborder Metacopina. Adamczak (1967) acknowledges Metacopina (Metacopa) but he introduces a new diagnosis of this suborder. As compared with an original diagnosis of Metacopina, presented by Sylvester-Bradley (1961) and according to which Metacopina are characterized by "inner lamella narrow, poorly developed or unknown" (p. Q358), Adamczak's new diagnosis precludes the presence of inner lamella in the representatives of this suborder.

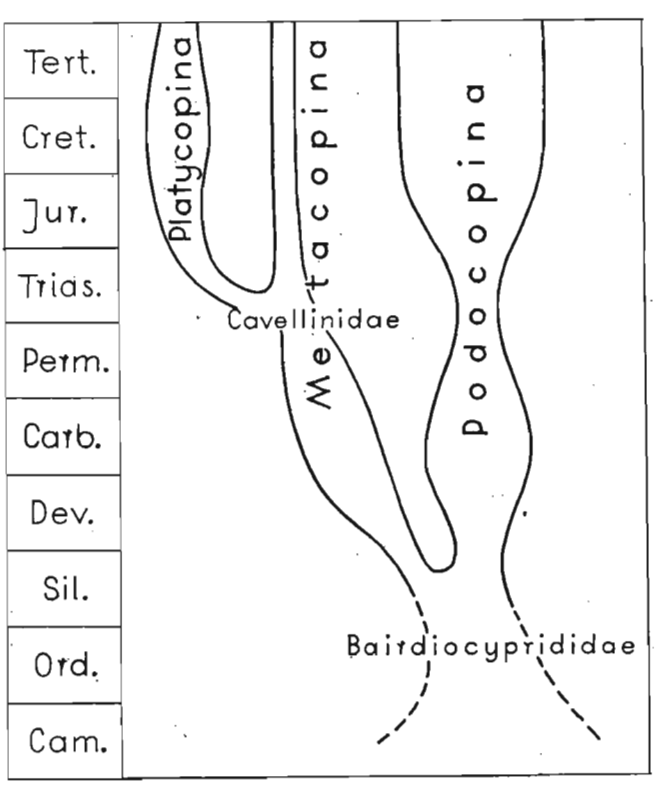

Fig. 1. — Diagram representing inferred relationship of podocopid suborders.

According to McKenzie (1967) who studied soft parts of the species representing the family Saipanellidae and compared them with those of the species representing other groups of ostracods, Metacopina have been quite correctly individualized "as a separate and primitive suborder in Podocopida" (*l.c.*, p. 111).

On the basis of the analysis of the morphology of valves in *Cardobairdia inflata* n.sp., the authors of the present paper assign the genus *Cardobairdia* to the suborder Metacopina; the presence of a distinctly calcified inner lamella in the valves of the species from Jurassic of Poland justifies the acceptance of the original diagnosis of this suborder, given by Sylvester-Bradley (1961).

In addition, the present writers believe that Metacopina and most likely its superfamily Healdiacea were a starting group for the suborder Platycopina which has earlier been suggested by Scott and Sylvester-Bradley (Scott, 1961, p. Q82, Fig. 32) and later confirmed by Gramm's (1967) recent studies (Text-fig. 1). In Triassic deposits, Gramm found forms transitory between the families Cavellinidae Egorov, 1950 and Cytherellidae Sars, 1866 which confirmed the relationship occurring between these taxons.

If, as suggested by Adamczak (1967), Metacopina originated from the Ordovician Bairdiocyprididae Shaver (Shaver, 1961) which, in his opinion, represented Podocopa but according to Shaver belonged to Metacopa, which had not a calcified inner lamella, this would imply that the calcified inner lamella appeared convergently in Podocopina and Metacopina and that it was a secondary element in the phylogeny of these groups of Ostracoda. The formation of duplicature in Metacopina seems to be a fairly distinct phenomenon in the evolution series of Healdiacea including Krausellidae (cf. diagnosis of Krausellidae by Berden, 1961) and ?Saipanellidae.

DESCRIPTION

Subclass **Ostracoda** Latreille, 1806
Order **Podocopida** G. W. Müller, 1894
Suborder **Metacopina** Sylvester-Bradley, 1961
Superfamily **Healdiacea** Harlton, 1933
Family **?Saipanellidae** McKenzie, 1967
Genus *Cardobairdia* van den Bold, 1960
Cardobairdia inflata n.sp.
(Text-figs. 2, 3; Pl. I; Pl. II, Figs. 2—7)

Holotypus: Pl. I, Fig. 5 (Z. Pal. No. O.V /1).
Stratum typicum: Bathonian.
Locus typicus: Jaworznik, Poland.
Derivatio nominis: *inflata* — Lat. *inflatus* = inflated.

Diagnosis. — Carapace suboval in lateral outline, smooth. Left and right valve posteriorly sharply ended; posterior spine of the right valve more distinct and only slightly longer than that of the left valve.

Material. — About 1000 specimens representing complete carapaces and single valves of young and mature forms. Most of them well-preserved.

Dimensions (in mm):

	Z. Pal. No.	Length	Height
Right valve	O.V/2	0.46	0.27
Left valve	O.V/3	0.45	0.27

Description. — Carapace small, solid, smooth, elongate, semiovate in lateral outline, swollen. The left, larger valve overlaps along the entire margin the right, smaller valve; the right valve has a more mildly rounded dorsal and a less rounded ventral margin. The left valve is, in its posterior part, obliquely truncated which results in its posterodorsal

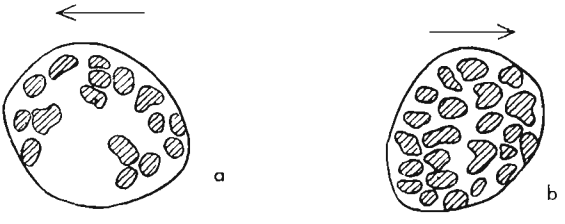

Fig. 2. — Schematic figures of muscle scars presented in photographed specimens on Pl. II; *a* muscle scars of right valve (O.V/15), *b* muscle scars of left valve (O.V/14).

margin being somewhat angulate. In the right valve, the line of dorsal margin passes almost directly into that of posterior margin. Posteriorly, both valves are sharply terminating, their ends diverging from each other. The posterior end of the left valve is less sharp and somewhat shorter than that of the right valve. Anterior margin of both valves is rounded, in the dorsal part mildly truncate. Carapace surface smooth.

Muscle scars, situated in a circular muscle field, consist of about 20, irregularly arranged scars (Text-fig. 2; Pl. II, Figs. 4—5). Marginal pore canals invisible. Duplicature (Text-fig. 3; Pl. II, Figs. 6—7) very narrow; the line of concrescence coincides with that of inner margin. Hinge merodont; terminal elements of the right valve finely crenulate, median element smooth.

Ontogeny and dimorphism. — Five instars, probably only the last ones, can be recognized among the complete carapaces of *Cardobairdia inflata*. They are distinguished mostly on the basis of the length of carapace and, therefore, it is not certain if they actually represented different ontogenetic stages. Changes in size and shape of carapaces can be observed in the ontogenetic development. Valves of the earlier ontoge-

netic stages are more triangularly ovate and more strongly inflated as compared with those in the premature and mature individuals. The posterior spine appears in the premature instar, being more distinct in

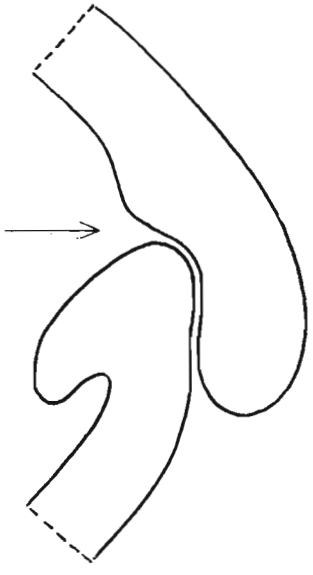

Fig. 3. — Schematic figure of transversal section through the anterior border of a complete carapace presented in photographed specimen on Pl. II, Fig. 6 (O.V/17).

the right valve. In the right valve, representing a premature instar, there is a poorly developed merodont hinge and an indistinct duplicature.

Dimensions (in mm) of the instars dealt with:

	Length	Height
Instar 1	0.17	0.12
„ 2	0.25	0.15
„ 3	0.29	0.17
„ 4 (premature)	0.40	0.23
„ 5 (mature, female)	0.49	0.25
„ 5 (mature, male)	0.56	0.26

Variability. — A distinct variability, observed in the shape and size of carapaces assigned to *Cardobairdia inflata* n. sp., is related with the presence of a few larger and posteriorly more spiny specimens (Pl. I, Fig. 8) from the highest part of the Jaworznik boring. These specimens are more strongly inflated and their posterior spines are more drawn aside as compared with those in the holotype and paratypes. It may well be that the last-named specimens represent another species.

Remarks. — The valves assigned to *Cardobairdia inflata* n. sp. from the Polish Jurassic are to the greatest extent similar to the valves (topotypes) of *Rubracea artis* Lubimova, in Mandelstam *et al.*, 1957, described from the Middle Jurassic of the Saratov Region. As compared with the

valves of *R. artis* Lubimova, the valves of the species from the Polish Jurassic have slightly differently developed posterior parts, i. e. in *Cardobairdia inflata* n. sp. both valves are sharply terminating, whereas in *R. artis* Lubimova the left valve is rounded and distinctly shorter than the right one. In addition, the posterior parts of valves in *R. artis* Lubimova are less strongly deflected than in *C. inflata* n. sp. In dorsal view, the difference between the species referred to above is expressed in the convexity of valves and in the line of the contact margin.

In lateral view, the valves of *Cardobairdia inflata* n. sp. are very similar to those of *Krausella? argoviensis* Oertli, 1957, a species described from Jurassic of Switzerland. As compared with topotypes of *K.? argoviensis* from the Swiss Jurassic, the valves from Jurassic of Poland are, however, considerably less flattened in the ventral part.

Occurrence. — In Poland: the Middle and Upper Kuiavian, as well as the Lower, Middle and Upper Bathonian of Jaworznik, the Lower and Middle Bathonian of Iwanowice Wielkie and the Lower Bathonian of Choroń.

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CARDOBAIRDIA INFLATA N. SP. ZE ŚRODKOWEJ JURY POLSKI I JEJ POZYCJA TAKSONOMICZNA WŚRÓD OSTRACODA

Streszczenie

Praca niniejsza zawiera historię badań rodzaju *Cardobairdia* van den Bold, 1960 i analizę jego pozycji systematycznej wśród Ostracoda. Podstawę do powyż-

szych rozważań stanowi *C. inflata* n. sp., gatunek występujący w osadach jury środkowej w Polsce, w wierceniach z okolic Częstochowy.

Rodzaj *Cardobairdia* opisany był przez van den Bolda (1960) z eocenu Trinidadu. Herrig (1966) włączył do tego rodzaju kredowy gatunek Ostracoda z Niemiec, zaliczany wcześniej do rodzaju *Krausella* Ulrich, obniżając tym samym dolną czasową granicę występowania rodzaju *Cardobairdia*. Obydwaj autorzy zaliczyli *Cardobairdia* do rodziny Bairdiidae Sars.

W roku 1967, McKenzie badając mioceński gatunek reprezentujący rodzaj *Cardobairdia*, wraz z nowoutworzonym, współcześnie żyjącym rodzajem *Saipanella*, włączył oba do rodziny Saipanellidae McKenzie. Autor ten ogranicza występowanie Saipanellidae do kredy, natomiast Krausellidae, według Berdana (1961), występują od ordowiku do dewonu. McKenzie (1967) porównał rodzaj *Cardobairdia* nie tylko z rodzajem *Krausella*, lecz także z rodzajem *Cavellina* Coryell, stwierdzając podobieństwo w ogólnym kształcie skorupek u ich przedstawicieli oraz różnice w budowie brzegu zawiasowego, tj. merodontowy zawias u *Cardobairdia*, natomiast adontowy u *Krausella* i *Cavellina*.

Autorzy niniejszej pracy, w porównaniach *Cardobairdia* z innymi rodzajami, biorą też pod uwagę rodzaj *Rubracea*, utworzony przez Mandelstama (1957), znany z jury azjatyckiej części Z.S.R.R., który pod względem morfologii zewnętrznej skorupki i budowy brzegu zawiasowego przypomina bardzo rodzaj *Cardobairdia*.

W obecnej pracy rodzaj *Cardobairdia*, zgodnie z sugestiami McKenzie'go (1967), zaliczony jest do rzędu Podocopida G. W. Müller, podrzędu Metacopina Sylvester-Bradley, nadrodziny Healdiacea i z zastrzeżeniem do rodziny Saipanellidae McKenzie. Określając przynależność *Cardobairdia* do Metacopina autorzy podtrzymują pierwotną, oryginalną diagnozę tego podrzędu, podaną przez Sylvester-Bradleya (1961), a nie Adamczaka (1967).

ЯНИНА ЩЕХУРА & ЯНУШ БЛАШИК

CARDOBAIRDIA INFLATA N. SP. ИЗ СРЕДНЕЙ ЮРЫ ПОЛЬШИ И ЕЕ ТАКСОНОМИЧЕСКАЯ ПОЗИЦИЯ СРЕДИ OSTRACODA

Резюме

В настоящей работе рассмотрено историю исследования рода *Cardobairdia* van den Bold, 1960 и проведено анализ его систематической позиции среди Ostracoda. Основанием для вышеуказанных рассуждений является *C. inflata* n. sp., вид выступающий в верхнеюрских отложениях Польши, в буровых скважинах из окрестностей Ченстоховы.

Род *Cardobairdia* был описан ван ден Больдом (van den Bold, 1960) из эоцена Тринидада. Герриг (Herrig, 1966) включил в этот род меловой вид Ostracoda из Германии, причисляемый раньше к роду *Krausella* Ulrich, тем самым понижая нижнюю границу распространения рода *Cardobairdia*. Оба авторы причислили *Cardobairdia* к семейству Bairdiidae Sars.

В 1867 году, Мак Кензе (McKenzie), изучая миоценовый вид являющийся представителем рода *Cardobairdia*, вместе с новоустановленным, современно живущим родом *Saipanella*, включил оба в семейство Saipanellidae McKenzie. Автор этот ограничивает распространение Saipanellidae только к меловым отложениям, а Krausellidae, по Бердану (Berdan, 1961), известны от ордовика по девон. Мак Кензе (McKenzie, 1967) сравнил род *Cardobairdia* не только с родом *Krausella*, но также с родом *Cavellina* Coryell, констатируя у их представителей сходство по общей форме створок и различия в строении замочного края, т. е. мэродонтный замок у *Cardobairdia*, а адонтный у *Krausella* и *Cavellina*.

Авторы настоящей работы, сравнивая *Cardobairdia* с иными родами, учитывают также род *Rubracea*, установленный Мандельштамом (Mandelstam, 1957), известный из юры азиатской части С. С. С. Р., который в отношении внешней морфологии створки и строения замочного края очень напоминает род *Cardobairdia*.

В настоящей работе род *Cardobairdia*, согласно предложениям Мак Кензи (McKenzie, 1967), причислен к отряду Podocopida G. W. Müller, подотряду Metacopina Sylvester-Bradley, надсемейству Healdiacea и с предварительным условием к семейству Saipanellidae McKenzie. Определяя принадлежность *Cardobairdia* к Metacopina, авторами поддерживается первичный оригинальный диагноз этого подотряда, поданный Сильвестром-Брадлейем (Sylvester-Bradley, 1961), а не Адамчаком (Adamczak, 1967).

PLATES

Plate I

Cardobairdia inflata n. sp.

Fig. 1. Instar 1, complete carapace (Z. Pal. No. O.V./4); *a* lateral exterior view of right valve, *b* dorsal view.

Fig. 2. Instar 2, complete carapace (O.V./5); *a* lateral exterior view of right valve, *b* dorsal view.

Fig. 3. Instar 3, complete carapace (O.V./6); *a* lateral exterior view of right valve, *b* dorsal view.

Fig. 4. Instar 4, complete carapace (O.V/7); *a* lateral exterior view of right valve, *b* dorsal view.

Fig. 5. Instar 5 (adult, female), holotype, complete carapace (O.V/1); *a* lateral exterior view of right valve , *b* lateral exterior view of left valve, *c* dorsal side, *d* frontal end.

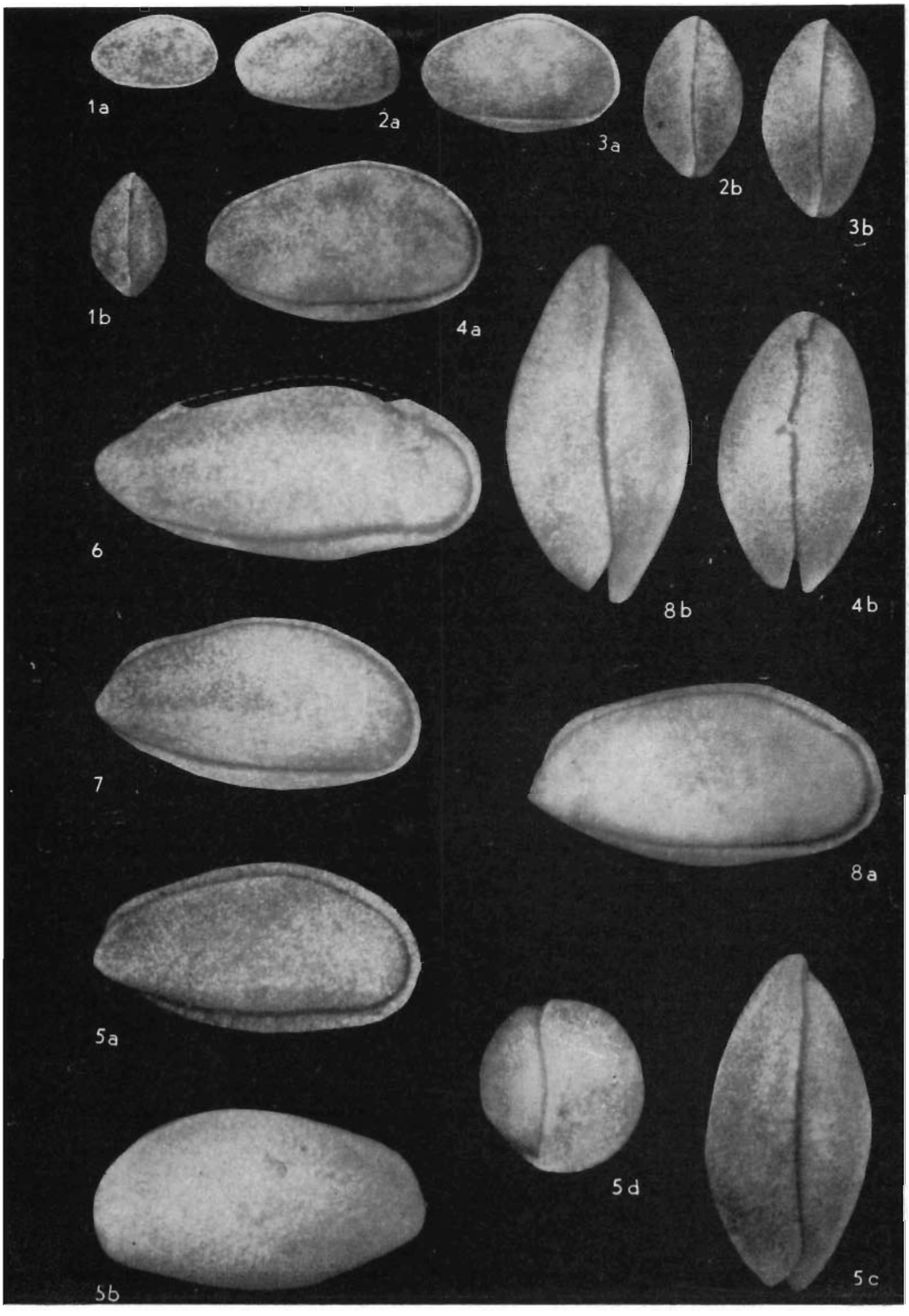
Fig. 6. Instar 5 (adult, male), complete carapace (O.V/8); lateral exterior view of right valve.

Fig. 7. Adult female, complete carapace, topotype (O.V/9); lateral exterior view of right valve.

Fig. 8. Adult female, complete carapace, topotype (O.V/10); *a* lateral exterior view of right valve, *b* dorsal view.

Figs. 1-7: Jaworznik, 27 m; Bathonian
Fig. 8: Choroń, 19 m; Bathonian

Magnifications of figures approx. × 70


1a
2a
3a
2b
3b
1b
4a
6
8b
4b
7
8a
5a
5d
5b
5c

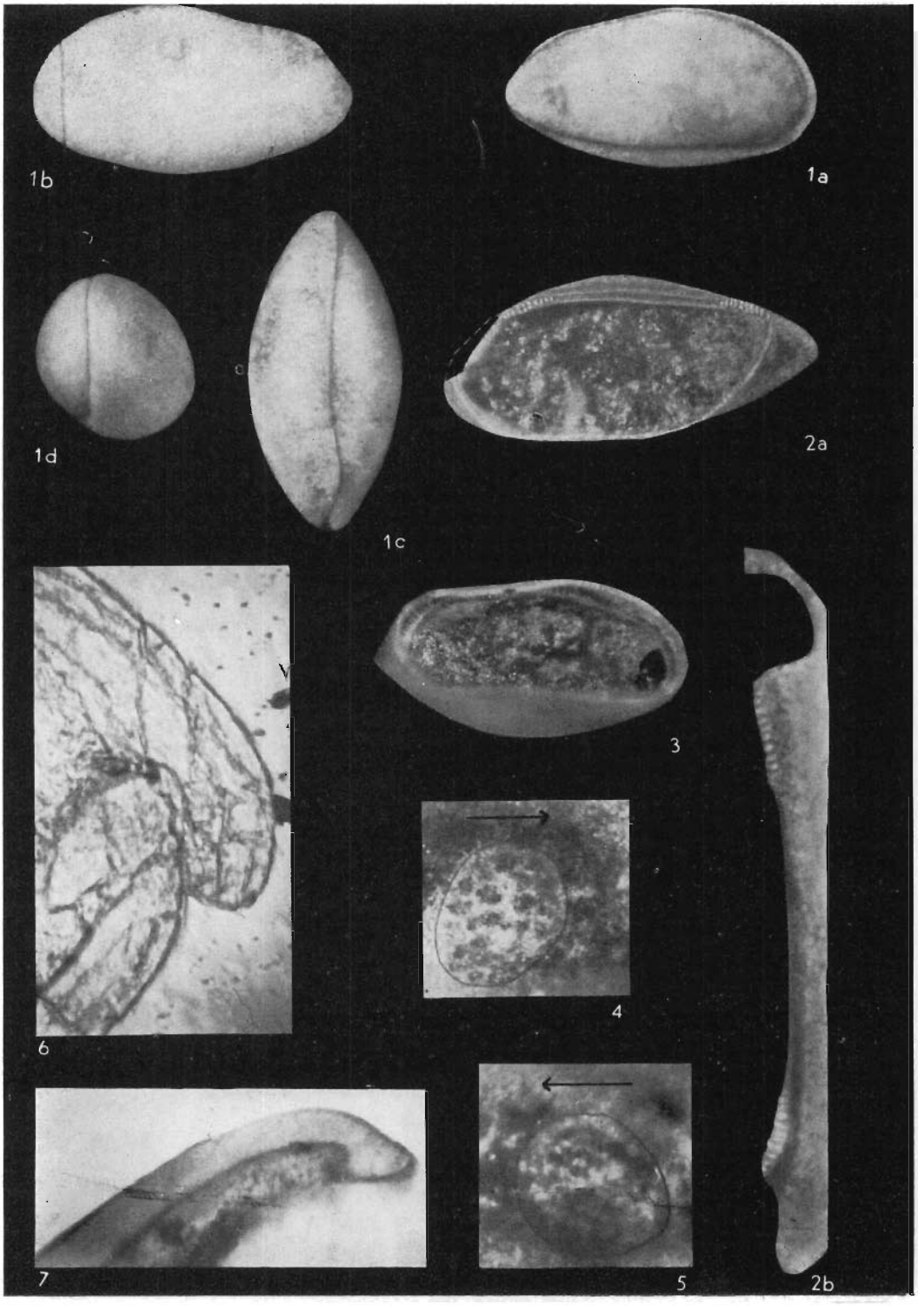

1b
1a
1d
1c
2a
6
3
4
2b
7
5

Plate II

Rubracea artis Lubimova *in* Mandelstam *et al.*, 1957
(USSR, Saratov Region, Callovian)

Fig. 1. Complete carapace (Z. Pal. No. O.V/11); *a* lateral exterior view of right valve, *b* lateral exterior view of left valve, *c* dorsal view, *d* frontal end; × 70.

Cardobairdia inflata n. sp.

Fig. 2. Right valve (O.V/12); *a* interior view, × 70, *b* dorsal view, × 150.
Fig. 3. Left valve (O.V/13); interior view, × 70.
Fig. 4. Muscle scars of left valve (O.V/14), × 300.
Fig. 5. Muscle scars of right valve (O.V/15), × 300.
Fig. 6. Transversal section through the anterior border of a complete carapace (O.V/16), × 1000.
Fig. 7. Transversal section through the anterior border of right valve (O.V/17), × 500.

Fig. 2: Choroń, 19 m; Bathonian.
Figs. 1, 3-7: Jaworznik, 27 m; Bathonian.