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FRESH-WATER OSTRACODA FROM THE UPPER CRETACEOUS OF THE NEMEGT BASIN, GOBI DESERT

(Plate XXVIII—XXIX)

Abstract. — Thirteen species of the fresh-water Ostracoda from the Upper Cretaceous (Upper Nemegt Beds) of the Nemegt Basin (Nemegt and Altan Ula IV localities), Gobi Desert, are described and figured. Of the examined species, representing 4 genera, i.e. *Cypridea* BOSQUET, 1852, *Candona* BAIRD, 1845, *Candoniella* SCHNEIDER, 1956 and *Timiriasevia* MANDELSTAM, 1947, the following species: *Cypridea altanulaensis*, *C. biformata* and *C. obliquecostae* are new.

INTRODUCTION

The description of Ostracoda in the present paper is a modest contribution to our knowledge of the Cretaceous Ostracoda of Mongolia. So far the most comprehensive descriptions of Cretaceous Ostracoda from this part of Asia were given by GALEEVA, 1955 and LUBIMOVA, 1956. These authors described many species of fresh-water Ostracoda from the Lower, Middle and Upper Cretaceous of Mongolia, mainly from the eastern part of the country, only a few of the species described coming from Western Mongolia. The Cretaceous Ostracoda of Mongolia were also described by MANDELSTAM. The results of his investigations are to be found mainly in the above mentioned works of GALEEVA (1955) and LUBIMOVA (1956), as well as in his own work from 1956.

The material described by the present authors comes from samples, collected by the Polish-Mongolian Expeditions to Mongolia in 1964 and 1965. The samples were obtained from two Cretaceous outcrops, the so-called Upper Nemegt Beds, in the Nemegt Basin, in Southern Gobi, i.e. the Nemegt and Altan Ula IV localities. The exact location of the outcrops and their lithological description are given in the work of GRADZIŃSKI *et al.* (1968/69). In the paper of KARCZEWSKA and ZIEMBIŃSKA-TWORZYDŁO (1970, p. 122) one can find illustrations of parts of the outcrops, from which the here examined samples were taken. The attached Table 1 presents a list of the designated Ostracoda species, as well as their occurrence in the examined samples. Besides Ostracoda, the samples contained numerous plant remains, mainly Characea, which have been described by KARCZEWSKA and ZIEMBIŃSKA-TWORZYDŁO (1970).

The scarcity of the Ostracoda representatives in the samples from Mongolia is due to the fact that these samples were mainly collected for sedimentological investigations (GRADZIŃSKI, 1970), so were not large and, in addition, represent sandy and silty claystones which, as a rule, are poor in Ostracoda remains.

Out of all the ostracod specimens found, only 21 complete carapaces and 3 single valves were possible to determine. Among them, 12 species belonging to 4 fresh-water genera were

Table 1

Stratigraphic occurrence of Upper Cretaceous ostracods from Nemegt Basin

Age	Formation		Samples Nos. *	Locality	Lithology	*Cypridea cavernosa* GAL.	*C. biformata* n. sp.	*C. obliquecostae* n. sp.	*C.* cf. *punctilataeformis* LUB.	*C. rostrata* Gal.	*Cypridea* sp. *1*	*Cypridea* sp. *2*	*Cypridea* sp. *3*	*Candona altanulaensis* n. sp.	*Candoniella mordvilkoi* MAND.	*Timiriasevia* cf. *opinabilis* KAZ.	*Timiriasevia* sp.
Upper Cretaceous	Upper Nemegt Beds		76/65	Altan Ula IV	Silty claystone, moderate reddish-brown	+						+					
			7/65	Altan Ula IV	Yellowish-gray silty claystone		+							+	+	+	+
		Passage Series	217/65	Nemegt	Silty claystone, light reddish-brown	+	+	+	+		+		+				
			134/64	Nemegt	Claystone, moderate reddish-brown									+			
			115/64	Nemegt	Silty claystone, light reddish-brown					+							

* The numbers refer to the lithological samples collected by Dr. R. GRADZIŃSKI and housed in the Department of Geology, Jagellonian University in Cracow (see GRADZIŃSKI, 1970, p. 148).

distinguished, i.e.: *Cypridea* BOSQUET, 1852, *Candona* BAIRD, 1845, *Candoniella* SCHNEIDER, 1956 and *Timiriasevia* MANDELSTAM, 1947. Of the studied species, 3 belong to those known in literature, namely to *Cypridea cavernosa* and *C. rostrata,* both described by GALEEVA (1955) from the Upper Cretaceous of Mongolia, and to *Candoniella mordvilkoi* MANDELSTAM, 1963, described from the Upper Cretaceous of Kazakhstan (Asiatic part of the USSR). Two others conform to species known in literature and have been identified as *Cypridea* cf. *punctilataeformis* LUBIMOVA, 1956 and *Timiriasevia* cf. *opinabilis* KAZMINA, 1957 (emend. MANDELSTAM, *in* LUBIMOVA *et al.* 1960). The *Cypridea punctilataeformis* has been described from the Lower Cretaceous of Mongolia, and the *Timiriasevia opinabilis* from the Lower Cretaceous of the western part of the Siberian Lowland. Of the remaining 7 species, 3 are considered as new, no specific assignment being established for the other 4.

It was not possible to establish the exact age of the here described species of Ostracoda. Both SWAIN (1961) and MORKHOVEN (1963) limit the time range of representatives of the genus *Cypridea* from Middle Jurassic to Lower Cretaceous. On the other hand, GALEEVA (1955) as well as LUBIMOVA (1956) described species belonging to this genus from the Upper Cretaceous of Mongolia. The genera *Timiriasevia* and *Candoniella* have not a very precised time range,

and *Candona* does not seem to have any great stratigraphical significance, being known from Cretaceous to Recent.

As the authors of the present paper were unable to attribute the described assemblage of species to any of the known assemblages of Ostracoda with an exactly defined age, it is difficult to base on it any stratigraphical conclusions. Two ostracod species, occurring in the examined microfauna known from Upper Cretaceous, support the view of the Upper Cretaceous age of the examined profile, which is based on the occurrence of dinosaurs.

The authors of the present paper are very thankful to Prof. Z. KIELAN-JAWOROWSKA (Palaeozoological Institute, Polish Academy of Sciences, Warsaw), leader and organizer from the Polish side of the palaeontological expeditions to the Gobi Desert, and to Dr. R. GRADZIŃSKI (Department of Geology, Jagellonian University, Cracow) for making the samples available for micropalaeontological examination. The first author is most grateful to Prof. G. G. MARTINSON and Dr. H. STANKEVITCH (Institute of Precambrian Geology and Geochronology, USSR Academy of Sciences, Leningrad) for their kind permission to examine the ostracod collection of the Upper Cretaceous of Mongolia, during her stay in Leningrad in 1969.

The photographs in the present paper were taken by the second author.

The described ostracod species are housed in the collection of the Palaeozoological Institute of the Polish Academy of Sciences in Warsaw, abbreviated as Z. Pal. Institute of Precambrian Geology and Geochronology, USSR Academy of Sciences in Leningrad, is abbreviated as I. G. G. P.

DESCRIPTIONS

Subclass **OSTRACODA** LATREILLE, 1806
Order **PODOCOPIDA** MÜLLER, 1894
Suborder **PODOCOPINA** SARS, 1866
Superfamily **CYPRIDACEA** BAIRD, 1845
Family ILYOCYPRIDIDAE KAUFMANN, 1900
Subfamily CYPRIDEINAE MARTIN, 1940
Genus **CYPRIDEA** BOSQUET, 1852
Cypridea cavernosa GALEEVA, 1955

(Pl. XXVIII, Fig. 6*a-c*)

1955. *Cypridea cavernosa* GALEEVA; L. I. GALEEVA, Ostrakody melovych..., p. 42, Pl. 10, Fig. 1*a-ž*.
1956. *Cypridea cavernosa* GAL.; P. S. LUBIMOVA, Ostrakody..., p. 78, Pl. 17, Fig. 1*a, b*.

Material. — Three adult, complete carapaces, somewhat damaged.
Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/2. . .	1.32	0.78

Description. — Carapace large, fairly solid, oblong and angular in lateral outline, evenly and moderately convex in dorsal view. Both valves differ somewhat in shape and size, the left being larger than the right, especially in the ventral and potseroventral part. The right valve is overlapped by the left along almost its entire margin, except for the distal part of anterior

end and the middle part of dorsal margin; along this latter, there occurs a distinct depression between the two valves. Anterior and posterior ends broadly rounded. Dorsal margin straight and only slightly converging posteriorly with the straight ventral margin. In the anteroventral part of both valves there occurs a distinct rounded and somewhat compressed beak and a fairly visible notch. A distinct lunate cyatus is present in the posterior part of the ventral margin of the larger valve. Valve surface covered with reticulate pitting. Internal morphological features unknown.

Remarks. — Specimens referred to *Cypridea cavernosa* GALEEVA, described in this paper, only slightly differ from that described and illustrated by LUBIMOVA (1956). The differences concern the details in complete carapace outline and are probably due to the not very good state of preservation of the here studied specimens.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Nemegt and Altan Ula IV localities), and Upper Cretaceous of SE part of Gobi Desert; according to LUBIMOVA (1956) and Dr. H. STANKEVITCH (personal communication), it occurs also in Upper Cretaceous of SE part of Gobi Desert, Bugin Cav and Nogon Cav (trans-Altaian Gobi).

Cypridea cf. **punctilataeformis** LUBIMOVA, 1956

(Pl. XXIX, Fig. 8*a-c*)

1956. *Cypridea punctilataeformis* LUBIMOVA; P. S. LUBIMOVA, Ostrakody..., p. 47, Pl. 10, Fig. 2.

Material. — One complete, adult carapace, well preserved.
Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/3 . . .	1.22	0.76

Description. — The carapace large in size, very solid, angularly ovate in lateral view, equally and moderately swollen in dorsal view. The greatest height is in the first third of the valve length, counting from the front. Left valve seems to be slightly larger than the right, overlapping the latter especially posteriorly. In the posterior part of the hinge margin, on the dorsal outer side, there is a distinct depression. Anterior and posterior ends broadly rounded. Somewhat arched dorsal margin nearly parallel to the ventral margin. Almost all valve surface coarsely pitted, with angular pits decreasing in number along the valve margins; the distal part of the posterior end smooth. Short, irregularly arranged, not numerous tubercle-like spines occur along the anterior, posterior and posterodorsal valve margins. Internal morphological features unknown.

Remarks. — Specimen described here differs only indistinctly from the figured and described holotype of *Cypridea punctilataeformis* LUBIMOVA. It is larger and with a different outline in dorsal view, being more swollen posteriorly, whereas that, described by LUBIMOVA, has its greatest width in the middle. Beak and notch, characteristic for Cypridea but absent in studied species, was observed on the inner side of specimen studied by LUBIMOVA (1956)[1].

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Nemegt locality), Gobi Desert.

[1] It is worth noting that in the majority of specimens belonging to the here studied species, assigned to the genus *Cypridea*, only one valve, generally the right one, bears a beak, i.e. projection characteristic for the *Cypridea* genus. According to SWAIN (1961, p. Q 241) and MORKHOVEN (1963, p. 93), the mentioned beak occurs on the anteroventral margin of each valve of carapace.

Cypridea biformata n. sp.

(Pl. XXVIII, Fig. 2*a-c*; Pl. XXIX, Fig. 7*a, b*)

Type specimen: Pl. XXVIII, Fig. 2*a-c* (Z. Pal. No. MgO/1).
Type horizon and locality: Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin, Gobi Desert. Sample 7/65.
Derivation of the name: *biformata* — named after the differently shaped valves.

Diagnosis. — Valve ovate in lateral outline, swollen, especially posteriorly, with flattened and rounded beak, and smooth valve surface. Beak and rather shallow notch are present only in the smaller, right valve.

Material. — Three complete carapaces and 2 left valves. All specimens well preserved and represent adult forms.

Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/1 . . .	0.83	0.54

Description. — Carapace of medium size, ovate in lateral outline, markedly convex posteriorly, evenly and gradually flattened frontally in dorsal view. The left valve, larger than the right, overlaps the latter along almost the entire margin, except for the middle part of the dorsal margin and the anterior end. Anterior end more broadly and obliquely rounded than the posterior end. Dorsal margin straight, somewhat converging posteriorly, with a straight, ventral margin. Flattened, well developped beak and corresponding notch are present only in the right valve; in the left valve, these elements are visible on the interior side. Valve surface smooth. Duplicature narrow, broader anteriorly. Hinge of the left valve consists of an indistinct furrow, terminated by socket-like depressions. Muscle scars and marginal pore canals invisible.

Variation. — Insignificant variation concerns mainly the shape of valves. Single, left valves (Pl. XXIX, Fig. 7*a, b*) are more quadrate in lateral view and less inflated posteriorly than those in complete carapaces; it is probable that they represent other species although related to *Cypridea biformata* species.

Remarks. — Specimens of the above described species are similar to the specimen of *Cypridea foveolata* (EGGER, 1910), species figured and redescribed by MANDELSTAM and SCHNEIDER (1963, p. 109, Pl. 15, Fig. 3*a, b*) from the Lower Cretaceous (Barremian) of Asiatic part of USSR (East of Baikal). *Cypridea biformata* n. sp. can be distinguished mainly by its smooth carapace surface and a beak restricted to the right valve; the beak in *C. foveolata* species gradually disappears near the dorsal valve margin, whereas in Mongolian species it is limited to the lower part of the anterior end.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Nemegt and Altan Ula IV localities), Gobi Desert.

Cypridea obliquecostae n. sp.

(Pl. XXIX, Figs. 5*a-c*)

Type specimen: Pl. XXIX, Figs. 5*a-c*; (Z. Pal. No. MgO/4).
Type horizon and locality: Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin, Gobi Desert. Sample 217/65.
Derivation of the name: Lat. *costa* = rib, *obliquus* = oblique, obliquely ribbed; named after the morphological feature of the valve.

Diagnosis. — Carapace subovate in lateral outline, compressed towards the anterior end. In the posterodorsal part it bears an oblique ridge. Valve surface smooth.

Material. — Two adult, complete carapaces, well preserved.
Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/4 . . .	0.67	0.39

Description. — Carapace of medium size, solid, subovate in lateral outline, compressed and nearly triangular in dorsal view. The left, larger valve overlaps the right valve, especially along the ventral and anterodorsal margins. Dorsal margin nearly straight in the left valve, slightly arched in the right one. Anterior end of the right valve obliquely rounded, whereas in the left valve it is more broadly rounded and moreover somewhat angulate in its upper part. Posterior end rather broadly rounded. Ventral margin straight. Only the right valve bears a lunate, compressed beak and a slightly incised notch. In the posterodorsal part of lateral valve there occurs an oblique ridge bordering posteriorly the valve inflation, which is especially well developed in the right valve. Valve surface smooth. Internal morphological features not known.

Remarks. — Specimens referred here to *Cypridea obliquecostae* n. sp. do not resemble any of the so far described species. Their compressed valves, bearing posteriorly a characteristic ridge, differ them from other known species belonging to the genus *Cypridea*.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Nemegt locality), Gobi Desert.

Cypridea sp. 1

(Pl. XXVIII, Fig. 4*a-c*)

Material. — One, probably adult, complete carapace, damaged.
Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/5 . . .	0.65	0.41

Description. — Carapace solid, medium in size, ovately subquadrate in lateral view, moderately swollen, especially posteriorly, in dorsal view. Near the dorsal margin, above the middle part, the carapace is inconspicuously depressed, being more swollen just behind, forming a small concavity along the posterior part of hinge margin. Left, larger valve overlaps the right valve along almost the entire margin, except for the posterior of hinge margin. Dorsal margin straight, ventral margin somewhat concave in the middle. Anterior end more broadly rounded than the posterior. Compressed, damaged beak is seen on the lower part of the anterior end of the right valve. Valve surface fairly and irregularly pitted. Near the posterior and ventral margins, the pits seem to disappear. Internal morphological features not known.

Remarks. — Due to the damaged state of the only representative of the here described species, at the present authors disposal, it is not possible to refer it to any of the so far known species or assign it to a new one.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Nemegt locality), Gobi Desert; according to Dr. H. STANKEVITCH (personal communication), it occurs also in Upper Cretaceous of Altan Ula (Nemegt Basin) and in Bugin Cav (trans-Altaian Gobi).

Cypridea sp. 2

(Pl. XXVIII, Fig. 1*a-c*)

Material. — One adult, complete carapace, well preserved.
Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/11 . . .	0.75	0.50

Description. — Carapace of medium size, rather solid, subovate in lateral view, strongly swollen, especially posteriorly, in dorsal view. Right, a somewhat smaller valve, is overlapped by the left valve along almost the entire margin, except for its posterodorsal and anteroventral part. Dorsal margin highly arched, frontally passing gradually into an obliquely rounded anterior end, posteriorly — into a broadly rounded posterior end; this latter is slightly angulated in its upper part. Ventral margin nearly straight. Characteristic beak rounded and compressed, well developed, is present only in the right valve; in the left valve there is no trace of a beak or notch. Valve surface smooth. Internal morphological features unknown.

Remarks. — Specimen described here is the most similar to the specimens referred to *Pseudocypridina sambaensis*, a species described by GREKOFF (1957, p. 58, Pl. 3, Figs. 47—49) from the weald of Congo Basin; in 1960, the same species was described by its author as the *Cypridea (Pseudocypridina) sambaensis*. The Mongolian specimen differs from that described by GREKOFF in being higher, more triangular in lateral outline, and in possessing a more pronounced, better developped beak.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Altan Ula IV locality), Gobi Desert.

Cypridea rostrata GALEEVA, 1955

(Pl. XXVIII, Fig. 3*a-c*)

1955. *Cypridea rostrata* GALEEVA; L. I. GALEEVA, Ostrakody..., p. 42, Pl. 9, Fig. 3 a, b, v.
1956. *Cypridea rostrata* GAL.; P. S. LUBIMOVA, Ostrakody..., p. 77, Pl. 16, Fig. 5 a, b.

Material. — One complete, adult male specimen, somewhat damaged.
Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/6 . . .	1.64	0.90

Description. — Carapace solid, very large in size, oblong, subovate in lateral outline, rather slim, especially anteriorly in dorsal view. Left, larger valve overlaps the right valve along almost the entire margin, except for the most distal part of the anterior end. Dorsal margin slightly arched, nearly parallel to the straight ventral margin, passing gradually into broadly rounded anterior end and more sharply rounded posterior end; posterior end is somewhat angulated in its lower part, bearing a small, triangular cyathus, especially well visible in the right valve. Distinct beak and rather weakly incised notch are present in both valves. Valve surface smooth. Internal morphological features not known.

Remarks. — Described specimen is a male representative of *Cypridea rostrata* of which only female representative was figured and described by LUBIMOVA (1956). Both female and male forms occur in ostracod collection in I. G. G. P. collected by Soviet palaeontologist from the Upper Cretaceous beds of Gobi Desert. The specimen described here as *Cypridea*

rostrata resemble in general outline the figured specimen, referred to *Cypridea quadrilateralis*, described by SWAIN (1946, p. 549, Pl. 83, Fig. 13), from the Lower Cretaceous of Brazil, differing however in being much larger, more elongated and possessing differently outlined posteroventral margin.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Nemegt locality), Gobi Desert; according to Dr. H. STANKEVITCH (personal communication), it occurs also in Upper Cretaceous of Baikal region, Bugin Cav and Nogon Cav (trans-Altaian Gobi).

Cypridea sp. 3

(Pl. XXIX, Fig. 3*a-c*)

Material. — Two probably adult, complete carapaces, and 1 right valve, damaged. Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/7 . . .	0.90	0.44

Description. — The carapace of medium size, elongated, subelliptical in lateral outline, almond-like, pointed anteriorly in dorsal view. Left, larger valve overlaps the right valve along almost the entire margin, except for the posterodorsal and anteroventral margins. The greatest height just in front of the central part. Dorsal margin nearly straight, posteriorly sloping indistinctly towards the broadly rounded posterior end; anteriorly passes arcuately into the obliquely rounded anterior end. Only the right valve bears a lunate, compressed beak and indistinctly developed notch. Ventral margin straight. Valve surface seems to be smooth; granulation seen on the valve surface of specimen, figured on Pl. XXIX, Fig. 3*a-c*, results from the presence of grains of sand with which it is covered. Internal morphological features unknown.

Variation. — Two specimens, referred to *Cypridea* sp. *3*, differ somewhat in size, especially in length, and it is possible they represent two different ontogenetic stages, or two different species. Unfortunately, the state of preservation of the studied specimens does not allow one to resolve this question.

Remarks. — General shape and a lunate beak, restricted to the anteroventral margin of the right valve, characteristic for the above described species, differs it from the so far known representative of the genus *Cypridea*.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Nemegt locality), Gobi Desert.

Family CYPRIDIDAE BAIRD, 1845
Subfamily CANDONINAE DADAY, 1900
Genus **CANDONA** BAIRD, 1845
Candona altanulaensis n. sp.

(Pl. XXIX, Figs. 2*a, b*, 4*a-c*)

Type specimen: Pl. XXIX, Figs. 4*a-c* (MgO/8).
Type horizon and locality: Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin, Gobi Desert. Sample 7/65.
Derivation of the name: *altanulaensis* — after the name of locality Altan Ula.

Material. — Two complete carapaces and 1 left valve, adult, well preserved. Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/8 . . .	0.78	0.39

Diagnosis. — Carapace subtrapezoidal, elongated in lateral view, with high, fairly truncated posterior end and narrowly rounded anterior end. Dorsal margin nearly straight, ventral margin slightly concave. Valve surface smooth.

Description. — Carapace of medium size, rather solid, having subtrapezoid, oblong lateral outline and subovate shape in dorsal view. The greatest height is in the most posterior part. The left, larger valve overlaps the right valve along almost the entire margin, except for the hinge margin. Dorsal margin nearly straight frontally, slightly arched posteriorly, passing into a somewhat obliquely truncated posterior margin. Anterior end rather narrowly rounded. Ventral margin distinctly concave. Valve surface smooth. Duplicature well developed, mainly along the anterior and posteroventral margin. Muscle scars obscured, marginal and normal pore canals invisible. Hinge margin visible in the left valve, adont.

Variation. — Specimens referred to the *Candona altanulaensis* n. sp. differ somewhat in size and shape.

Remarks. — Specimens included into *Candoniella altanulaensis* n. sp. are the most similar to the figured specimens described as *Candona kingslei* by BRADY and ROBERTSON (1870, p. 17, Pl. 19, Figs. 9—12) from the Quaternary of Europe and Asia. They differ, however, in being less arched dorsally and in having a more truncated posterior end. Specimens of the two compared species, seen dorsally, differ considerably in their outline.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Nemegt and Altan Ula IV localities), Gobi Desert.

Genus **CANDONIELLA** SCHNEIDER, 1956
Candoniella mordvilkoi MANDELSTAM, 1963

(Pl. XXVIII, Fig. 5*a-c*)

1963. *Candoniella mordvilkoi* MANDELSTAM; M. I. MANDELSTAM & G. F. SCHNEIDER, Iskopaemye..., p. 164, Pl. 27 Fig. 5*a, b*.

Material. — Three complete, adult carapaces, well preserved. Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/9 . . .	0.54	0.29

Description. — The carapace small in size, much elongated (length twice the height), suboval in lateral view, moderately and equally inflated, being slightly pointed at both ends. Left valve, somewhat larger than the right one, overlapping the latter along the entire margin. Both ends of the valve well rounded. Dorsal margin straight, the ventral indistinctly concave. Valve surface smooth.

Remarks. — Specimens from the Mongolian Cretaceous, referred to *Candoniella mordvilkoi* MANDELSTAM, seem to differ somewhat in size, i.e. being smaller and less slender from the

figured specimen, described by MANDELSTAM (1963) as *C. mordvilkoi* from the Cenomanian of Kazakhstan (USSR).

Occurrence. — Upper Cretaceous (Cenomanian) of Asiatic part of USSR (Kazakhstan), Upper Cretaceous of Mongolia (Upper Nemegt Beds), Nemegt Basin (Altan Ula IV locality), Gobi Desert.

Superfamily CYTHERACEA BAIRD, 1850
Family CYTHERIDAE BAIRD, 1850
Subfamily TIMIRIASEVIINAE MANDELSTAM, 1959
Genus **TIMIRIASEVIA** MANDELSTAM, 1947
Timiriasevia cf. **opinabilis** KAZMINA, 1957 (emend. MANDELSTAM, 1960)

(Pl. XXIX, Fig. 6*a-c*)

1957. *Timiriasevia opinabilis* KAZMINA; T. A. KAZMINA *et al.*, Stratigrafija..., Pl. 18, Fig. 2.
1960. *Timiriasevia opinabilis* MANDELSTAM; P. S. LUBIMOVA *et al.*, Ostrakody mezozoiskich..., p. 72, Pl. 7, Fig. 4*a, b*.

Material. — One, probably adult, complete carapace, well preserved.
Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/12. . .	0.41	0.22

Description. — The carapace very small in size, bean-like in lateral outline, ovate and slightly wider frontally, broadly rounded at the both ends in dorsal view. Both valves of carapace very similar in size, the left one being, however, slightly larger. Dorsal margin slightly convex, nearly straight, parallel to the straight ventral margin. Anterior and posterior ends almost equally, broadly rounded, difficult to distinguish from each other. Extremely week valve ornamentation consists of ridges and pits arranged in rows, tending to be parallel to the valve margin near the valve edge. Internal morphological features not known.

Remarks. — Specimen described here as *Timiriasevia* cf. *opinabilis*, is very similar to the figured representative of *Timiriasevia opinabilis*, a species distinguished by KAZMINA (1957), described by MANDELSTAM (*in* LUBIMOVA *et al.*, 1960) from the Lower Cretaceous, i.e. Hauterivian and Barremian of the West Siberian Plain (Asiatic part of USSR). Mongolian specimen differs from that from USSR in having the ornamenting ridges arranged in rows near the valve edge, whereas in the specimen from USSR they are less regular.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Altan Ula IV locality), Gobi Desert.

Timiriasevia sp.

(Pl. XXIX, Fig. 1*a-c*)

Material. — One, probably adult, complete carapace, well preserved.
Dimensions (in mm):

	Length	Height
Specimen Z. Pal. No. MgO/10. . .	0.58	0.34

Description. — The carapace small in size, rather solid, subovate in lateral outline, with greatest height anterior of the centre. In dorsal view, the shape is subovate, tapering at both ends, but more at the posterior end. Ventral side of carapace, excluding the most frontal part, strongly flattened. Both valves nearly equal in size, the left one, however, seems to overlap inconspicuously the right one along almost the entire margin. Dorsal margin slightly arched, sloping down towards the posterior. Ventral margin straight. The anterior end more broadly rounded than the posterior. Lateral valve surface pitted and very weakly ridged, pits and ridges, mainly those near the margin, are arranged subconcentrically. Ventral valve surface more distinctly ridged, with ridges longitudinal and parallel to the ventral margin. Internal morphological features unknown.

Remarks. — Specimen described here, in lateral outline resembles the specimen, representing *Timiriasevia principalis*, a species described by LUBIMOVA (1956, p. 129, Pl. 24, Fig. 1 *a*, *b*) from the Upper Cretaceous of Mongolia. Both specimens differ, however, in valve ornamentation and width of carapaces. Specimen assigned to *T. principalis* is markedly more swollen, with ribbed valve surface, whereas the here described specimen is slimmer, with a distinctly pitted valve surface.

Occurrence. — Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin (Altan Ula IV locality), Gobi Desert; according to Dr. H. STANKEVITCH (personal communication), it occurs also in Upper Cretaceous of Bugin Cav (trans-Altaian Gobi).

Palaeozoological Institute
of the Polish Academy of Sciences,
Warszawa, March 1968

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PLATES

PLATE XXVIII

Page

Cypridea sp. *2* 113

Fig. 1. Complete carapace (Z. Pal. No. MgO/11), Altan Ula IV.

Cypridea biformata n. sp. 111

Fig. 2. Holotype, complete carapace (Z. Pal. No. MgO/1), Nemegt.

Cypridea rostrata GALEEVA 113

Fig. 3. Complete carapace (Z. Pal. No. MgO/6), approx. × 30, Nemegt.

Cypridea sp. *1* 112

Fig. 4. Complete carapace (Z. Pal. No. MgO/5), Nemegt.

Candoniella mordvilkoi MANDELSTAM 115

Fig. 5. Complete carapace (Z. Pal. No. MgO/9), Altan Ula IV.

Cypridea cavernosa GALEEVA 109

Fig. 6. Complete carapace (Z. Pal. No. MgO/2), Nemegt.

a exterior lateral view of left valve, *b* exterior lateral view of right valve, *c* dorsal view

Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin, Gobi Desert

All specimens, except MgO/6, approx. × 60

Photo: J. Błaszyk

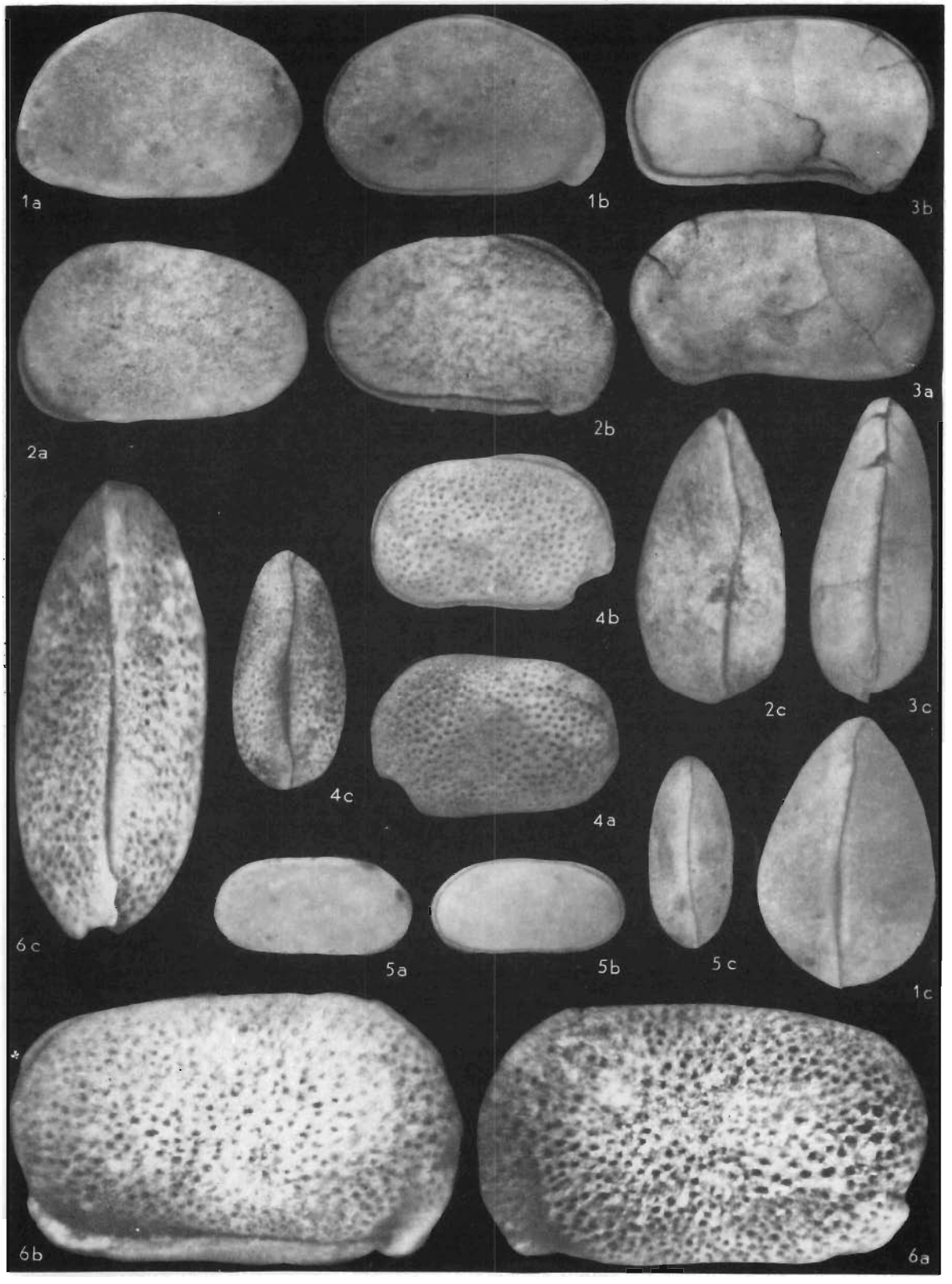

1a
1b
3b
2a
2b
3a
4b
2c
3c
4c
4a
6c
5a
5b
5c
1c
6b
6a

PLATE XXIX

Page

Timiriasevia sp. 116

Fig. 1. Complete carapace (Z. Pal. No. MgO/10), Altan Ula IV.

Candona altanulaensis n. sp. 114

Fig. 2. Topotype, left valve (Z. Pal. No. MgO/14): *a* interior view, *b* exterior view, Nemegt.
Fig. 4. Holotype, complete carapace (Z. Pal. No. MgO/8), Altan Ula IV.

Cypridea sp. *3* 114

Fig. 3. Complete carapace (Z. Pal. No. MgO/7), Nemegt.

Cypridea obliquecostae n. sp. 111

Fig. 5. Holotype, complete carapace (Z. Pal. No. MgO/4), Nemegt.

Timiriasevia cf. *opinabilis* KAZMINA 116

Fig. 6. Complete carapace (Z. Pal. No. MgO/12), Altan Ula IV.

Cypridea biformata n. sp. 111

Fig. 7. Left valve (Z. Pal. No. MgO/13): *a* interior view, *b* exterior view, Nemegt.

Cypridea cf. *punctilataeformis* LUBIMOVA 110

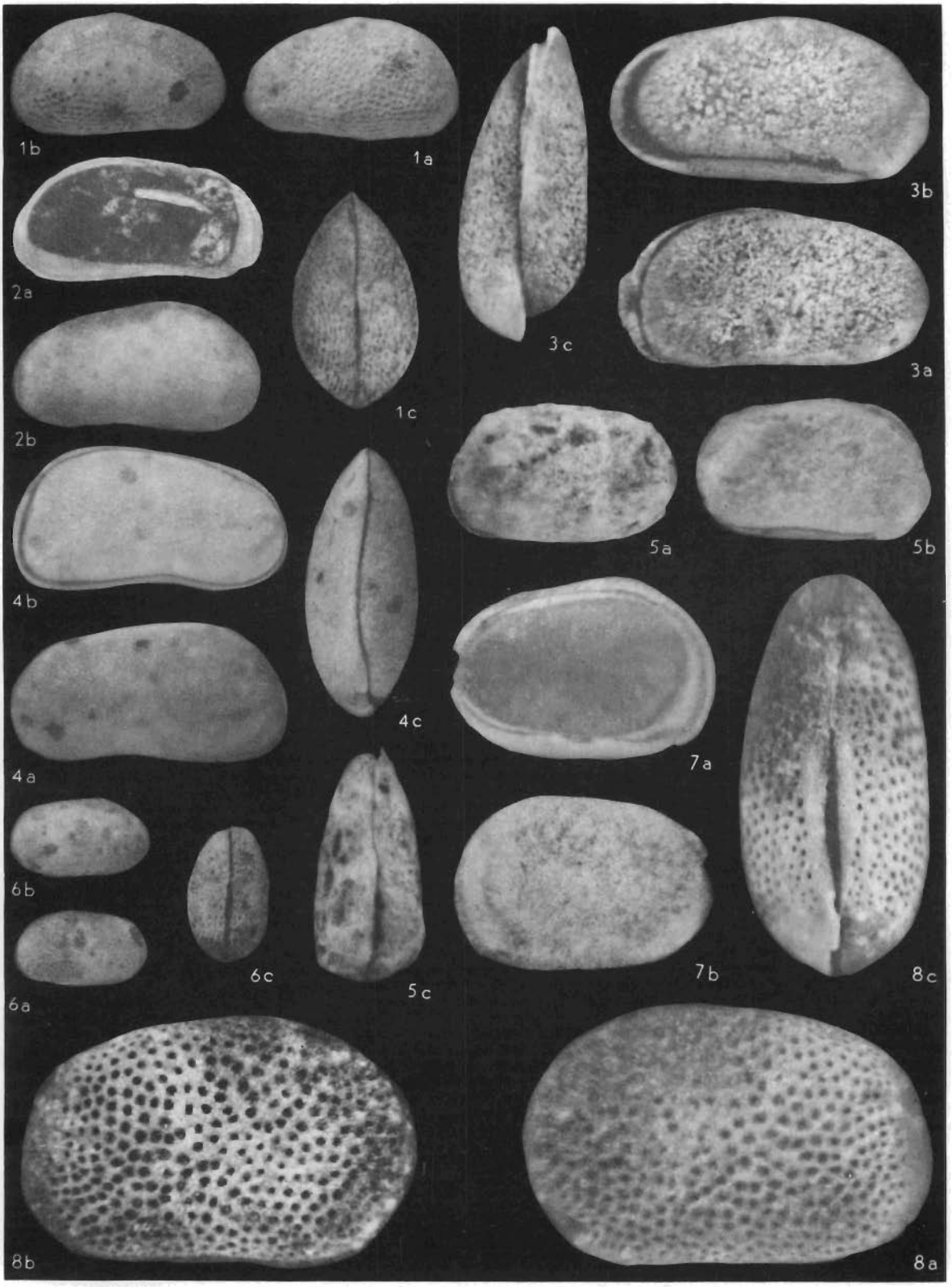
Fig. 8. Complete carapace (Z. Pal. No. MgO/3), Nemegt.

Figs. 1, 3, 4—6, 8: *a* exterior lateral view of left valve, *b* exterior lateral view of right valve, *c* dorsal view

Upper Cretaceous (Upper Nemegt Beds), Nemegt Basin, Gobi Desert

All specimens approx. × 60

Photo: J. Blaszyk


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