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FRESH-WATER OSTRACODES FROM THE NEMEGT FORMATION (UPPER CRETACEOUS) OF MONGOLIA

(plates 16-37)

Abstract. — Thirty four fresh-water ostracode species belonging to 22 genera are described from Upper Cretaceous continental deposits of Nemegt Formation from Nemegt Basin in Mongolia. New genera described are: *Altanicypris*, *Mongolocypris*, *Nemegtia*, *Gobiella* and *Khandia*. The representatives of the new genera established are characterized by a beak- or lip-like extension developed in anteroventral region of carapace which results in the fact that they are superficially similar and may be easily confused with those of the genus *Cypridea*. The internal morphology of valve is helpful in recognition of the genera discussed. The new species established include: ?*Paracypridea mongolica*, *Altanicypris bispinifera*, *A. multispina*, *Nemegtia reticulata*, *Gobiella prima*, *Khandia stankevitchae* and ?*Scabriculocypris rasilis*. The ostracode assemblage under study presumably lived in highly alkaline fresh-water environment of swamps or wide river channels. They are restricted geographically to the Asiatic Realm.

CONTENTS

INTRODUCTION

The ostracodes described in this paper were collected from the Gobi desert by the Polish-Mongolian Palaeontological Expeditions, from rocks of the Nemegt Formation of the Nemegt Basin (Nemegt and Altan Ula IV localities), in 1970 and 1971. The Nemegt Formation represents the uppermost horizons of the Upper Cretaceous of SE Gobi, dated at ?upper Campanian and ?lower Maastrichtian (see GRADZIŃSKI *et al.* 1977).

Upper Cretaceous ostracodes from the same area collected by the Polish-Mongolian Expeditions in Mongolia in 1963-1965 have previously been described by SZCZECHURA and BŁASZYK (1970), but that material is markedly poorer both in number of individuals and in taxa than that recently discovered. Moreover, the better preservation of the new material has made it possible to supplement our knowledge of the morphology of these Upper Cretaceous ostracodes from Mongolia.

Earlier analyses of ostracodes from the Upper Cretaceous of Mongolia include, besides the paper by SZCZECHURA and BŁASZYK (1970), one dealing with ostracodes from the Nemegt Formation in southern Gobi (STANKEVITCH and SOCHAVA 1974) and two others describing ostracodes from the Lower Cretaceous and lower horizons of the Upper Cretaceous of south-eastern Mongolia (GALEEVA 1955, and LUBIMOVA 1956).

Some ostracode species found in the Nemegt Formation have been reported by Soviet and Mongolian authors from other stratigraphic units. It is difficult, however, to get a clear idea about the stratigraphic range of these for the following reason. The Soviet and Mongolian authors use a nomenclature in which they use the "svita" (suite) as a fundamental stratigraphic unit rather than "formation". This problem has been recently discussed by GRADZIŃSKI *et al.* (1977), who stated that the svita, a basic unit of Soviet stratigraphic classification is not a synonym of a "formation" and that in the Gobi region authors accepting the svita concept disagree in several aspects on the identification of beds cropping out at particular localities and assign them to different svitas. They also demonstrated that the Barungoyotskaya Svita was originally established by MARTINSON *et al.* (1969) on the basis of a section at Nemegt, where it conformably underlies rocks of the Nemegetinskaya Svita. Thus, in the original concept of MARTINSON *et al.* (1969), the Barungoyotskaya Svita was equivalent to the Lower Nemegt Beds and the Nemegetinskaya Svita was equivalent to the Upper Nemegt Beds of GRADZIŃSKI *et al.* (1969). For this reason GRADZIŃSKI and JERZYKIEWICZ (1974) named these units: the Barun Goyot Formation and the Nemegt Formation. Later on, various authors (e. g. SOCHAVA 1975) assigned to the Barungoyotskaya Svita rocks cropping out in other localities which differ distinctly both in lithology and in fossil content from the Barungoyotskaya Svita in its stratotypic locality (i. e. at Nemegt). A review of the principles underlying these difficulties is beyond the scope of the present paper. In any case, it has been discussed by GRADZIŃSKI *et al.* (1977). However, it is necessary to discuss here the problem of the recognition of the two Upper Cretaceous svitas (Barungoyotskaya and Nemegetinskaya) as in them in the Gobi region, various authors have discovered the ostracodes described in the present paper.

SOCHAVA (1975) included the major part of the deposits, exposed at Altan Ula II (erroneously referred to by him as "Altan Ula I" — see GRADZIŃSKI *et al.* 1977) within the Barungoyotskaya Svita. STANKEVITCH (*in*: STANKEVITCH and SOCHAVA 1974) cites the occurrence of several ostracode species in the Barungoyotskaya Svita of Altan Ula I (*recte* Altan Ula II). GRADZIŃSKI *et al.* (1977: 310) stated that the deposits at Altan Ula II "...differ significantly in lithology from those of the *barungoyotskaya svita* at its stratotype (i. e. Nemegt locality), but show no differences in lithology and fossil assemblage from the *nemegetinskaya svita*". The present author following GRADZIŃSKI *et al.* (1977) does not recognize the presence of the Barungoyotskaya Svita at the Altan Ula localities, and all the ostracodes cited by STANKEVITCH (*in*: STANKEVITCH and SOCHAVA 1974) as occurring in this svita at Altan Ula, are cited in the present paper as occurring at Altan Ula in the Nemegt Formation. Similarly the ostracodes cited by STANKEVITCH and

KHAND (1976), as occurring at Tsagan Khushu in the Barungoyotskaya Svita which, according to GRADZIŃSKI *et al.* (1977) is absent from this locality, are cited in the present paper as occurring in the Nemegt Formation. STANKEVITCH (*in*: STANKEVITCH and SOCHAVA 1974) and STANKEVITCH and KHAND (1976) also cite the occurrence of ostracode species in beds of the Barungoyotskaya Svita at Bugeen Tsav and Khermeen Tsav. According to GRADZIŃSKI *et al.* (*l. c.*) the dinosaur-bearing beds of Bugeen Tsav are of an age equivalent to the Nemegt Formation. The ostracodes from the Barungoyotskaya Svita of Bugeen Tsav are cited herein as occurring in the Bugeen Tsav beds.

In Khermeen Tsav there occur rocks which, on the basis of lithology and fauna, may be regarded as equivalent to both the Barungoyotskaya and Nemegetinskaya svitas in their stratotypic localities. The present author therefore cites the ostracodes recorded by STANKEVITCH and KHAND (1976) from the Barungoyotskaya Svita at Khermeen Tsav as occurring in the Khermeen Tsav beds, (see Gradziński *et al.* 1977).

The occurrences of ostracodes in rocks of the Bainshireinskaya, Sainshandinskaya, Tsunbainskaya and Tsantenskaya svitas are cited in the present paper on the evidence of LUBIMOVA (1956) and STANKEVITCH and SOCHAVA (1974).

Ostracode species represented in the assemblage studied seem to be limited in distribution to the Asiatic Realm (China and the Asiatic part of the USSR), or even to Mongolia thus, they are endemic. When the age of the microfauna is taken into account, it appears that also almost all the genera are limited to that region. The genus *Cypridea*, predominating in the assemblage, is not known from Upper Cretaceous deposits outside this region. It was recorded from the Lower Cretaceous deposits of all continents, with the possible exception of Australia, so its representatives found in the Upper Cretaceous of Asia may be interpreted as relics.

The endemism of Mongolian ostracodes markedly reduces their importance for both paleogeography and stratigraphy. Some species are characterized by a wide stratigraphic range comprising both the Upper and Lower Cretaceous.

The specimens described in the present paper are housed in the Institute of Paleobiology, Polish Academy of Sciences, Warsaw, abbreviated as ZPAL.

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MATERIAL

The ostracodes studied in this paper were collected by members of the Polish-Mongolian Palaeontological Expeditions in 1970 and 1971.

For the purposes of the microfaunal-floristic studies deposits of the Nemegt Formation cropping out at Altan Ula IV (Central and Eagle sayrs) and Nemegt localities were sampled. The localities of Nemegt and Altan Ula IV occur in the Nemegt Basin and are about 60 km distant from one another (see figs. 1, 3).

The studies covered 28 samples, 15 of which appeared devoid of any microfossils; the remaining ones yielded either ostracodes or charophytes or both. It did not appear possible to trace any dependence between the distribution of charophytes and that of ostracodes. The samples mainly represent deposits of similar facies, i.e. clays and siltstones, so it may be concluded that other factors, not the type of deposit, are responsible for differences in distribution of organic microfossils in the profiles studies. Usually, the ostracode-bearing samples also yield charophytes (see table 1). The exceptions include a single sample with ostracodes but not charophytes and another with charophytes but not ostracodes, which, at the same time, yielded only very few fossils. Ostracodes and charophytes are accompanied by fragments of gastropods and fish.

From 13 ostracode-bearing samples (see table 1) more than 3.000 specimens were picked up representing mainly complete carapaces and some detached valves. Attention should be paid to the lack of juvenile individuals, as well as a marked scattering in size of individuals picked up. The valves are often crushed or squeezed.

The samples differ in content of ostracodes, that is to say, both in the number of individuals and species composition of assemblage, but the comparison of number of individuals present in particular samples was not made. Table 1 presents a comparison of the samples analyzed. The differences noted may be partly explained by differences in the size of samples. Sample no. 100, from the Nemegt locality which yielded the largest number of ostracodes, was over 50 kg in weight, whilst the weight of the remaining samples was equal to 0.5-1.0 kg at an average. The recorded differences in frequency of ostracodes and composition of ostracodes assemblages may be explained by some local differences in ecology. The ostracode assemblages derived from particular samples are relatively uniform in character which indicates that they are of the same age and derived from ecologically similar environments. As may be seen from fig. 4, sample no. 6 has been collected from the so-called passage-beds which, although assigned to the Nemegt Formation, are in some respects intermediate lithologically between the sediments of the Barun Goyot and the true Nemegt formations. The ostracode assemblage from sample no. 6 does not differ, however, from those from the above lying beds of the Nemegt Formation.

TERMINOLOGY

The terms *guttur* and *limen* are introduced herein for elements of internal morphology of ostracode valves described for the first time.

Guttur (from Latin *guttur* — a gutter) is a furrow-like depression situated inside the anteroventral part of the valve and directed and deeping towards the ventral side. It is marked on beak-like bearing forms. Other features of that morphological element are discussed below (p. 77).

Limen (from Latin *limen* — a threshold) refers to a bend of the proximal part of the inner lamella in the posteroventral part of the valve marked in some beak-like bearing forms. Additional remarks on that element are given in p. 77.

In the description of ostracodes the following subdivision according to the size of individuals was used: <0.4 mm = small; 0.4 to 0.7 mm = medium; and >0.7 mm = large individuals. The abbreviation used are as follows: a — adult, j — juvenile, RV — right valve, LV — left valve, C — complete carapace.

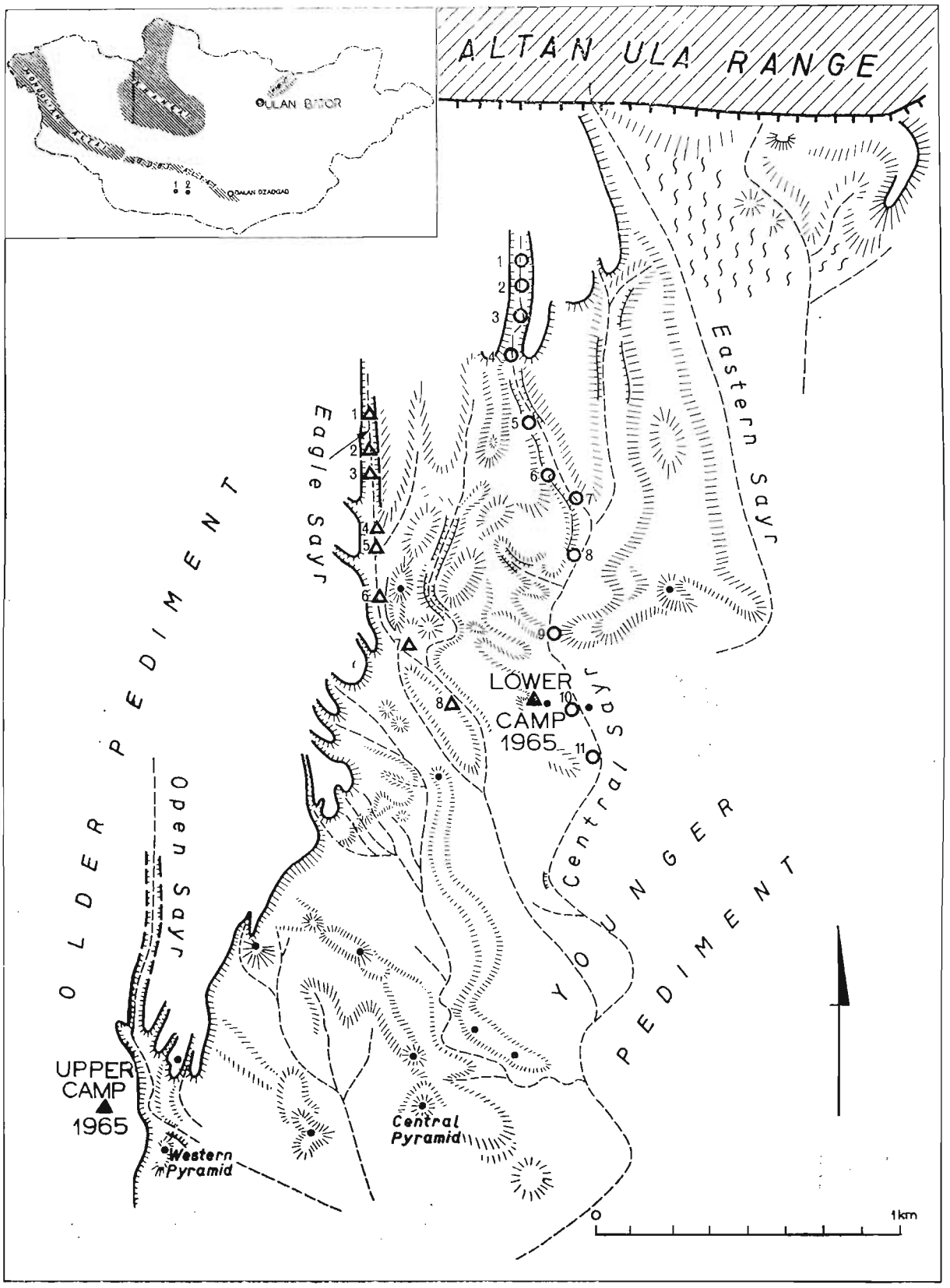

Fig. 1.

Map of locality Altan Ula IV. The circles denote micropaleontological samples collected in Central sayr; the triangles — the samples collected in Eagle sayr (after GRADZIŃSKI *et al.*, 1969, emended). The points at the map of Mongolia indicate: 1 — locality Altan Ula IV, 2 — locality Nemegt.

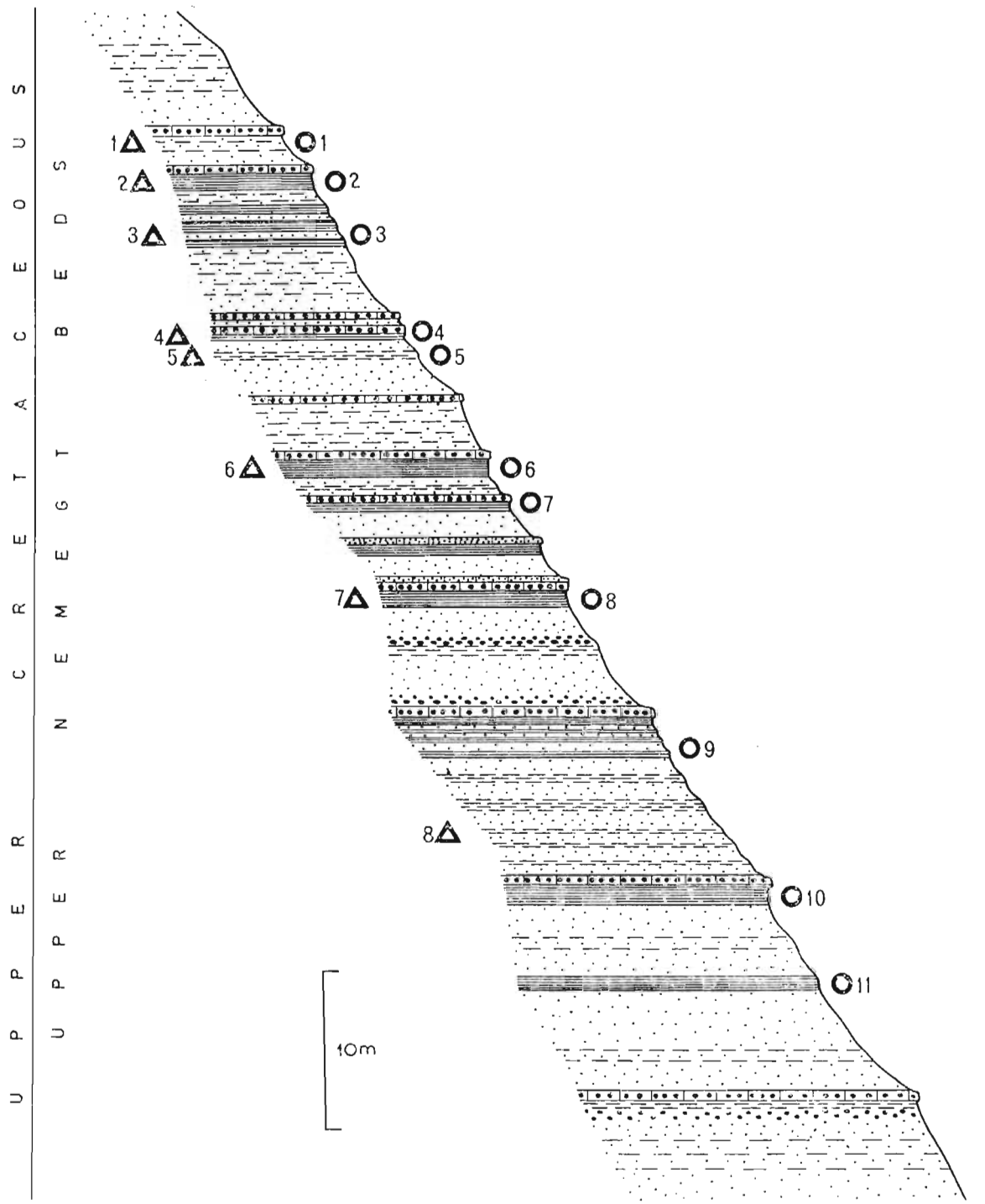

Fig. 2.
Geological profile of Upper Cretaceous (Nemegt Formation) sediments at locality Altan Ula IV. The circles and triangles denote the micropaleontological samples. For location of the samples see Fig. 1 (after GRADZIŃSKI *et al.*, 1969, emended).

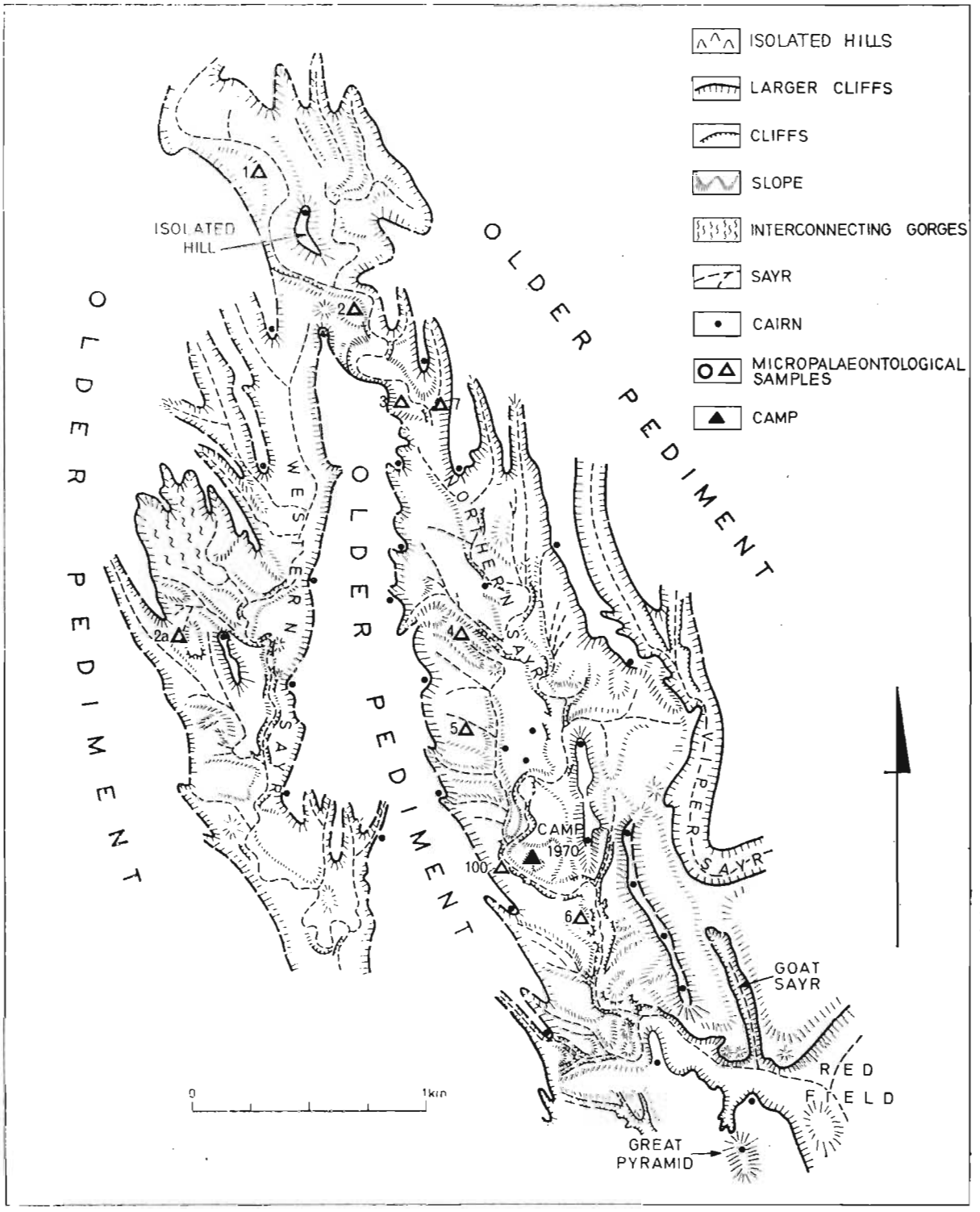

Fig. 3.
Map of the northern part of locality Nemegt. Micropaleontological samples indicated by triangles (after GRADZIŃSKI and JERZYKIEWICZ, 1972, emended).

OSTRACODE ASSEMBLAGE AND ITS PALAEOECOLOGY

The ostracode assemblage studied comprises fresh-water forms, this being evidenced by both its species composition and the type of accompanying microfossils and, particularly charophytes. Among ostracodes the representatives of *Cypridea* considered as fresh-water or brackish predominate quantitatively; these are represented here by either typical fresh-water forms (such as *Cypria*) or forms highly sensitive to changes in salinity of the environment (such as *Candona*, *Cyclocypris*, *Cypridopsis* and *Timiriasevia*).

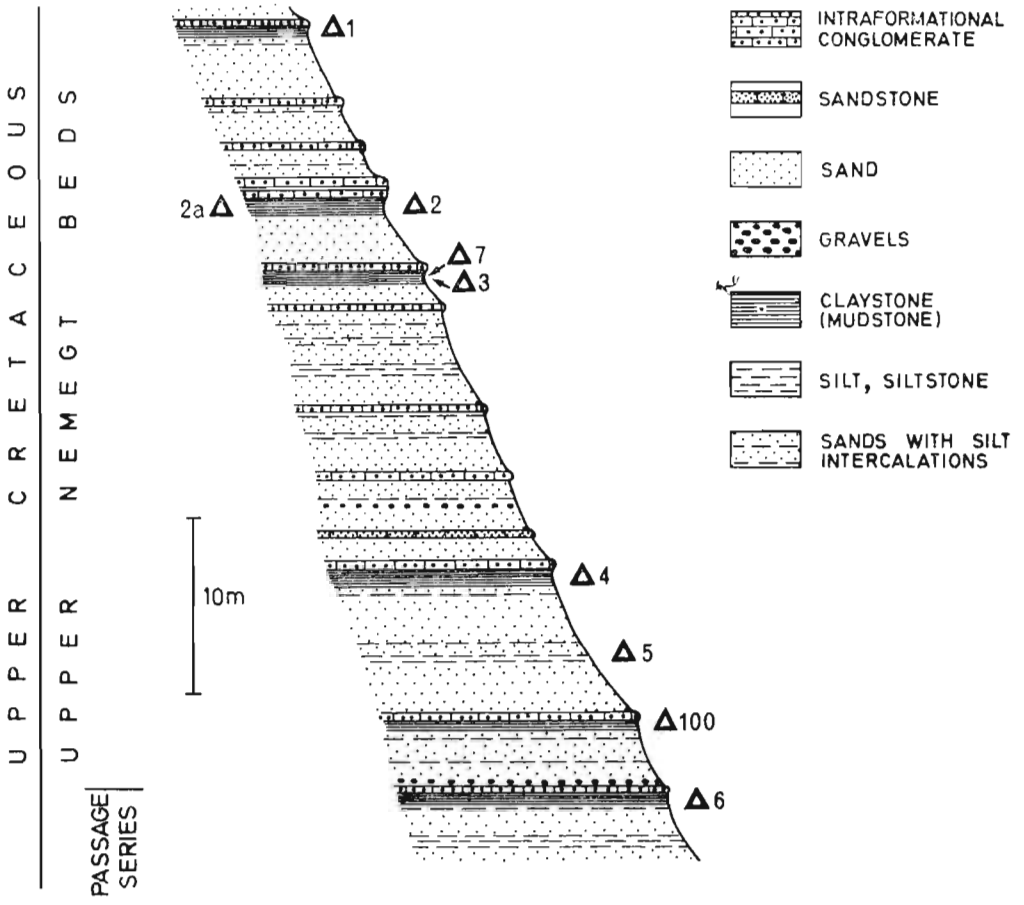

Fig. 4.
Geological profile of Upper Cretaceous (Nemegt Formation) sediments at northern part of Nemegt locality. The triangles denote the micropaleontological samples. For location of the samples see Fig. 3 (after GRADZINSKI and JERZYKIEWICZ, 1972, emended). The sediments denote as the passage series represent the lowermost beds of the Nemegt Fm., intermediate in the some respects between the Barun Goyot and Nemegt formations.

These genera are typical of the shallow-water environment, living preferably in swamps and fresh-water ponds. They include creepers and burrowers (such as *Candona*) or forms swimming among plants (such as *Cypria* and *Cypridopsis*). The shallow-water nature of the environment is confirmed by charophytes. A marked alkalinity of the environment (not related to high content of calcium carbonate in the samples which may be of secondary nature) is indicated by an advanced calcification of thick-shelled and heavily ornamented carapaces. According to MORKHOVEN (1962: 41): "The amount of calcium in water seems to exert a certain influence on the thickness of the calcareous valves, and probably also on the strength of development of the ornamental structures...". Alkalinity of the environment could have been faciliated by the presence of algae and climatic conditions interpreted as subtropical or warm-temperate; climatic

Table 1

Distribution of Upper-Cretaceous ostracodes in the Nemegt Basin

Species \ Locality and sample numbers	Altan Ula IV									Nemegt			
	Central sayr						Eagle sayr						
	1	2	5	6	7×	11	1	4	5	3	2a	100	7
Limnocythere sp.												●	
Timiriasevia cf. *miaogouensis* (Chen)			●									●	
Timiriasevia minuscula Stank.	●						●		●	●		●	●
Timiriasevia naranbulakensis Szczech.	●							●				●	
Rhinocypris sp.										?		●	
Cypridea barsboldi Stank.							●	●		●		●	
Cypridea cavernosa Galeeva	●	●	●	●			●	●		●	●	●	
?*Cypridea* sp.						●						●	
?*Paracypridea mongolica* sp.n.	●			●				●	●			●	●
Candona altanulaensis Szczech. & Błaszyk	●		●	●								●	●
Candona cf. *fabaeformis* (Fischer)	●		●	●						●		●	?
Candoniella altanica (Stank.)	●		●	●			●		●			●	
Cyclocypris transitoria (Stank.)												●	
Cypria elata (Stank. & Khand)												●	
Leiria sp.1												●	
Leiria sp.2												●	
?*Cypris ectypa* (Stank.)	●											●	
Altanicypris szczechurae (Stank.)	●		●	●					●			●	
Altanicypris bispinifera gen. et sp.n.							●					●	
Altanicypris multispina gen. et sp.n.				●	●				●			●	
Mongolocypris distributa (Stank.)	●	●		●		●		●	●	●	●	●	●
Nemegtia reticulata gen. et sp.n.		●	●	●		●	●	●	●	●	●	●	●
Nemegtia biformata (Szczech. & Błaszyk)		●					●			●		●	●
Nemegtia obliquecostae (Szczech. & Błaszyk)	●	●	●	●		●	●	●	●	●	●	●	●
?*Cypridopsis bugintsavicus* (Stank.)				●						●		●	
?*Cypridopsis* sp.										●			
Gobiella prima gen. et sp.n.							●		●			●	
Khandia stankevitchae gen. et sp.n.	●			●						●		●	
?*Lycopterocypris* cf. *profunda* Lubimova	●						●		●	●		●	
Mongolianella ?*palmosa* Mand.							●			●	●	●	
?*Scabriculocypris ingenicus* (Stank.)			●							●		●	
?*Scabriculocypris rasilis* sp.n.			●							●		●	
Ziziphocypris costata (Galeeva)					●			●	●			●	
Gen. et sp.indet.												●	

× – sample without charophytes

conditions may also cause an increase in the secretion of $CaCO_3$. A relatively high taxonomical differentiation in the ostracode assemblage and the wealth of individuals advocate against the flowing water character of the environment. According to BENSON (1961: Q 57) "Fossil ostracodes are seldom found in river sand deposits because of the poor opportunity for preservation and the instability of the sediments" and "slightly alkaline stagnant ponds are likely to contain very prolific ostracode faunas". See also SYWULA (1974).

In the Nemegt Basin ostracodes are found in clay and silty deposits reflecting milder sedimentary conditions but not in sandy deposits, that is to say in rapidly deposited fluvial deposits (see GRADZIŃSKI 1970). At the same time it appears that the lack of ostracodes in the latter is not a secondary phenomenon which may be explained by their dissolution or destruction. Thick-shelled ostracode carapaces occurring in the Nemegt Formation appear to be sufficiently resistant to complete destruction and their possible dissolution was impeded by an undoubtedly alkaline character of the environment. Hydrodynamics of rivers, not favourable for ostracodes, seems primarily responsible for the lack of their remains in sandy fluvial deposits.

A large contribution of closed carapaces and the presence of numerous crushed carapaces in the ostracode material collected presumably indicates at least an occasional turbulence of the environment or redeposition of the microfauna. Some samples yielded closed carapaces only. The author has at her disposal a sample from the Nemegt Basin in which ostracodes almost gained the rock-forming importance. Such concentration of the microfauna seems to result from either flocculation or drying of water reservoir and thus secondary concentration of faunal remnants.

The results of petrological analysis of ostracode-bearing rock samples, kindly done by Dr. J. KAŹMIERCZAK, are as follows:

The thin section of sample no. 100 (see table 1) represents strongly cemented quartz sandstone with siltstone matrix with chalcedonite nests. Quartz grains are poorly sorted, commonly angular or sometimes (in the case of finer, 0.030-0.050 mm fraction) weakly rounded. The bulk of grains belong to the grain size fraction from 0.200 to 0.250 (0.25 to 0.075 mm extremal values); quartz grains intermediate in size are less common. Poorly rounded, irregular intraclasts of clay siltstones, usually attaining 0.250 to 2.0 mm in size and sometimes with admixture of angular quartz grains up to 0.1 mm in size are fairly common. Some intraclasts display indistinct lamination with relic algal structures (?blue-green algae agregates) but there are no clearly biotic elements present here. Indistinct phosphatic lumps presumably represent fragments of vertebrate skeletons. The sediment analyzed comprises components of two facies: (1) fluvial facies with very a low transportation index and (2) stagnant lake. The presence of intraclasts clearly indicates high-energy and rapid redeposition of silstone-clay deposits (e. g. after the flood wave subsided in the backwater of stagnant water pond area).

The thin section of the sample very rich in ostracodes displays a deposit resembling that described above, except for the lack of intraclasts and enrichment in quartz grains over 0.2 mm in size. Matrix contains $CaCO_3$. Ostracode valves are poorly sorted, ranging from 0.3 to 1.2 mm in size. Both complete carapaces and their fragments are present. There are no clear traces of abrasion of organic remains. Ostracodes are usually embedded in carbonate silt (micrite) which may be limonitized or, sometimes, in quartz grain deposits. Complete carapaces are filled with euhedral neomorphic calcite.

It appears that the sample yielding ostracode carapaces was deposited in clearly low-energy environment (backwater or pond) to which quartz material was rapidly supplied, e. g. by high flood wave. Ostracodes occur here almost in situ or after a short-distance redeposition and partial burial, typical of fluvial material. The alkaline character of the environment is evidenced by the presence of carbonate mud round the carapaces.

The reconstruction of sedimentary environment based on the composition and mode of preservation of the microfauna, as well as petrological data is markedly consistent with that of origin and sedimentary environment of deposits of the Nemegt Formation, presented by GRA-

DZIŃSKI (1970). This author (*l. c.*) has shown that the Upper Nemegt Beds (*recte* Nemegt Formation) are alluvial plain deposits developed in channel and overbank facies, and sometimes also in the facies of flood-basin lakes and channel infilling; the latter represent infilling of old-age rivers.

The lack of juvenile forms and, at the same time, a marked variability in size and thickness of carapaces of adults of different species present in the same sample are difficult to explain. The high variability in size and thickness of carapaces excludes any mechanical selection leading to segregation according to weight or size of the carapaces. The existence of regionally differentiated ecological niches of juvenile and adult individuals seems more probable than the removal of juvenile forms from the material studied. Juvenile individuals and, especially, those belonging to large-sized and thick-shelled species were presumably also large and thick-shelled in a certain proportion to the adults and thus sufficiently resistant against complete destruction or dissolution.

In some samples of the Mongolian Lower Cretaceous derived from the collection of the Limnological Institute in Leningrad, made available to the present author for an examination through the courtesy of Dr. I. J. NEUSTRUEVA, there are ostracode assemblages consisting exclusively of juvenile individuals of *Cypridea* or such juvenile individuals accompanied by adults of another genus. This would give a further support to the existence of separate ecological niches of juvenile and adult individuals in the sedimentary environment of the Mongolian Cretaceous. According to SANDBERG (1964: 545): "... the adults are more tolerant of variations in the environment than are juveniles". Also HULINGS (1964) has stated that juvenile crustaceans are usually more sensitive to certain environmental conditions than the adults.

The high variability in size of adults of the same species seems to result from seasonal variability (see SZCZECHURA 1970).

MORPHOLOGY OF OSTRACODE CARAPACES AND ITS TAXONOMICAL IMPORTANCE

The studied ostracode assemblages are characterized by a marked contribution of beak- or lip-like bearing forms. These forms superficially resemble those of the genus *Cypridea* and they were often described under that name (see GALEEVA 1955; LUBIMOVA 1956; SZCZECHURA and BŁASZYK 1970; STANKEVITCH and SOCHAVA 1974). Studies on detached valves of such forms, carried out by the present author, have shown that they differ from the representatives of the genus *Cypridea* in both external and internal morphology, as well as in the pattern of muscle scars, spacing of marginal canals and several other taxonomical features (see Descriptions). It follows that not all the forms from the Upper Cretaceous of Mongolia previously assigned to the genus *Cypridea* are congeneric.

The analysis of morphology of valve of the true *Cypridea* from the Purbeck Beds of England, wherefrom the genus was first described, and the comparison with morphology of valves from the Cretaceous of Mongolia have shown that this genus occurs in Mongolia. These comparisons have made it possible to refine the diagnosis of *Cypridea* (see p. 81). At the same time five new genera are suggested for forms differing from *Cypridea* in valve morphology. Analysis of marginal structures and, particularly of the inner side of valves appeared to be an efficient tool for differentiation of new taxa. The analysis made possible to distinguish some new structures as well as some new morphotype combinations of structures known: valve shape and ornamentation and arrangement and number of marginal pore canals etc.

Beak-like bearing forms

Beak-like bearing forms from Mongolia include representatives of the genera *Cypridea* and ?*Paracypridea* as well as of new established genera *Mongolocypris* and *Gobiella*. Carapaces

of these forms are characterized by valves similar in shape while *Mongolocypris*, *Gobiella* and ?*Paracypridea*, but not *Cypridea*, are similar in the inner structure of their anteroventral regions.

Marginal structural elements described herein under the name of guttur are found in beak-like bearing forms other than *Cypridea*, that is to say, in *Mongolocypris* (see fig. 7O; pl. 23: 1b, 2b, 4b; pl. 24: 1a, 2a; pl. 37: 8), *Gobiella* (see fig. $7R_1$; pl. 25: 4b, 5b; pl. 37: 1, 2) and, to the lesser degree in ?*Paracypridea* (see fig. 7K; pl. 25: 2b, 3b; pl. 37: 7). The guttur is a depression marked in the anteroventral part of both valves, distally delineated by valve edge and proximally by more or less developed peculiar ridge-like list.

The guttur presumably enabled the animal to remain in contact with its surroundings even when the carapace was almost completely closed as the above-mentioned list (probably corresponding to selvage) did not act as a barrier between the interior of the valve (that is, the body of animal) and the external valve margin. The list represents an anterior extension of the ventral margin and is developed on the free part of the inner lamella. It is variable in different taxa, being well developed in the representatives of *Mongolocypris* and weakly developed in *Gobiella* and ?*Paracypridea*.

Some beak-like bearing forms also display other marginal internal structures here designated as the limen (see fig. $7M_1$; pl. 23: 2b; pl. 25: 2b; pl. 36: 5). Limen is represented by a thickening (or bent) of the proximal part of the inner lamella in the posteroventral part of the valve, displayed by the representatives of the genera *Cypridea*, ?*Paracypridea* and *Mongolocypris* gen. n. This structure presumably acts as a "stop — ridge" for the opposite valve when the valves are squeezed tight together (that is, when the carapace is closed). This structure is developed on one (the left, i. e. the larger) valve and is generally accompanied by the element here named guttur.

Lip-like bearing forms

The valves of this group are characterized by a more or less strongly developed lip-like extension on one (right, i. e. larger) valve only. It is developed in the anteroventral region of the valves in representatives of the genera *Nemegtia* (figs. 7AG; pl. 26: 3b; pl. 27: 3a, 7; pl. 28: 2b; pl. 37: 4) and *Altanicypris* (pl. 21: 2a; pl. 37: 3). The lip-like extension (possibly corresponding to a flange) is situated in the anterior part of valves of these taxa and separated by a list (selvage?) markedly shifted towards the centre of the valves. The lip-like extension of the anteroventral part is markedly reduced in the left (smaller) valve and the list is represented by the relic ridge corresponding to "peculiar ridge" of OKUBO (1972) (see pl. 37:5). Such type of internal morphology of the anterior marginal part of the valve occurs in the genus *Cypris* (see OKUBO 1972) and, less clearly expressed, in *Chlamydotheca*. A modification of lip-like structure typical of *Nemegtia* and *Altanicypris* was found in *Khandia*. The right (larger) valves of *Khandia* display a lip-like extension (flange?) only in the medial part of their anterior margin (see pl. 29: 2b; pl. 37: 6a, b). The list (selvage?) is markedly depressed in that place which presumably made possible a communication between the valve interior (animal body) and the surrounding.

All the beak-like and lip-like external morphological features from the anterior part of the valve and accompanying corresponding internal structures seem designed for strengthening and/or protecting the oral part of the carapaces. In *Cypridea* a connection between the beak and a special role of the second pair of antennae, assumed by GRAMM and BUKHARINA (1967), seems to be not necessary. The structures mentioned above born by unrelated forms seem to be a phenotypic adaptation, resulting from environmental conditions as, e. g., life among algae. These forms are, as a rule, accompanied by charophytes. Other examples of modifications in morphology of marginal parts of valves of Cypridacea are given by HARTMANN (1964) who interpreted them as ones related to the environment.

It is not clear whether, or not, the above discussed structural elements and particularly internal elements are of the same origin, i. e. homologous in the genera in question. It is difficult

to decide, for example, whether the list on the inner lamella of the anteroventral part of the valve in the genus *Mongolocypris* corresponds to the selvage *sensu* TRIEBEL (1961) as in *Chlamydotheca*, or whether it originated independently.

The significance of these morphological elements of valves for the systematic of Cypridacea is an open question. The interdependence between these elements of valve morphology and the soft parts (which are the basis of systematics in Recent Cypridacea) is still insufficiently known. HARTMANN (1964) has shown that some structures of the valves may be polyphyletic, evolving independently in different groups of ostracodes. Therefore, the new genera differing from the Recent ones in valve morphology are placed in the "Uncertain family" and, at the same time, some species are assigned to genera with reservation.

It is worth noting that the assemblage of Lower Cretaceous ostracodes from Mongolia, examined by the present author during her stay in Leningrad, comprises some *Cypridea*-like forms referred to by NEUSTRUEVA (1974) to *Cypridea*. They represent, however, forms different from those discussed herein and should be assigned to a separate, new genus.

The ostracode systematics here accepted is after HARTMANN and PURI (1974).

DESCRIPTIONS

Order **Podocopida** G. W. MÜLLER, 1894
Suborder **Podocopa** SARS, 1866
Superfamily **Cytheracea** BAIRD, 1850
Family **Limnocytheridae** KLIE, 1938
Subfamily **Limnocytherinae** KLIE, 1938
Genus *Limnocythere* BRADY, 1868
Limnocythere sp.

(pl. 36: 4)

Material. — One complete carapace, most probably juvenile one. Dimensions (in mm):

	ZPAL MgO/41 jC
Length	0.44
Height	0.20
Width	0.10

Description. — Carapace thin, fragile, angularly-ovate in lateral outline, irregularly and weakly inflated, widest posteroventrally, highest frontally. Dorsomedian sulcus well pronounced. Greatest height near the anterior margin, much less than a half of the length. Both valves almost of the same size and shape. Dorsal margin weakly incurved, rapidly sloping posteriorly, ventral margin concave. Anterior margin abruptly truncated, posterior margin obtusely rounded, elongated in its lower part. Entire free margin bordered by a tiny rim, which to some extent continues also on the dorsal margin. Valve surface smooth. Irregular tuberculation in front of the median sulcus occurs. Internal structure unknown.

Remarks. — The form described, being juvenile, cannot be referred to any species described so far.

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

Family uncertain
Genus *Timiriasevia* Mandelstam, 1947
Timiriasevia cf. *miaogouensis* (Chen, 1965)

(pl. 35: 5-7)

Material. — Four left and three right valves, most probably only adult ones, not well preserved.

Dimensions (in mm):

	ZPAL MgO/42 aRV	MgO/43 aLV	MgO/44 aLV
Length	0 64	0.78	0.78
Height	0.39	0.39	0.39
Width	0.29	0·34	0.34

Description. — Carapace of rather large size, semi-ovate in lateral outline, hearth-shaped in dorsal view. Greatest height in the posterior part of the left valve, while rather in the middle of the right valve; greatest width close to the posterior margin. Ventral side flattened. Left valve imperceptibly smaller than the right one and overlapped by the latter almost all around. Weak and slightly oblique sulcus occurs in front of the greatest valve inflation. Dorsal margin unevenly arched, being higher posteriorly particularly so in the left valve. Ventral margin nearly straight, weakly concave frontally. Posterior margin bluntly rounded; anterior margin more narrowly rounded and rimmed by a list, which is more prominent in the right valve. Valve surface covered with fine ribs roughly parallel to the valve margin, and reticulated; reticulation lacking on the ventral side.

Hinge margin adont; weak accomodation groove probably present in the left valve. Duplicature narrow; inner margin almost parallel to the valve margin. Enlarged flange, particularly well visible in the right valve, appears along the anterior and posterior margins. Muscle scar and marginal pore canals unknown.

Variation. — The size and shape of valves (especially their length-height ratios) are conspicuously variable. All specimens have a well developed duplicature which indicates they are adult.

Remarks. — The species described is similar, in its general appearance, to the specimens figured by CHEN (1965) from the Cretaceous of China as *Metacypris* (*recte Timiriasevia*) *miaogouensis*, being, however, smaller and less distinctly ribbed. According to CHEN (1965) the specimens from China are striated and pitted, while specimens from Mongolia are reticulated and not pitted. CHEN suggests that it is possible for *Timiriasevia miaogouensis* to be conspecific with *T. principalis*, described by LUBIMOVA 1956, from the Upper Cretaceous of Mongolia. According to the present author *T. principalis* distinctly differs from *T. miaogouensis* in being more broadly rounded posteriorly and in having greatest inflation situated more centrally. It is not excluded that the differences observed are due to the sexual variation within one species. Some similarity exists also between the species described and that described by SZCZECHURA (1971) from the Paleocene of Mongolia as *T.* sp. 1. In comparison with *T.* sp. 1, *T.* cf. *miaogouensis* is smaller and without high, hump-like dorsal inflation characteristic of the Tertiary species.

Some similarity may also be found between the *T.* cf. *miaogouensis* and *T. naranbulakensis* SZCZECHURA 1971; both species are distinguished on the basis of their general appearance, size and ornamentation which seems to be more delicate in *T. naranbulakensis*. Far ampler material is needed, however, to prove that they are not conspecific. CLEMENTS (1974) found that among the representatives of *Timiriasevia mackerrowi* BATE 1965, from the Jurassic of England, there occur the specimens belonging to different sexes and different stage of the ontogenetic development. These reveal similar shape variation as those from the Upper Cretaceous of Mongolia, referred herein to separate species.

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

Timiriasevia minuscula STANKEVITCH, 1974
(pl. 35: 2-4)

1971. *Timiriasevia* cf. *opinabilis* KAZMINA; J. SZCZECHURA: 93, pl. 17: 1.
1974. *Timiriasevia minuscula* sp. nov.; E. S. STANKEVITCH and A. V. SOCHAVA: 283, pl. 2: 3.

Material. — Twenty seven specimens, including complete carapaces as well as detached valves, only adult ones, not well preserved.

Dimensions (in mm):

	ZPAL MgO/47 aC (minimum size)	MgO/50 aC (average size)	MgO/55 aC (maximum size)
Length	0.35	0.37	0.40
Height	0.22	0.20	0.22
Width	0.22	0.25	0.22

Description. — See SZCZECHURA (1971). It may be added herein that the actually collected detached valves reveal adont hinge margin and narrow duplicature; muscle scars unknown.

Variation. — Insignificant variation concerns the length-heigh ratios and, to a lesser degree, more or less prominent ornamentation.

Remarks. — According to STANKEVITCH (*in*: STANKEVITCH and SOCHAVA 1974) specimens referred by SZCZECHURA (1971) to *Timiriasevia* cf. *opinabilis* KAZMINA 1957, differ from the true *T. opinabilis* in size, shape and ornamentation. STANKEVITCH (*l. c.*) referred them to a new species, *T. minuscula*. Additional remarks see SZCZECHURA (1971).

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt and Altan Ula IV, Nemegt Basin and beds of Bugeen Tsav; Paleocene, Naran Bulak, Tsagan Khushu and Ulan Bulak, Nemegt Basin, Gobi Desert.

Timiriasevia naranbulakensis SZCZECHURA, 1971
(pl. 35: 1)

1970. *Timiriasevia* sp.; J. SZCZECHURA and J. BŁASZYK: 116, pl. 29:1.
1971. *Timiriasevia naranbulakensis* sp.; J. SZCZECHURA: 94, pl. 17: 5-7.

Material. — Four complete carapaces and one right valve, well preserved, most probably all adult forms.

Dimensions (in mm):

	ZPAL MgO/57 aC	MgO/58 aC
Length	0.54	0.54
Height	0.34	0.34
Width	0.39	0.34

Description. — See SZCZECHURA (1971). Actually studied specimens reveal adont hinge having an inconspicuous terminal deepening in the left valve, and a rather narrow duplicature; muscle scars unknown.

Remarks. — Representatives of the species discussed undoubtedly fall within the range of variability of *Timiriasevia naranbulakensis* SZCZECHURA 1971. In comparison with the specimens referred (see SZCZECHURA 1971) to *Timiriasevia* sp. 2 they are somewhat larger and are distinctly concave along the ventral margin. Additional remarks see also SZCZECHURA (1971) and the present paper, p. 79.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt and Alta Ula IV, Nemegt Basin and beds of Bugeen Tsav; Paleocene, Naran Bulak, Nemegt Basin, Gobi Desert.

Superfamily **Cypridacea** BAIRD, 1845
Family **Ilyocyprididae** KAUFMANN, 1900
Genus *Rhinocypris* ANDERSON, 1940
Rhinocypris sp.
(pl. 33: 10, 11)

Material. — Several specimens, only complete carapaces, probably exclusively adult ones, rather poorly preserved.

Dimensions (in mm):

	ZPAL MgO/59 aC	MgO/60 aC
Length	0.45	0.73
Height	0.25	0.44

Description. — Carapaces of medium size, oblong, slightly trapezoid in side view, slim. Height, being greatest frontally, somewhat more than half of the length. Both valves similar in size and shape, although the left one overlaps the right, this being particularly well seen along the ventral margin. Dorsal margin largely concave with distinct cardinal angles, converging with curved ventral margin. Anterior margin broadly rounded, oblique in its upper part; posterior margin more narrowly rounded, abruptly truncated in its upper half. Valve surface more or less distinctly reticulate, bearing irregularly spaced knobs and tubercles. Subcentral sulcus poorly pronounced, shallow. Internal features unknown.

Remarks. — Within the specimens referred to *Rhinocypris* sp. there are forms markedly differing in size and ornamentations. *Rhinocypris* sp. shows a general similarity to forms described by LUBIMOVA (1956) from the Lower Cretaceous of Mongolia as *Origoilyocypris barunbainensis* and *O. panosa* differing from them, however, in size and details of ornamentation. According to some authors (e. g., SWAIN 1961, MORKHOVEN 1963) *Origoilyocypris* MANDELSTAM, is a junior synonym of *Rhinocypris* ANDERSON; in the present author's opinion a better knowledge of these genera is needed to establish their relations.

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

Family **Cyprideidae** MARTIN, 1940
Genus *Cypridea* BOSQUET, 1852

Detailed redescription of this genus was given by SYLVESTER-BRADLEY (1949). The present author's observations made on Mongolian material, as well as on the comparative material from the Purbeck Beds of Great Britain (wherefrom the type species of *Cypridea* was described), allow to recognize some others, important taxonomic features of *Cypridea*. These are: (1) — In the anteroventral region of each valve there occurs a triangular or loop-shaped attached area not pierced by marginal pore canals; this is particularly well seen in transmitted light. Thus, the distribution of the pore canals given by MORKHOVEN (1963, fig. 128 incorrectly refigured after SYLVESTER-BRADLEY 1949) and by MARTIN (1940, pl. 9: 139, 140) seem to be inaccurate. (2) — The extention of selvage in the frontal part of both valves is parallel and close to the outer margin. (3) — In the left valve in its posteroventral region, there is a thickening (or infolding) of the proximal part of inner lamella, forming the structure designated herein as a limen (see p. 77, fig. $7M_1$; pl. 36: 5). (4) — On the outer surface of the valve, behind the beak, an alveolus is present.

It follows from the foregoing characteristic that *Cyamocypris* ANDERSON (1939) is not congeneric with *Cypridea* and cannot be regarded as its subgenus, as suggested by SYLVESTER-BRADLEY (1949). The type species of *Cyamocypris* is *Cypris valdensis* FITTON 1836, in which the

selvage extends towards the central part of the valves and does not follow the anterior part as characteristic of *Cypridea*. The revision of the taxonomy of other taxons, similar in some respects to *Cypridea*, needs more information concerning their internal morphology and is partly carried out in later parts of this paper.

Cypridea barsboldi STANKEVITCH, 1974

(pl. 16: 1-6; pl. 17: 1-8; fig. 5)

1974. *Cypridea barsboldi* sp. nov., STANKEVITCH; E. S. STANKEVITCH and A. V. SOCHAVA: 277, pl. 1: 2.

Material. — Over one hundred specimens, including detached valves and complete carapaces, only adult ones, in most cases well preserved.

Description. — Carapace large, stout, angularly-ovate in lateral outline, distinctly laterally compressed. Greatest height close to the anterior margin, greatest width in posteroventral part. Both valves only slightly differ in size and shape; left, larger valve, is more angulate anterodorsally and posteroventrally bearing rather thin lunate cyathus. Left valve overlaps the right

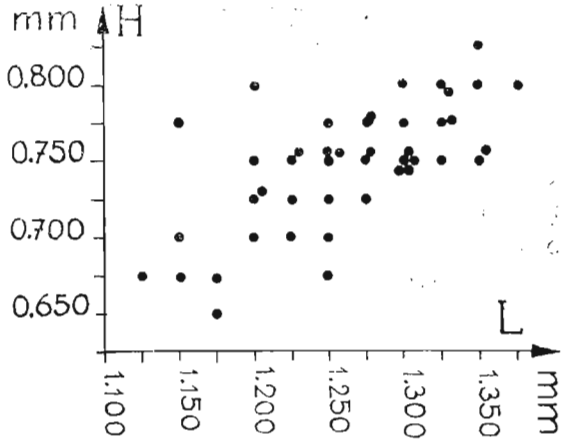

Fig. 5.
Variations of length-height ratios within 45 specimens (ZPAL MgO/61-105) of *Cypridea barsboldi*.

one almost along the entire free margin; in the beak region overlapping is less distinct. Dorsal margin almost straight, slightly converging with nearly straight ventral margin. Anterior margin very broadly rounded, whereas the posterior one more narrowly rounded or abruptly truncated, especially so in the left valve. In the anteroventral region of both valves there occurs a distinct beak and notch, the latter extending behind the beak, on the outer valve surface, as a deep alveolus. Valve surface roughly pitted and reticulated, covered with knobs and spines, more numerous posteriorly where they tend to be loop-shaped in arrangement.

Inner structures typical of the genus. Hinge margin adont with a furrow which is enlarged terminally in the left valve. Marginal pore canals numerous, straight and short; in the anteroventral region they are absent from the attached drop-shaped area. Duplicature narrow posteriorly, much wider frontally, forming there a deep vestibulum. Limen well developed in the posteroventral area of the left valve. Muscle scars typical of Cypridacea.

Variation. — Variation concerns mainly the ornamentation and the shape of the valves which ranges from subquadrate to triangularly ovate in outline and are differently inflated. Ornamentation is generally well developed, consisting of tiny as well as knobby spines, following varying pattern of their arrangement. In some specimens however, gross ornamentation (see pl. 17: 2, 3) is more delicate. Consequently two main morphotypes are distinguished: 1 — tiny tuberculate (see pl. 17: 2, 3) and 2 — fairly tuberculate (see pl. 16: 1-6). The former reminds in ornamentation some specimens referred herein to *Cypridea cavernosa* GALEEVA 1955, from which it may be distinguished by generally more numerous tubercles and its less ovate outline.

Remarks. — Specimens referred herein to *Cypridea barsboldi* are without doubt conspecific with those described under that name by STANKEVITCH (*in*: STANKEVITCH and SOCHAVA 1974) from the Upper Cretaceous of Mongolia. Their shape and ornamentation are similar also to those characteristic of numerous species described, e. g. by BISCHOFF (1963) from the Lower Cretaceous of Lebanon, or by KRÖMMELBEIN (1962) and KRÖMMELBEIN and WEBER (1971) from the Lower Cretaceous of Brazil, however, the details of the external morphology easily allow to separate them.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt and Altan Ula IV, Nemegt Basin, and beds of Bugeen Tsav, Gobi Desert.

Cypridea cavernosa GALEEVA, 1955

(pl. 18: 1-6; pl. 36: 5, 6; pl. 37: 10; figs. 7WZ; figs. 8AD)

1955. *Cypridea cavernosa* sp. nov.; L. I. GALEEVA: 42, pl. 10: 1.
1956. *Cypridea cavernosa* GALEEVA; P. S. LUBIMOVA: 78, pl. 17: 1.
1970. *Cypridea cavernosa* GALEEVA; J. SZCZECHURA and J. BŁASZYK: 109, pl. 28: 6.

Material. — More than two thousand specimens, detached valves as well as complete carapaces, probably only adult ones, in most cases well preserved.

Dimensions (in mm):

	ZPAL MgO/123 aC	MgO/128 aC	MgO/124 aRV	MgO/127 aLV
Length	1.22	1.47	1.22	1.32
Height	0.73	1.03	0.78	0.93
Width	0.59	0.73	—	—

Description. — Carapaces large, fairly solid, angularly ovate in lateral view, moderately inflated, lens-like in dorsal view. Greatest height close to the anterior margin, more than half the length. Both valves similar in shape although the right one is generally more angulate in its posteroventral region, having there a thin, lunate cyathus. Left, slightly larger valve overlaps the right one along almost the entire free margin, except for the distal part of the anteroventral region and, to a lesser degree, along the dorsal margin. Dorsal margin gently arched or straight, weakly converging with an almost straight ventral margin. Anterior end broadly, somewhat obliquely, rounded; posterior end more narrowly rounded or abruptly truncated. In the anteroventral part of each valve sharply ended beak occurs followed by a distinct notch; on the outer valve surface the latter is continued as a deep alveolus. Valve surface weakly reticulated, or rather only densely pitted, sometimes ornamented by rare tiny, knobby spines, which are more numerous near the valve extremities, particularly along the valve margins. Normal pore canals simple, rather rare (see pl. 36: 9).

Inner structure typical of *Cypridea*. Hinge adont; enlarging terminally furrow occurs in the left valve. Muscle scars consist of four elongated scars irregularly arranged within the main group, two scars somewhat in front and below the main group, and two small scars behind them. Marginal pore canals numerous, short, straight. Duplicature well developed, larger frontally, forming distinct vestibula. Limen (see p. 77) in the left valve, in its posteroventral region, well developed. Anteroventral regions of both valves reveal a drop-like attached area near the valve border not pierced by any marginal pore canals.

Variation. — Considerable variation applies to the shape, size as well as to the ornamentation of specimens. There are distinctly angulate specimens with distinct cardinal angles, as well as quite ovate in lateral outline, at the same time varying in width. Knobby spines, occurring on valve surface vary in number and arrangement.

Remarks. — Some specimens, especially rich in ornamentation may be easily confused with those assigned herein to *Cypridea barsboldi*, especially to its tiny tuberculate morphotype (see p. 82).

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt and Altan Ula IV, Nemegt Basin; beds of Bugeen Tsav and Nogon Tsav, Gobi Desert.

?Cypridea sp.
(pl. 34: 1)

Material. — Five complete carapaces, probably only juvenile ones (?), poorly preserved. Dimensions (in mm):

	ZPAL MgO/135 ?jC	MgO/136 ?jC
Length	0.93	1.08
Height	0.54	0.64
Width	0.34	0.44

Description. — Carapace of large size, triangularly-ovate in its lateral outline, lenticular in dorsal view. Length somewhat less than twice the height, being greatest close to the anterior margin. Left valve only slightly larger than the right one, overlapping the latter mostly along the ventral, posterior and anterodorsal margins. Anterior margin gently arched, bordered in its upper part by a narrow, tiny rim which extends into the compressed lower part of the anterior end. Indistinct notch occurs in the anteroventral region of the carapace. Dorsal margin almost straight, weakly converging with a nearly straight ventral margin. Posterior margin narrowly rounded, weakly elongated. A very shallow depression occurs dorsomedially. Valve surface very finely pitted and covered with irregularly arranged, singular knobs. Internal features unknown.

Variation. — It concerns mostly the valve ornamentation; some specimens are without knobs on the valve surface. The dorsomedian depression is not well developed in all the specimens.

Remarks. — Unknown internal morphology of the described species does not enable one to determine its generic assignment. The supposed attribution to *Cypridea* is tentative because of the dorsomedian depression, occurring in some specimens of this species. The general appearance of the studied forms agrees, however, with those referred to *Cypridea*, particularly with their juvenile (?) representatives. In the general shape and ornamentation *?Cypridea* sp. may be compared with *C. vitimensis*, described by MANDELSTAM (*in:* LUBIMOVA 1956), from the Lower Cretaceous of eastern Peri-Baikal. The difference between these two species applies to the length-heigh ratio; moreover, in MANDELSTAM'S specimens dorsomedian depression is lacking.

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

Genus *Paracypridea* SWAIN, 1946
?Paracypridea mongolica sp. n.
(pl. 25: 1-3; pl. 37: 7; figs. 7IJK)

Holotype: ZPAL MgO/137, pl. 25: 1.
Type horizon: Nemegt Formation.
Type locality: Nemegt Basin, Gobi Desert.
Derivation of the name: *mongolica*, occurring in Mongolia.

Diagnosis. — Carapace large, sub-rectangular in lateral outline, slim, smooth, beak-like bearing. Left valve slightly larger than the right one, overlapping the latter except for the middle part of its dorsal margin. Right valve with weakly developed drawingout in the posteroventral

region, which corresponds to cyathus in the left valve; the left valve bears a distinct limen in its posteroventral region.

Material. — Fourteen complete carapaces and thirteen detached, left and right valves, all adult, well preserved.

Dimensions (in mm):

	ZPAL MgO/137 aC	MgO/138 aC	MgO/140 aRV	MgO/139 aLV
Length	1.18	1.18	1.13	1.18
Height	0.64	0.64	0.64	0.64
Width	0.54	0.54	—	—

Description. — Carapace large, rather-thin-shelled, roughly rectangular in lateral outline, elongated, length almost twice the height, moderately and rather evenly inflated, widest centrally. Left valve slightly larger than the right one, overlapping the latter almost all around, except for the dorsal margin excluding its most distal parts. Distinct beak-like projection, accompanied by notch, occurs in anteroventral region of both valves, being more prominent in the left one. In the right valve, in its posteroventral part, there appears a shallow elongation directed downwards, well visible only in detached valves. It corresponds to the lunate cyathus present in the posteroventral region of the left valve. Dorsal and ventral margins straight, parallel; anterior and posterior margins rounded, of similar outline; cardinal angles distinctly marked. Valve surface smooth.

Duplicature well developed frontally, rather narrow posteriorly, with shallow vestibula at both extremities; inner margin converges with outer margin. Hinge adont, marginal pore canals (fig. 7K) numerous, short, straight. Musce scars (figs. 7JI) typical of the family. At the posteroventral part of the left valve there occurs a distinct modification of the proximal part of inner lamella, designated herein limen (see p. 77). Moreover, both valves have gutter-like short depressions in their anteroventral region, designated herein guttur (see p. 77), separating the beak-like extension of the anterior end from ventral margin; border of the ventral margin to a small degree extends into the inner lamella in the anteroventral region of the valve.

Remarks — Tentative assignment of that species to *Paracypridea* SWAIN 1946, regarded by some authors as a subgenus of *Cypridea*, while by others as a separate genus, is based on differences in internal morphology of specimens described herein and those representing true *Paracypridea*. In the type species for *Paracypridea*, described by SWAIN (1946) as a subgenus of *Cypridea*, i. e. *Cypridea* (*Paracypridea*) *obovata*, as figured by SWAIN (*l. c.*) the limen (in the left valve), and guttur, characteristic of ?*P. mongolica* are lacking. It is not excluded that the above differences result from different calcification, being stronger in Mongolian specimens. Moreover, in *Paracypridea* the right valve is larger than the left one, in contrast to the conditions in ?*P. mongolica*.

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

Family **Candonidae** KAUFMANN, 1900
Subfamily **Candoninae** KAUFMANN, 1900
Genus *Candona* BAIRD, 1845
Candona altanulaensis SZCZECHURA and BŁASZYK, 1970
(pl. 19: 1-6; pl. 36:10; fig. 7L)

1970. *Candona altanulaensis* n. sp.; J. SZCZECHURA and J. BŁASZYK; 114, pl. 29: 2,4.
1974. *Candona altanulaensis* SZCZECHURA and BŁASZYK; E. S. STANKEVITCH and A. V. SOCHAVA: 283, pl. 2: 6.

Material. — About two hundred specimens, including detached valves and complete carapaces, among the latter only adult ones, well preserved.

Dimensions (in mm):

	ZPAL MgO/144 aC	MgO/149 aC	MgO/146 aRV	MgO/145 aLV
Length	0.83	0.83	0.73	0.83
Height	0.39	0.44	0.39	0.44
Width	0.34	0.32	—	—

Description. — See SZCZECHURA and BŁASZYK (1970) and STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974).

Variation. — Variation concerns the size and shape; in addition to specimens almost identical with those described by SZCZECHURA and BŁASZYK (1970), there are larger forms, being higher and more angulate posterodorsally. Both forms represent adult specimens, relatively thick-shelled and with well developed duplicature. It is probable that the variation is a seasonal one. Sexual dimorphism is less probable as the number of larger and higher forms (male specimens?) markedly prevails. According to Dr. D. DANIELOPOL (personal communication, based on observations of the original material) the males and females of *C. altanulaensis* do not differ.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt and Altan Ula IV, Nemegt Basin and beds of Bugeen Tsav, Gobi Desert.

Candona cf. *fabaeformis* (FISCHER, 1851)
(pl. 19: 7-10; figs. 7STU)

Material. — Thirty eight complete carapaces and detached valves, left and right, only adult ones, in most cases well preserved.

Dimensions (in mm):

	ZPAL MgO/153 aC	MgO/154 aC	MgO/152 aLV	MgO/151 aRV
Length	0.88	0.93	0.96	0.93
Height	0.49	0.51	0.54	0.49
Width	0.39	0.39	—	—

Description. — Valve subreniform in lateral view, moderately and rather evenly inflated when seen dorsally. Length-height ratio more than 2:1, height-width ratio slightly more than 1:1. Greatest height at the posterior end, greatest width in the middle. Valves subequal, the left being somewhat larger than the right, overlapping the latter along ventral and dorsal margins and, to a lesser degree, terminally. Dorsal margin weakly arched, sloping towards the anterior end; ventral margin fairly sinuate in front of the middle. Posterior end more broadly rounded and more angulate in its upper part than the anterior one. Valve surface smooth.

Duplicature wide, wider frontally; line of concrescence almost parallel to the valve margin. Vestibula distinct, the anterior one developed better. Muscle scars typical of candonid species, i. e. consisting of 5 tightly arranged scars (see fig. 7T). Marginal pore canals straight, short and numerous. Hinge margin adont.

Variation. — Variation concerns the size and the length-height ratio and seems to result from sexual dimorphism or seasonal changes; well developed duplicature and thick-walled valves in all specimens seem to exclude the presence of immature forms.

Remarks. — Specimens assigned to *Candona* cf. *fabaeformis* (FISCHER 1851), in their outline are close to those referred by FISCHER to *Cypris* (*recte Candona*) *fabaeformis*. Recent species known from Europe and South America. They differ in having more angulate posterodorsal margin and in being more inflated laterally and less pointed frontally when seen from above.

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

Genus *Candoniella* SCHNEIDER, 1956
Candoniella altanica (STANKEVITCH, 1974)

(pl. 34: 2-4)

1970. *Candoniella mordvilkoi* MANDELSTAM; J. SZCZECHURA and J. BŁASZYK: 115, pl. 28: 5.
1971. *Candoniella* cf. *mordvilkoi* MANDELSTAM; J. SZCZECHURA: 89, pl. 16: 4, 5.
1974. *Lycopterocypris altanicus* sp. nov. STANKEVITCH; E. S. STANKEVITCH and A. V. SOCHAVA: 280, pl. 2: 4.

Material. — About one hundred specimens including complete carapaces and detached valves, only adult ones, well preserved.

Dimensions (in mm):

	ZPAL MgO/158 aC (maximum size)	MgO/160 aC (average size)	MgO/167 aC (minimum size)
Length	0.57	0.45	0.50
Height	0.27	0.22	0.25
Width	0.25	0.20	0.20

Description. — See SZCZECHURA and BŁASZYK (1970), and SZCZECHURA (1971). The actually available detached valves reveal narrow duplicature, inner margin being parallel to the outer margin. Hinge adont. Muscle scars and marginal pore canals not visible.

Variation. — Variation concerns the length-heigth ratio and the shape of carapaces when seen from above; they may be more or less pointed terminally.

Remarks. — The variation observed concerns the shape and size of carapaces. This enables to consider the specimens studied now and those formerly described by SZCZECHURA and BŁASZYK (1970) and SZCZECHURA (1971) as *Candoniella mordvilkoi* and *C.* cf. *mordvilkoi*, as conspecific. The forms described are also conspecific with specimens referred by STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974) to *Lycopterocypris altanicus* (*recte Candoniella altanica*), from the Upper Cretaceous of Mongolia. The described form from the Cretaceous of Mongolia are markedly larger than the specimens referred to *C. mordvilkoi* by MANDELSTAM (1963) and, therefore, they are included herein to *Candoniella altanica.*

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt and Altan Ula IV, Nemegt Basin and beds of Bugeen Tsav; Paleocene, Naran Bulak, Nemegt Basin, Gobi Desert.

Subfamily **Cyclocypridinae** KAUFMANN, 1900
Genus *Cyclocypris* BRADY and NORMAN, 1889
Cyclocypris transitoria (STANKEVITCH, 1974)

(pl. 31: 1)

1974. *Timiriasevia*? *transitoria* sp. nov. STANKEVITCH; E. S. STANKEVITCH and A. V. SOCHAVA: 284, pl. 2: 1, 2.

Material. — Seven complete, adult carapaces, well preserved.

Dimensions (in mm):

	ZPAL MgO/173 aC	MgO/174 aC
Length	0.37	0.39
Height	0.24	0.25
Width	0.24	0.27

Description. — Carapace small, almost egg-shaped in lateral and dorsal views, compressed ventrally; height nearly equalling the width. Greatest height close to the middle, greatest width posteriorly. Left valve somewhat larger than the right one, overlapping the latter posteriorly and ventrally. Dorsal margin distinctly arched, more sloping frontally, ventral margin straight. Both extremities rounded, the anterior one being more elongated. Valve surface smooth.

Internal morphological features unknown. Specimen examined in transmitted light reveals a distinct duplicature which is narrow posteriorly and is slightly enlarged frontally.

Variation not observed.

Remarks. — In the collection of *C. transitoria* from Nemegt Formation described by STANKEVITCH (in: STANKEVITCH and SOCHAVA 1974) and housed in the Institute of Limnology in Leningrad there are dozens of specimens, all of them similar to the specimen illustrated by STANKEVITCH (*in*: *l. c.* on pl. 2: 2a). The drawing of the holotype specimen in the same paper (*l. c.*, pl. 2: 1b) differs from all the specimens assigned by STANKEVITCH to *C. transitoria*. The difference is probably caused by the inaccuracy of the drawing of the holotype specimen.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Nemegt Basin; beds of Bugeen Tsav, and Sainshandinskaya Svita of south-eastern Gobi.

Genus *Cypria* ZENKER, 1854
Cypria elata (STANKEVITCH and KHAND, 1976)

(pl. 22: 2, 3; fig. 8E)

1976. *Eucypris*? *elata* sp. nov.; E. S. STANKEVITCH and E. KHAND: 160, pl. 1: 1, 2.

Material. — Twenty one complete carapaces, one right and one left valves, all adult and poorly preserved, often crushed.

Dimensions (in mm):

	ZPAL MgO/175 aC	MgO/176 aC	MgO/177 aC
Length	1.42	1.52	1.47
Height	1.03	1.05	1.05
Width	0.69	0.64	0.64

Description. — Carapace of large size, stout, compressed laterally, subcircular in side view; height equalling two thirds of the length. Greatest height and greatest width medially. Right valve larger than the left one, overlapping the latter almost all around, except for the anteromedian part of the ventral margin. Dorsal margin highly arched, slightly angulate, ventral margin nearly straight. Both extremities rounded fairly evenly and broadly; both valves bear list-like extensions of which that along the anterior margin is more prominent. Crest-like list occurs in the left valve along the dorsal margin, joining lists occurring along the free margin; it is not excluded that such a list is present also in the right valve. Valve surface smooth.

Hinge adont; smooth list occurs in the left valve (see fig. 8E). Duplicature well developed only in front of the valve, forming a large vestibulum there. Inner margin subparallel to the valve outline. Marginal pore canals short, straight, numerous. Normal pore canals scarcely spaced, tiny. Muscle scars consist of four tightly arranged scars of the main group and two scars below and somewhat in front of them.

Variation. — Inconspicuous variations concern the size and the shape of the carapaces, mostly their length-height ratio.

Remarks. — Specimens attributed to *Cypria elata* (STANKEVITCH and KHAND 1976) fall within variation of *Eucypris*? (*recte Cypria*) *elata*, as observed within original collection of STANKEVITCH and KHAND. Figures of that species, included in the paper of these authors, are greatly inaccurate.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt Basin, beds of Khermeen Tsav, beds of Bugeen Tsav; and according to STANKEVITCH and KHAND (*l. c.*) Barungoyotskaya and Bainshireinskaya svitas, Gobi Desert.

Family **Cyprididae** BAIRD, 1845
Subfamily **Cyprinotinae** BRONSTEIN, 1947
Genus *Leiria* HELDMACH, 1968
Leiria sp. 1

(pl. 36: 2, 3)

Material. — A few remnants of detached valves.

Description. — Collected ostracode fragments belong to the large specimens, rather thin-shelled, much flattened ventrally and considerably inflated laterally. Greatest inflation and greatest height probably in the middle. Dorsal margin strongly arched, more sloping posteriorly. Ventral margin straight. Both extremities rounded; posterior margin seems to be more narrowly rounded than the anterior one. Valve surface covered with tiny, almost horizontally arranged ribs of which those close to the valve margins tend to be parallel to them; near the posterior margin ribs are converging. Internal structures not known.

Remarks. — General shape and the ornamentation pattern of the described specimens suggest that they belong to *Leiria*. The scarcity of the material and the state of preservation do not allow, however, to make its specific determination.

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

Leiria sp. 2

(pl. 36: 1)

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

	ZPAL MgO/181 ?aC
Length	0.73
Height	0.54
Width	0.49

Description. — Carapace of middle size, almost ball-shaped, flattened on ventral side. Greatest width posteroventrally, greatest height medially. The anterior end is more pointed when seen from above than the posterior one. Left valve larger than the right, the latter being overlapped by the former all around except for the anterior margin. Dorsal margin gently arched, broadly rounded, slightly truncated; posterior margin more narrowly rounded, also truncated and weakly angulated near the ventral margin. Valve surface covered with faint, densely arranged striae, tending to be parallel to the valve margin and converging posteroventrally and anteromedially. Internal features unknown.

Remarks. — The carapace described is similar to *Leiria striata*, described by HELDMACH 1971, from the Upper Jurassic of Portugal. *Leiria* sp. 2 is more circular in lateral outline than *L. striata* and seems to be less coarsely ribbed. At the same time, however, *L.* sp. 2 is similar in lateral view (although wider) to the specimens from the Lower Cretaceous of Spain, assigned to *Leiria striata* by BRENNER (1976).

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

Subfamily **Cypridinae** BAIRD, 1845
Genus *Cypris* O. F. MÜLLER, 1776
?*Cypris ectypa* (STANKEVITCH, 1974)
(pl. 20: 1-5)

1974. *Palaeocytheridea ectypa* sp. nov. STANKEVITCH; E. S. STANKEVITCH and A. V. SOCHAVA: 285, pl. 2: 5.

Material. — Twenty nine complete carapaces and a few detached valves, probably adult and juvenile, in most cases crushed.

Dimensions (in mm):

	ZPAL MgO/184 aC	MgO/185 aC	MgO/183 aRV	MgO/182 aRV
Length	0.93	1.08	0.78	0.93
Heigth	0.49	0.59	0.44	0.56
Width	0.59	0.59	—	—

Description. — Carapace of large size, subovate in lateral and dorsal outlines, strongly flattened ventrally, widest posteriorly, highest medially; the width greater than the height. Left valve slightly larger than the right one, overlapping the latter almost all around except for the posterodorsal and anterior margins, where, only in right valve, a distinct lip occurs. Dorsal margin gently arched, nearly parallel to the somewhat concave ventral margin; the posterior region of the former inconspicuously, obliquely truncated. Shallow dorsal sulcus well visible from above; it is laterally obscured by posterodorsal valve inflation. Anterior and posterior margins well rounded, the anterior one more obtusely so. Valve surface very finely and sharply reticulated; moreover, tiny and tuberculate, scanty spines, irregularly covering all valve surface.

Duplicature narrow, almost of the same width along all the free margin. Inner margin parallel to the outer margin. Selvage follows the general valve outline. Hinge adont. Muscle scars and marginal pore canals not known.

Variation. — Conspicuous variation concerns the size and general shape of specimens; in addition to the specimens almost ovate in lateral outline, there are also individuals with highest frontal region and highly angulate dorsal margin. It is not excluded that the specimens discussed represent different moult stages and/or different species.

Remarks. — The specimens described are undoubtedly conspecific with those described by STANKEVITCH (*in*: STANKEVITCH and SOCHAVA 1974) as *Palaeocytheridea ectypa*. They are excluded from *Palaeocytheridea* and assigned to ?*Cypris* on the following reasons. A distinct lip occurs in the anterior margin of the specimens described. It is never present in *Palaeocytheridea*. The general appearance, as well as the inner marginal structure of the specimens described remind of those in *Cypris*. A better preserved material is needed to verify the generic assignment.

The specimens which are highest frontally, with angulate dorsal margin, are similar to Recent *Cypris subglobosa* SOWERBY 1840; also their general appearance and ornamentation are similar. The main difference is the lack of an extension and denticulation on the posterior end. These characterise *C. subglobosa*.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Ulan Bulak and Altan Ula IV, Nemegt Basin, and beds of Bugeen Tsav, Gobi Desert.

Genus *Altanicypris* nov. [1)]

Type species: *Altanicypris szczechurae* (STANKEVITCH 1974).
Derivation of the name: *Altanicypris* — named after the name of Altan Ula locality and the generic name *Cypris*.

Diagnosis. — Cypridacea representative of large size, subovate in lateral outline, highest frontally, markedly tumid, particularly posteriorly, flattened ventrally. It is less than twice

[1)] See Addendum.

as long as high and of the width equal with height or wider than height. Left, larger valve overlaps the right one almost all around except for the posterodorsal and anteroventral region. Right valve bears a lip-like extension in its anteroventral part. Valve surface smooth or pitted and spiny. Hinge adont. Selvage in the right valve almost follows the general valve outline, omitting, however, the lip-like extension.

Remarks. — The lip-like extension of the lower part of the anterior margin in the right valve, extension of the selvage, and the general shape of the carapace of *Altanicypris*, recall the condition characteristic of *Cypris* MÜLLER 1776 and *Chlamydotheca* SAUSSURE 1858 (according to MORKHOVEN (1963), a synonym of *Pachycypris* CLAUS 1893). *Altanicypris* differs from *Chlamydotheca* in having a lip-like extension only in the right valve. In this respect *Altanicypris* reminds *Cypris*, where marginal structures of both valves are similar; selvage of the right valve corresponds to the remnant ridge (named by OKUBO 1972, a peculiar ridge), in the left valve where, moreover, a prolongation of the anterior end is much reduced. At the same time, however, *Cypris* (including its type species *C. pubera* MÜLLER 1776) has a different posterior admarginal inner structure of both valves. In *Cypris* there is a flange in the left valve, sometimes differently ornamented, proximally bordered by a distinct list; matching elements occur in the right valve. In *Altanicypris* the flange along the posterior ends of both valves is weakly developed and the proximal list in the left valve is lacking; the closure of the carapace in *Altanicypris* is simpler than that in *Cypris*.

Species assigned: *Cypridea szczechurae* STANKEVITCH 1974, *Altanicypris multispina* sp. n., and *A. bispiniferea* sp. n.

Geographical and stratigraphical distribution: Upper Cretaceous (Nemegt Formation) of Mongolia.

Altanicypris szczechurae (STANKEVITCH, 1974)

(pl. 21: 2-5; pl. 37: 3)

1970. *Cypridea* sp. 2; J. SZCZECHURA and J. BŁASZYK: 113, pl. 18: 1.
1974. *Cypridea szczechurae* sp. nov.; E. S. STANKEVITCH and A. V. SOCHAVA: 276, pl. 1: 5.

Material. — Sixteen complete carapaces and five detached valves, only adult ones, mostly well preserved.

Dimensions (in mm):

	ZPAL MgO/188 aC	MgO/187 aC	MgO/189 aLV	MgO/186 aRV
Length	0.93	0.88	0.78	0.93
Height	0.58	0.56	0.49	0.54
Width	0.58	0.56	—	—

Description. — Carapace of large size, solid, subovate in lateral outline, less than twice as long as high, having greatest height just in front of its middle part; it is markedly tumid, especially posteriorly, of the width equalling the height, flattened ventrally. Left valve somewhat larger than the right one, overlapping the latter along nearly the entire margin, except for the posterodorsal and anteroventral parts. Dorsal margin boldly arched, slightly truncate and angulate posteriorly; ventral margin almost straight. Both extremities rounded, the anterior one more obtusely so. Anterior end of right valve has in its lower part a somewhat prolonged flange, forming there a lip; in the left valve it is reduced. Valve surface smooth.

Duplicature not wide, broader anteriorly, with inner margin parallel to the outer margin in the right valve, whereas more oblique in the left valve. Hinge adont. Muscle scars and marginal pore canals unknown. Selvage in the anteroventral part of the right valve far removed from outer margin, following, however, the most general valve outline (see pl. 37: 3). In the left valve the lip-like extension is strongly reduced; there is also a short ridge which corresponds to the selvage of the right valve.

Variation. — Variation applies to the size, length-height ratio and to the general outline of the carapace; its dorsal margin may be more or less arched.

Remarks. — On the basis of the general appearance and internal morphology, the species described herein is excluded from *Cypridea* and assigned to *Altanicypris* gen. n.

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

Altanicypris bispinifera gen. et sp. n.
(pl. 22: 1)

Holotype: ZPAL MgO/190; pl. 22: 1.
Type horizon: Nemegt Formation.
Type locality: Nemegt, Nemegt Basin, Gobi Desert.
Derivation of the name: bispinifera — Lat. *bis* = twice; Lat. *spinifer* = spinous.

Diagnosis. — A representative of *Altanicypris* gen. n., with ovately-triangular side view. Width almost equal to the height. Ventral margin indistinctly sinuate. Valve surface pitted and spiny, bearing two distinct knob-like spines, one of which occurs near the centre, whereas the other in the posteroventral part of the carapace.

Material. — One complete carapace and one left valve, both specimens adult and fairly well preserved.

Dimensions (in mm):

	ZPAL MgO/190	MgO/191
	aC	aLV
Length	0.78	0.98
Height	0.49	0.59
Width	0.49	—

Description. — Carapace of large size, solid, ovately-triangular in side view, highest frontally less than twice as long as high, roughly elliptical in dorsal view. Greatest width posteriorly, equal to height. Ventral side much compressed. Left, larger valve, overlaps the right one along nearly the entire margin except for the posterodorsal and anteroventral parts; lip-like extension occurs in the anteroventral region of the right valve. Dorsal margin fairly arched, somewhat angulate frontally; ventral margin indistinctly sinuate. Anterior margin broadly and slightly obliquely rounded; posterior margin narrowly rounded in its lower part. Valve surface deeply, densely and faintly pitted, and covered with irregularly arranged spiny tubercles. A large, knob-like spine occurs beyond the centre, about 2/3 of the length and the second one, smaller, occurs posteroventrally, behind and below the former.

Internal features difficult to recognize, obscured, revealing, however, adont hinge margin and reduced lip-like anteroventral extension in the left valve, the structures characteristic also of other species of *Altanicypris*.

Remarks. — The form described seems to represent quite a distinct species, difficult to be compared with any of those previously described.

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

Altanicypris multispina gen. et sp. n.
(pl. 21: 1)

Holotype: ZPAL MgO/192; pl. 21: 1.
Type horizon: Nemegt Formation.
Type locality: Nemegt locality, Nemegt Basin.
Derivation of the name: *multispina* — Lat. *multum* = many, Lat. *spina* = spine.

Diagnosis. — A representative of *Altanicypris* gen. n., subovate in lateral outline; the width greater than the height. Ventral margin slightly sinuate. Valve surface covered by irregularly spaced tubercle-like spines.

Material. — Nine complete carapaces and a few detached valves, most probably only adult ones, in most cases well preserved.

Dimensions (in mm):

	ZPAL MgO/192 aC	MgO/193 aC	MgO/194 aC
Length	0.83	1.18	1.03
Height	0.49	0.69	0.64
Width	0.54	0.69	0.64

Description. — Carapace of large size, solid, subovate in lateral outline, with greatest height frontally, less than twice as long as high, having a greater width than height, i.e. markedly tumid, especially so posteriorly. Ventral side compressed, roughly elliptical in top view. Left, a somewhat larger valve overlaps the right one along almost the entire margin except for the posterodorsal and anteroventral parts. The right valve bears a lip-like process in its anteroventral region; in the left valve this is much reduced. Dorsal margin well curved, obtusely and bluntly arched, slightly converging with somewhat sinuate ventral margin. Both extremities rounded, the anterior one weakly elongated towards the anteroventral region. Valve surface almost smooth, covered with stout, tubercle-like spines arranged irregularly and sparsely, tending to be smaller in frontal part, rare in ventral side. Weak reticulation or pitting occurs in the latero-ventral region.

Inner side of the valve poorly visible, obscured. Prolonged flange in the right valve and selvage line typical of the genus, removed from the outer margin, are recognized.

Variation. — It concerns mainly the size and length-height ratio and, to a lesser degree, the number and arrangement of ornamental spines on the valve surface. It is not excluded that there are male as well as female specimens.

Remarks. — General appearance of specimens included into *Altanicypris multispina* gen. n. et sp. n., is similar to *Cypridea* (*Cypridea*) *huangliuhsiaensis*, described by HOU (1958), from Lower Cretaceous of China. Specimens from Mongolia are, however, longer, less densely and more finely spiny with an almost smooth valve surface; in *Cypridea* (*C.*) *huangliuhsiaensis* the latter is reticulated.

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

Genus *Mongolocypris* nov.

Type species: *Cypridea distributa* STANKEVITCH (*in*: STANKEVITCH and SOCHAVA 1974).
Derivation of the name: *Mongolocypris* — occurring in Mongolia, and generic name *Cypris*.

Diagnosis. — Cypridinid genus, longer than 1.3 mm, subovate in lateral outline, rather slim; length less than twice the height. The left, larger valve overlaps the right one almost all around. Both valves anteroventrally bear rounded, beak-like extensions followed by weak incision behind. Inner side of valves reveals gutter-like depression designated herein guttur in the place of a beak and distinct, peculiar list obliquely crossing the free part of inner lamella. Posteroventral part of the right valve is conically inflated, whereas posteroventral part of the opposite valve develops a stop-ridge, designated herein limen (see p. 77). Hinge adont. Duplicature wide, particularly frontally, with distinct vestibula. Marginal pore canals numerous, straight, moderately long. Valve surface smooth.

Remarks. — *Mongolocypris* gen. n., in its most general appearance reminds of *Paracypridea* SWAIN 1946, and some forms referred by TRIEBEL (1939) to *Chlamydotheca*, e. g. *C. unispinosa*

(BAIRD 1862) (the latter, according to MORKHOVEN 1963, represents at least another subgenus) and *Sclerocypris* SARS 1924. The inner side of *Mongolocypris*, however, and particularly their admarginal morphological elements univocally make possible to distinguish it from other, superficially similar forms.

Species assigned: *Cypridea distributa* STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974) and *Cypridea rostrata* GALEEVA 1955.

Geographical and stratigraphical distribution: Upper Cretaceous (Nemegt Formation), Nemegt Basin and Upper Cretaceous of western Baikal region.

Mongolocypris distributa (STANKEVITCH, 1974)
(pl. 23: 1-4; pl. 24: 1-3; pl. 36: 8; pl. 37: 8, 9; fig. 6; figs. 7MNO; fig. 8C)

1970. *Cypridea rostrata* GALEEVA; J. SZCZECHURA and J. BŁASZYK: 113, pl. 28: 3.
1974. *Cypridea distributa* sp. n.; E. S. STANKEVITCH and A. V. SOCHAVA: 274, pl. 1: 4.

Material. — Some hundreds of specimens, including complete carapaces and detached valves, only adult ones, often crushed.

Dimensions (in mm):

	ZPAL MgO/200 aFLV	MgO/199 aFRV	MgO/195 aMLV	MgO/198 aMRV
Length	1.57	1.61	2.10	1.81
Height	0.93	0.93	1.22	0.98
Width	0.49	0.42	0.63	0.44

Description. — Carapace large, thick-shelled, subovate in lateral outline, rather slim. Length, generally less than twice the height, greatest width in the posterior half. Left, larger valve, overlaps the right one along the entire margin; along the middle part of the dorsal margin and in the anteroventral region the overlapping is less distinct. Dorsal margin gently arched, almost straight, nearly parallel to the straight, ventral margin. Both extremities broadly rounded, the anterior one being slightly truncated in its upper part. Both valves bear beak-like extensions in their anteroventral region, forming there, behind the beak, notch-like incisions. In the posteroventral part of the left valve lunate cyathus occurs, corresponding to the coniform inflation in the posteroventral region of the right valve. Valve surface smooth. Along the ventral margin of the right valve appear more or less distinct, tiny dents. Shell very finely porous, normal pore canals being simple, rare (see pl. 36: 8).

Hinge adont; terminally enlarged, especially anteriorly, a furrow is present in the left valve, while simple ridge occurs in the left valve. Duplicature wide, wider frontally, with distinct vestibula at both extremities. Inner margin almost follows the line of outer margin. Marginal pore canals moderately long, straight, numerous. Muscle scars (see fig. $7M_2N$) consist of 4 scars arranged in more or less regular arch, 2 scars behind the main group and 2 scars in front of them; additional scar, perhaps the antennal one may be observed also, above all this group. The line of border along the free margin is not continuous, i. e. it does not lie in one plane; at its anteroventral part the border (selvage?) of ventral margin enters the free part of inner lamella, some distance from the anterior margin, while the border of anterior margin joins the ventral side of the valve some distance to the ventral margin; thus, between the two mentioned, distinctly separate borders, a kind of a gutter (named herein a guttur, see p. 77) is formed. In the left valve, in its posteroventral part, the inner lamella is distinctly reversed at its proximal part, forming there stop-ridge-like thickening, named here a limen (see p. 77).

Variation. — It applies mostly to the size of specimens, as well as to their length-height ratio (see fig. 6). Moreover, smaller specimens are more angulate, especially posteroventrally, when seen in lateral outline, having at the same time more distally situated their greatest width;

these differences seem to result from sexual dimorphism; it cannot be excluded, however, that we are dealing with two different species. The latter suggestion may be supported by the fact that within the specimens studied, referred to *Mongolocypris distributa*, forms distinguished as males markedly predominate females. Such situation, however, is not typical of post-Palaeozoic, especially fresh-water ostracodes.

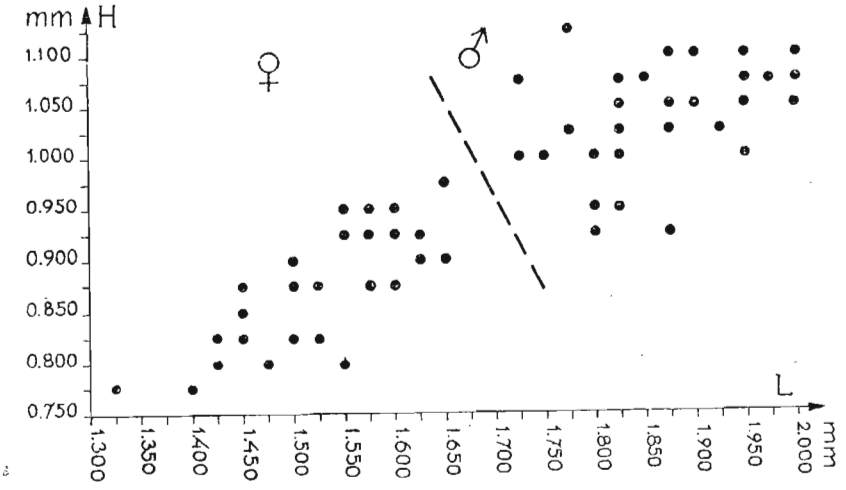

Fig. 6.
Variation of length-height ratios of 60 specimens (ZPAL MgO/201-261) belonging to male and female representatives of *Mongolocypris distributa*.

Remarks. — Determination of that species is based on STANKEVITCH'S (*in:* STANKEVITCH and SOCHAVA 1974) description of *Cypridea distributa*. STANKEVITCH (*l. c.*) included into *C. distributa* also the specimens described by SZCZECHURA and BŁASZYK 1970, as *C. rostrata*. It should be mentioned that the specimens described herein as *M. distributa* generally are no more than 2 mm long, whilst those described by STANKEVITCH are longer than 2 mm. It is not excluded that *Cypridea* (*recte Mongolocypris*) *rostrata* GALEEVA 1955 is a junior synonym of *M. distributa*. Differences between these two species given by STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974) concerning the size and shape are very indistinct, falling within the range of variation of one species; considerable variation of the size and shape has been found within the material studied. More material of *M. rostrata* is needed to demonstrate unequivocally its conspecificity with *M. distributa*.

Mongolocypris distributa is similar to some species described from the Lower Cretaceous beds outside of Mongolia, e. g. *Cypridea quadrilateralis* SWAIN 1946, from Brazil, "*Paracypridea*" sp. described by SOHN (1969) of North America or *Cypridea* (*Pseudocypridina*) *magna* HOU 1958, from China. It differs, however, from them in the details of the external morphology and seems to have quite a different internal structure; unfortunately, in general the latter has not been adequately described. Close similarity may be stated also between *Mongolocypris distributa* and *?Paracypridea mongolica* sp. n. (pl. 25: 1-3); both species differing conspicuously, however, in size as well as in internal morphology. The inner structure of *Mongolocypris distributa* STANKEVITCH 1974, described above, being quite different from that typical of *Cypridea* makes possible to exclude *M. distributa* from *Cypridea*.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Altan Ula IV, and Tsagan Khushu, Nemegt Basin; beds of Bugeen Tsav, Gobi Desert, and Upper Cretaceous of western Baikal region.

Genus *Nemegtia* nov. [2)]

Type species: *Nemegtia reticulata* gen. et sp. n.
Derivation of the name: *Nemegtia* — occurring in Nemegt Basin.

Diagnosis. — Cypridacea representative, having the carapace longer than 0.6 mm, angularly ovate in side view, highest frontally, flatly swollen laterally, widest posteriorly. Height generally equals to 2/3 of the length. Left valve larger than the right, overlaps the latter all around, except for the posterodorsal and anteroventral region. Lip-like extension, in the right valve only, occurs in its anteroventral part. Valve surface pitted or granulated. Marginal pore canals along the lower part of the anterior margin of the right valve arranged fan-like, rather long and numerous. Hinge adont. Selvage of the right valve follows the general valve outline, but lacking on lip-like extension.

Remarks. — Inner admarginal structures of *Nemegtia* are almost identical with those typical of *Altanicypris* gen. n. The genera mentioned above differ, however, in shape of carapaces, *Nemegtia* being more flattened laterally and having more frontally situated its greatest height. Also the type of ornamentation, being generally less prominent in *Nemegtia*, easily allows one to distinguish that genus. Fan-like arrangement of marginal pore canals along the anterior margin and the muscle scars pattern characteristic of *Nemegtia* do not occur in other genera.

Species assigned: *Nemegtia reticulata* sp. n., *Cypridea biformata* SZCZECHURA and BŁASZYK 1970, and *Cypridea* sp. 3 SZCZECHURA and BŁASZYK 1970.

Geographical and stratigraphical distribution: Upper Cretaceous (Nemegt Formation), Nemegt, Nemegt Basin, and beds of Nogon Tsav, Gobi Desert.

Nemegtia reticulata gen. et sp. n.
(pl. 26: 1-7; pl. 37: 4; figs. 7AB; fig. 8B)

1970. *Cypridea* sp. 1; J. SZCZECHURA and J. BŁASZYK: 112, pl. 28: 4.
1974. *Cypridea biformata* SZCZECHURA and BŁASZYK; E. S. STANKEVITCH and A. V. SOCHAVA: 275, pl. 1: 1.
Holotype: ZPAL MgO/266; pl. 26: 1.
Type horizon: Nemegt Formation.
Type locality: Nemegt locality, Nemegt Basin.
Derivation of the name: Lat. *reticulata* = reticulate, alludes to the ornamentation.

Diagnosis. — Species of *Nemegtia*, with reticulate valve surface.

Material. — Some dozens of specimens, including complete carapaces and detached valves, only adult ones, in most cases well preserved.

Dimensions (in mm):

	ZPAL MgO/266 aC	MgO/270 aC	MgO/268 aRV	MgO/269 aLV
Length	0.69	0.73	0.66	0.69
Height	0.47	0.44	0.39	0.46
Width	0.34	0.34	—	—

Description. — Carapace of medium size, angularly-ovate in lateral view, highest frontally, moderately and rather flatly swollen, widest posteriorly; its height equals to 2/3 of the length; distinct dorsal sulcus occurs along the posterior part of dorsum when seen from above. Left, larger valve overlaps the right one along almost the entire margin, except for the posterior part of dorsal margin and lower part of anterior margin. Dorsal margin nearly straight, indistinctly sloping backwards, ventral margin weakly concave in the middle. Anterior end more broadly rounded than the posterior one, in the right valve it bears a well developed lip. Valve surface irregularly and more or less coarsely pitted, sometimes also finely tuberculated; ornamentation disappears near the valve margin.

[2)] See Addendum.

Hinge adont. Muscle scars typical for Cypridacea (see fig. 7B). Duplicature rather narrow, wider anteriorly, inner margin parallel to the contact margin. The course of selvage in the right valve almost follows the valve outline, avoiding, however, the lip-like extension. Zone of concrescence moderately wide, marginal pore canals fairly numerous, long, fan-like arrangement, sometimes bifurcating (see fig. 7A).

Variation. — Observed variation within the specimens studied concerns the size and shape of the valves, i. e. their length-height ratio. There are some differences in valve ornamentation, especially those applying to the degree of reticulation and tuberculation, as well as to the size and arrangement of meshes of reticulation.

Remarks. — Species described by SZCZECHURA and BŁASZYK (1970) as *Cypridea* is recognized herein as a separate species *Nemegtia reticulata* gen. et sp. n. The specimens referred by STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974) to *Cypridea* (*recte Nemegtia*) *biformata* SZCZECHURA and BŁASZYK 1970, are conspecific with those described above.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Tsagan Khushu and Altan Ula IV, Nemegt Basin; beds of Bugeen Tsav and beds of Nogon Tsav, Gobi Desert.

Nemegtia biformata (SZCZECHURA and BŁASZYK, 1970)

(pl. 28: 1-7; fig. 7F)

partim 1970. *Cypridea biformata* SZCZECHURA and BŁASZYK; J. SZCZECHURA and J. BŁASZYK: 111, pl. 28: 2, non pl. 29: 7.
non 1974. *Cypridea biformata* SZCZECHURA and BŁASZYK; E. S. STANKEVITCH and A. V. SOCHAVA: 275, pl. 1: 1.

Material. — Nineteen complete carapaces and thirteen detached valves, only adult ones, in many cases well preserved.

Dimensions (in mm):

	ZPAL MgO/276 aLV	MgO/277 aRV	MgO/278 aC	MgO/279 aC
Length	0.83	0.93	0.88	0.83
Height	0.54	0.54	0.54	0.49
Width	—	—	0.49	0.44

Description. — Carapace of medium size, subovate in lateral outline, elongated, highest anteriorly, most convex posteriorly, evenly and gradually flattened towards the front when seen dorsally; its height almost equals to 2/3 of the length. Distinct dorsal sulcus occurs in the posterior part of the carapace. The left valve, larger than the right, overlaps the latter along almost the entire margin except for the posterior part of the dorsal margin and lower part of the anterior margin. Anterior margin more broadly and more obliquely rounded than the posterior one. Dorsal margin slightly arched, somewhat converging posteriorly, with an almost straight ventral margin. A well developed, flattened lip is present only in the right valve. In the left valve, in its anteroventral part, there is only a slightly incised outer margin. Valve surface covered with bowels-like ornamentation tending to be parallel to the valve margin at the borders.

Hinge adont. Muscle scars as in fig. 7F. Duplicature distinct, narrow, equally developed on both ends. Extension of selvage typical of the genus. Poorly visible marginal pore canals arranged as in the type species.

Variation. — Inconspicuous variation concerns the size and the length-height ratio. Some variability applies also to the valve ornamentation which may be more or less rough; some specimens are, moreover, weakly reticulated.

Remarks. — The collection described in the present paper makes possible to state that in SZCZECHURA and BŁASZYK (1970) the specimens belonging to two different species were described under the name *Cypridea* (*recte Nemegtia*) *biformata*. Only the holotype specimen, depicted by SZCZECHURA and BŁASZYK (1970) in pl. 25: 2 belongs to *Cypridea* (*recte Nemegtia*) *biformata*, whereas the specimen shown in pl. 26: 7 represent *Nemegtia obliquecostae* (SZCZE-

CHURA and BŁASZYK 1970). *N. biformata* is longer than *N. obliquecosta*, being at the same time less angulate near the dorsum and having more prominent ornamentation. The specimen figured by STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974) referred to *Cypridea* (*recte Nemegtia*) *biformata*, in reality represents *Cypridea* sp. 1 (SZCZECHURA and BŁASZYK 1970), emended herein as *N. reticulata* sp. n.; STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974) regarded *Cypridea* sp. 1 (*recte Nemegtia reticulata* sp. n.) and *Cypridea* (*recte Nemegtia*) *biformata* as conspecific.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Tsagan Khushu, and Altan Ula IV, Nemegt Basin, and beds of Bugeen Tsav, Gobi Desert.

Nemegtia obliquecostae (SZCZECHURA and BŁASZYK, 1970)

(pl. 27: 1-7; pl. 37: 5; figs. 7GH)

1970. *Cypridea obliquecostae* SZCZECHURA and BŁASZYK; J. SZCZECHURA and J. BŁASZYK: 111, pl. 29: 5.
partim 1970. *Cypridea biformata* SZCZECHURA and BŁASZYK; J. SZCZECHURA and J. BŁASZYK: 111, pl. 29: 7 (*non* pl. 28: 2)

Material. — Some dozens of specimens, including complete carapaces and detached valves, only adult ones (?), in most cases well preserved.

Dimensions (in mm):

	ZPAL MgO/286 aC	MgO/288 aRV	MgO/289 aLV
Length	0.71	0.83	0.73
Height	0.49	0.54	0.49
Width	0.34	—	—

Description. — Carapace rather middle sized, angularly-ovate in lateral outline, weakly elongated, flatly inflated, widest posteriorly, with distinct dorsal sulcus in the posterior part. Height nearly equal to 2/3 of the length is greatest frontally, while maximum width posteriorly. Ridge-like inflation, close to the contact border, occurs in the posterodorsal part of the valve; it is better developed in the left valve. The left valve larger than the right, overlaps the latter along almost the entire margin except for the posterior part of dorsal margin and lower part of anterior margin. Anterior margin much more rounded than the posterior. Dorsal margin almost straight; it is somewhat arched in the right valve while more straight in the left one. Well developed frontal lip occurs in right valve, left valve has only slightly incised margin in its anteroventral region. Valve surface irregularly nodose, elements of ornamentation being faintly distinguished.

Hinge adont. Muscle scars pattern characteristic of *Cypridea* (see fig. 7H). Duplicature narrow posteriorly, wider anteriorly, with inner margin nearly parallel to the contact margin. Marginal zone moderately wide, marginal pore canals fairly numerous, long, at the anterior border arranged fan-like (see fig. 7G). The course of selvage, which is somewhat lowered in the region of frontal lip, typical of the genus.

Variation. — It concerns the size and the general shape of the valves, mainly their length-height ratio and ornamentation, which is more or less distinct.

Remarks. — Morphological features of the inner side of the specimens studied make possible to exclude *N. obliquecostae* from *Cypridea;* typical representatives of the letter genus have differently shaped free margins and quite different patterns of marginal pore canals. See also remarks on p. 81 and p. 96 and in SZCZECHURA and BŁASZYK (1970: 112).

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

Subfamily **Cypridopsinae** BRONSTEIN, 1947
Genus *Cypridopsis* BRADY, 1868
?*Cypridopsis bugintsavicus* (STANKEVITCH, 1974)

(pl. 31: 2, 3)

1974. *Lycopterocypris*? *bugintsavicus* sp. nov. STANKEVITCH; E. S. STANKEVITCH and A. V. SOCHAVA: 281, pl. 2: 9.

Material. — Ten complete carapaces, probably only adult, some of them crushed. Dimensions (in mm):

	ZPAL MgO/293 aC	MgO/294 aC	MgO/295 aC
Length	0.88	1.03	1.27
Height	0.56	0.69	0.73
Width	0.59	0.69	0.83

Description. — Carapace of medium size, stout, triangularly-ovate in side view, markedly and rather uniformly tumid when seen dorsally, flattened ventrally. Distinct flattening occurs also posterodorsally, being especially well visible on somewhat oblique, lateral view. Greatest height in front of the middle part, markedly exceeding half of the length; greatest width posteromedially almost equalling the height. Dorsal margin angularly arched, more sloping posteriorly; ventral margin indistinctly sinuate medially. Both extremities narrowly rounded, the frontal one more gently so. Anterior margin of the left, larger valve is bordered by a thin, narrow hyaline extension. Valve surface smooth and faintly and rarely pitted.

Internal morphological structure unknown; specimens observed in transmitted light reveal wide duplicature frontally, narrower posteriorly.

Variation. — Distinct variation concerns mainly the size of specimens (see pl. 31: 2, 3), but taking under consideration their shell thickness, it is difficult to suggest their belonging to different moult stages.

Remarks. — The forms described differ from that described by STANKEVITCH (*in*: STANKEVITCH and SOCHAVA 1974, pl. 2: 9), as *Lycopterocypris bugintsavicus*. However, an examination of the original collection of STANKEVITCH, housed in the Institute of Limnology in Leningrad shows that the specimens studied are conspecific with those described by STANKEVITCH (*l. c.*). In their general shape, i. e. lateral and the dorsal outline, the species described reminds a Recent species *Cypridopsis* cf. *niagranensis* described by FURTOS 1936, from Mexico. The differences concern the details of outline and length-height ratio. The specimens identified as ?*Cypridopsis bugintsavicus* may be easily confused with those referred to ?*Cypridopsis* sp. (pl. 30: 1-3), from Altan Ula IV, from which they differ in size and shape; the representatives of ?*Cypridopsis bugintsavicus* are smaller and less pointed frontally when seen from above, having at the same time more flattened posterodorsal part of carapace.

The specimens tentatively referred herein to *Cypridopsis* have their external morphological features typical also of *Eucypris*, thus their taxonomic position on generic level is still open.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Tsagan Khushu and Altan Ula IV, Nemegt Basin, and beds of Bugeen Tsav, Gobi Desert.

?*Cypridopsis* sp.

(pl. 30: 1-3; figs. 7CD)

Material. — Thirty nine complete carapaces, most probably only adult ones, all badly damaged.

Dimensions (in mm):

	ZPAL MgO/296 aC	MgO/297 aC	MgO/298 aC
Length	0.93	1.18	1.13
Height	0.59	0.63	0.73
Width	0.54	0.59	0.63

Description. — Carapace of large size, somewhat kidney-shaped in lateral outline, widest posteriorly, compressed laterally especially in frontal part and on ventral side; it is highest in anterior half, close to the middle. Maximum width nearly equal to half of the length. Left, larger valve overlaps the right one along the entire free margin; along the anterior and posterior margins overlapping is less distinct. Dorsal margin angulately arched, more sloping posteriorly, ventral margin weakly sinuate. Anterior margin broadly and slightly angulately rounded, posterior margin more narrowly rounded, being most elongated in its lower half. Valve surface smooth; it seems to be densely and faintly pitted.

Internal morphology unknown, muscle scars, however, may be observed on outer side of the carapace; they consist of four irregularly arranged scars of the main group and at least one scar behind this group (see figs. 7CD).

Variation. — Distinct variation applies mainly to the general shape of the specimens regarded as that species. There are specimens different in their length-height ratios, probably resulting from sexual dimorphism.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Nemegt Basin, Gobi Desert. According to Dr. STANKEVITCH (personal communication) this species occurs also in the Bainshireinskaya Svita of Mongolia.

Family uncertain
Genus *Gobiella* nov.

Type species: *Gobiella prima* sp. n.
Derivation of the name: *Gobiella* — occurring in the Gobi Desert.

Diagnosis. — As for the type species.

Remarks. — The carapace of *Gobiella* reminds in its lateral and dorsal outlines of those of *Herpetocypris* and *Fabanella*; however, the shape of the duplicature as well as the frontal, marginal structures of the genera compared enable one to separate them easily. *Gobiella* differs from *Paracypridea* by presence of a guttur (see p. 77) which is characteristic of the former genus. Moreover in forms tentatively assigned herein to *Paracypridea*, i. e. *?P. mongolica* sp. n., the limen is present, being absent in *Gobiella*.

Gobiella is a monotypic genus, established to include *G. prima* sp. n.

Geographical and stratigraphical distribution: Upper Cretaceous (Nemegt Formation), Nemegt Basin, Gobi Desert.

Gobiella prima gen. et sp. n.

(pl. 25: 4-6; pl. 37: 1, 2; fig. 7R)

Holotype: ZPAL MgO/30; pl. 25: 6.
Type horizon: Nemegt Formation.
Type locality: Nemegt, Nemegt Basin.
Derivation of the name: *prima* — Lat. first; first described species of the genus.

Diagnosis. — Elongated carapace, more than twice as long as high, slim, angularly-ovate in side view. Left, larger valve overlaps the right one almost all around except the dorsal margin. Dorsal margin rather straight, ventral margin slightly concave, much more in the left valve;

both extremities almost to the same degree, broadly rounded. Valve surface smooth. Duplicature wide, with distinct vestibula at both ends of the valve. Hinge adont. Muscle scars typical of Cypridacea. Marginal pore canals straight, numerous, short. Very short lip-like anteroventral shell prolongation occurs in both valves. It is, however, better developed in the left valve. Beak-like valve prolongation forms a kind of gutter herein named guttur.

Material. — Five complete carapaces, six left and six right valves, all adult, well preserved. Dimensions (in mm):

	ZPAL MgO/304 aC	MgO/303 aC	MgO/302 aRV	MgO/301 aLV
Length	1.18	1.08	1.18	1.20
Height	0.86	0.54	0.54	0.64
Width	0.44	0.44	—	—

Description. — Carapace of large size, thick-shelled, angularly-ovate in lateral outline, slim, elongated; length more than twice the height. It is almost uniformly and moderately inflated laterally, being only slightly more pointed frontally. Left valve somewhat larger than the right one, overlapping the latter except for the dorsal margin. Dorsal margin straight or indistinctly concave with well marked cardinal angles; ventral margin gently sinuous, especially so in the left valve. Anterior and posterior margins broadly rounded, the frontal one more obliquely so. Valve surface smooth.

Duplicature wide in frontal part, much narrower posteriorly; inner margin almost follows the valve outline; vestibula distinct. Marginal pore canals short, straight, numerous. Hinge adont, with a furrow in the left valve, which is enlarged terminally. Muscle scars (see fig. $7R_3$) typical of Cypridacea, i. e. consisting of three irregularly arranged longitudinal scars of the main group, two smaller scars behind them and probably two scars above. Border of ventral margin of both valves slightly extends into the inner lamella forming there a small guttur (see p. 77) which is better developed in the left valve. Border of anterior margin does not join that of the ventral margin but extends some distance from it, on the ventral side. Thus, the anterior end is somewhat lengthened anteroventrally, making there a short beak, better seen inside (see pl. 25: 4b; pl. 37: 1, 2; fig. $7R_1$).

Remarks. — *Gobiella prima* reminds in the general appearance of the Recent, fresh-water species *Herpetocypris reptans* BAIRD 1850. Mongolian forms have, however, quite a different inner morphology. The gutter-like depression in anteroventral region of both valves of *Gobiella* does not occur in *Herpetocypris*.

Some external similarity exists also between *G. prima* and *Cyprideis* (*recte Fabanella*) *polita* MARTIN 1940, a species known from the Lower Cretaceous of Europe. Mongolian species differs from the latter in the degree of overlapping, in muscle scars pattern and in internal admarginal structures.

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

Genus *Khandia* nov.

Type species: *Khandia stankevitchae* sp. n.
Derivation of the name: *Khandia* — in honour of the Mongolian ostracodologist Mrs. E. KHAND.

Diagnosis. — As for the type species.

Remarks. — The new genus is monotypic, established so as to include *Khandia stankevitchae* sp. n. (formerly inaccurately referred to *Cypridea* cf. *punctilataeformis* or *C. punctilataeformis* LUBIMOVA 1956). *Khandia* is similar to *Nemegtia* gen. n. in the general shape of the valves and in presence of the lip-like prolongation of the anterior end of the right valve. In *Khandia*, however, lip-like prolongation is restricted to the middle part of the anterior margin while in *Nemegtia*

it occurs in the anteroventral part of the valve. Moreover, *Khandia* is larger than *Nemegtia*. *Khandia* is a monotypic genus to include *K. stankevitchae* sp. n.

Stratigraphical and geographical distribution: Upper Cretaceous (Nemegt Formation), Nemegt Basin, Gobi Desert.

Khandia stankevitchae gen. et sp. n.
(pl. 29: 1-5; pl. 37: 6; fig. 7E)

1970. *Cypridea* cf. *punctilataeformis* LUBIMOVA; J. SZCZECHURA and J. BŁASZYK: 110, pl. 29: 8.
1974. *Cypridea punctilataeformis* LUBIMOVA; E. S. STANKEVITCH and A. V. SOCHAVA: 277, pl. 1: 3.
Holotype: ZPAL MgO/309; pl. 29: 5.
Type horizon: Nemegt Formation.
Type locality: Nemegt, Nemegt Basin.
Derivation of the name: *stankevitchae* — in honour of the Soviet ostracodologist, Dr. E. S. STANKEVITCH.

Diagnosis. — Cypridacea representative large sized, i. e. longer than 0.9 mm, almost regularly ovate in side view, flattened laterally. Left valve slightly larger than the right, overlapping the latter almost all around except for the middle part of the anterior margin and posterodorsal region. Right valve bears small lip-like extension in the middle part of the anterior end. Valve surface pitted and spiny. Hinge adont, duplicature narrow; selvage in the right valve almost follows the normal course avoiding, however, lip-like extension.

Material. — Ten complete carapaces and twelve detached, left and right valves, all adult, in most cases well preserved.

Dimensions (in mm):

	ZPAL MgO/305 aC	MgO/306 aC	MgO/306 aRV	MgO/308 aLV
Length	0.93	1.08	1.08	1.03
Height	0.59	0.64	0.64	0.69
Width	0.44	0.54	—	—

Description. — The carapace large, solid, angularly-ovate in lateral outline, equally and moderately swollen when seen dorsally. The greatest height in the first third of the length being more than the half of the length. Left valve somewhat larger than the right, overlapping the latter along almost the entire margin except for the middle part of anterior margin and posterodorsal part. Extending posteriorly along the dorsal margin is a distinct dorsal sulcus. Dorsal margin weakly arcuate, somewhat concave medially in left valve, whereas distinctly arched in right valve; ventral margin weakly sinuate. Anterior and posterior margins rounded, the former more narrow. In the right valve, in the most distal part of the anterior margin, there appears a short but distinct lip (see pl. 29: 2b; pl. 37: 6). Almost all valve surface, excluding most admarginal regions at the posterior and anterior ends, coarsely pitted. Tubercle-like spines, differing in number, cover irregularly entire valve surface; they are more numerous near the margins.

Duplicature fairly narrow, broader frontally, with inner margin parallel to the outer outline. Selvage of the right valve follows the normal course avoiding, however, lip-like extension. Marginal pore canals unknown. Hinge adont; hinge groove in the left valve is enlarged terminally.

Variation. — It concerns the size, general shape and the number and arrangement of spines.

Remarks. — The specimens described herein are conspecific with that described by SZCZECHURA and BŁASZYK (1970) from the Upper Cretaceous of Mongolia, determined as *Cypridea* cf. *punctilataeformis* LUBIMOVA. They are also conspecific with the specimen referred to *C. punctilataeformis* by STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974). The specimen formerly collected from Mongolia was badly preserved and could be hardly compared with the holotype of *C. punctilataeformis*, described by LUBIMOVA (1956), from the Lower Cretaceous of Peri-Caspian Depression. Actually available detached valves, formerly referred to *C.* cf. *punctilataeformis*, reveal quite a different outline and different development of the anterior admargi-

nal, inner structure than those in the holotype of *C. punctilataeformis* mentioned and, therefore, are excluded from this species.

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

Genus *Lycopterocypris* MANDELSTAM, 1956
?*Lycopterocypris* cf. *profunda* LUBIMOVA, 1956
(pl. 32: 1, 2; pl. 36: 7)

Material. — Thirty eight complete carapaces and one left valve, probably adult and juvenile ones, well preserved.

Dimensions (in mm):

	ZPAL MgO/311 aC	MgO/312 aC
Length	0.75	0.76
Height	0.39	0.44
Width	0.34	0.34

Description. — Carapace of middle size, slim, almost equally inflated laterally nearly lens-like in dorsal view, triangularly-ovate in lateral outline. Length less than twice the height which is greatest in front of the middle part. Left valve slightly larger than the right, overlapping the latter almost along the entire free margin; less distinct overlapping is in the anteroventral region. Dorsal margin angularly arched, more sloping frontally; ventral margin weakly concave. Anterior margin obliquely truncated, fairly narrowly rounded; posterior margin gently rounded, elongated posteroventrally. Valve surface smooth, normal pore canals moderately numerous, extremely small, simple (see pl. 36: 7).

Internal morphological features of poor visibility. Hinge of the left valve adont, simple. Duplicature relatively narrow, slightly wider frontally than posteriorly (as seen in transmitted light). Other taxonomic features unknown.

Variation. — Conspicuous variation applies to size and shape of the carapaces. This size variation may result from the presence of different molt stages within the population studied; it cannot be, however, excluded that we are dealing here with representatives of two species. The other differences concern the different length-height ratios and different shape of the dorsal angulation.

Remarks. — The species described reminds in its side view of the representatives of *L. profunda* described by LUBIMOVA 1956, from the Upper Cretaceous of Mongolia (Gobi Desert). In comparison with the latter it is, however, much smaller and less inflated laterally. Some similarity may be found also between the specimens described here and those referred by SZCZECHURA 1971 to ?*Eucypris* sp., from the Paleocene beds of Mongolia; the taxons compared differ in the details of dorsal and side views.

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

Genus *Mongolianella* MANDELSTAM, 1955
Mongolianella ?*palmosa* MANDELSTAM, 1955
(pl. 32: 3, 4; fig. 8F)

1955. *Mongolianella palmosa* MANDELSTAM; L. I. GALEEVA: 46, pl. 11: 2.
1956. *Mongolianella palmosa* MANDELSTAM; P. S. LUBIMOVA: 86, pl. 18: 2, 3.

Material. — Twenty eight complete carapaces, only adult ones and only a few well preserved.

Dimensions (in mm):

	ZPAL MgO/313 aC	MgO/314 aC	MgO/315 aC
Length	0.98	1.08	1.08
Height	0.44	0.59	0.56
Width	0.39	0.44	0.49

Description. — The carapace of large size, elongated; length being twice the height, triangularly-ovate in lateral outline; it is moderately and equally inflated, widest centrally; pointed at both ends when seen dorsally. Left valve somewhat larger than the right one, overlapping the latter almost along the entire margin, except the posterodorsal part. Anterior margin slightly obliquely rounded, posterior margin pointed near the centre, truncated. Dorsal margin weakly arched, with indistinct angulation in front of the middle part; small angulation occurs also posterodorsally. Ventral margin concave close to the middle part. Valve surface smooth.

Inner side of specimen referred by STANKEVITCH (personal communication) to *M. palmosa* (from the Nemegt Formation of Nogon Tsav), and kindly lent to the present author for an investigation (see fig. 8F), reveals distinct duplicature along anterior and posterior margins, with inner margin almost parallel to the valve outline; vestibula well pronounced. Hinge adont, consisting of simple furrow and distinct ridge above, in the right valve. Normal pore canals numerous, moderately long, rather straight. Muscle scars badly recognizable of the pattern typical of Cypridacea.

Variation. — Variation concerns mostly the size of the carapaces (see pl. 32: 3, 4).

Remarks. — The specimens described are very similar to *M. palmosa* type species of the genus described by MANDELSTAM (*in:* GALEEVA 1955) from the Lower Cretaceous of Mongolia. The form described here is, however, smaller. Observations made by the present author on the original ostracode collections of GALEEVA 1955, and LUBIMOVA 1956, show that within specimens assigned to *M. palmosa* there is a variation concerning the size and general appearance. In all cases, however, they are markedly larger than the specimens described by the present author and that is why the latter are tentatively assigned to *M. palmosa.* It may be interesting to note that in the Purbeck Beds of the Weald (England) ANDERSON (*in:* ANDERSON and BAZLEY 1971), found specimens belonging to *Cypridea granulosa* and *C. altissima;* the population of both species from different localities markedly differ in size. It is not excluded that the same phenomenon concerns *M. palmosa* from the Cretaceous of Mongolia.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt and Altan Ula IV, Nemegt Basin, Gobi Desert. *M. palmosa* is known from the Lower Cretaceous rocks of Peri-Baikal region and SE Gobi; *M.* ex gr. *palmosa* is recorded also by STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974) from the Upper Cretaceous (Nemegt Formation), Nemegt and Altan Ula localities, and beds of Bugeen Tsav.

Genus *Scabriculocypris* ANDERSON, 1940
?*Scabriculocypris ingenicus* (STANKEVITCH, 1974)
(pl. 33: 1-3)

1974. *Rhinocypris ingenicus* sp. nov. STANKEVITCH; E. S. STANKEVITCH and A. V. SOCHAVA: 279, pl. 2: 11.

Material. — Some dozens of specimens, including detached valves and complete carapaces, only adult ones, in most cases well preserved.

Dimensions (in mm):

	ZPAL MgO/317 aC	MgO/318 aRV	MgO/320 aLV
Length	0.61	0.54	0.59
Height	0.39	0.34	0.39
Width	0.29	—	—

Description. — Carapace of middle size, triangularly-ovate in lateral outline, moderately and almost uniformly inflated. Greatest height of the carapace close to the anterior margin, slightly more than one half of the length. Both valves of the carapace nearly of the same size and shape; the left one, indistinctly larger, overlapping the right except for the dorsal margin. Dorsal margin almost straight, gently sloping toward the posterior extremity and slightly angulate frontally; ventral margin distinctly curved medially. Anterior margin abruptly rounded, posterior more narrowly rounded. Valve surface finely reticulate, bearing irregularly arranged tubercles. Median sulcus-like depression weakly pronounced.

Duplicature narrow, with inner margin parallel to the outer margin and extremely shallow vestibula at both ends. Hinge adont. Muscle scars and marginal pore canals unknown.

Variation. — It is considerable and concerns the general shape as well as the ornamentation of the carapaces; there is a different number and arrangement of tubercles covering the lateral valve surface.

Remarks. — The specimens described are conspecific with those referred by STANKEVITCH (*in:* STANKEVITCH and SOCHAVA 1974) to *Rhinocypris ingenicus*, from the Mongolian Upper Cretaceous deposits. Their general shape, however, appears to be more close to some forms attributed by ANDERSON (1940) to *Scabriculocypris; Rhinocypris* is more elongated and more distinctly spiny. KHAND (1976) on the list of species, assigned the discussed form to *Limnocythere*, although its external as well as its internal taxonomic features have no resemblance to typical *Limnocythere*. ?*S. ingenicus* differs from ?*Scabriculocypris rasilis* sp. n. in being more inflated, reticulate and tuberculate. Typical representatives of ?*S. rasilis* are only pitted.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Altan Ula IV, Naran Bulak and Tsagan Khushu, in the Nemegt Basin and beds of Bugeen Tsav, Gobi Desert.

?*Scabriculocypris rasilis* sp. n.
(pl. 33: 4-8, ?9)

Holotype: ZPAL MgO/323; pl. 33: 6.
Type horizon: Upper Cretaceous, Nemegt Formation.
Type locality: Nemegt, Nemegt Basin.
Derivation of the name: Lat. *rasilis* = smooth, smooth-shelled.

Diagnosis. — Carapace of medium size, i. e. longer than 0·5 mm, triangularly-ovate in lateral view, laterally distinctly flattened, near the posterior end forming ridge-like inflation, parallel to the margin. Valve surface pitted, weakly reticulated near the margins. Hinge adont. Duplicature narrow, inner margin being nearly parallel to the valve outline.

Material. — Some dozens of specimens, mostly detached valves, probably only adult ones, in most cases well preserved.

Dimensions (in mm):

	ZPAL MgO/327 aC	MgO/321 aLV	MgO/324 aRV
Length	0.59	0.64	0.61
Height	0.37	0 39	0.34
Width	0.24	—	—

Description. — Carapace of middle size, thin-shelled, triangularly-ovate in side view, distinctly flattened laterally. Ridge-like inflation near the posterior end tends to be parallel to the margin. Greatest height is near the front and equals to more than a half of the length. Both valves are of similar size and shape, although the left valve is imperceptibly larger than the right and overlaps it all around, except for the dorsal margin. Dorsal margin nearly straight, gently sloping towards the posterior end, with well pronounced angulation frontally. Ventral margin sinuate in middle part, more so in the right valve. Both extremities with rounded margin, the anterior one being broader. Valve surface densely and coarsely pitted, sometimes weakly reticulate admarginally.

Duplicature narrow, with inner margin parallel to the outer margin. Very shallow vestibula occur at both ends of the valve. Muscle scars and marginal pore canals unknown.

Variation. — It concerns mostly the shape, varying length-height ratio and ornamentation. Close, but roughly reticulate specimens (see pl. 33: 1-3) are referred to ?*Scabriculocypris ingenicus* STANKEVITCH.

Remarks. — See p. 105

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

Superfamily uncertain

Genus *Ziziphocypris* CHEN, 1965

Ziziphocypris costata (GALEEVA, 1955)

(pl. 34: 5-7)

1955. *Timiriasevia costata* sp. nov.; L. I. GALEEVA: 62, p. 15: 9.
1956. *Timiriasevia costata* GALEEVA; P. S. LUBIMOVA: 130, pl. 24: 4.
?1965. *Ziziphocypris costata* GALEEVA; CHEN TE-CHIUNG: 23, fig. 2: 1-5
1974. *Timiriasevia* aff. *costata* GALEEVA; E. S. STANKEVITCH and A. V. SOCHAVA: 284, pl. 2: 8.

Material. — Fourteen complete carapaces, most probably all adult, poorly preserved. Dimensions (in mm):

	ZPAL MgO/328 aC	MgO/329 aC	MgO/330 aC
Length	0.59	0.54	0.56
Height	0.34	0.31	0.34
Width	0.24	0.24	0.24

Description. — Carapace of medium size, laterally much compressed, almost regularly ovate in outline, length being less than twice the height. Left valve only slightly larger than the right, overlapping the latter along almost the entire periphery, however, to a lesser degree along the dorsal margin. Dorsal margin gently arched, ventral margin nearly straight. Both extremities broadly and evenly rounded. Valve surface covered with numerous, longitudinal, faint ribs, some of which (about four in number) are generally enlarged in some distance and bear tubercle-like thickenings in addition; a few faint ribs appear at the anterior and posterior ends, being parallel to the margin. Along the dorsal margin, on each valve, there is a singular crest-like list. A narrower list extends along almost all valve outline. Internal structures unknown.

Variation. Insignificant variation concerns the arrangement and number of lateral ribs; the main ribs are thickened and tuberculated at a various degree.

Remarks. — Specimens from the Nemegt Formation referred to that species fairly fall within the range of variation of *Timiriasevia* (*recte Ziziphocypris*) *costata* (GALEEVA 1955). In comparison with *Z. costata* from the Jurassic of China, described by CHEN (1965), Mongolian forms are much more flattened laterally. That is why the Chinese forms are only tentatively included into the synonymy of the species discussed.

Occurrence. — Upper Cretaceous (Nemegt Formation), Nemegt, Altan Ula IV, Nemegt Basin; beds of Bugeen Tsav, and Sainshandinskaya Svita, Gobi Desert; ?Jurassic of China.

Gen. et sp. indet.

(pl. 31: 4)

Material. — A few remnants of detached, adult valves.

Description and remarks. — Collected fragments, mostly of marginal regions of the valves belong to extremely large, solid-shelled specimens. There are fragments probably of anteroventral

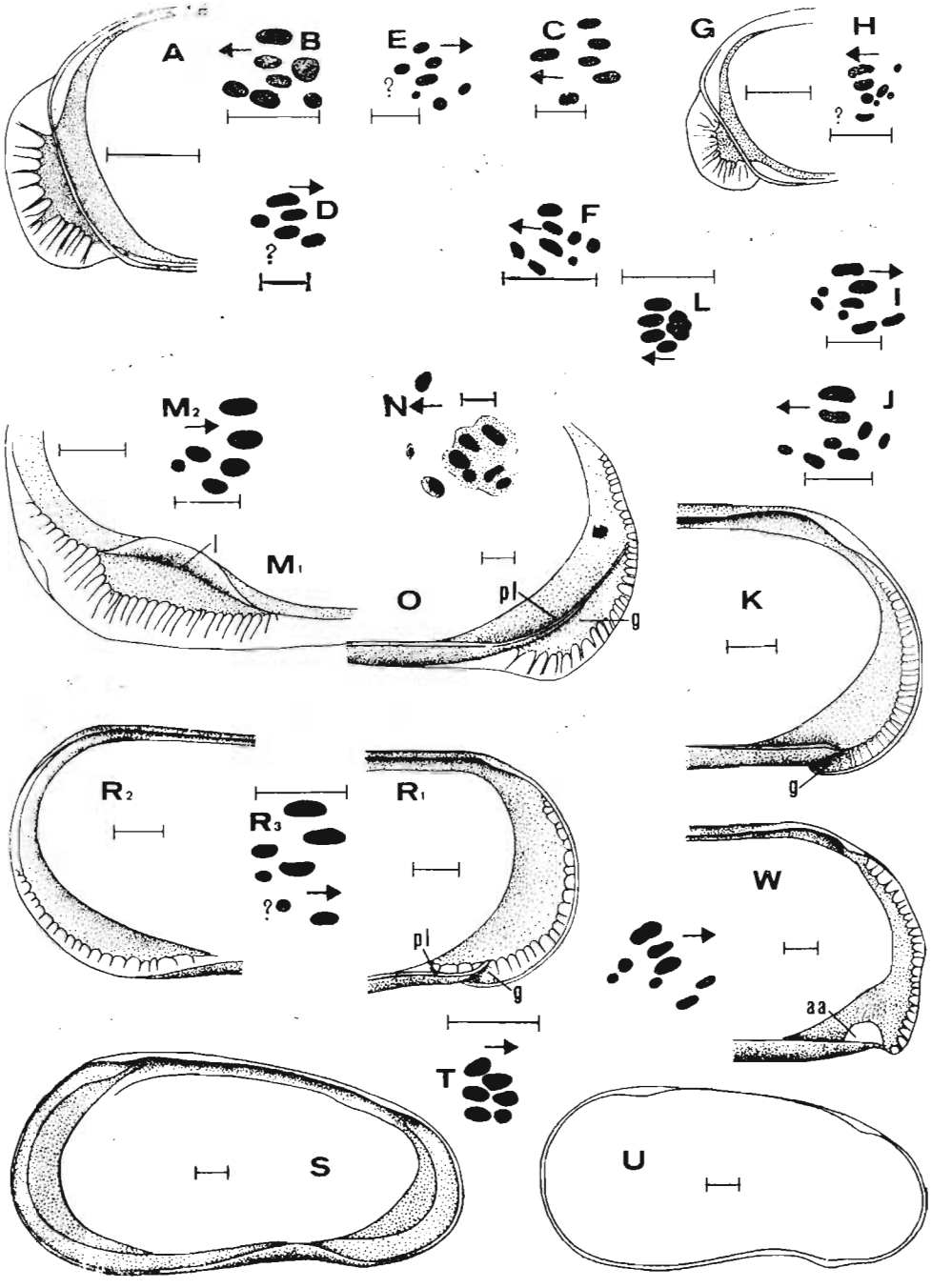

Fig. 7.

A, *B* — *Nemegtia reticulata*; *A* — frontal part of right valve (ZPAL MgO/273), seen from inside, *B* — muscle scars (ZPAL MgO/274); *C*, *D* — ?*Cypridopsis* sp.; *C* — muscle scars (ZPAL MgO/299), *D* — muscle scars (ZPAL MgO/300); *E* — *Khandia stankevitchae*; muscle scars (ZPAL MgO/310); *F* — *Nemegtia biformata*; muscle scars (ZPAL MgO/283); *G*, *H* — *Nemegtia obliquecostae*; *G* — frontal part of right valve (ZPAL MgO/284), seen from inside; *H* — muscle scars (ZPAL MgO/285); *I*, *J*, *K* — ?*Paracypridea mongolica*; *I* — muscle scars (ZPAL MgO/141); *J* — muscle scars (ZPAL MgO/142); *K* — frontal part of left valve (ZPAL MgO/143), seen from inside; *g* — guttur; *L* — *Candona altanulaensis*; muscle scars (ZPAL MgO/150); *M*, *N*, *O* — *Mongolocypris distributa*; M_1 — posteroventral part of left valve (ZPAL MgO/263), seen from inside, showing marginal pore canals and *l* — limen; M_2 — muscle scars of the same specimen; *N* — muscle scars (ZPAL MgO/264); *O* — anteroventral part of left valve (ZPAL MgO/265), seen from inside, showing *p. l.* — peculiar list, *g* — guttur and marginal pore canals; *R* — *Gobiella prima*; R_1 — frontal part of left valve (ZPAL MgO/301), seen from inside, showing marginal pore canals, *p. l.* — peculiar list and *g* — guttur; R_2 — posterior part of the same specimen; R_3 — muscle scars of the same specimen; *S*, *T*, *U* — *Candona* cf. *fabaeformis*; *S* — left valve (ZPAL MgO/155), seen from inside; *T* — muscle scars (ZPAL MgO/156); *U* — carapace (ZPAL MgO/157), seen from right valve; *W*, *Z* — *Cypridea cavernosa*; *W* — frontal part of left valve (ZPAL MgO/133), seen from inside, showing marginal pore canals and *a. a* — attached area; *Z* — muscle scars (ZPAL MgO/134).

All scales correspond to 0.1 mm

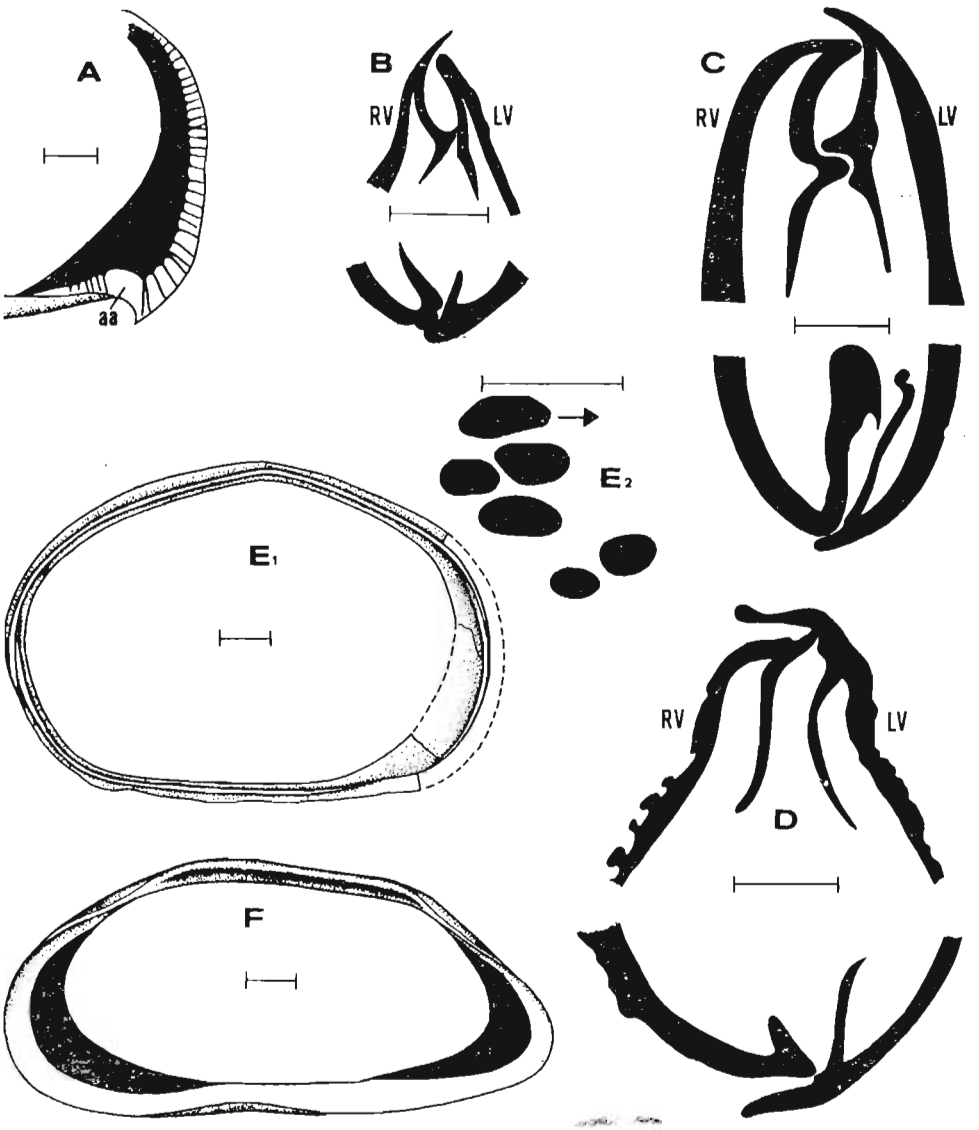

Fig. 8.
A — *Cypridea cavernosa*; frontal part of left valve (ZPAL MgO/131), seen from inside, showing marginal pore canals and *a. a* — attached area; *B* — *Nemegtia reticulata*; longitudinal section (ZPAL MgO/275); *C* — *Mongolocypris distributa*; longitudinal section (ZPAL MgO/262); *Cypridea cavernosa*; longitudinal section (ZPAL MgO/132); *E* — *Cypria elata*; E_1 — left valve (ZPAL MgO/178), seen from inside; E_2 — muscle scars in the same specimen; *F* — *Mongolianella palmosa*; right valve (ZPAL MgO/316), seen from inside.
All scales correspond to 0.1 mm.

region, with wide duplicature; the proximal part of the latter bears a distinct list, while its distal part forms a crest-like valve extension. Marginal pore canals relatively long, numerous, almost straight and generally bifurcating. Valve surface smooth. Because of the incompleteness of the material the generic and specific assignments are impossible.

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

ADDENDUM

When the present paper was submitted to publication the papers by KHAND (1977) and SHUVALOV and STANKEVITCH (1977) on the fresh-water ostracodes from the Upper Cretaceous and Paleocene rocks of Mongolia have been published. In the latter paper the ostracodes have been described by STANKEVITCH, and therefore it is further referred to as: STANKEVITCH (*in*: SHUVALOV and STANKEVITCH 1977).

KHAND (1977) described the new genus *Talicypridea*, with *Cypridea biformata* SZCZECHURA and BŁASZYK, 1977 as type species. She included into *Talicypridea* among others *Cypridea obliquecostae* SZCZECHURA and BŁASZYK, 1970 and *C. szczechurae* STANKEVITCH (*in*: STANKEVITCH and SOCHAVA, 1974). The present author assigned the three above mentioned species to two genera: *C. biformata* and *C. obliquecostae* are referred to *Nemegtia* gen. n., and *C. szczechurae* to *Altanicypris* gen. n. It has been demonstrated in the present paper that the genera *Nemegtia* and *Altanicypris* differ from *Cypridea* BOSQUET in having different general appearance and different inner morphology of valves (see pp. 77, 90, 91, 96.).

As *Nemegtia* gen. n. has been erected herein for species assigned by KHAND (1977) to *Talicypridea*, *Nemegtia* SZCZECHURA, 1978 is a junior synonym of *Talicypridea* KHAND, 1977, whereas *Altanicypris* SZCZECHURA, 1978 remains a valid genus.

The genus *Nemegtia* (*recte Talicypridea*) has been erected for forms characterized among others by special inner morphology of both ends of the valves, type of marginal pore canals and muscle scars. It is not known whether these features occur in *T. khosbajari* KHAND, 1977 and *T. tsomtsosensis* KHAND, 1977, and therefore it is impossible to state with any certainty whether these two species belong in fact to *Talicypridea*.

STANKEVITCH (*in*: SHUVALOV and STANKEVITCH 1977) described Upper Cretaceous ostracodes from the Bainshireinskaya, Barungoyotskaya and Nemegetinskaya svitas of Bajnshintsav region of SE Mongolia. In connection with this description the following emendations should be made:

The specimens assigned by Stankevitch (*l.c.*: 119) to *Talicypridea biformata* SZCZECHURA and BŁASZYK, 1970, belong in the opinion of the present author to *T. reticulata* (SZCZECHURA, 1978).

?Eucypris sp., described in the present paper probably belongs to *E. bajnshintsavica* KHAND and STANKEVITCH, 1975; see STANKEVITCH (1977: 122).

Candona cf. *fabaeformis* (FISCHER, 1851) described in the present paper should be assigned to *C. bagmodica* STANKEVITCH, 1977.

Timiriasevia aff. *costata* GALEEVA, 1955, listed by STANKEVITCH (1977: 115) belongs to *Ziziphocypris costata* (GALEEVA) described in the present paper.

Cypridea distributa STANKEVITCH 1974 is now assigned to *Mongolocypris* gen. n. and should be referred to as *Mongolocypris distributa* (STANKEVITCH, 1974).

The specimens assigned by STANKEVITCH (1977: 123) to *Lycopterocypris ?bugintsavica* seem to be conspecific with those described in the present paper as *?Cypridopsis bugintsavicus* STANKEVITCH, 1974; their proper generic assignement cannot be unequivocally demonstrated.

In addition the following species, described in the present paper have been reported by STANKEVITCH (1977) from Bajnshintsav region of SE Mongolia and their geographical and stratigraphical distribution should be emended: *Cypridea cavernosa* GALEEVA, 1955, *C. barsboldi* STANKEVITCH, 1974, *Cyclocypris transitoria* STANKEVITCH, 1974, and *Cypria elata* STANKEVITCH and KHAND, 1976.

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EXPLANATIONS OF THE PLATES

The illustrations in the plates 16-37 are light micrographs unless stated otherwise
All figured specimens are from the Upper Cretaceous, Nemegt Formation; Nemegt Basin, Gobi Desert

PLATE 16

Page

Cypridea barsboldi STANKEVITCH, 1974 82

Nemegt locality

1. Adult right valve (ZPAL MgO/106), ×40; lateral view.
2. Adult carapace (ZPAL MgO/107), ×40; right lateral view.
3. Adult left valve (ZPAL MgO/108), × 41; a — lateral view, b — inner view.
4. Adult carapace (ZPAL MgO/109), × 40; a — left lateral view, b — right lateral view, c — dorsal view, d — ventral view.
5. Adult carapace (ZPAL MgO/110), × 40; a — left lateral view, b — right lateral view.
6. Adult carapace (ZPAL MgO/111), ×40; a — left lateral view, b — right lateral view, c — dorsal view, d — ventral view.

1, 2 — scanning electron microgaphs

PLATE 17

Page

Cypridea barsboldi STANKEVITCH, 1974 82

Nemegt locality

1. Adult carapace (ZPAL MgO/112), ×40; a — dorsal view b — ventral view, c — left lateral view, d — right lateral view.
2. Adult carapace (ZPAL MgO/113), ×42; a — dorsal view b — ventral view, c — left lateral view, d — right lateral view.
3. Adult carapace (ZPAL MgO/114); × 40; a — left lateral view, b — right lateral view.
4. Adult carapace (ZPAL MgO/115), × 42; left lateral view.
5. Adult left valve (ZPAL MgO/116), × 39; lateral view.
6. Adult left valve (ZPAL MgO/117), × 34; a — lateral view, b — inner view.
7. Adult carapace (ZPAL MgO/118), × 35; left lateral view.
8. Adult carapace (ZPAL MgO/119), × 46; left lateral view.

PLATE 18

Page

Cypridea cavernosa GALEEVA, 1955 83

Nemegt locality

1. Adult carapace (ZPAL MgO/123), ×40; a — dorsal view, b — right lateral view, c — left lateral view, d — ventral view.
2. Adult right valve (ZPAL MgO/124), × 39; lateral view.
3. Adult left valve (ZPAL MgO/125), × 40; lateral view.
4. Adult carapace (ZPAL MgO/126), ×41; a — ventral view, b — dorsal view, c — right lateral view, d — left lateral view.
5. Adult left valve (ZPAL MgO/127), × 44; lateral view.
6. Adult carapace (ZPAL MgO/128), ×40; a — dorsal view, b — ventral view, c — left lateral view, d — right lateral view

2, 3, 5 — scanning electron micrographs.

PLATE 19

Page

Candona altanulaensis SZCZECHURA and BŁASZYK, 1970 85

Altan Ula IV locality

1. Adult carapace (ZPAL MgO/144), ×47; a — right lateral view, b — left lateral view, c — dorsal view, d — ventral view.

2. Adult left valve (ZPAL MgO/145), × 55; a — inner view, b — lateral view.
3. Adult right valve (ZPAL MgO/146), × 54; a — lateral view, b — inner view.
4. Adult left valve (ZPAL MgO/147), × 52; a — lateral view, b — inner view.
5. Adult left valve (ZPAL MgO/148), × 50; lateral view.
6. Adult carapace (ZPAL MgO/149), × 50; right lateral view.

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Candona cf. *fabaeformis* (FISCHER, 1851) 86

Nemegt locality

7. Adult right valve (ZPAL MgO/151), × 48; a — lateral view, b — inner view.
8. Adult left valve (ZPAL MgO/152), × 46; a — lateral view, b — inner view.
9. Adult carapace (ZPAL MgO/153), × 51; a — right lateral view, b — left lateral view, c — dorsal view, d — ventral view.
10. Adult carapace (ZPAL MgO/154), × 62; right lateral view.

6, 10 — scanning electron micrographs

PLATE 20

Page

?Cypris ectypa (STANKEVITCH, 1974) 90

Nemegt locality

1. Adult right valve (ZPAL MgO/182), × 53; a — lateral view, b — inner view.
2. Adult right valve (ZPAL MgO/183), × 53; a — lateral view, b — inner view.
3. Adult carapace (ZPAL MgO/184), × 56; a — dorsal view, b — ventral view, c — left lateral view, d — right lateral view, e — frontal view.
4. Adult carapace (ZPAL MgO/185), × 53; a — dorsal view, b — ventral view, c — left lateral view, d — right lateral view.
5. Fragment of valve surface of adult carapace (ZPAL MgO/332), × 400, showing details of ornamentation.

5 — scanning electron micrograph

PLATE 21

Page

Altanicypris multispina gen. et sp. n. 92

Altan Ula IV locality

1. Adult carapace, holotype (ZPAL MgO/192), × 48; a — dorsal view, b — right lateral view, c — left lateral view, d — ventral view.

Altanicypris szczechurae (STANKEVITCH, 1974) 91

Nemegt locality

2. Adult right valve (ZPAL MgO/186), × 45; a — inner view, b — lateral view.
3. Adult carapace (ZPAL MgO/187), × 47; a — right lateral view, b — left lateral view, c — ventral view, d — dorsal view.

4. Adult carapace (ZPAL MgO/188), ×46; a — ventral view, b — dorsal view, c — right lateral view, d — left lateral view.
5. Adult left valve (ZPAL MgO/189), × 52; a — inner view, b — lateral view.

PLATE 22

Page

Altanicypris bispinifera gen. et sp. n. 92

Altan Ula IV locality

1. Adult carapace, holotype (ZPAL MgO/190), ×64; a — left lateral view, b — dorsal view, c — right lateral view, d — ventral view.

Cypria elata (STANKEVITCH and KHAND, 1976) 88

Nemegt locality

2. Adult carapace (ZPAL MgO/175), ×42; a — dorsal view, b — ventral view, c — left lateral view, d — right lateral view.
3. Adult carapace (ZPAL MgO/176), ×42; a — right lateral view, b — left lateral view, c — dorsal view, d — ventral view.

PLATE 23

Page

Mongolocypris distributa (STANKEVITCH, 1974) 94

Nemegt locality

1. Adult male left valve (ZPAL MgO/195), × 41; a — lateral view, b — inner view.
2. Adult male left valve (ZPAL MgO/196), × 40; a — lateral view, b — inner view.
3. Adult male carapace (ZPAL MgO/197), × 40; a — left lateral view, b — right lateral view, c — dorsal view.
4. Adult male right valve (ZPAL MgO/198), × 39; a — lateral view, b — inner view.

PLATE 24

Page

Mongolocypris distributa (STANKEVITCH, 1974) 94

Nemegt locality

1. Adult female right valve (ZPAL MgO/199), × 40; a — inner view, b — lateral view.
2. Adult female left valve (ZPAL MgO/200), × 38; a — inner view, b — lateral view.
3. Adult female carapace (ZPAL MgO/201), ×40; a — dorsal view, b — ventral view, c — left lateral view, d — right latera view.

PLATE 25

Page

?Paracypridea mongolica sp. n.. 84

Nemegt locality

1. Adult complete carapace, holotype (ZPAL MgO/137), × 39; a — right lateral view, b — left lateral view, c — ventral view, d — dorsal view.
2. Adult left valve (ZPAL MgO/139), × 37; a — lateral view, b — inner view.
3. Adult right valve (ZPAL MgO/140), × 35; a — lateral view, b — inner view.

Page

Gobiella prima gen. et sp. n. 100

Nemegt locality

4. Adult left valve (ZPAL MgO/301), × 41; a — lateral view, b — inner view.
5. Adult right valve (ZPAL MgO/302), × 41; a — lateral view, b — inner view.
6. Adult carapace, holotype (ZPAL MgO/303), × 56; a — lateral left view, b — lateral right view, c — dorsal view d — ventral view.

PLATE 26

Page

Nemegtia reticulata gen. et sp. n. 96

Nemegt locality

1. Adult carapace, holotype (ZPAL MgO/266), × 55; a — left lateral view, b — dorsal view, c — ventral view, d — right lateral view.
2. Adult complete carapace (ZPAL MgO/267), × 52; a — left lateral view, b — ventral view, c — dorsal view, d — right lateral view.
3. Adult right valve (ZPAL MgO/268), × 56; a — lateral view, b — inner view.
4. Adult left valve (ZPAL MgO/269), × 65; inner view.
5. Adult complete carapace (ZPAL MgO/270), × 57; a — left lateral view, b — right lateral view.
6. Adult complete carapace (ZPAL MgO/271); a — right lateral view, × 90; b — fragment of valve surface showing ornamentation, × 200.
7. Adult complete carapace (ZPAL MgO/272), × 60; dorsal view.

6, 7 — scanning electron micrographs

PLATE 27

Page

Nemegtia obliquecostae (Szczechura and Błaszyk, 1970) 98

Nemegt locality

1. Adult carapace (ZPAL MgO/286), × 54; a — left lateral view, b — right lateral view, c — dorsal view, d — ventral view.

2. Adult carapace (ZPAL MgO/287), × 50; a — left lateral view, b — right lateral view, c — dorsal view, d — ventral view.
3. Adult right valve (ZPAL MgO/288), × 50; a — inner view, b — lateral view.
4. Adult left valve (ZPAL MgO/289), × 54; a — inner view, b — lateral view.
5. Adult carapace (ZPAL MgO/290), × 60; dorsal view.
6. Adult right valve (ZPAL MgO/291), × 100; lateral view.
7. Anterior part of the adult right valve (ZPAL MgO/292), × 200, to show the lip-like extension.

5-7 — scanning electron micrographs

PLATE 28

Page

Nemegtia biformata (SZCZECHURA and BŁASZYK, 1970) 97

Nemegt locality

1. Adult left valve (ZPAL MgO/276), × 54; inner view.
2. Adult right valve (ZPAL MgO/277), × 45; a — lateral view, b — inner view.
3. Adult carapace (ZPAL MgO/278), × 53; a — left lateral view, b — right lateral view, c — dorsal view, d — ventral view.
4. Adult carapace (ZPAL MgO/279), × 54; a — left lateral view, b — right lateral view, c — ventral view, d — dorsal view
5. Adult carapace (ZPAL MgO/280), × 72; right lateral view.
6. Adult right valve (ZPAL MgO/281), × 70; lateral view.
7. Adult carapace (ZPAL MgO/282), × 70; dorsal view.

5-7 — scanning electron micrographs

PLATE 29

Page

Khandia stankevitchae gen. et sp. n. 102

Nemegt locality

1. Adult carapace (ZPAL MgO/305), × 53; a — right lateral view, b — left lateral view, c — ventral view, d — dorsal view.
2. Adult right valve (ZPAL MgO/306), × 44; a — lateral view, b — inner view.
3. Fragment of valve surface of adult, complete carapace (ZPAL MgO/307), showing the details of ornamentation; a — near the ventral margin, × 130; b — near the anterior margin, × 300.
4. Adult left valve (ZPAL MgO/308), × 53; a — lateral view, b — inner view.
5. Adult carapace, holotype, (ZPAL MgO/309), × 52; a — lateral left view, b — lateral right view, c — dorsal view, d — ventral view.

3 — scanning electron micrograph

PLATE 30

Page

?Cypridopsis sp. 99

Altan Ula IV locality

1. Adult carapace (ZPAL MgO/296), × 47; a — left lateral view, b — right lateral view, c — dorsal view, d — ventral view.

2. Adult carapace (ZPAL MgO/297), × 41; a — left lateral view, b — right lateral view, c — posterior view, d — ventral view, e — dorsal view.
3. Adult carapace (ZPAL MgO/298), × 46; a — right lateral view, b — left lateral view, c — dorsal view, d — ventral view.

PLATE 31

Page

Cyclocypris transitoria (STANKEVITCH, 1974) 87

Nemegt locality

1. Adult carapace (ZPAL MgO/173), × 81; a — dorsal view, b — left lateral view, c — right lateral view, d — ventral view.

?*Cypridopsis bugintsavicus* (STANKEVITCH, 1974) 99

2. Adult carapace (ZPAL MgO/293), × 39; a — dorsal view, b — left lateral view, c — right lateral view, d — ventral view.
3. Adult carapace (ZPAL MgO/294), × 48; a — right lateral view, b — left lateral view, c — dorsal view, d — ventral view, e — posterior view.

Gen. et sp. indet.

Nemegt locality

4. Fragment of the anteroventral part of the adult left valve (ZPAL MgO/331), × 37; a — lateral view, b — inner view.

PLATE 32

Page

?*Lycopterocypris* cf. *profunda* LUBIMOVA, 1956 103

Nemegt locality

1. Adult carapace (ZPAL MgO/311), × 50; a — right lateral view, b — left lateral view, c — ventral view, d — dorsal view.
2. Adult carapace (ZPAL MgO/312), × 52; a — right lateral view, b — left lateral view, c — ventral view, d — dorsal view.

Mongolianella ?*palmosa* MANDELSTAM, 1955 103

Nemegt locality

3. Adult carapace (ZPAL MgO/313), × 62; a — ventral view, b — dorsal view, c — right lateral view, d — left lateral view.
4. Adult carapace (ZPAL MgO/314), × 49; a — right lateral view, b — left lateral view, c — ventral view, d — dorsal view.

PLATE 33

Page

?*Scabriculocypris ingenicus* (STANKEVITCH, 1974) 104
Nemegt locality

1. Adult carapace (ZPAL MgO/317), × 52; a — dorsal view, b — ventral view, c — left lateral view, d — right lateral view.
2. Adult right valve (ZPAL MgO/318), × 55; a — lateral view, b — inner view.
3. Adult right valve (ZPAL MgO/319), × 100; lateral view.

?*Scabriculocypris rasilis* sp. n. 105
Nemegt locality

4. Adult left valve (ZPAL MgO/321), × 53; a — inner view, b — lateral view.
5. Adult left valve (ZPAL MgO/322), × 50; lateral view.
6. Adult left valve, holotype (ZPAL MgO/323), × 100; lateral view.
7. Adult right valve (ZPAL MgO/324), × 90; lateral view.
8. Adult left valve (ZPAL MgO/325), × 70; lateral view.
9. Adult carapace (ZPAL MgO/326), × 110; left lateral view (tentatively assigned to ?*S. rasilis* sp. n.)

Rhinocypris sp. 81
Nemegt locality

10. Adult carapace (ZPAL MgO/59), × 13; left lateral view.
11. Adult carapace (ZPAL MgO/60), × 76; right lateral view.

3, 6 — scanning electron micrographs

PLATE 34

Page

?*Cypridea* sp. 84
Nemegt locality

1. Juvenile carapace (ZPAL MgO/135), × 49; a — left lateral view, b — right lateral view, c — ventral view.

Candoniella altanica (STANKEVITCH, 1974) 87
Nemegt locality

2. Adult carapace (ZPAL MgO/170), × 55; a — left lateral view, b — right lateral view, c — ventral view, d — dorsal view.
3. Adult right valve (ZPAL MgO/171), × 50; a — lateral view, b — inner view.
4. Adult left valve (ZPAL MgO/172), × 51; a — lateral view, b — inner view.

Ziziphocypris costata (GALEEVA, 1955) 106
Nemegt locality

1

5. Adult carapace (ZPAL MgO/328), × 46; a — dorsal view, b — ventral view, c — left lateral view, d — right latera view.
6. Adult carapace (ZPAL MgO/329), × 61; a — dorsal view, b — ventral view, c — right lateral view, d — left lateral view.
7. Adult carapace (ZPAL MgO/330), × 87; a — somewhat oblique right lateral view, b — right lateral view.

7 — scanning electron micrograph

PLATE 35

Page

Timiriasevia naranbulakensis SZCZECHURA, 1971 80
Nemegt locality

1. Adult carapace (ZPAL MgO/57), × 57; a — ventral view, b — right lateral view, c — left lateral view, d — dorsal view.

Timiriasevia minuscula (STANKEVITCH, 1974) 80
Nemegt locality

2. Adult carapace (ZPAL MgO/120), × 56; a — ventral view, b — right lateral view, c — dorsal view, d — left lateral view.
3. Adult carapace (ZPAL MgO/121), × 55; a — left lateral view, b — ventral view, c — right lateral view, d — dorsal view.
4. Adult left valve (ZPAL MgO/122), × 55; lateral view.

Timiriasevia cf. *miaogouensis* (CHEN, 1965) 79
Nemegt locality

5. Adult left valve (ZPAL MgO/43), × 54; a — inner view, b — lateral view.
6. Adult left valve (ZPAL MgO/44), × 58, a — inner view, b — dorsal view, c — lateral view, d — ventral view.
7. Adult right valve (ZPAL MgO/42), × 100; lateral view.

4, 7 — scanning electron micrographs

PLATE 36

Page

Leiria sp. 2 89
Nemegt locality

1. Adult carapace (ZPAL MgO/181), × 59; × 34; a, e — right lateral view, b — some oblique right lateral view, c — ventral view, d — dorsal view, f — left lateral view.

Leiria sp. 1 89
Nemegt locality

2. Greately damaged adult left valve (ZPAL MgO/179), × 30; lateral view.
3. Remnant of adult left valve (ZPAL MgO/180), × 30; lateral view.

Limnocythere sp. 78
Nemegt locality

4. Juvenile carapace (ZPAL MgO/41), approx. × 100; × 57; a — left lateral view, b — right lateral view, c — dorsal view, d — ventral view.

Cypridea cavernosa GALEEVA, 1955 83
Nemegt locality

5. Adult left valve (ZPAL MgO/129), × 39; inner view.
6. Adult right valve (ZPAL MgO/130), × 35; inner view.

?*Lycopterocypris* cf. *profunda* LUBIMOVA, 1956 103
Nemegt locality

7. Fragment of valve surface (ZPAL MgO/332), × 600, showing distribution of normal pore canals; some of them indicated by arrows.

Mongolocypris distributa gen. et sp. n. 94
Nemegt locality

8. Fragment of valve surface (ZPAL MgO/333), × 600, showing distribution of normal pore canals; some of them indicated by arrows.

Cypridea cavernosa GALEEVA, 1955 83
Nemegt locality

9. Fragment of valve surface (ZPAL MgO/334), × 600, showing distribution of normal pore canals; some of their apertures are indicated by arrows.

Candona altanulaensis SZCZECHURA and BŁASZYK, 1970 85
Nemegt locality

10. Fragment of valve surface (ZPAL MgO/149), × 2000, showing distribution of normal pore canals; some of their apertures are indicated by arrows.

1a, 1b, 4a, 7-10 — scanning electron micrographs

PLATE 37

Page

Gobiella prima gen. et sp. n. 100
Altan Ula IV locality

1. Fragment of anterior part of left valve (ZPAL MgO/335), approx. × 160, seen from inside, showing g — guttur, and p. l. — peculiar list.
2. Fragment of anterior part of right valve (ZPAL MgO/336), approx. × 160, seen from inside, showing ridge-like peculiar list — p. l. and g — guttur.

Altanicypris szczechurae (STANKEVITCH, 1974) 91
Nemegt locality

3. Fragment of anterior part of right valve (ZPAL MgO/337), approx. × 150, seen from inside, showing lip-like extension.

Nemegtia reticulata gen. et sp. n. 96
Nemegt locality

4. Right valve (ZPAL MgO/338), approx.× 80, seen from inside, with distinct lip-like extension in its frontal part.

Nemegtia obliquecostae (SZCZECHURA and BŁASZYK, 1970) 98
Nemegt locality

5. Fragment of anterior part of left valve (ZPAL MgO/339), approx. × 150, seen from inside, showing weakly developed p. r. — peculiar ridge.

Khandia stankevitchae gen. et sp. n. 102
Altan Ula IV locality

6. Fragment of anterior part of right valve (ZPAL MgO/340), approx. a — × 60, b — × 150, seen from inside, showing lip-like extension.

?Paracypridea mongolica sp. n. 84
Altan Ula IV locality

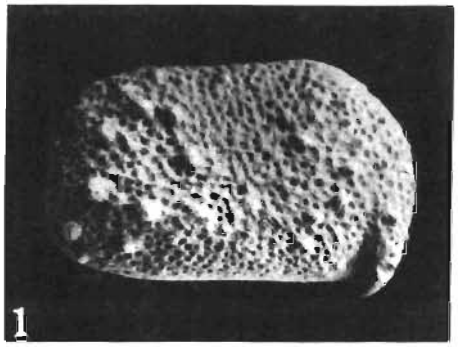
7. Anterior part of right valve (ZPAL MgO/341), approx. × 60, seen from inside, showing beak-like extension.

Mongolocypris distributa (STANKEVITCH, 1974) 94
Nemegt locality

8. Anteroventral part of right valve (ZPAL MgO/342), approx. × 60, seen from inside, showing g — guttur and p. l. — ridge-like peculiar list.
9. Posterior part of right valve (ZPAL MgO/343), approx. × 60, seen from inside, showing posteroventral drawinngout.

Cypridea cavernosa GALEEVA, 1955 83
Nemegt locality

10. Anteroventral part of right valve (ZPAL MgO/344), approx. × 60, seen from inside, showing beak-like extension.
1-10 — scanning electron micrographs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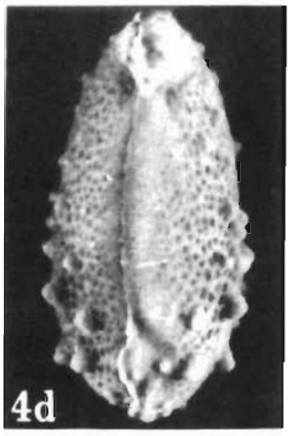
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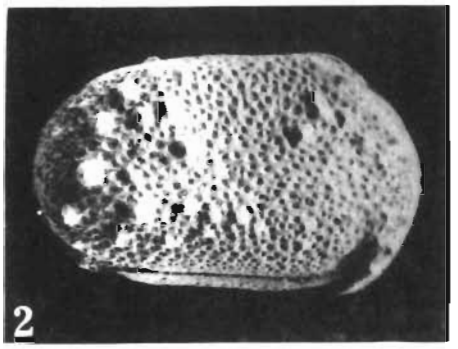
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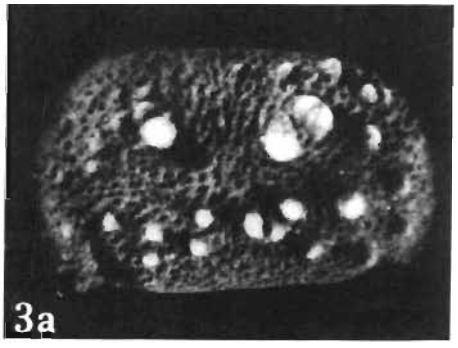
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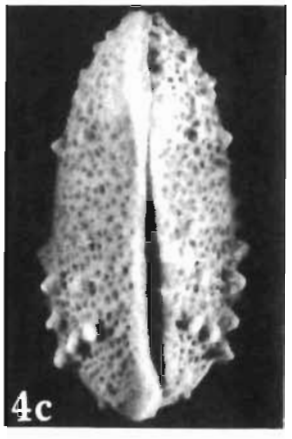
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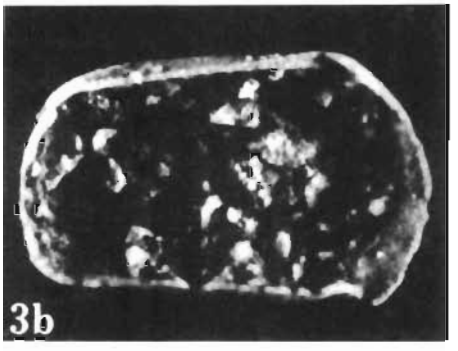
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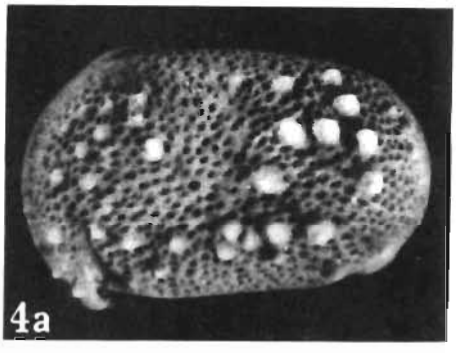
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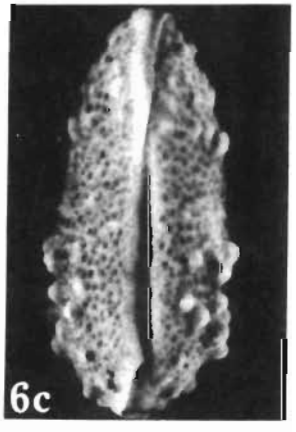
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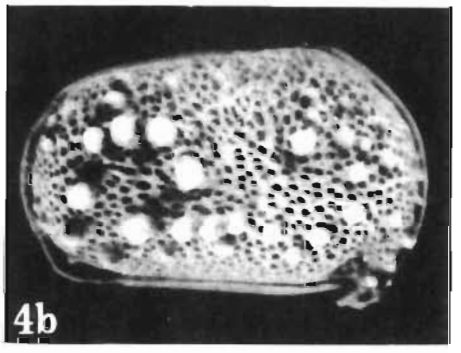
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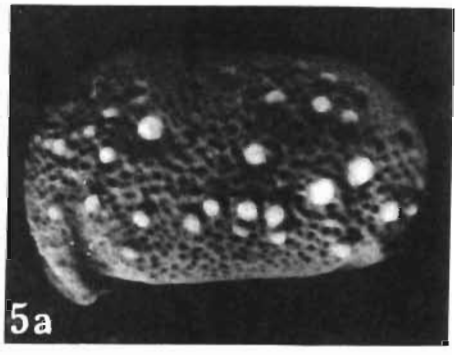
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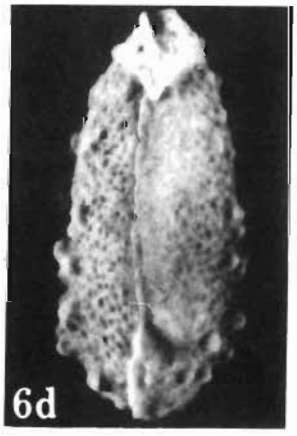
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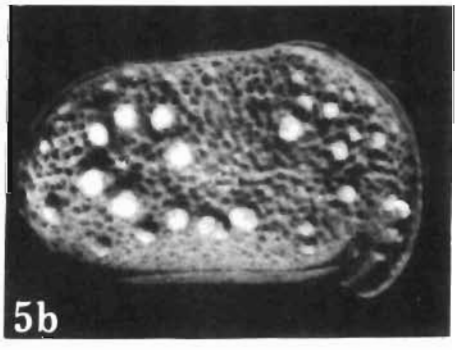
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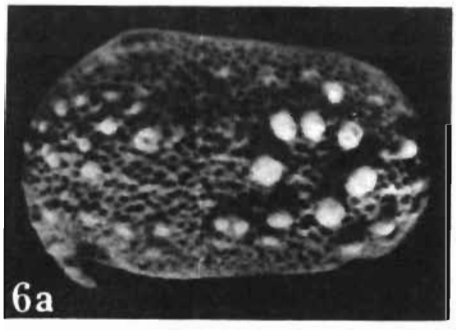
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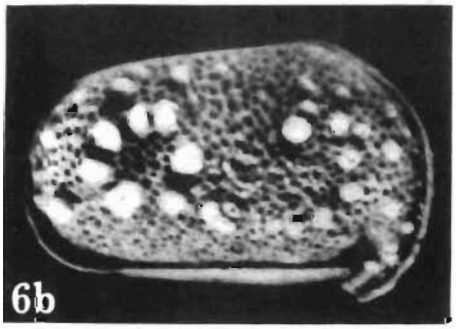
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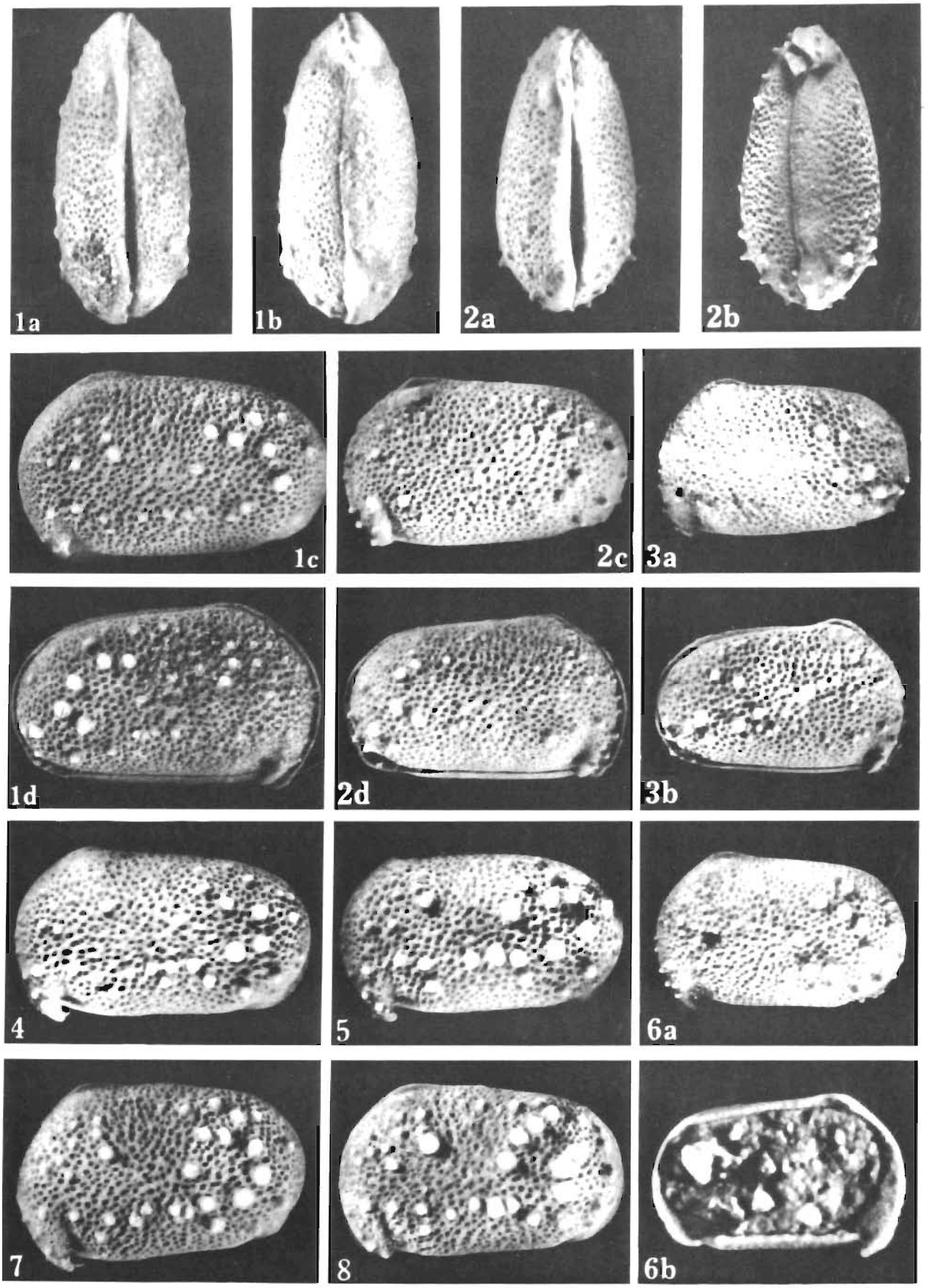

J. SZCZECHURA: FRESH-WATER OSTRACODES FROM THE NEMEGT FORMATION


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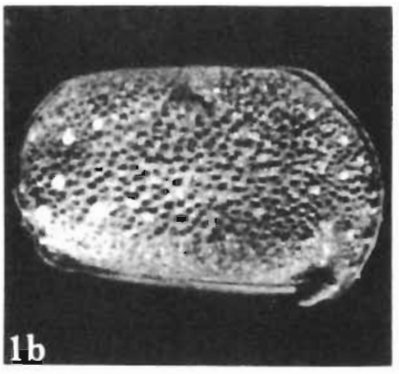
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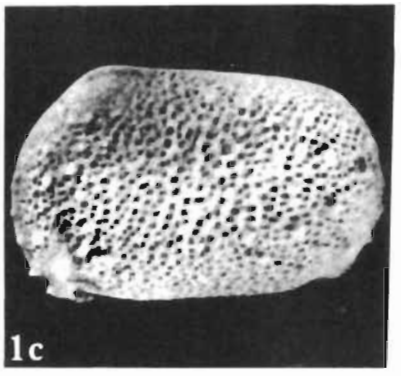
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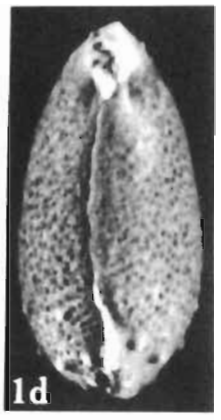
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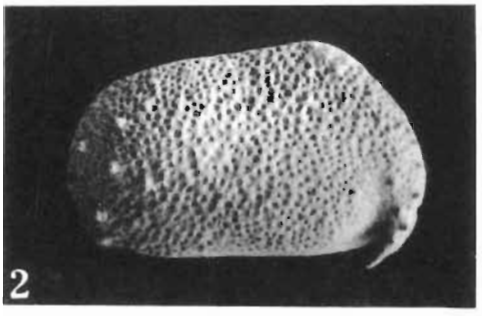
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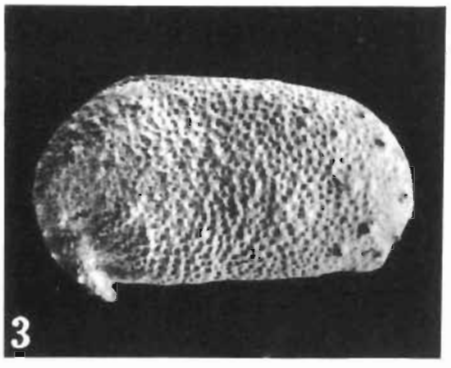
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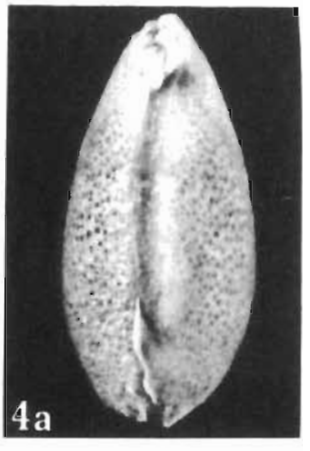
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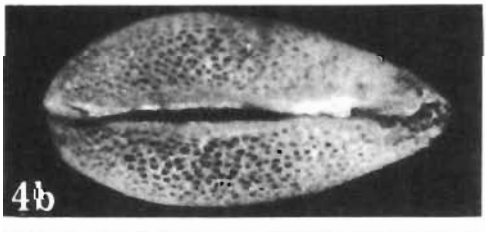
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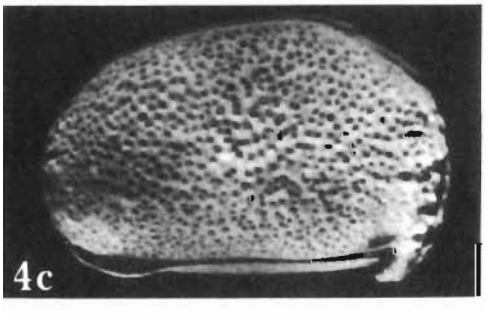
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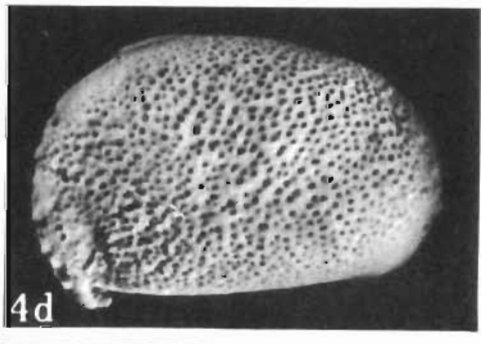
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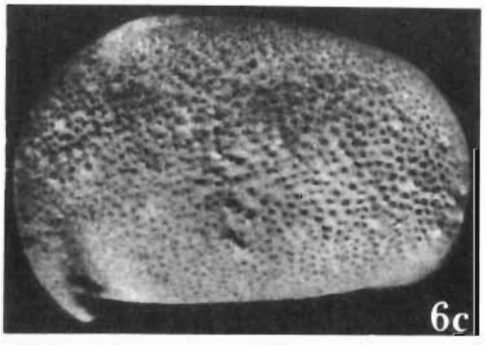
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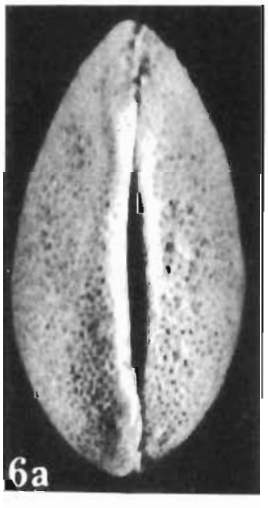
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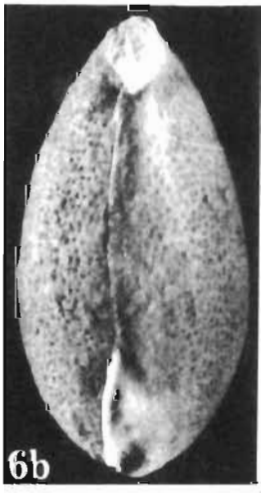
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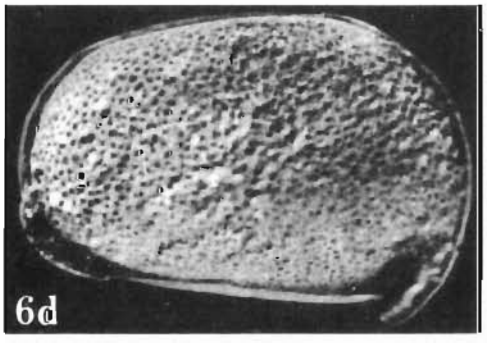
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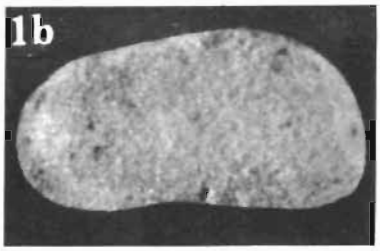
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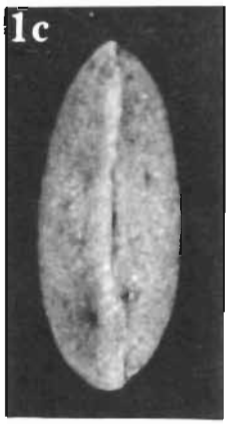
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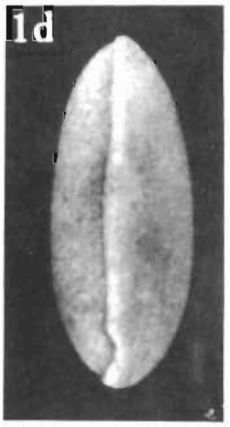
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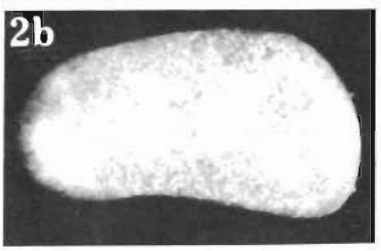
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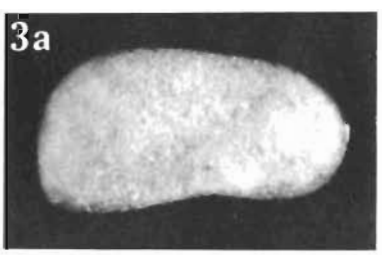
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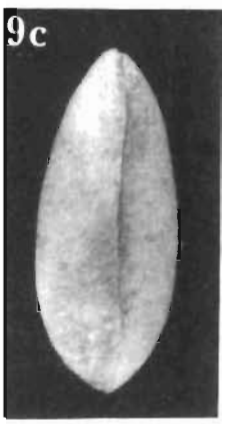
3b


4a


4b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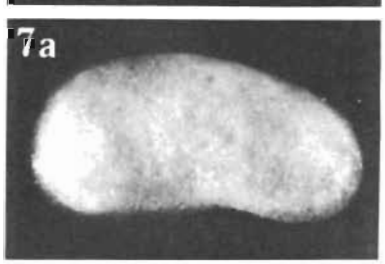
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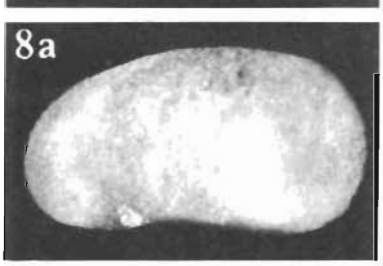
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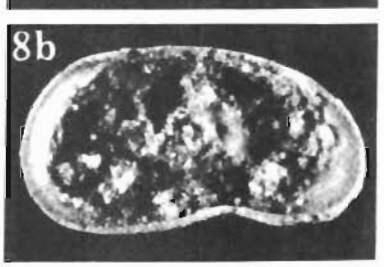
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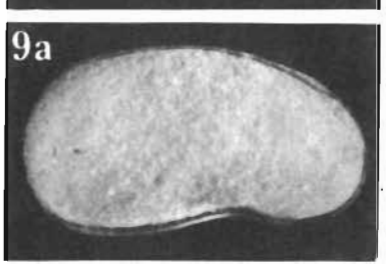
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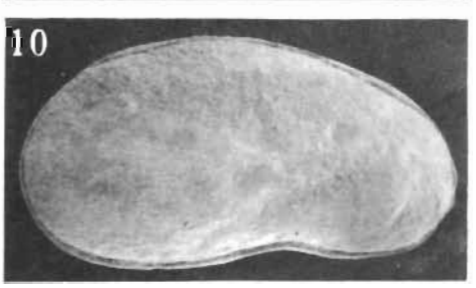
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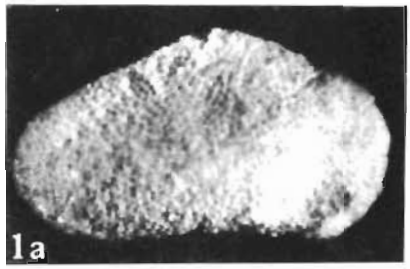
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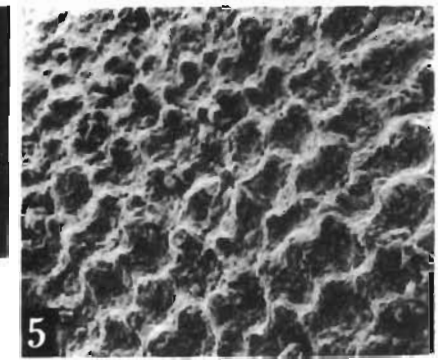
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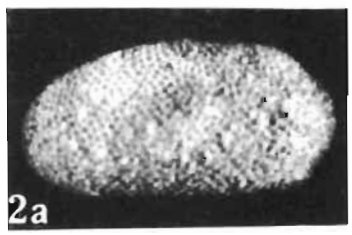
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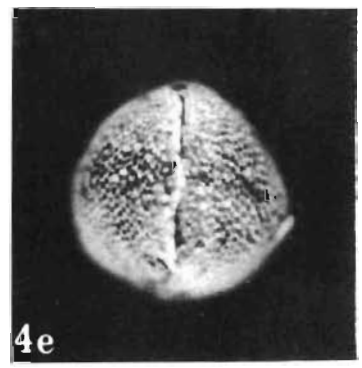
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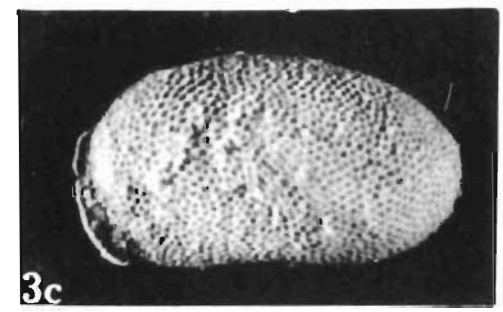
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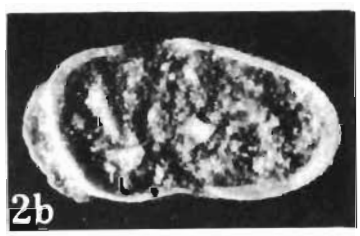
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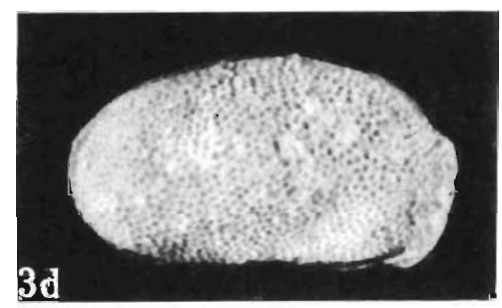
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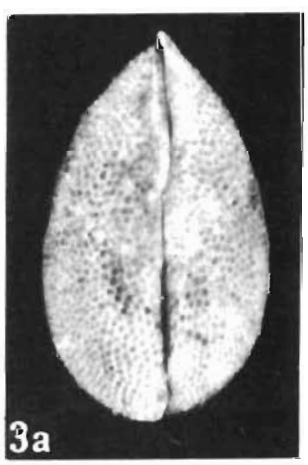
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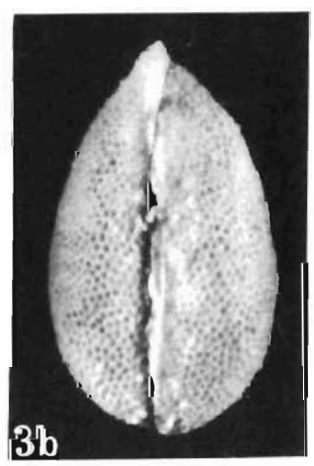
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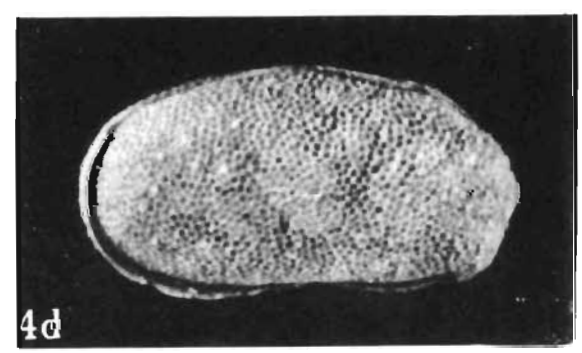
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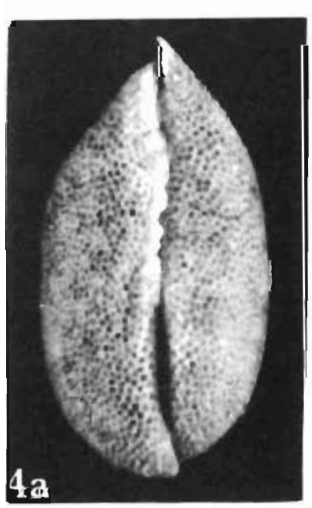
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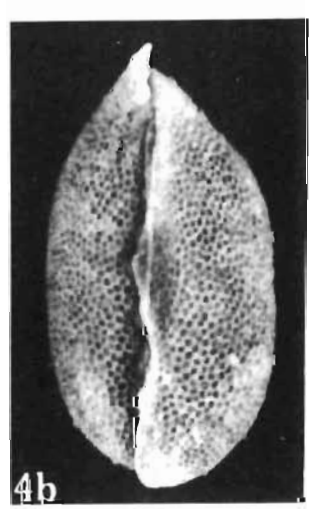
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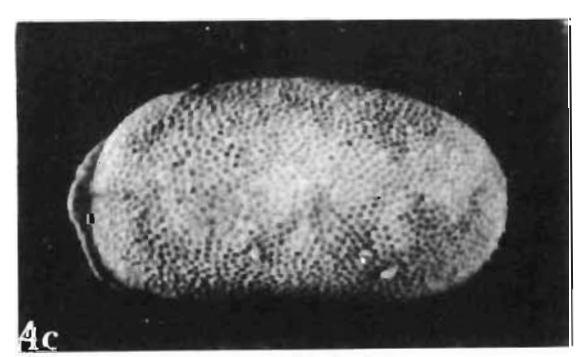
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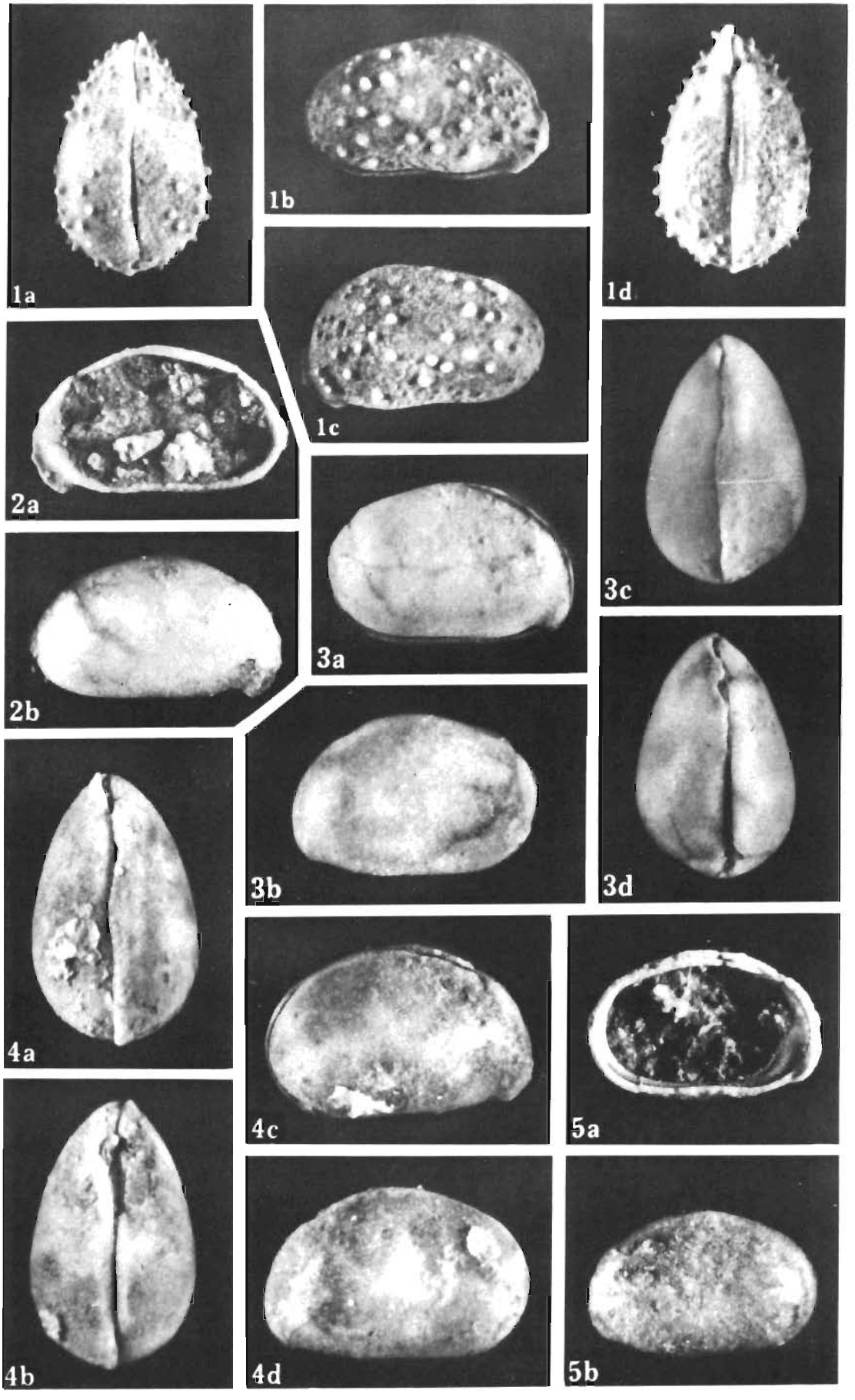
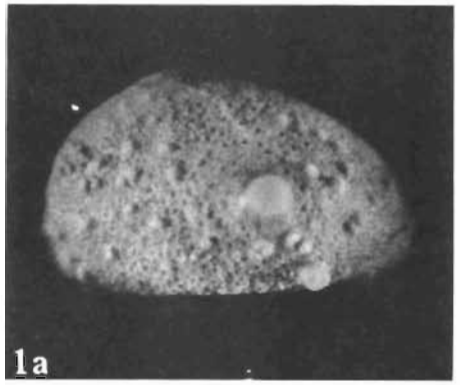


J. SZCZECHURA: FRESH-WATER OSTRACODES FROM THE NEMEGT FORMATION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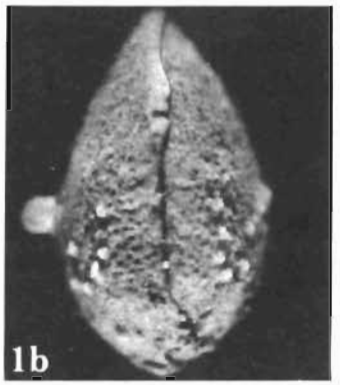
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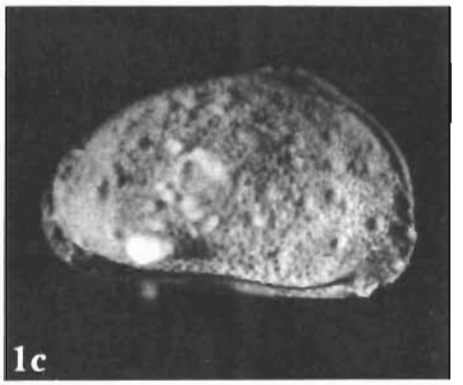
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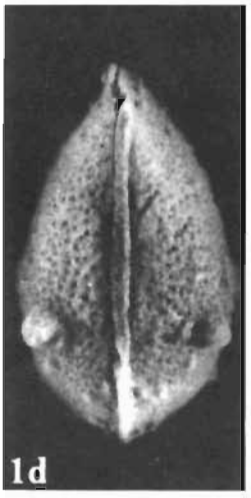
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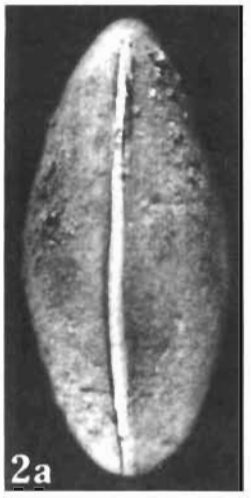
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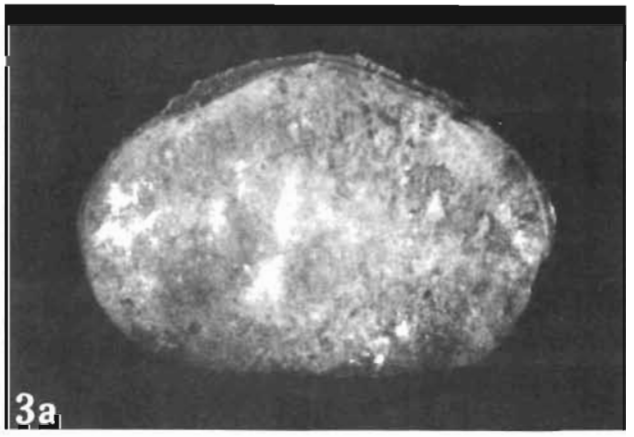
2b


2c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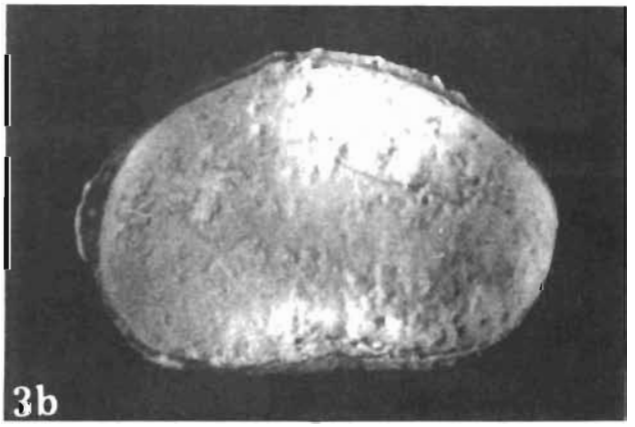
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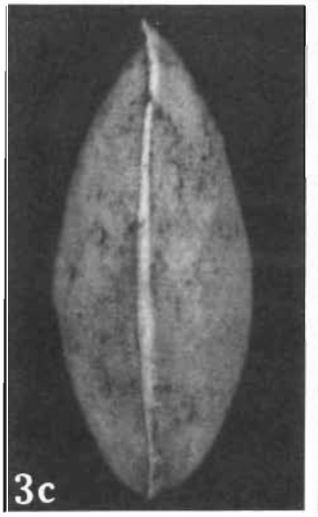
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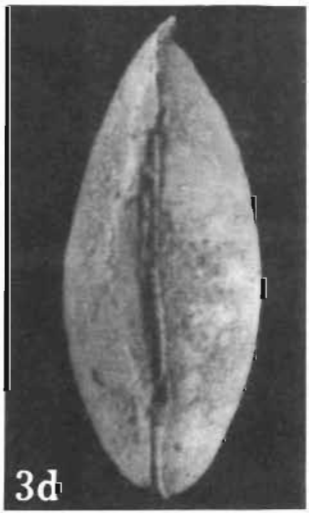
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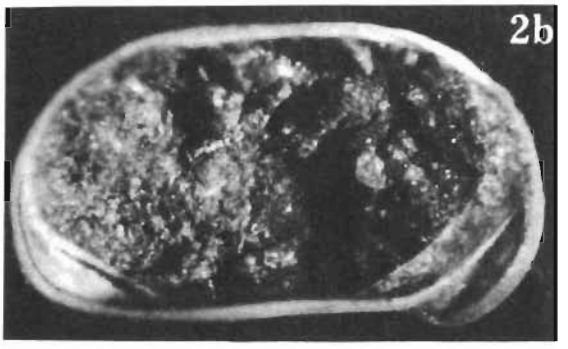
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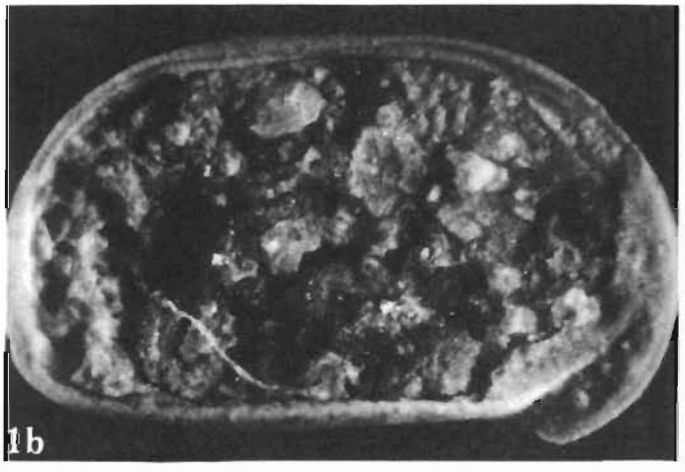
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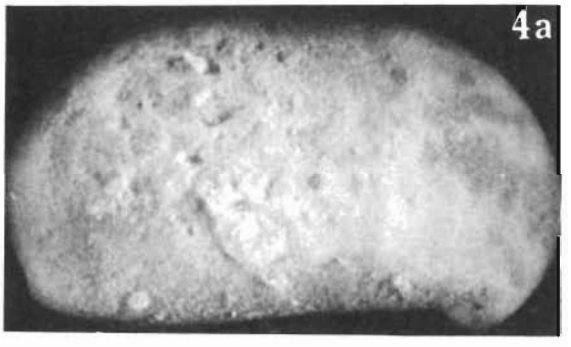
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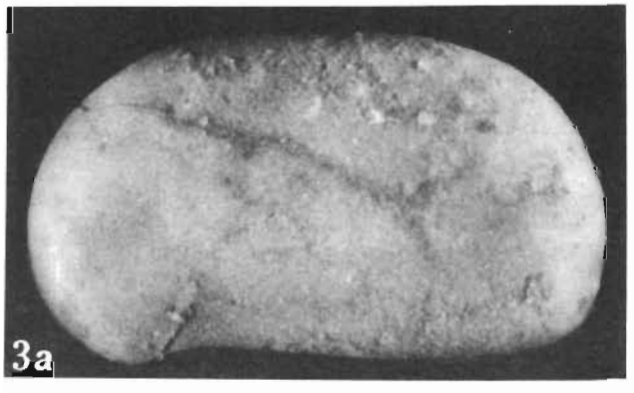
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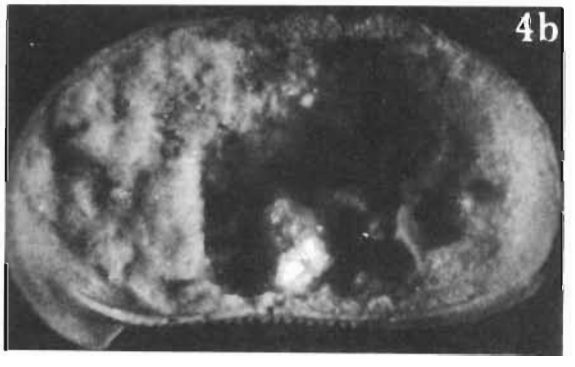
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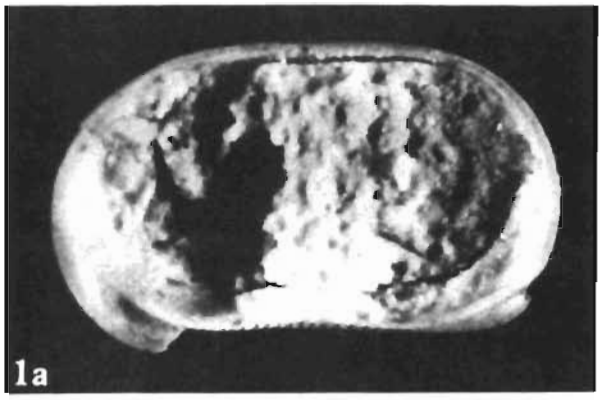
3b


3c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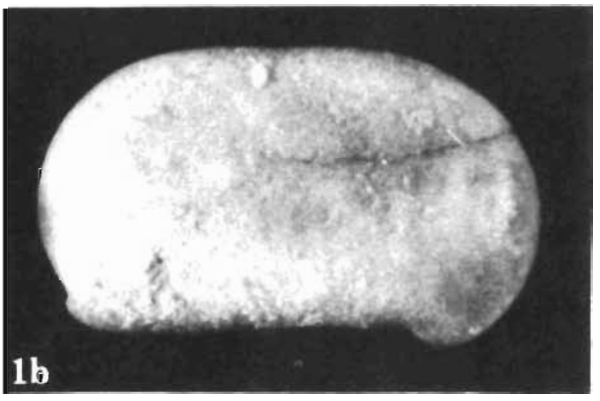
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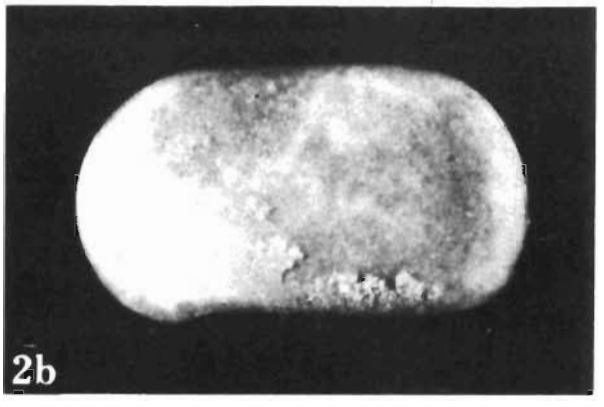
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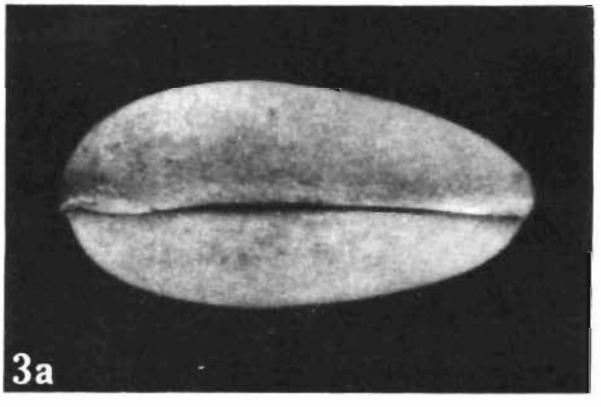
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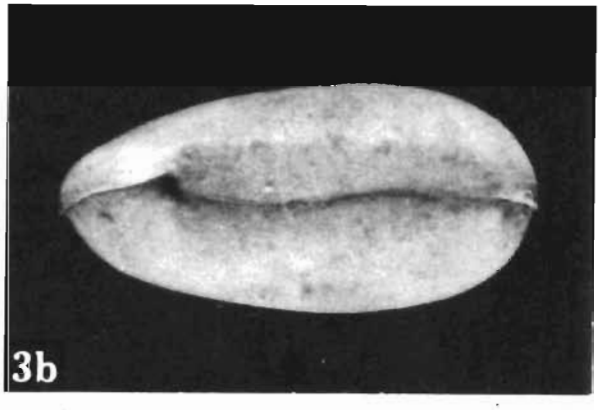
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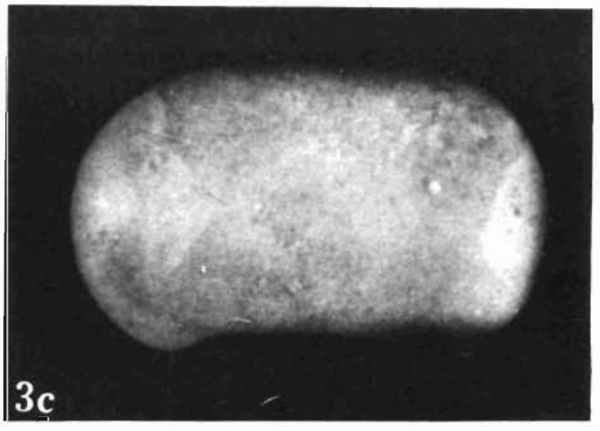
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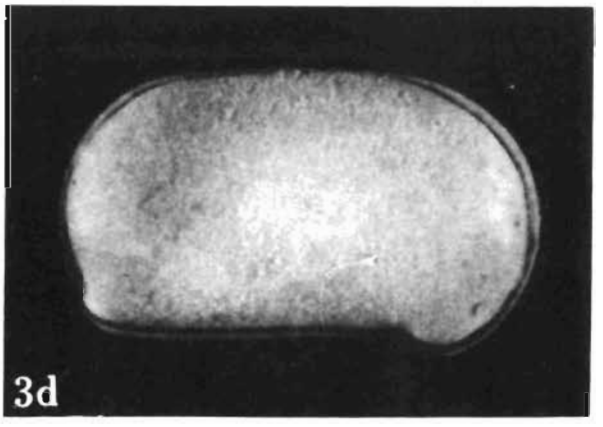
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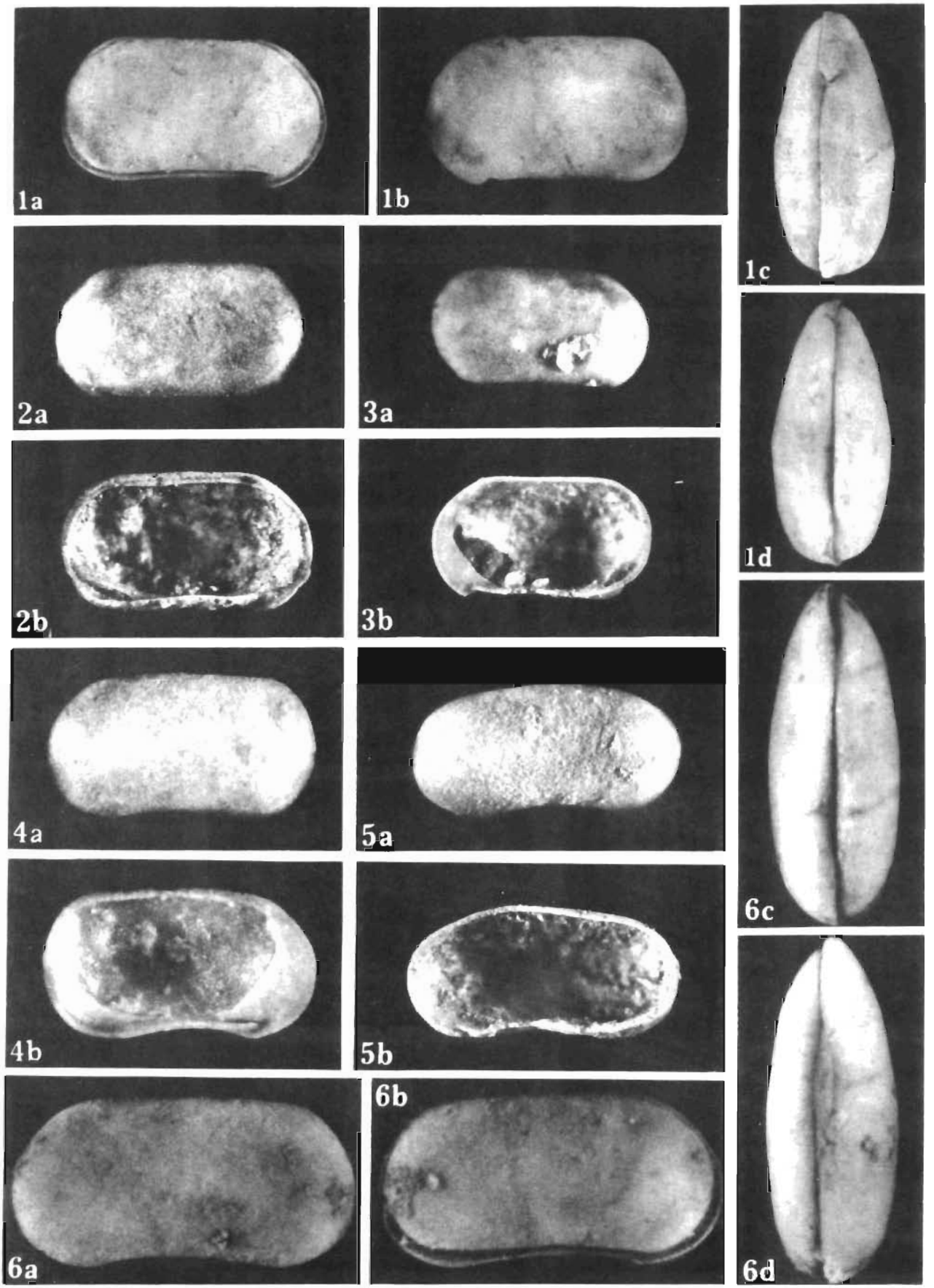
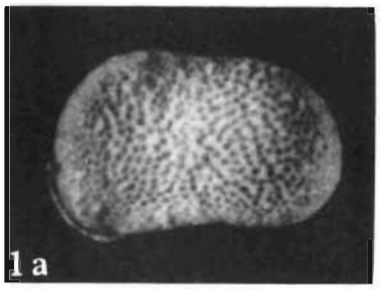


J. SZCZECHURA: FRESH-WATER OSTRACODES FROM THE NEMEGT FORMATION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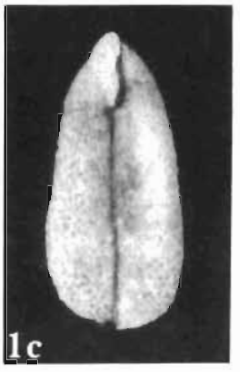
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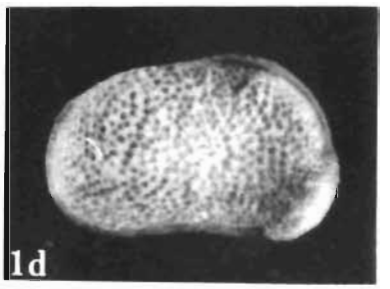
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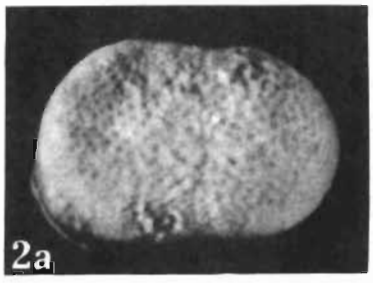
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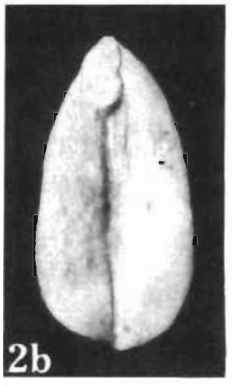
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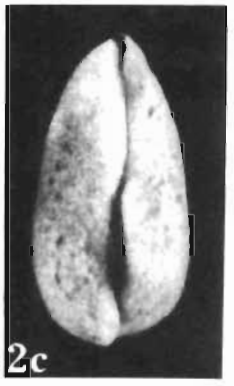
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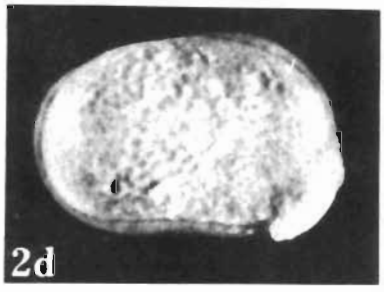
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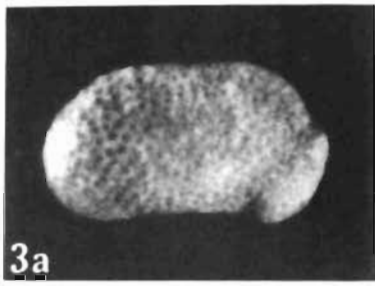
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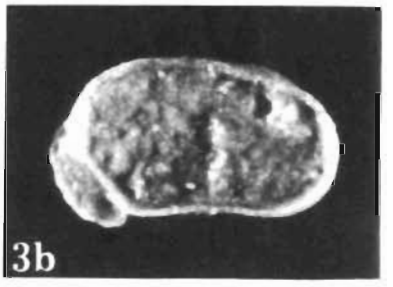
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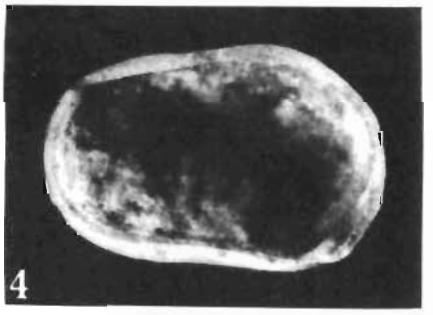
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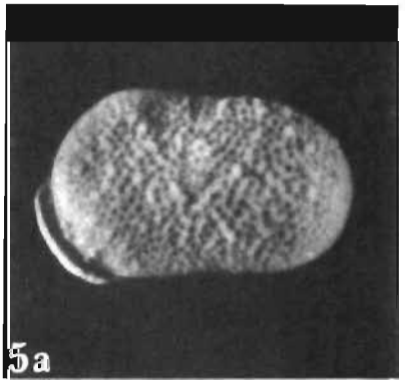
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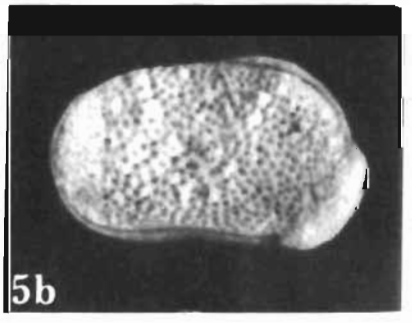
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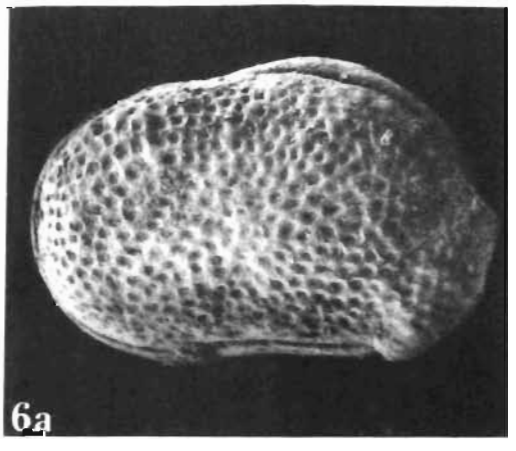
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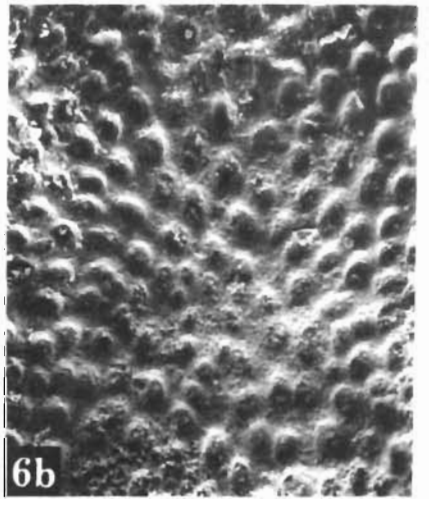
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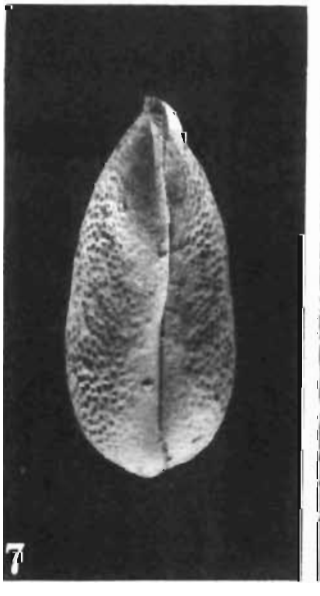
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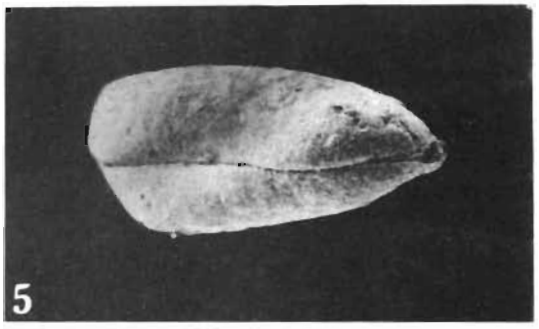
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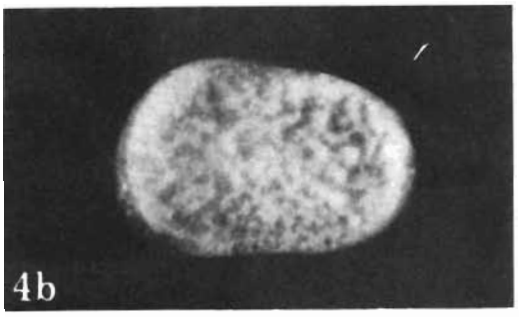
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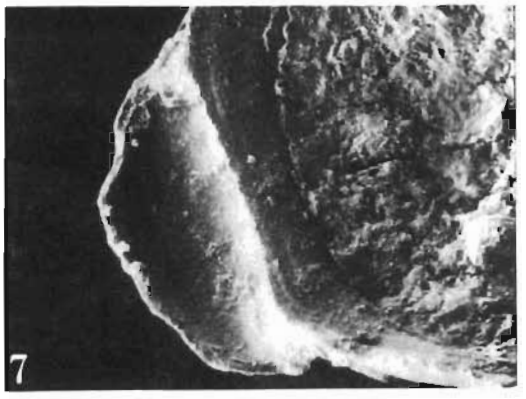
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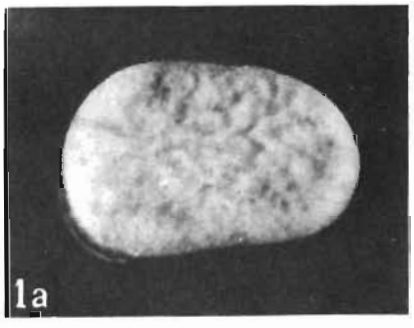
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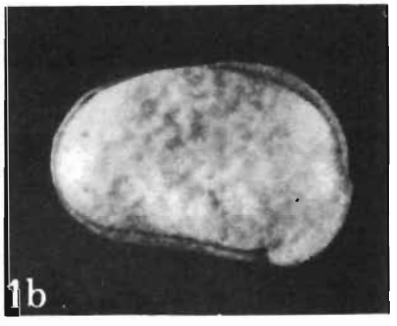
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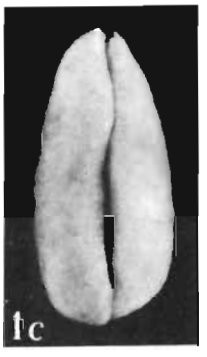
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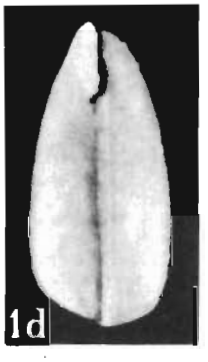
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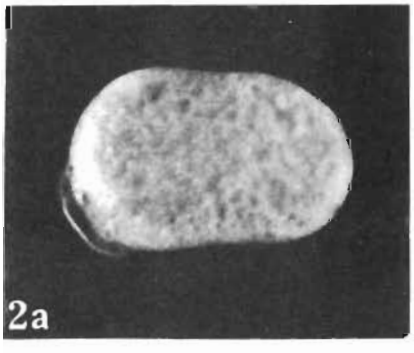
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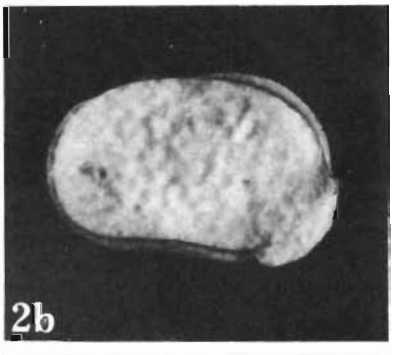
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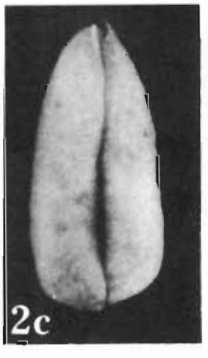
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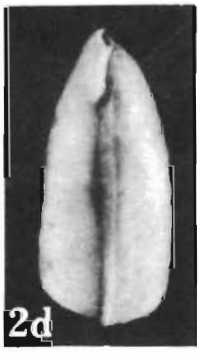
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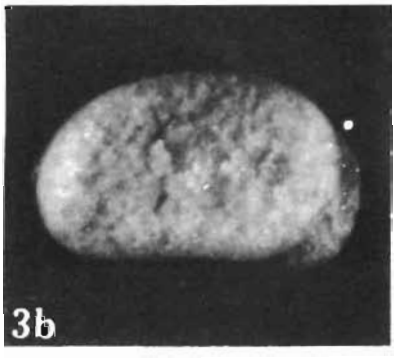
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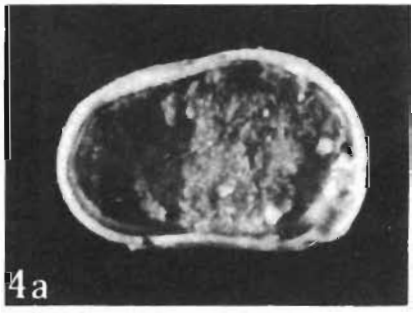
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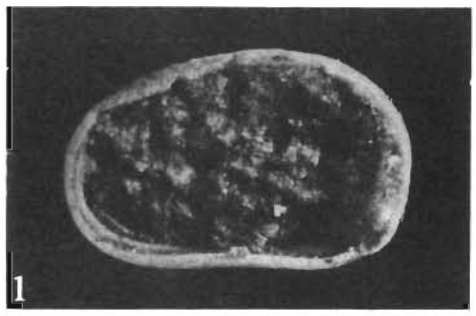
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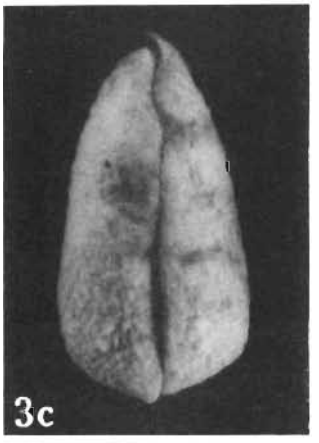
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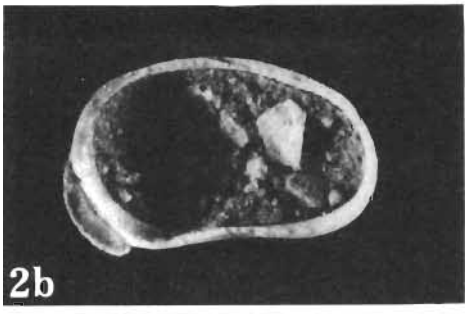
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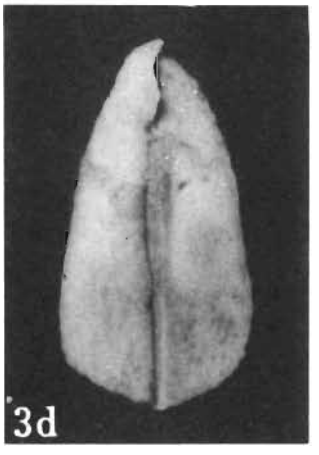
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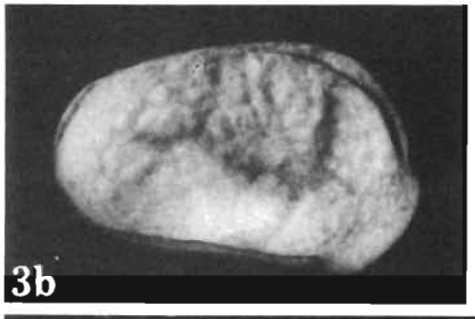
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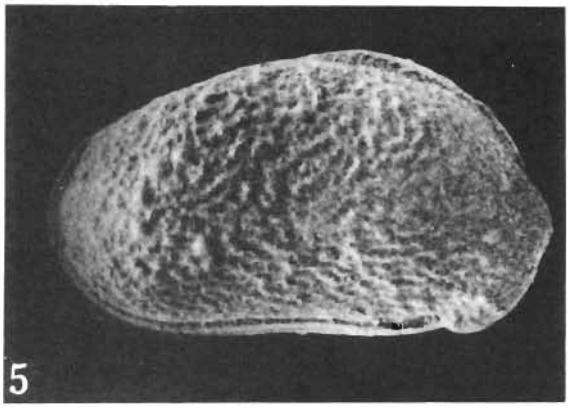
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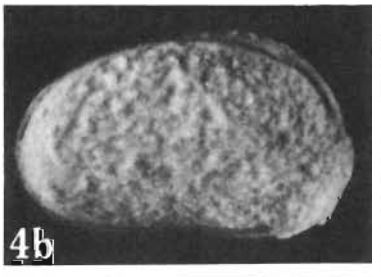
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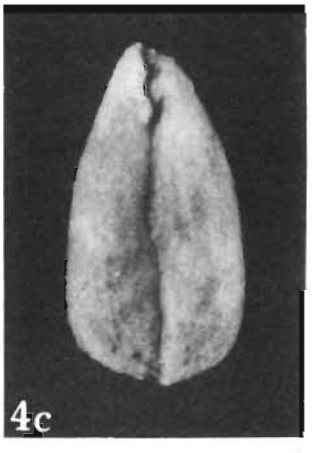
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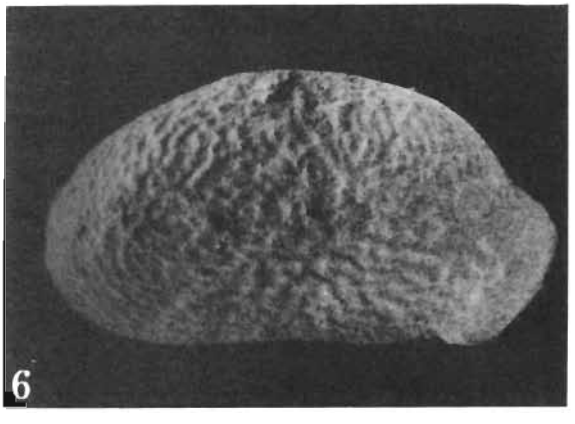
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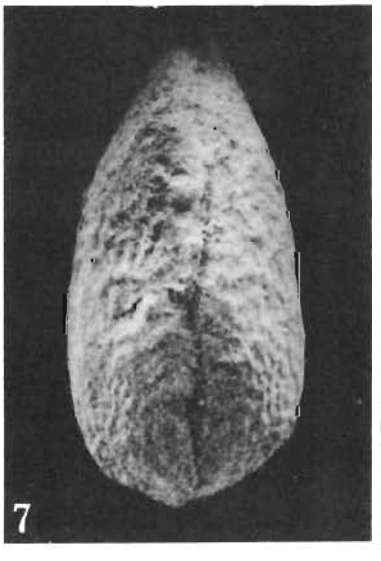
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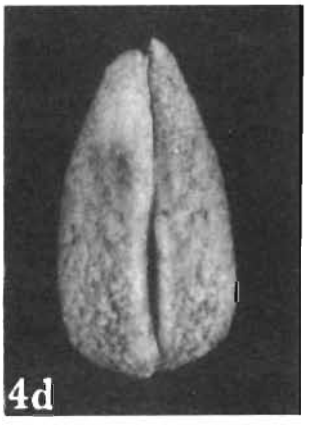
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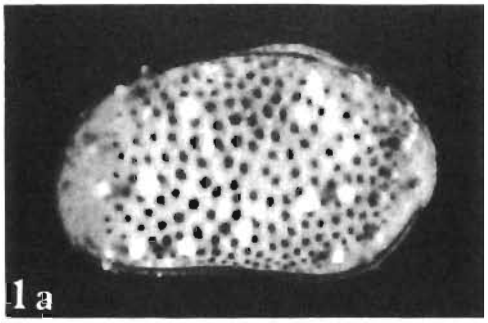
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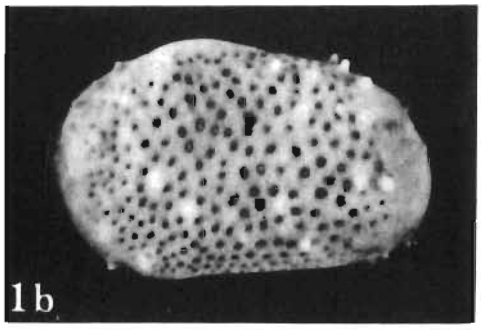
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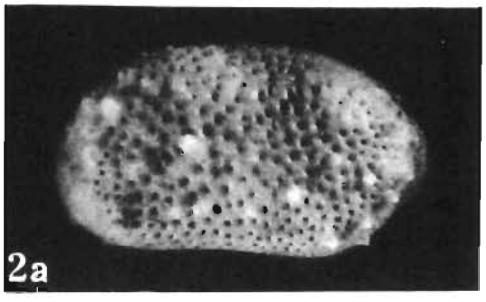
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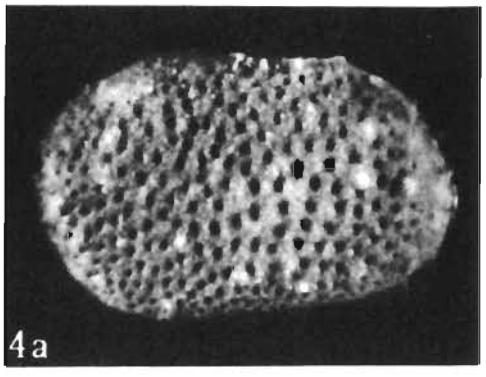
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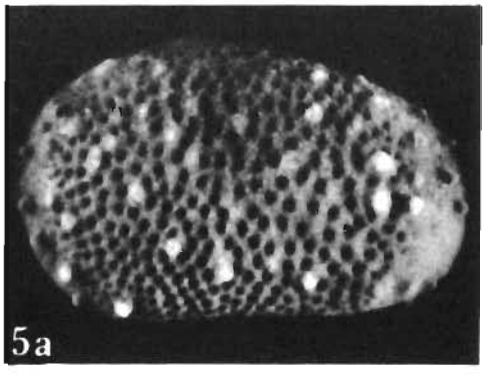
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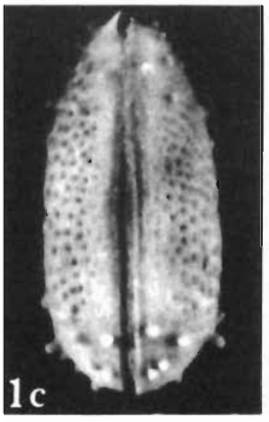
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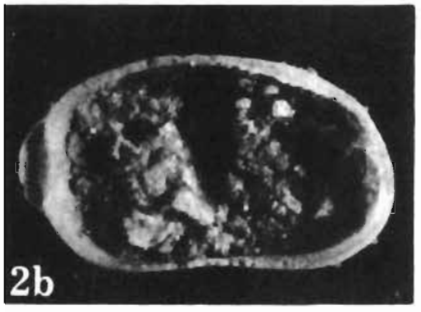
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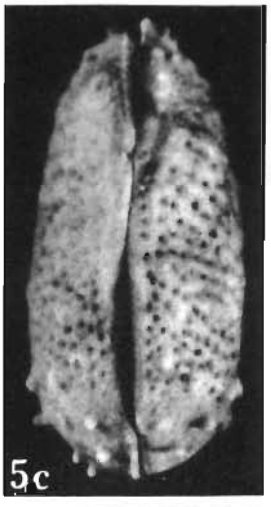
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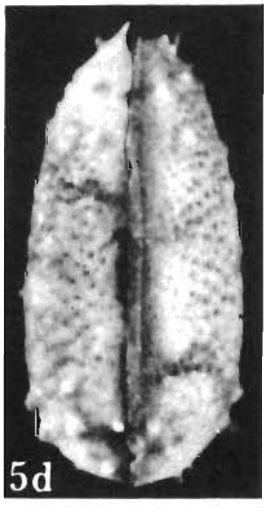
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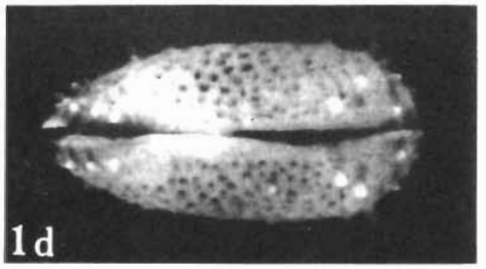
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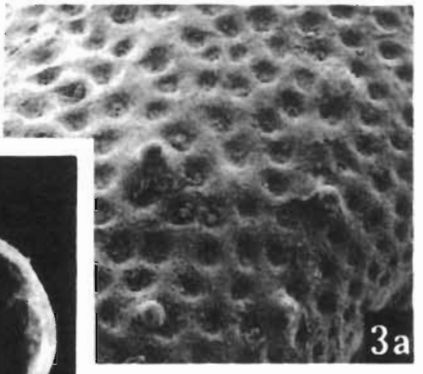
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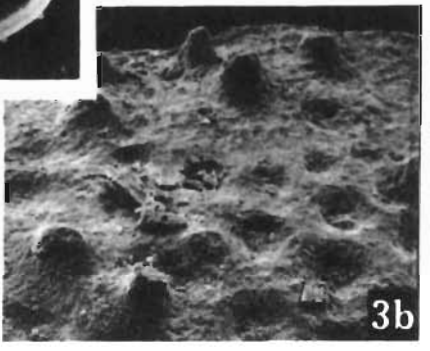
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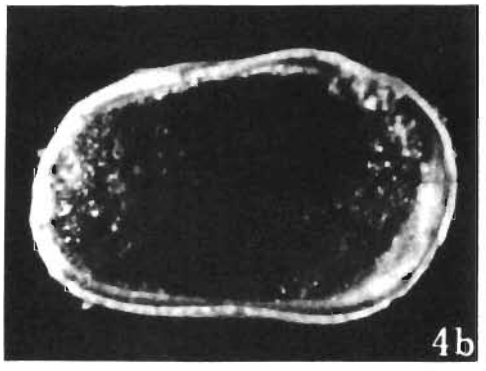
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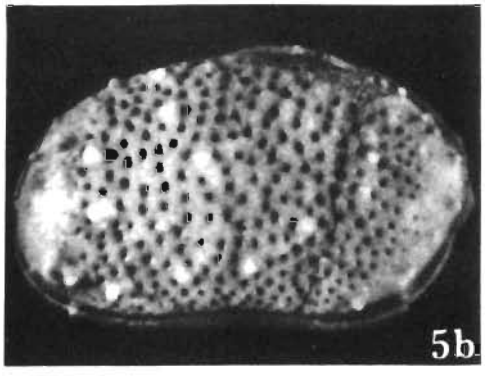
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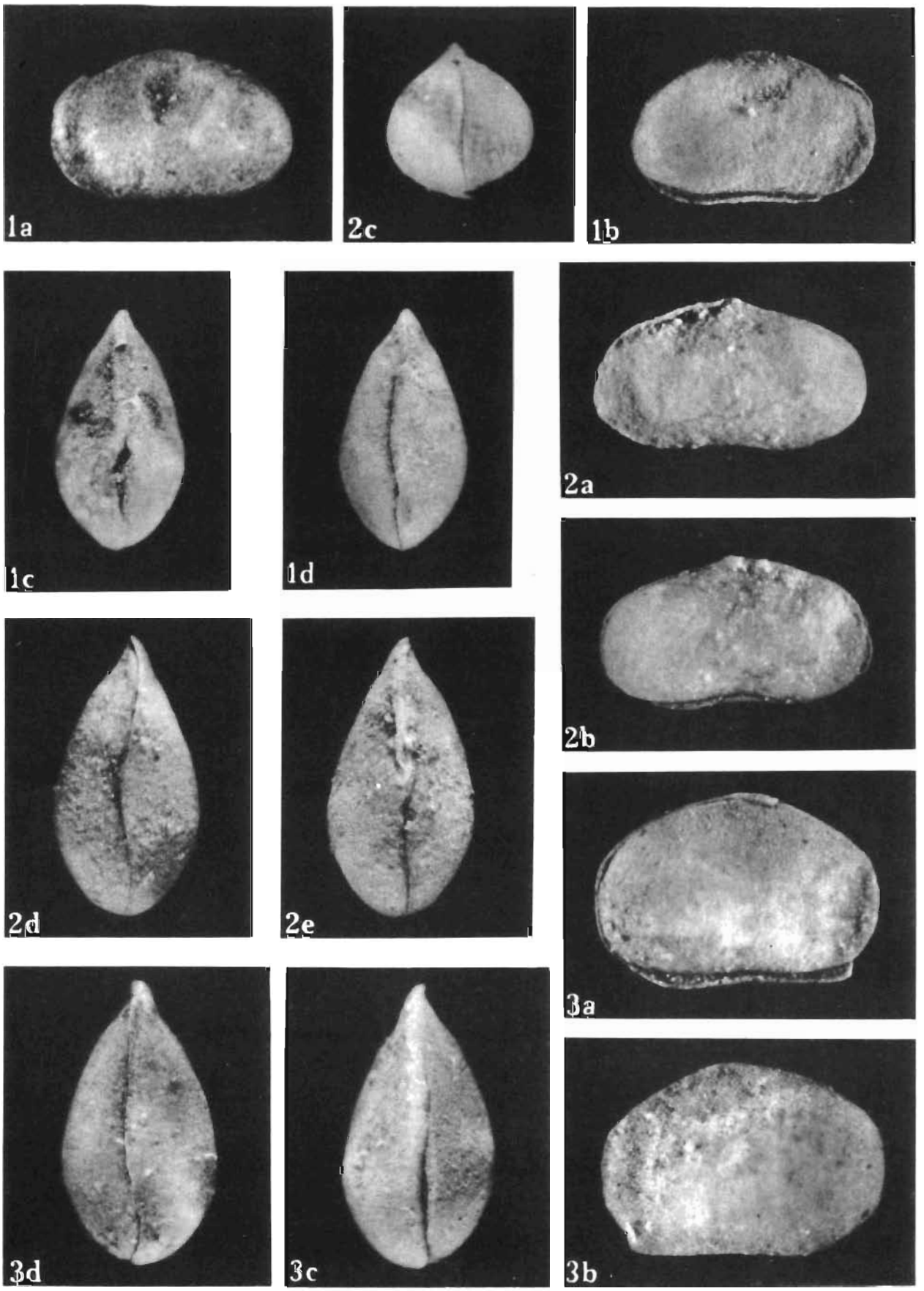
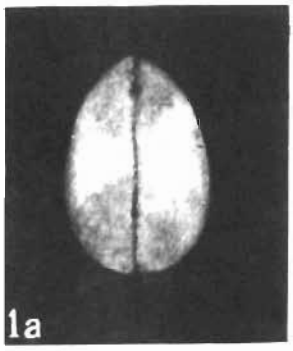


J. SZCZECHURA: FRESH-WATER OSTRACODES FROM THE NEMEGT FORMATION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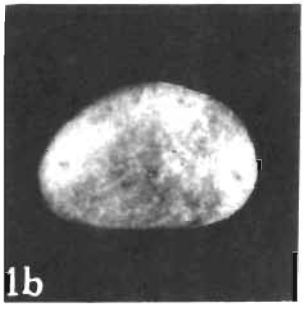
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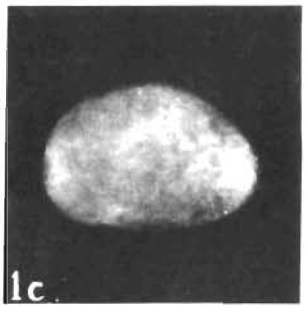
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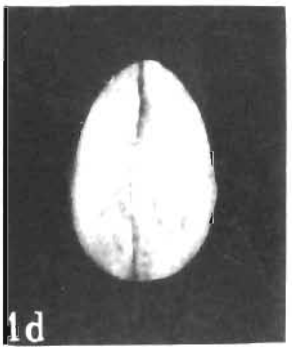
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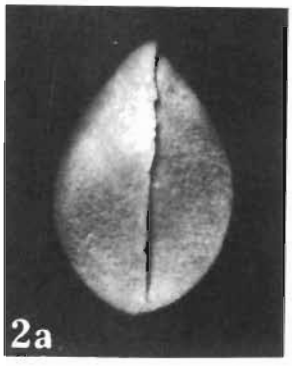
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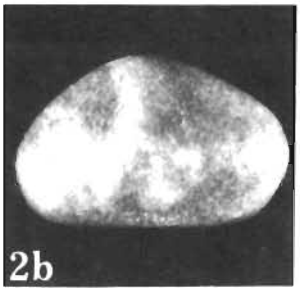
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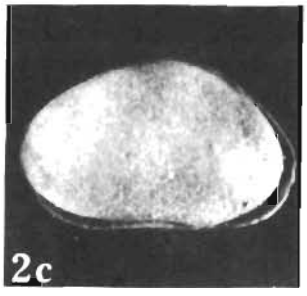
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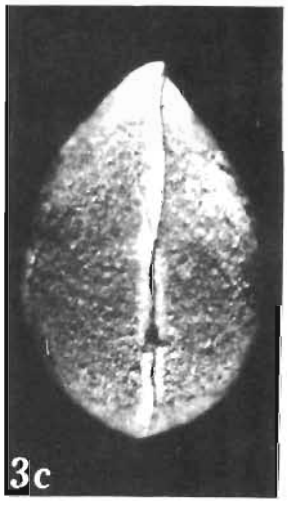
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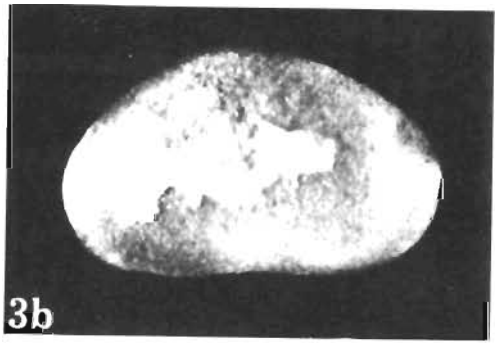
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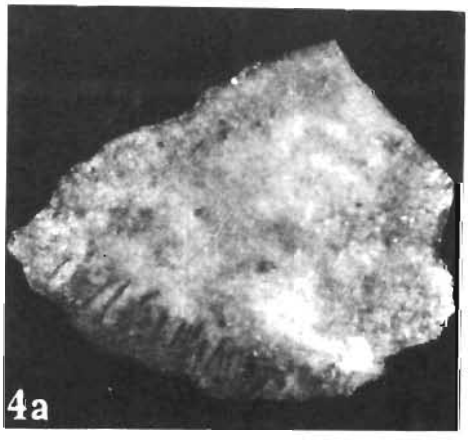
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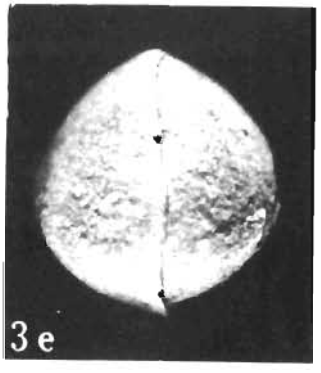
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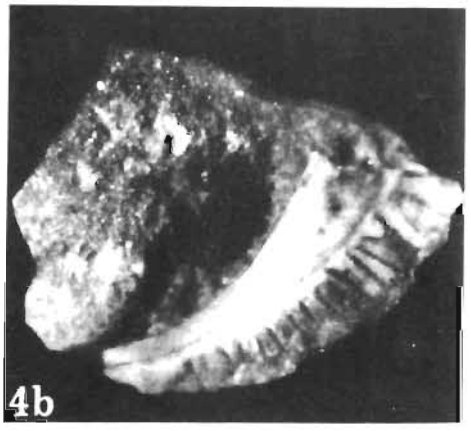
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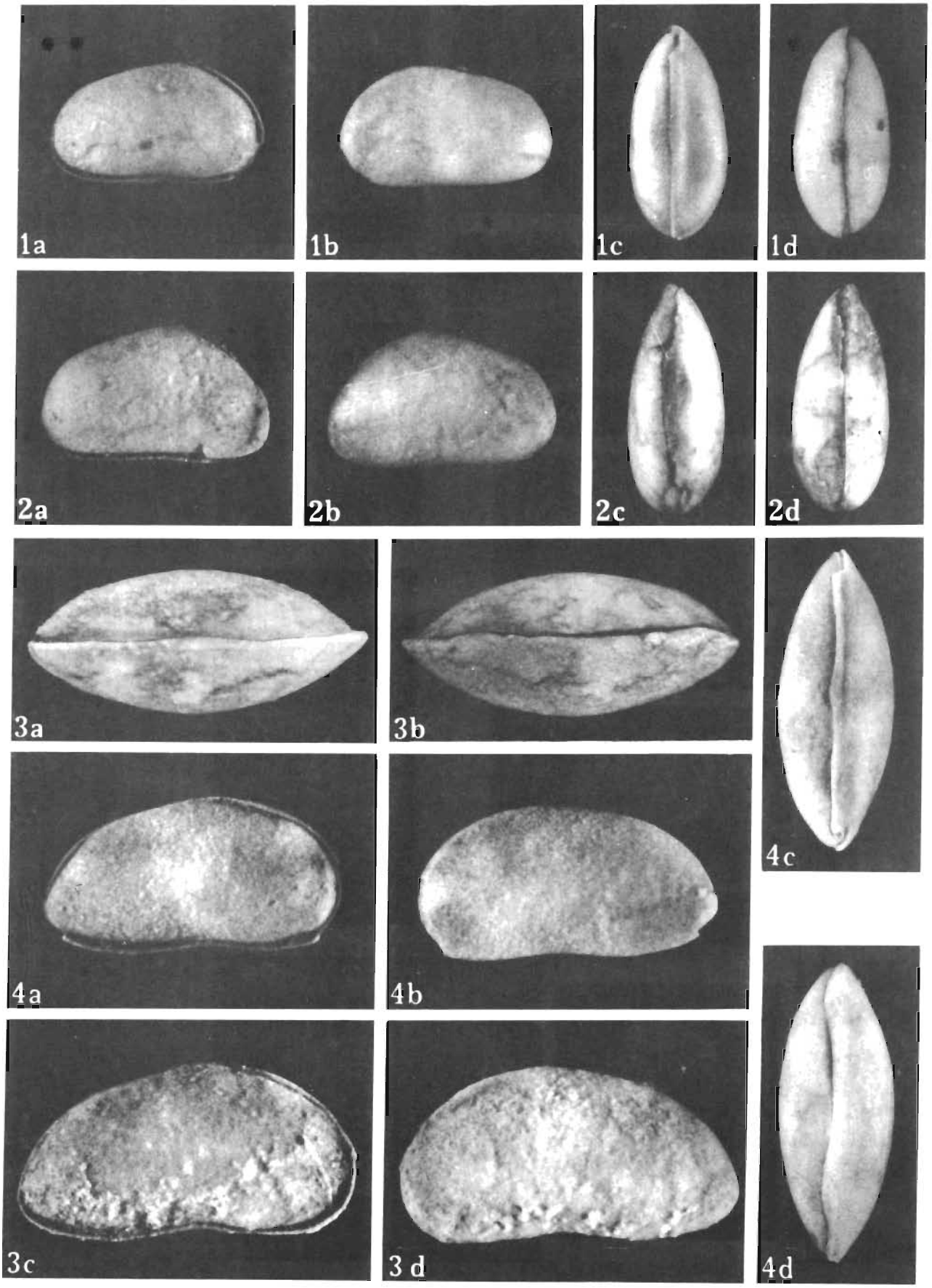

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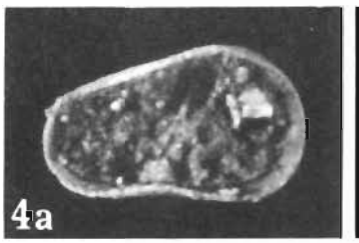
1c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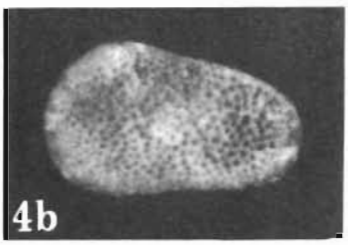
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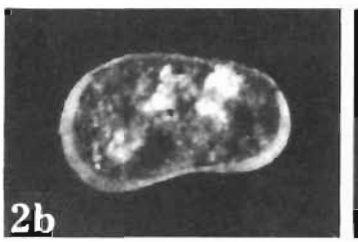
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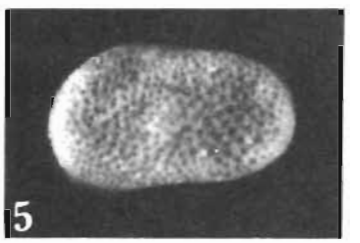
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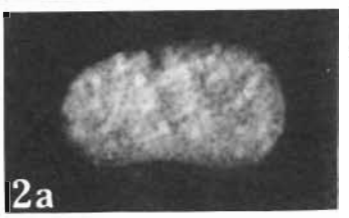
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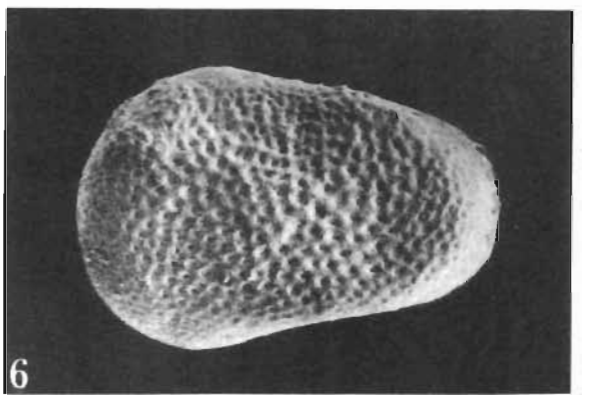
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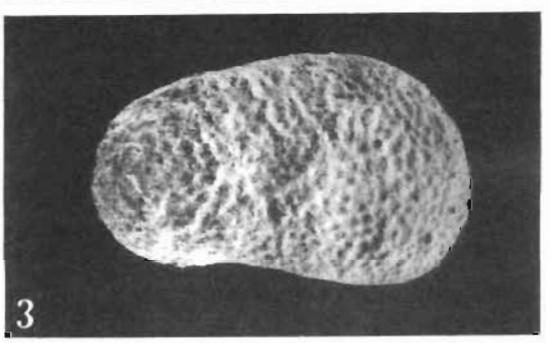
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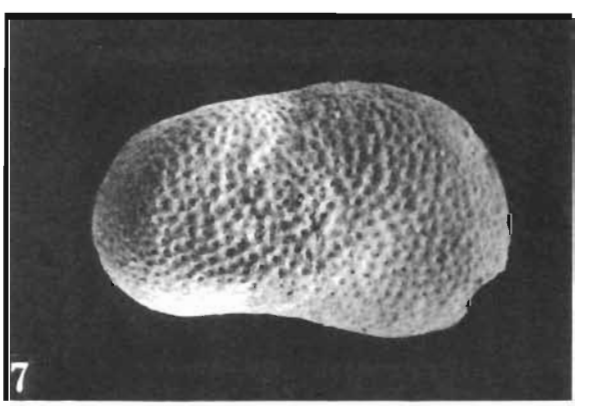
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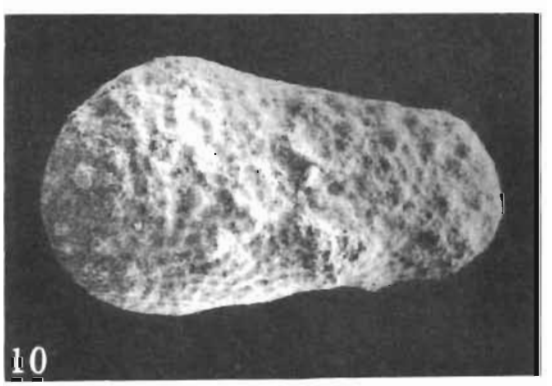
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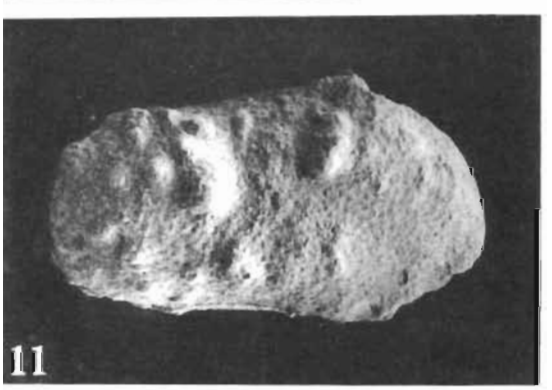
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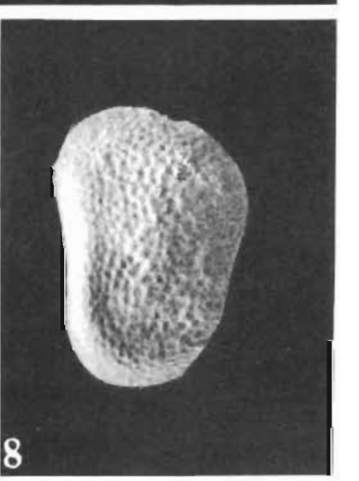
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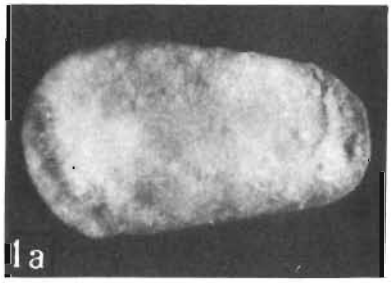
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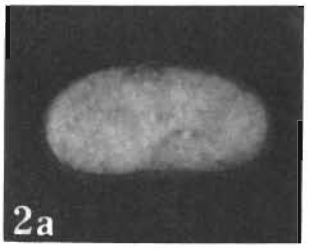
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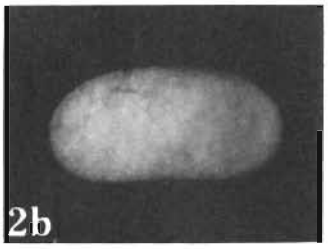
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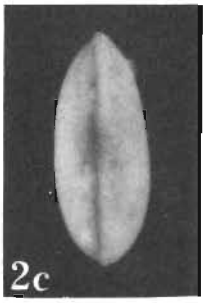
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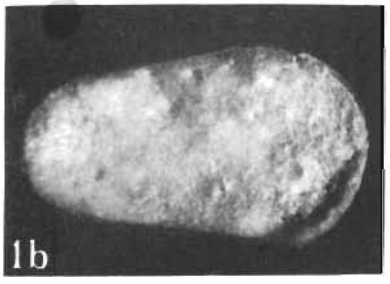
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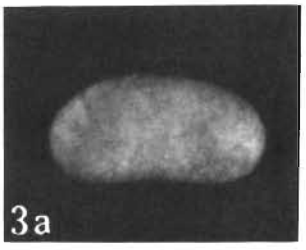
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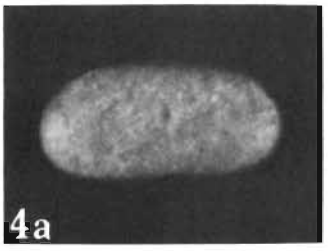
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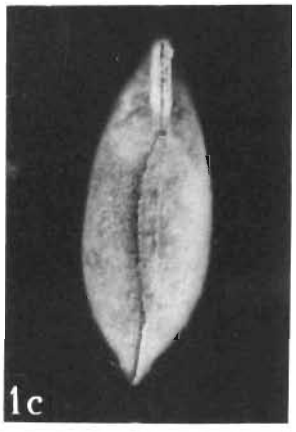
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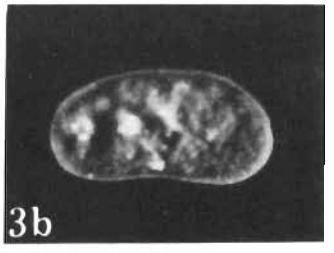
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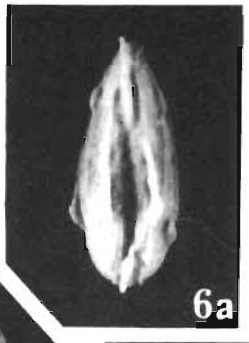
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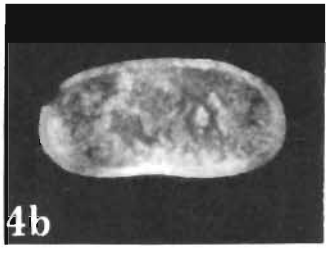
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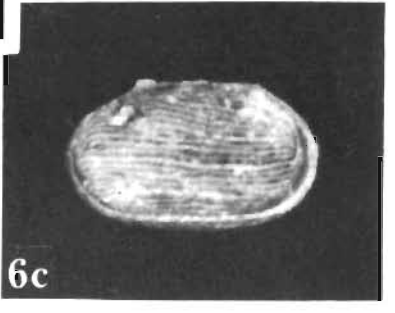
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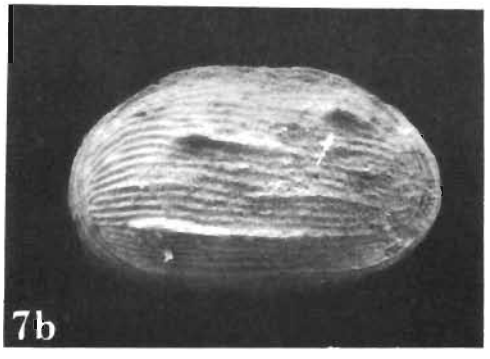
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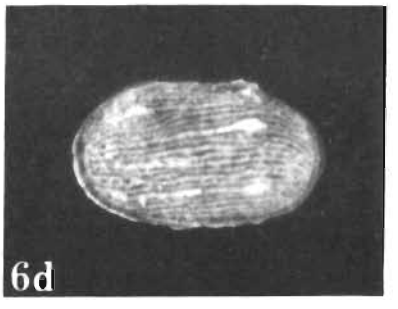
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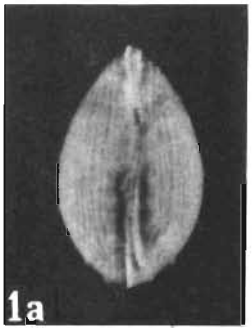
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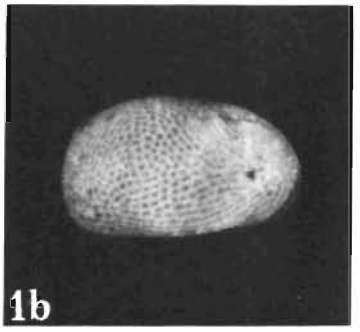
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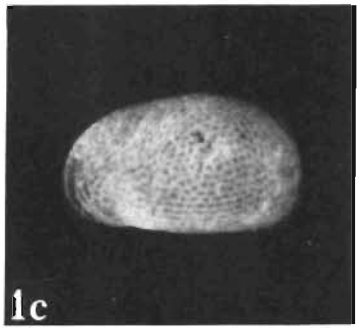
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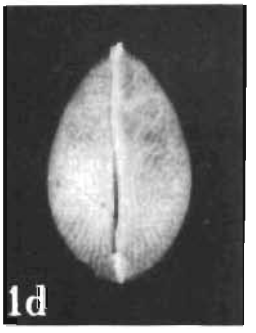
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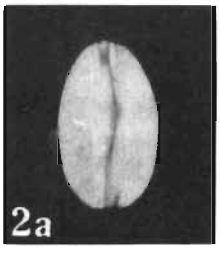
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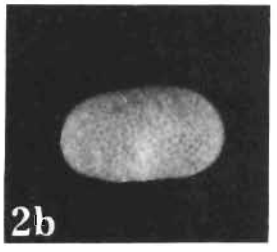
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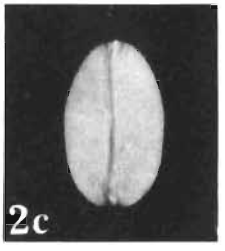
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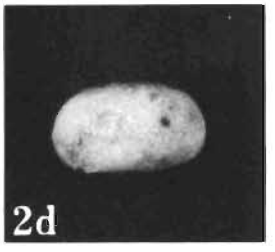
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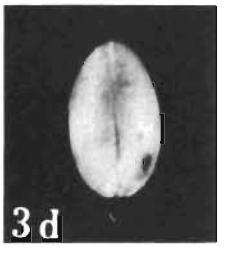
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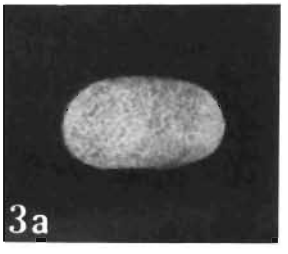
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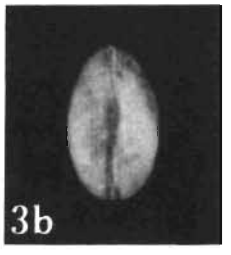
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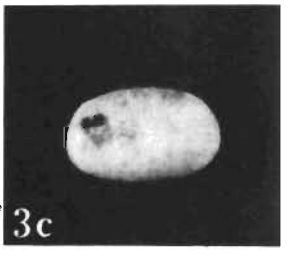
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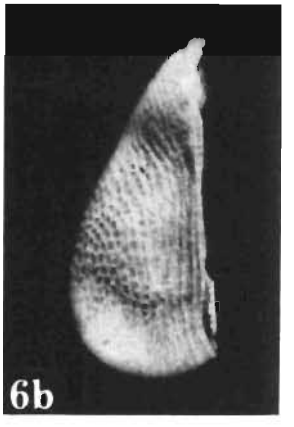
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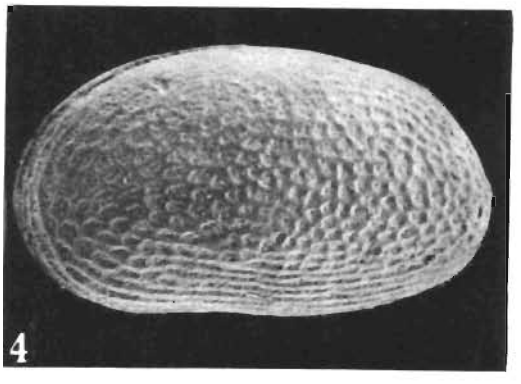
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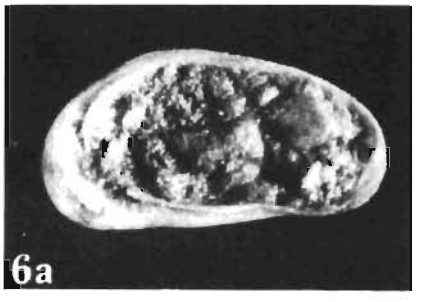
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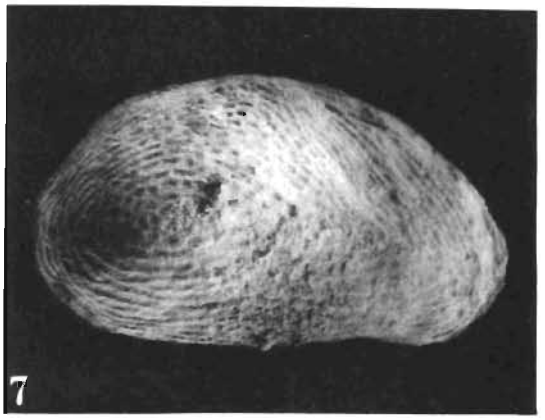
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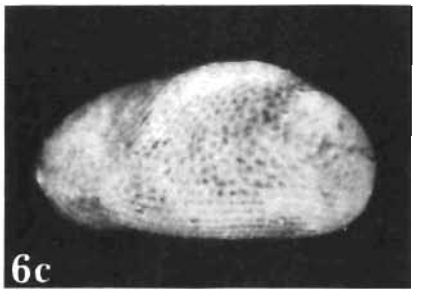
6c


6d


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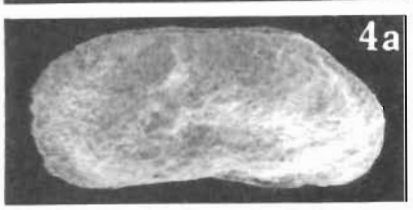
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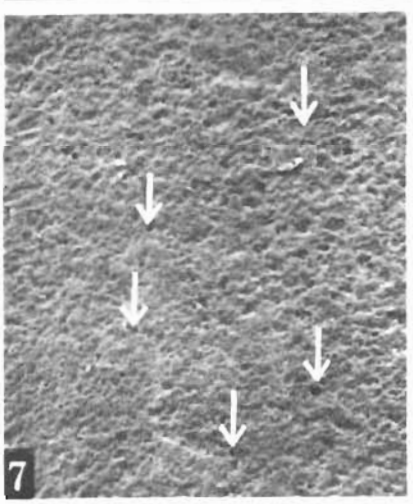
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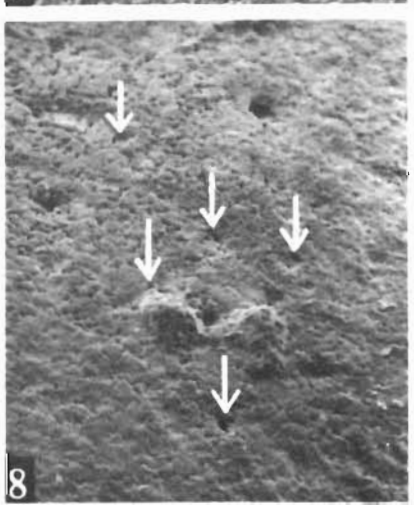
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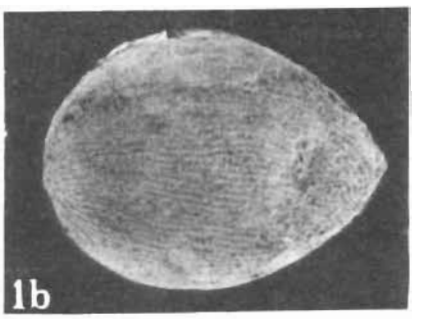
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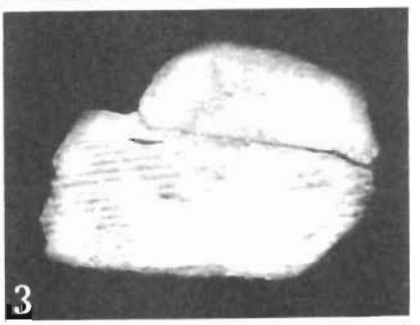
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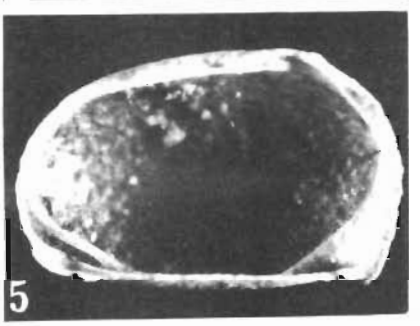
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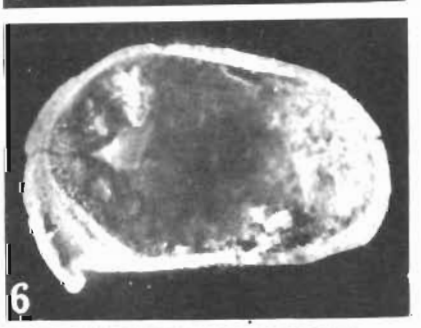
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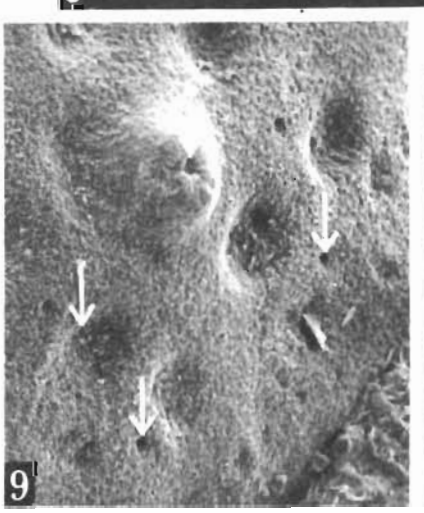
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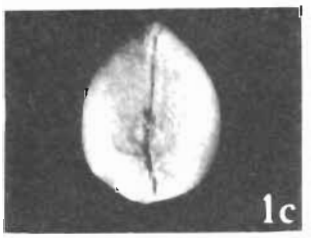
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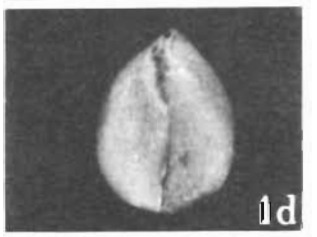
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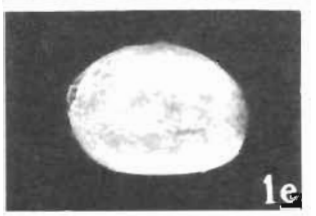
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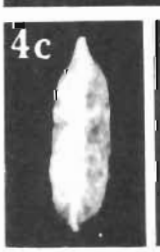
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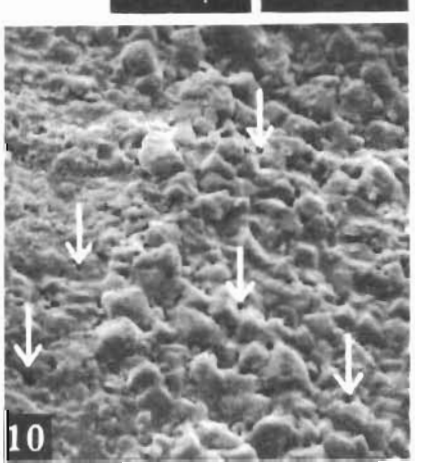
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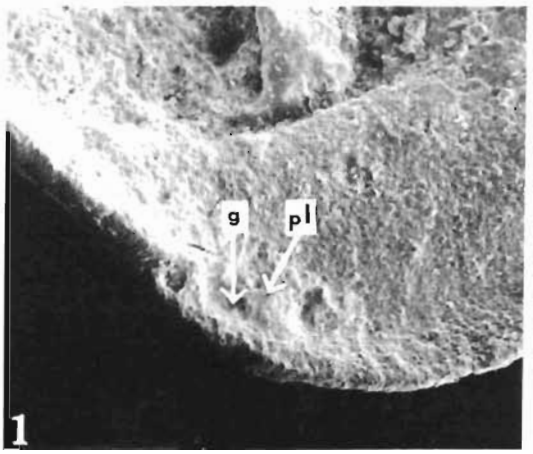
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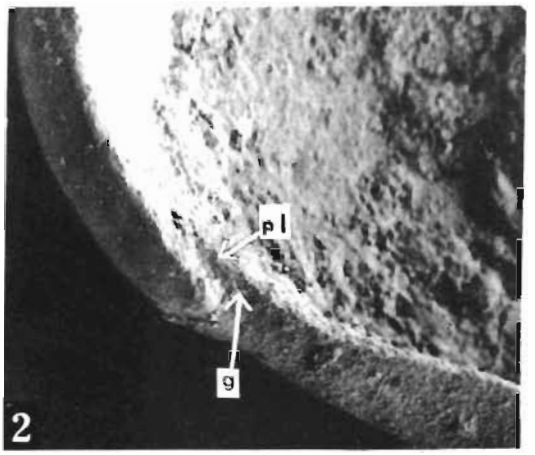
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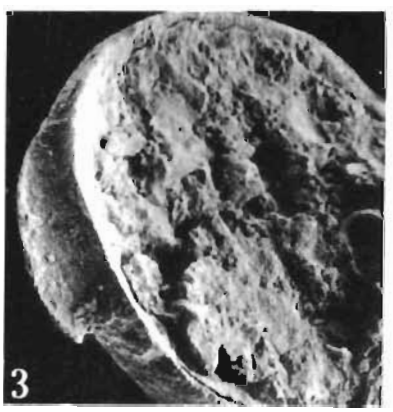
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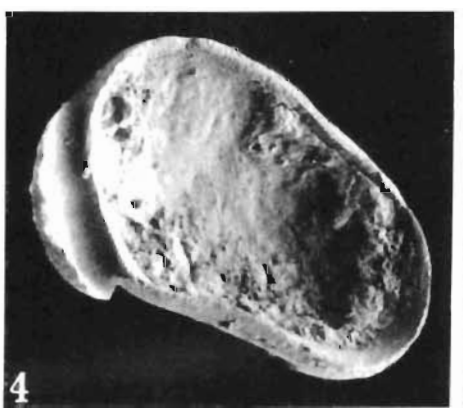
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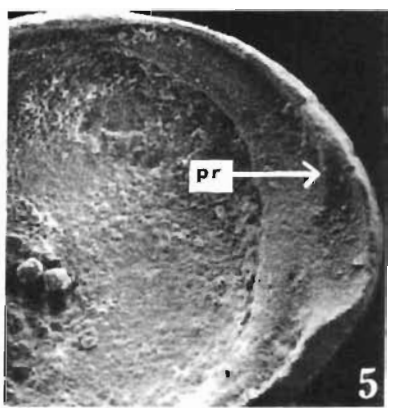
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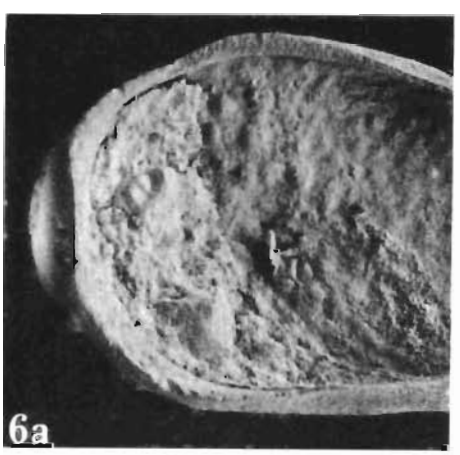
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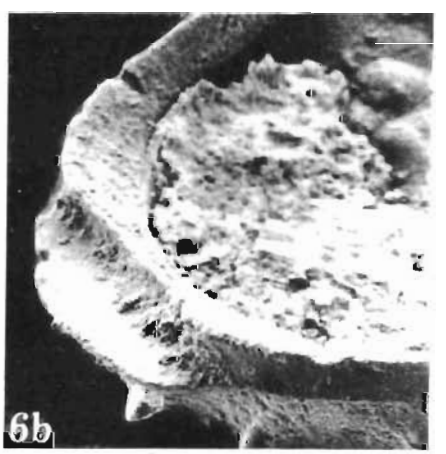
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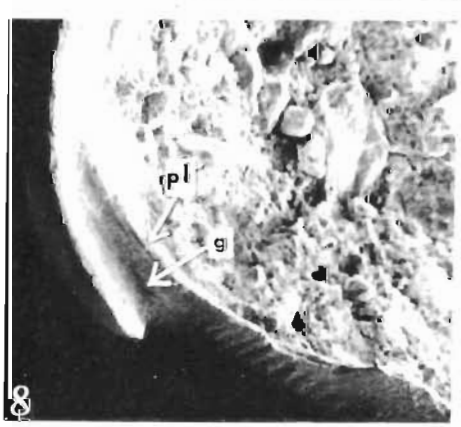
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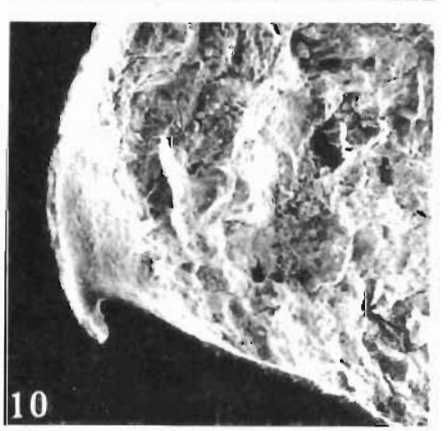
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