A C T A P A L A E O N T O L O G I C A P O L O N I C A
Vol. 27 1982 No. 1—4

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LOWER LIAS OSTRACODES OF THE TATRA MTS (WEST CARPATHIANS

BŁASZYK, J. and GAŹDZICKI, A.: Lower Lias ostracodes of the Tatra Mts. (West Carpathians). Acta Palaeont. Polonica, 27, 1—4, 129—136, 1982. Issued January 1983.

An assemblage of Lower Lias (Hettangian-?Sinemurian) ostracodes is reported for the first time from the Tatra Mts. Six ostracode species (including a new one *Ogmoconchella? carpathica* Błaszyk, sp. n.) are recognized in the basal clastics of the Kopieniec Formation (Fatricum). Their stratigraphic range corresponds to the foraminiferal *Ophthalmidium leischneri* and *Ophthalmidium walfordi* Assemblage Zone (*sensu* Gaździcki 1982).

K e y w o r d s: ostracodes, Lower Lias, Tatra Mts, Poland.

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INTRODUCTION

The Lower Lias rocks of the Fatricum (Kopieniec Formation) in the Tatra Mts. are represented by claystones and quartz sandstones with marly and limestone intercalations (Goetel 1917, Gaździcki 1975, Gaździcki *et al.* 1979), see also pl. 47: 3—5.

The ostracodes were found in the basal clastics of the Kopieniec Formation which crop out in the Strążyska Valley near Zakopane (figs. 1—2). This sequence belongs to the Samkowa Czuba tectonic unit (Kotański 1963). The ostracode-bearing samples were derived from units 6—9 in the studied profile (fig. 2). This is the first locality of Lower Lias ostracodes not only in the Tatra Mts but also in the whole West Carpathians.

The ostracode collection embraces 41 specimens. These are poorly preserved and are represented mainly by internal moulds of carapaces. All the ostracodes described in this paper derive from unit 6.

The collection of ostracodes studied is housed in the Institute of Paleobiology of the Polish Academy of Sciences in Warsaw (abbreviated

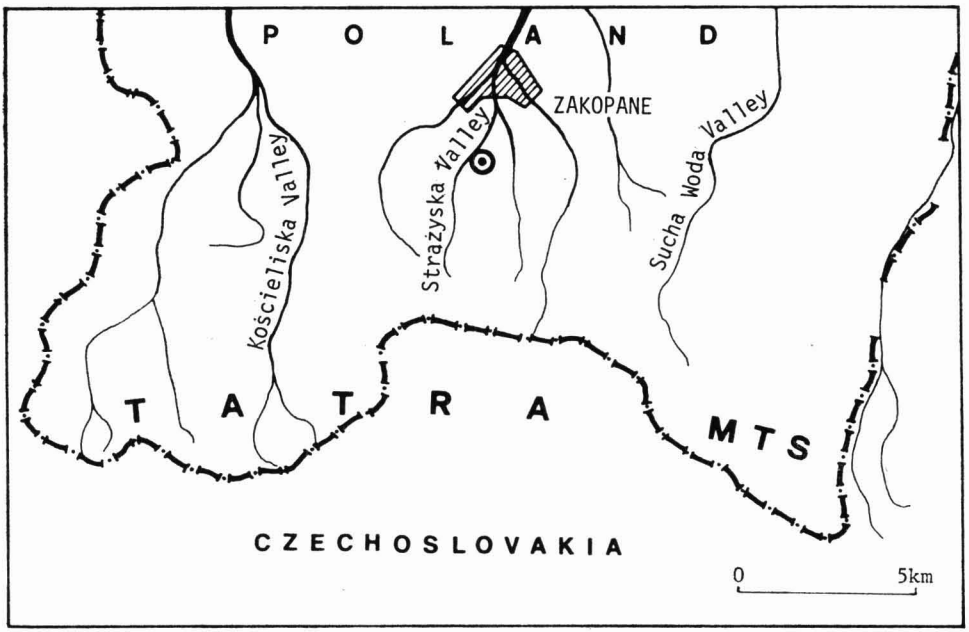

Fig. 1. Locality map of the Lower Lias (Kopieniec Formation) profile sampled for ostracodes in the Strążyska Valley.

as ZPAL). All the SEM micrographs were taken at the Laboratory of the Electron Microscopy of the Nencki Institute of Experimental Biology of the Polish Academy of Sciences in Warsaw.

Acknowledgements. — A. Gaździcki is indebted to the Management of the Tatra National Park at Zakopane for permission to carry out field-works in the Tatra Mts.

STRATIGRAPHY

The Kopieniec Formation lies conformably on the Fatra Formation (uppermost Triassic). It is subdivided into the following informal litho-stratigraphic units: basal clastics, lower limestones, main claystones, and upper limestones (fig. 2, see also Gaździcki *et al.* 1979).

The stratigraphic position of the Kopieniec Formation was determined by foraminiferal study (Gaździcki *et al.* 1979, Gaździcki 1982). This made possible the age determination of the ostracode bearing samples and correlation of stratigraphic ranges of ostracodes in the Tatra Mts and other regions.

Corbonate intercalations in the Lower Lias profile in the Strążyska Valley (fig. 2) yield relatively numerous and stratigraphically important foraminifera. These are most common in the lower and upper limestones of the Kopieniec Formation (fig. 2), especially in crinoid-biomicrite (pl. 47: 4 and 5), being represented by the families Miliolidae, Nodosariidae and

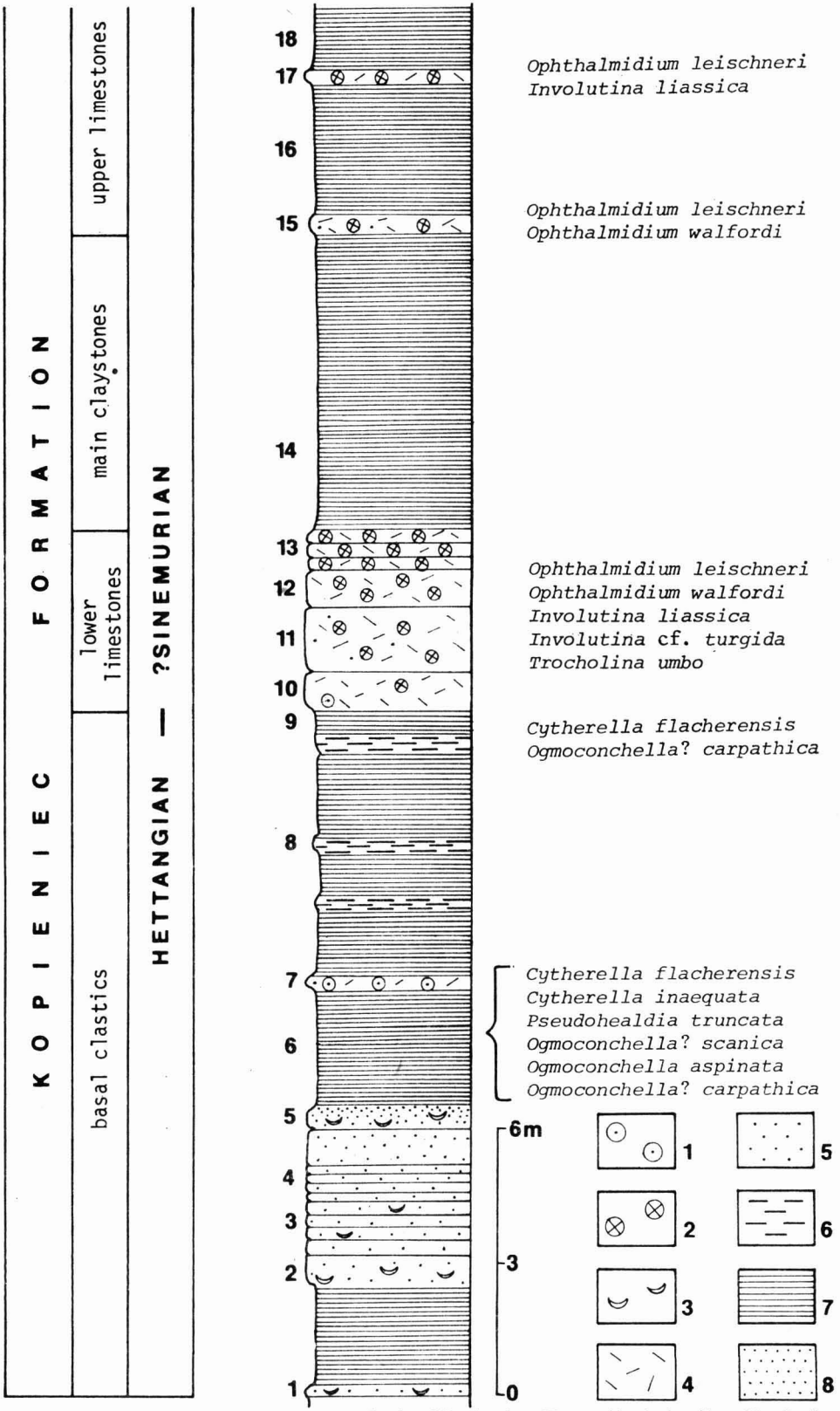

Fig. 2. Profile of the Lower Lias strata (Kopieniec Formation) in the Strążyska Valley: the profile presents lithology and distribution of ostracodes and foraminifera. *1* oolitic limestones, *2* crinoid limestones, *3* pelecypod shelly limestones, *4* organodetrital limestones, *5* sandy limestones, *6* marls, *7* claystones, *8* sandstones.

Involutinidae. Here predominate *Ophthalmidium leischneri* (Kristan-Tollmann), *Ophthalmidium walfordi* Hausler, *Involutina liassica* (Jones), *Involutina farinacciae* Brönnimann et Koehn-Zaninetti, *Trocholina umbo* Frentzen and the nodosariids (fig. 2 and pl. 47: 4 and 5).

The foraminiferal assemblage of the Strążyska Valley profile (fig. 2) is indicative of the Hettangian-?Sinemurian age — the *Ophthalmidium leischneri* and *Ophthalmidium walfordi* Assemblage Zone (*sensu* Gaździcki 1982). The range of the foraminiferal *Ophthalmidium leischneri* and *Ophthalmidium walfordi* Zone corresponds to that of the ammonoid *Psiloceras planorbis, Schlotheimia angulata* and presumably *Arietites bucklandi* Zones (Gaździcki *et al.* 1979, Gaździcki 1982).

CONCLUSIONS

The studied Lower Lias ostracodes of the Tatra Mts are very similar to contemporaneous assemblages from the epicontinental basin of the north-western Europe (Drexler 1958, Donze 1966, Bertelsen and Michelsen 1970, Sivhed 1977, 1980).

Taking into account the present stage of knowledge of the Lower Lias ostracodes, it may be stated that they occur both in geosynclinal and epicontinental basins of those times.

The data presented support the earlier statements (Gaździcki 1975, 1982) that the environmental conditions prevailing in the Carpathian geosyncline were similar to those in the epicontinental basin of the north-western Europe during the Early Lias.

SYSTEMATIC DESCRIPTION

Order **Podocopida** Müller, 1894
Family **Cytherellidae** Sars, 1866
Genus *Cytherella* Jones, 1894
Cytherella flacherensis Donze, 1966
(pl. 46: 1)

1966. *Cytherella flacherensis* Donze: pl. 5: 12—17.

Material. — Ten poorly preserved carapaces.

Dimensions (in mm):

	ZPAL O.XXIII/1 adult
Length of carapace	0.44
Height of carapace	0.30
Width of carapace	0.24

Remarks. — The specimens studied differ from the holotype in greater thickness and smaller length and height of carapace. Differences in size between the studied specimens and those illustrated by Donze (1966) result probably from sexual dimorphism.

Occurrence. — Poland, Tatra Mts, Strążyska Valley, Kopieniec Formation (Hettangian-?Sinemurian); France: Lower Hettangian, *planorbis* Zone, Flachères (Ardèche).

Cytherella inaequata Donze, 1966
(pl. 46: 2)

1966. *Cytherella inaequata* Donze: 124, pl. 5: 18—25.

Material. — Fourteen poorly preserved carapaces.

Dimensions (in mm):

	ZPAL O.XXIII/2 adult
Length of carapace	0.76
Height of carapace	0.50
Width of carapace	0.32

Remarks. — The specimens studied differ from the holotype in greater height and thickness and narrower anterior part of carapace.

Occurrence. — Poland: Tatra Mts, Strążyska Valley, Kopieniec Formation (Hettangian-?Sinemurian); France: Upper Hettangian, *angulatus* Zone, Flechères (Ardèche).

Family **Healdiidae** Harlton, 1933
Genus *Pseudohealdia* Gründel, 1964
Pseudohealdia truncata Malz, 1971
(pl. 46: 3—4)

1971. *Pseudohealdia truncata* Malz: 444, pl. 1: 3; pl. 4: 18—20.

Material. — Two carapaces.

Dimensions (in mm):

	ZPAL O.XXIII/3 adult	ZPAL O.XXIII/4 juvenile
Lenght of carapace	0.68	—
Height of carapace	0.40	—
Width of carapace	0.32	—
Length of left valve	—	0.34
Height of left valve	—	0.24

Remarks. — The specimens studied are slightly smaller than the holotype, have posterior end more rounded and poorly marked transversal rib in posterior part of the right and left valves.

Occurrence. — Poland, Tatra Mts, Strążyska Valley, Kopieniec Formation (Hettangian-?Sinemurian); FRG: Lias δ.

Genus *Ogmoconchella* Gründel, 1964
Ogmoconchella? scanica Sivhed, 1977
(pl. 46: 5)

1977. *Ogmoconchella? scanica* Sivhed: 19, pl. 3: 27—30.

Material. — Three left valves, poorly preserved.

Dimensions (in mm):

	ZPAL O.XXIII/5 adult
Length of left valve	0.80
Height of left valve	0.52

Remarks. — The studied specimens are much larger than the holotype.

Occurrence. — Poland: Tatra Mts, Strążyska Valley, Kopieniec Formation (Hettangian-?Sinemurian); Southern Sweden: Scania, Upper Sinemurian to Lower Pliensbachian.

Ogmoconchella aspinata (Drexler 1958)

(pl. 47: 1)

1958. *Healdia aspinata* Drexler: 505, pl. 21: 5; pl. 25: 1—4.

1964. *Ogmoconchella aspinata* (Drexler); Gründel: 470, pl. 5—7.

Material. — Three carapaces.

Dimensions (in mm):

ZPAL O.XXIII/6 adult	
Length of carapace	0.56
Height of carapace	0.32
Width of carapace	0.40

Remarks. — The specimens under study do not differ from the holotype, nor from the specimens described by Klingler (1962), Gründel (1964) and Malz (1971).

Occurrence. — Poland: Tatra Mts, Strążyska Valley, Kopieniec Formation (Hettangian-?Sinemurian); GDR, FRG: Lias α.

Ogmoconchella ? carpathica Błaszyk, sp. n.

(pl. 47: 2)

Holotype: ZPAL O.XXIII/7; pl. 47: 2.

Type horizon: basal clastics of the Kopieniec Formation, Lower Lias (Hettangian-?Sinemurian).

Type locality: Strążyska Valley in the Tatra Mts, Western Carpathians, Poland.

Derivation of the name: after the Carpathian Mountains.

Diagnosis. — Carapace elongate, convex in dorsal part. Anterior and posterior ends rounded. Laft valve larger than the right one. Carapace surface smooth.

Material. — Nine carapaces.

Dimensions (in mm):

ZPAL O.XXIII/7 adult	
Length of carapace	0.56
Height of carapace	0.32
Width of carapace	0.28

Description. — Left valve larger than the right one. In dorsal view carapace convex in central part, elongated in side view. Dorsal outline slightly convex, the ventral one almost straight. Anterior end rounded, the posterior truncated ventroposteriorly. Surface of carapace smooth. Muscle scar and hinges invisible.

Remarks. — *Ogmoconchella ? carpathica* sp. n. is similar to *O. conversa* Malz. It differs from the latter in smaller dimensions of carapace and less convex dorsal margin.

Occurrence. — Known only from the type locality.

REFERENCES

BERTELSEN, F. and MICHELSEN, D. 1970. Megaspores and Ostracodes from the Rhaeto-Liassic section in the boring Rødby No. 1, Southern Denmark. — *Danmarks Geol. Unders., Geol. Surv. Denmark*, 2 ser., **94**, 1—60.

DONZE, P. 1966. Ostracodes de l'Hettangien entre Aubenas et Privas (Ardèche). — *Trav. Lab. Géol. Fac. Sc. Univ. Lyon, n.s.*, **13**, 121—139.

DREXLER, E. 1958. Foraminiferen und Ostracoden aus dem Lias α von Siebeldingen (Pfalz). — *Geol. Jb.*, **75**, 475—554.

GAŹDZICKI, A. 1975. Lower Liassic ("Gresten Beds") microfacies and foraminifers from the Tatra Mts. — *Acta Geol. Polonica*, **25**, 3, 385—398.

— 1982. Foraminifers and biostratigraphy of Upper Triassic and Lower Jurassic of the Slovakian and Polish Carpathians. —*Palaeont. Polonica*, **44**, 109—169.

— MICHALÍK, J., PLANDEROVÁ, E. and SÝKORA, M. 1979. An Upper Triassic-Lower Jurassic sequence in the Kriźna nappe (West Tatra Mts., West Carpathians, Czechoslovakia). — *Západne Karpaty, Geol.*, **5**, 119—148.

GOETEL, W. 1917. Die rhätische Stufe und der unterste Lias der subtatrischen Zone in der Tatra. — *Bull. Acad. Sci. de Cracovie*, Cl. Sci. Math.-Nat., Sér. A, 1—222.

GRÜNDEL, J. 1970. Die Ausbildung der Muskelnarben an liassischen Vertretern der Healdiidae (Ostrac.). — *Freiberger Forsch.*-H., **C 256**, 47—63.

— 1964. Zur Gattung *Healdia* (Ostracoda) und zu einigen verwandten Formen aus dem unteren Jura. — *Geologie*, **13**, 4, 456—474.

KLINGLER, W. 1962. Lias Deutschlands. — *In*: Leitfossilien der Mikropaläontologie, 73—122. Gebrüder Borntraeger, Belin-Nikolassee.

KOTAŃSKI, Z. 1963. Stratygrafia i litologia triasu regli zakopiańskich (Stratigraphie et lithologie du Trias Subtatrique de la région de Zakopane). — *Acta Geol. Polonica*, **13**, 3/4, 317—385.

MALZ, H. 1971. Zur Taxonomie "glattschaliger" Lias-Ostracoden. — *Senckenberg. Lethaea*, **52**, 5/6, 433—455.

SIVHED, U. 1977. A Lower Jurassic ostracode fauna in the Gantofta Brick Pit, Skane, Southern Sweden. — *Sverig. Geol. Undersök.*, **C 730**, 1—31.

— 1980. Lower Jurassic ostracodes and stratigraphy of Western Skane, Southern Sweden. — *Ibidem*, Ca 50, 1—85.

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MAŁŻORACZKI Z DOLNEGO LIASU REGLOWEGO TATR

Streszczenie

W utworach dolnego liasu należących do formacji kopienieckiej (Fatricum) odsłaniających się w Dolinie Strążyskiej w Tatrach (figs 1—2) stwierdzono obecność małżoraczków. Opisano 6 gatunków, w tym jeden nowy *Ogmoconchella? carpathica* Błaszyk, sp. n. (pls. 46—47).

W oparciu o występowanie w rozważanych utworach także szeregu otwornic o znaczeniu biostratygraficznym (Gaździcki 1982), wykazano, że zasięg stratygraficzny opisanego zespołu małżoraczków może odpowiadać zasięgowi zespołowego poziomu otwornicowego *Ophthalmidium leischneri* i *Ophthalmidium walfordi* — określającego wiek powyższych osadów na hettang?-synemur (fig. 2).

EXPLANATIONS OF PLATES 46—47

All specimens described are from the Strążyska Valley in the Tatra Mts, Poland; Kopieniec Formation (basal clastics), Lower Lias (Hettangian — ? Sinemurian) — see fig. 2.
Abbreviations used: C = carapace, RV = right valve, LV — left valve, A = adult, JS = juvenile stage.
Dimensions (in mm) of the individuals are given in parenthesis. Magnifications of all ostracode figures are approximately ×70.

Plate 46

Cytherella flacherensis Donze, 1966

1. C. (0.44) A: *a* RV lateral view, *b* LV lateral view, *c* dorsal view; ZPAL O.XXIII/1.

Cytherella inaequata Donze, 1966

2. C. (0.76) A: *a* LV lateral view, *b* dorsal view; ZPAL O. XXIII/2.

Pseudohealdia truncata Malz, 1971

3. C. (0.68) A: *a* RV lateral view, *b* LV lateral view, *c* dorsal view; ZPAL O.XXIII/3.
4. (0.34) JS: *a* LV lateral view, *b* LV internal view; ZPAL O.XXIII/4.

Ogmoconchella? scanica Sived, 1977

5. (0.80) A: *a* RV lateral view, *b* RV internal view; ZPAL O.XXIII/5.

Plate 47

Ogmoconchella aspinata (Drexler 1958)

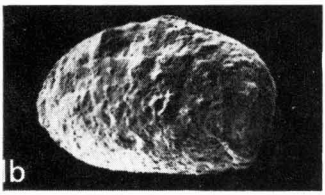
1. C. (0.56) A: *a* RV lateral view, *b* LV lateral view, *c* dorsal view; ZPAL O.XXIII/6.

Ogmoconchella? carpathica Błaszyk, sp. n.

2. C. (0.56) A: *a* LV lateral view, *b* RV lateral view, *c* dorsal view; ZPAL O.XXIII/7.

Petrographic thin sections

3. Calcareous, quartz sandstone with pelecypod debris; unit 2. ×10.
4. Sandy biooomicrite with ostracodes (arrowed) and crinoid debris; unit 7. ×10.
5. Biointrasparenite composed of crinoid debris with onkolitic crusts as well as of nodosariid foraminifera (arrowed) and intraclasts; unit 13. ×10.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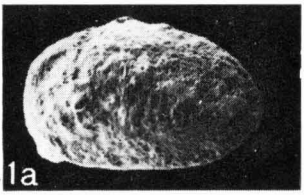
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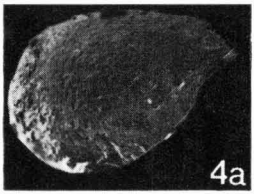
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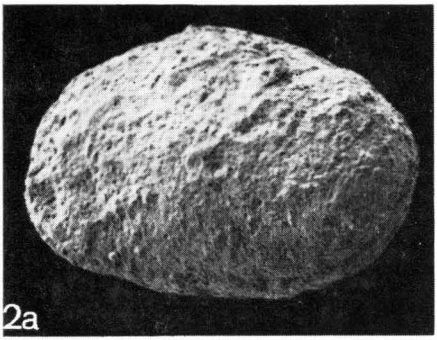
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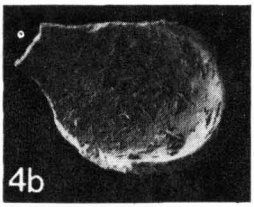
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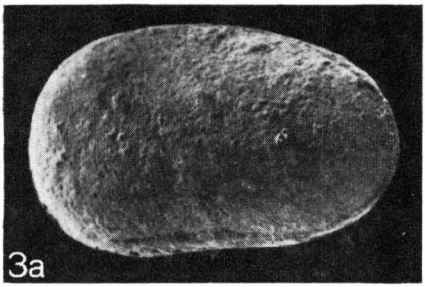
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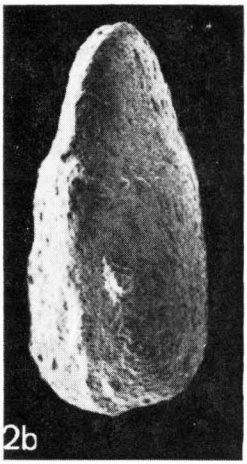
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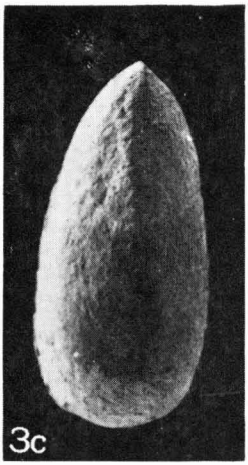
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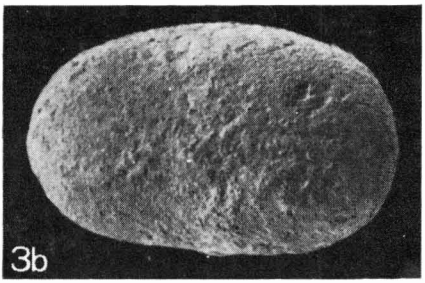
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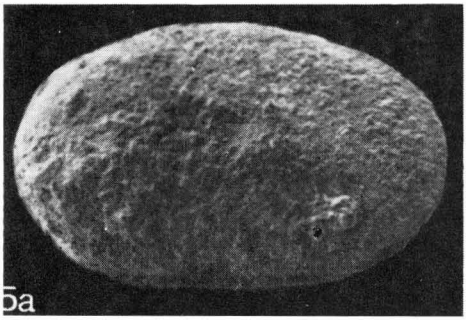
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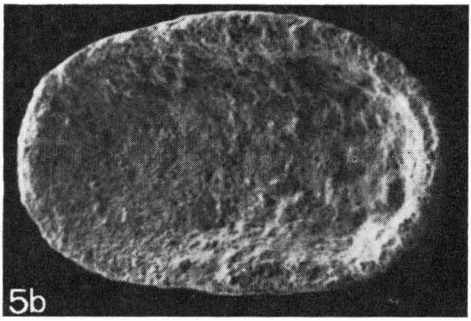
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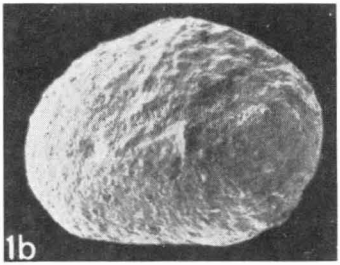
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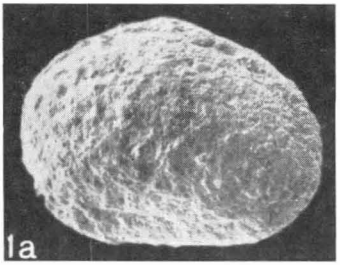
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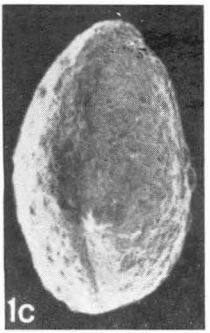
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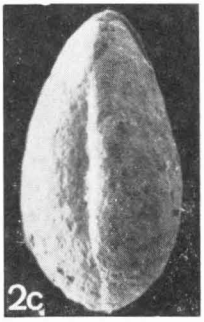
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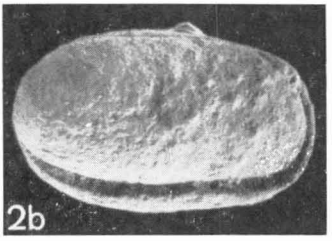
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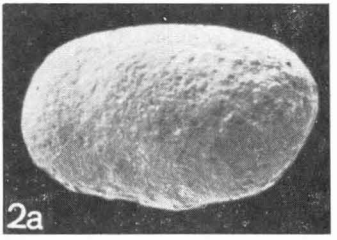
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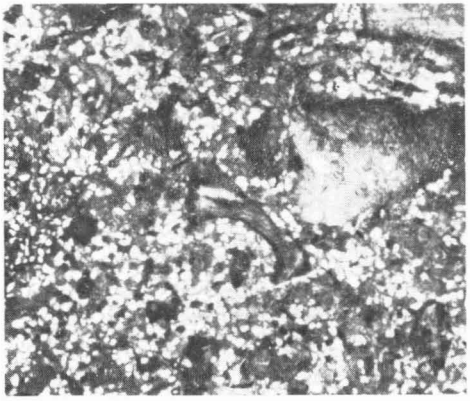
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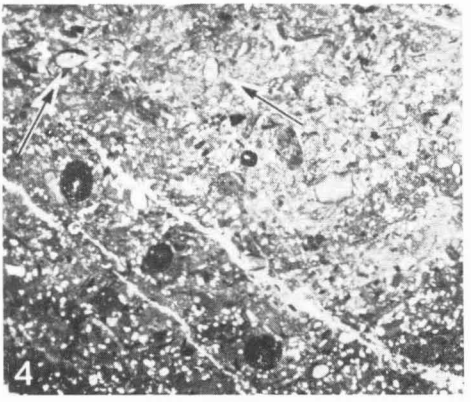
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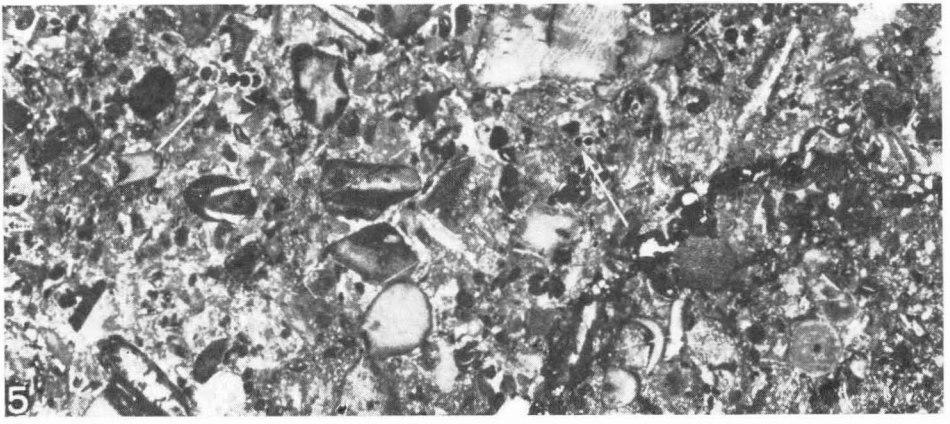
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