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MOJCZELLA, A NEW GENUS OF OSTRACODA FROM THE ORDOVICIAN OF THE ŚWIETOKRZYSKIE MTS., POLAND

OLEMPSKA, E.: *Mojczella*, a new genus of Ostracoda from the Ordovician of the Świetokrzyskie Mts., Poland. Acta Palaeont. Polonica, 32, 2, 135—144, 1988.

A new genus *Mojczella*, including three new species: *Mojczella polonica* sp. n., *M. jaanussoni* sp. n. and *M. sanctacrucensis* sp. n. have been described from the Lower and Middle Ordovician from Mójcza in the Świetokrzyskie Mts. The stratigraphical range, geographical distribution and relationships of the new genus are discussed.

K e y w o r d s: Ostracoda, Ordovician, Świetokrzyskie (Holy Cross) Mts., Poland.
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INTRODUCTION

The Ordovician strata exposed at a hill Skała in Mójcza near Kielce, Świetokrzyskie (Holy Cross) Mts. (fig. 1), is known since works of Gürich (1900). The stratigraphy of the Mójcza Limestone was discussed with the reference to the conodont record by Spassov and Teller (1963) and Bednarczyk (1966, 1971). The conodont assemblage of these limestones is of the North Atlantic type (Dzik 1978, and in preparation). The Mójcza limestones represent the interval ranging from the Arenig/Llanvirn boundary (conodont *Amorphognathus variabilis* Zone, lower part of the Baltic Kunda stage), up to the Ashgill (*Amorphognatus ordovicicus* Zone: Dzik 1978, and in press). According to Dzik (in preparation) there is a sedimentary break in the section corresponding to the upper part of the Kundan (Aluoja substage, B III γ) and to the Aseri (CIa) and Lower Lasnamägi (CIb) stages, i.e. the conodont *Eoplacognathus suecicus* Zone and *E. foliaceus* Subzone of the *Pygodus serra* Zone.

The samples from the lower part of the sequence, from sandy biosparenites of *Amorphognathus variabilis* Zone and samples from biosparites of the Middle Ordovician (*Pygodus serra* — *Amorphognathus superbus* Zones) yielded specimens of *Mojczella* gen. n. (fig. 2).

Three species can be distinguished in the material from the Mójcza

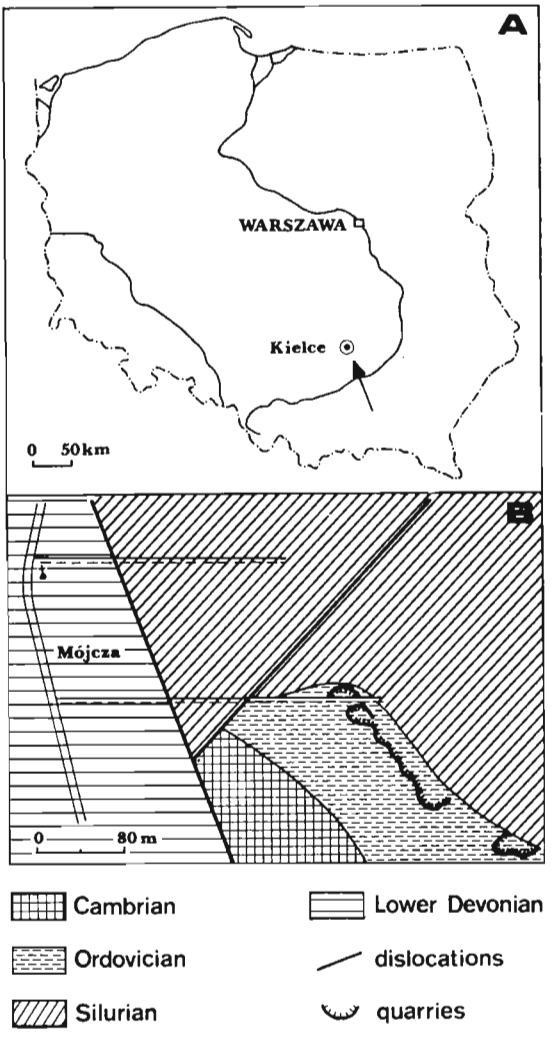

Fig. 1. *A* Map of Poland, an arrow indicates approximate location of Mójcza, Świętokrzyskie Mts. *B* Geologic sketch map of the outcrops of the Ordovician in Mójcza (after Bednarczyk 1966).

locality (*Mojczella polonica* (the oldest), *M. jaanussoni* and *M. sanctacrucensis* (the youngest)). A precise delineation of vertical ranges of these species is impossible because of continuity of evolutionary changes and high intrapopulational variability (Olempska, 1989). For convenience, boundaries between the species were drawn in intervals with poor paleontological record (fig. 2).

The described material is housed at the Institute of Paleobiology, Polish Academy of Sciences, Warsaw (abbreviated ZPAL).

Acknowledgements. — I would like to express my thanks to Dr. Valdar Jaanusson (Naturhistoriska Riksmuseet, Stockholm) for critical reading of the manuscript.

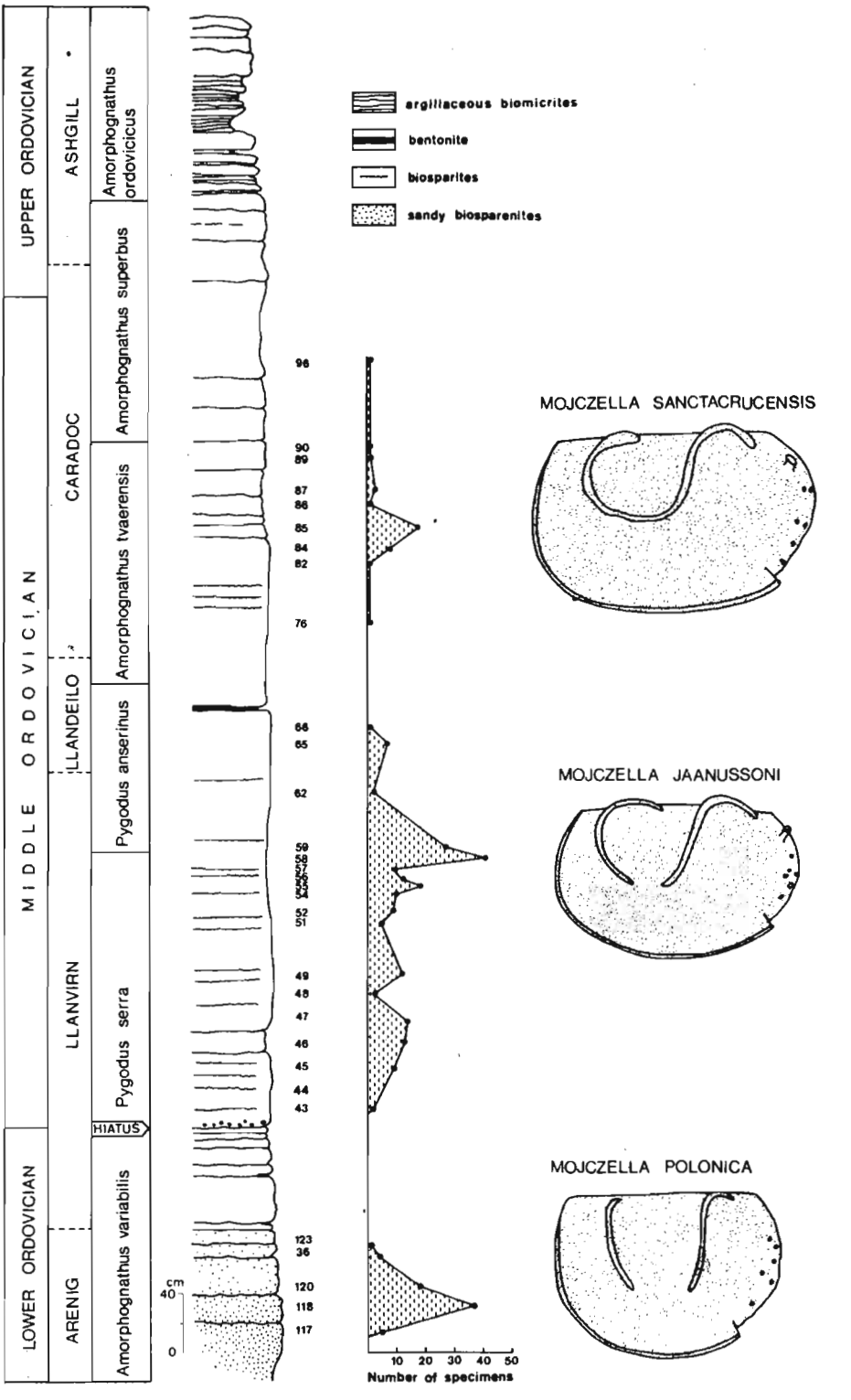

Fig. 2. Stratigraphic succession and evolution of the genus *Mojczella* gen. n. in the Mójcza limestones.

SEM photographs were taken at the Electron Microscopy Laboratory of the Nencki Institute of Experimental Biology, Warsaw. Figures were drawn by Mrs. D. Sławik (Institute of Paleobiology, Polish Academy of Sciences, Warsaw).

SYSTEMATIC DESCRIPTIONS

Subclass **Ostracoda** Latreille, 1802 emend. Latreille, 1804
Order **Beyrichiocopa** Pokorný, 1953 emend. Martinsson, 1956
Suborder **Palaeocopa** Henningsmoen, 1953 emend. Martinsson, 1956
Superfamily **Hallinacea** Swartz, 1936
Family **Tvaerenellidae** Jaanusson, 1957

Genus *Mojczella* gen. n.

Type species: *Mojczella jaanussoni* sp. n.

Diagnosis. — Unisulcate, with pear-shaped preadductorial node, sulcus and node surrounded by crests, continuous dorsally with the dorsal plica. Velar structure anteriorly and ventrally developed as nonundulate ridge and as a row of small tubercles posteroventrally.

Derivation of the name: After the type locality.

Species assigned: *M. polonica* sp. n., *M. jaanussoni* sp. n., *M. sanctacrucensis* sp. n., ?*Piretella tridactyla* Jaanusson.

Occurrence. — Lower to Middle Ordovician, Poland: Świetokrzyskie Mts., Mójcza locality; probably Middle Ordovician (Segerstad Limestone) of Ostergotland, Sweden; and Middle Ordovician of North-East Lithuania, USSR.

Discussion. — The species of *Mojczella* gen. n. are characterized by domicilial outline and presence of lobal crests (C1 and C3) which surround sulcus and preadductorial node and are dorsally continuous with the dorsal plica. It makes these species similar to those of *Piretella*. The hitherto described species of the latter genus possess a large, rounded preadductorial knob, and semicircular crest which surrounds sulcus and knob and continues with the dorsal plica. *Mojczella* gen. n. and *Piretella* primarily differ in the development of velar structure. In *Piretella* the structure is moderately wide and developed in anterior and anteroventral parts as undulate frill and, in the majority of species as a row of posteroventrally directed stout spines. Heteromorphs display in *Piretella* strongly convex dolon. In turn, tecnomorphs of *Mojczella* gen. n. are characterized by non-undulate velar ridge, developed as moderately wide smooth ridge along anterior and ventral margins and continuing in the form of irregularly distributed minute tubercles along the posterior margin. *Mojczella jaanussoni* and *M. sanctacrucensis* also display a spine in posterodorsal part. The species *Piretella tridactyla*, described from Segerstad Limestone (Upper Llanvirn) by Jaanusson (1957), is most closely related to the below described species of *Mojczella*, especially *M. jaanussoni*. It differs from the latter in markedly longer velar structure, extending from one cardinal corner to the other. Jaanusson's specimens also do not display trace of "fused spines" when submerged in alcohol (Jaanusson 1957). The heteromorph figured by Jaanusson (1957) represents a poorly preserved mould. The species are also similar in development of C1 and C3. According to Schallreuter (1975) the presence of long velar structure may justify separation of *P. tridactyla* in a new subgenus of the genus *Piretella*. I am of the opinion that non-

undulate velar ridge in *P. tridactyla* and the species of *Mojczella* differ so much from the vellar frill of the genus *Piretella* that the former should be assigned to a separate genus. *Piretella tridactyla* may belong to a lineage descendant of *Mojczella*. Its origin was probably accompanied by marked elongation of velar structure whereas all the remaining features (ornamentation of surface, development of C1 and C3, and presence of smooth, strongly convex dolon in anteroventral part) are similar in *Mojczella jaanussoni* and *P. tridactyla*. The two species presumably evolved from the same stem and it is not excluded that *M. polonica* is ancestral to both of them.

Thanks to the courtesy of Dr. N. Sidaravičienė, Vilnius, I obtained figures of yet undescribed forms, fairly common from the base of the Kukruse stage upwards in Lithuania. I regard these forms as assignable to the genus *Mojczella*, closest to *M. sanctacrucensis*, as they display C1 and C3 completely connected with one another beneath sulcus. Dr. N. Sidaravičienė's material comprises both tecno- and heteromorphs so it may help to precise definition of species of this genus when its paleontological analysis is published. It also seems that reconstruction of directions of biogeographic expansion of *Mojczella* will be much easier when specimens reported under the names of *P. tridactyla* and *P.* ex. gr. *tridactyla* from the Aseri and Lasnamagi stages in Lithuania and Latvia (Sidaravičienė 1973, 1976) and Kukruse stage (Sidaravičienė 1973, Sidaravičienė and Saulėnienė 1980) are described and revised.

Mojczella polonica sp. n.

(pl. 17: 1—6)

Holotype: ZPAL O.XXV/208, pl. 17: 5.

Type horizon: Lower Ordovician, *Amorphognathus variabilis* Zone, sample no. MA-118.

Type locality: Mójcza, Świetokrzyskie Mts., Poland.

Derivation of the name: After Poland.

Diagnosis. — C1 and C3 extending slightly below the mid-height of valve; dorsal plica poorly developed. Velar structure non-undulate but slightly radially striated, developed in anterior and ventral parts as a ridge in tecnomorphs and wide, slightly convex ridge in heteromorphs.

Material. — About 65 well preserved valves of tecnomorphs and 4 heteromorphs, and some tens of partly damaged tecnomorphs.

Dimensions (in mm):

	Length	Height
ZPAL O.XXV/212	0.61	0.40
ZPAL O.XXV/105	0.77	0.50
ZPAL O.XXV/169	1.01	0.67
ZPAL O.XXV/206	1.10	0.67
ZPAL O.XXV/208	1.55	1.01

Description. — Domicilial outline almost amplete. Domicilium in ventral view rather faintly convex, highest convexity at about the mid-length of the valve or somewhat behind it. Preadductorial node small, pear-shaped. Sulcus fairly deep, short, with ventral part anteroventrally curved. Anterior branch of crest (C1) regularly curved, continuing dorsally with very short dorsal plica; C1 ending somewhere below sulcus. Posterior branch of crest (C3) almost rectilinear, generally longer than C1 and continuing as poorly traceable dorsal plica or a few minute tubercles in dorsal part. The ventral end of the crests extends somewhat below the mid-height of the valve. Velar structure of tecnomorphs developed as moderately wide non-undulate ridge, broadest in anteroventral part. Anterior ending of velar ridge situated some-

what below anterior cardinal corner. Posteroventral end with spine-like projection and continuing in the form of irregularly distributed minute tubercles along posterior margin. Heteromorphs with fairly wide velar structure, slightly convex and with fine traces of transverse striation. Marginal structure represented by marginal tubercles. Surface of valves finely granulated.

Remarks. — *Mojczella polonica* sp. n. differs from *M. jaanussoni* sp. n. in longer C1 and C3, extending below the mid-height, larger distance between C1 and C3 as measured beneath sulcus, the lack of posterodorsal spine, and velar structure not reaching anterior cardinal corner.

Occurrence. — Poland: Świetokrzyskie Mts., Mójcza, Lower Ordovician (*Amorphognathus variabilis* Zone.

Mojczella jaanussoni sp. n.

(pl. 17: 7—8, pl. 18: 1—7, pl. 19: 1—4)

Holotype: ZPAL O.XXV/24, pl. 19: 2.

Type horizon: Middle Ordovician (*P. anserinus* Zone), sample no. MA-62.
no. MA-62.

Type locality: Mójcza, Świetokrzyskie Mts., Poland.

Derivation of the name: In honour of Dr. Valdar Jaanusson, Stockholm.

Diagnosis. — C1 evenly curved, ending below preadductorial node, dorsally continuous with the dorsal plica. C3 more or less rectilinear, continuing dorsally with posterior part of dorsal plica. Velar ridge non-undulate, developed in anterior and ventral parts. Heteromorphs with smooth, strongly convex dolon.

Material. — About 192 complete and some tens of damaged valves of tecnomorphs and 4 fragments of valves of heteromorphs.

Dimensions (in mm):

ZPAL	O.XXV/88	O.XXV/18	O.XXV/41	O.XXV/2	O.XXV/221
Length	0.68	0.95	0.65	0.92	1.01
Height	0.45	0.63	0.47	0.56	0.63
	O.XXV/219	O.XXV/213	O.XXV/218	O.XXV/214	O.XXV/216
Length	0.72	0.72	1.19	1.13	1.37
Height	0.49	0.45	0.72	0.72	0.92
	O.XXV/24	O.XXV/217	O.XXV/185		
Length	1.89	1.73	2.03		
Height	1.24	1.13	1.37		

Description. — Domicilial outline almost postplete. Lateral surface of the domicilium rather faintly convex, highest convexity slightly behind the posterior branch of the crest, somewhat ventral to the middle of the valve. Preadductorial node pear-shaped. Sulcus fairly deep, ventral part anteroventrally curved. Anterior branch of crest (C1) evenly curved, continuing dorsally with the dorsal plica. C1 ending somewhat below ventral end of preadductorial node. C3 more or less rectilinear, continuing dorsally with the dorsal plica. Both C1 and C3 extending far beneath preadductorial node. The ventral end of the crests in the mid-height of the valve. Dorsal plica almost equally strong as crests, posterior part posteroventrally curved. Velar structure of tecnomorphs developed in the form of moderately wide non-undulate ridge, broadest in anteroventral part and continuing from anterior cardinal corner to end of ventral margin with spinelike projection in posteroventral part. Surface of velar ridge finely granulated. Velar structure continuing in the form of irregularly distributed tubercles

along posterior margin. Posterodorsal part with spine. Specimens of heteromorphs not numerous, poorly preserved, with smooth, strongly convex dolon in anteroventral part. Marginal structure in the form of a row of marginal tubercles. The lateral surface of the domicilium is covered by minute closely spaced granules. The minute granules are for the most part arranged in rows so as give the ornamentation sometimes very finely reticulose appearance (pl. 18: 3).

Remarks. — *Mojczella jaanussoni* sp. n. differs from *M. polonica* sp. n. in C1 and C3 extending farther beneath sulcus and preadductorial node, the presence of posterodorsal spine, and velar structure reaching anterior cardinal corner. *M. jaanussoni* differs from *M. sanctacrucensis* in the crests not connected beneath preadductorial node.

Occurrence. — Poland: Świetokrzyskie Mts., Middle Ordovician (*Pygodus serra* — *P. anserinus* Zones).

Mojczella sanctacrucensis sp. n.

(pl. 19: 5—8)

Holotype: ZPAL O.XXV/260, pl. 19: 8.

Type horizon: Middle Ordovician (*Amorphognathus tvaerensis* Zone), sample no. MA-86.

Type locality: Mójcza, Świetokrzyskie Mts., Poland.

Derivation of the name: Latin name of the Świetokrzyskie Mountains.

Diagnosis. — C1 and C3 united beneath preadductorial node; crest slightly curved at the point of connection. Velar ridge non-undulate, moderately wide, developed in anterior and ventral parts.

Material. — Thirty six complete and some tens of damaged tecnomorph valves.

Dimensions (in mm):

	ZPAL O.XXV/209	O.XXV/175	O.XXV/210	O.XXV/260
Length	0.92	1.06	1.28	1.80
Height	0.58	0.67	0.88	1.26

Description. — Domicilial outline almost postplete. Domicilium in ventral view rather faintly convex, highest convexity behind the midlength of the valve. Preadductorial node pear-shaped. Sulcus fairly deep and somewhat twisted towards the anterior in ventral part. C1 markedly curved, continuing dorsally with the dorsal plica. C3 weakly curved, also continuing with the dorsal plica, and connected with C1 beneath preadductorial node in mid-height of the valve or somewhat above of it; the connection point accentuated by slight bend of crest. Tecnomorphs with velar structure developed as moderately wide ridge, continuing from anterior cardinal corner to end in the form of spine in posteroventral part. Velar structure continuing along posterior margin in the form of irregularly distributed minute tubercles. Posterodorsal part with fairly large spine. Marginal structure represented by a row of marginal tubercles. Surface of carapaces finely granulated. Heteromorphs not found yet.

Remarks. — *Mojczella sanctacrucensis* sp. n. differs from *M. polonica* sp. n. and *M. jaanussoni* sp. n. by C1 and C3 connected beneath preadductorial node. The area surrounded by the crest in *M. sanctacrucensis* is narrower than in *M. jaanussoni*, the crests are connected in mid-height of the valve.

Occurrence. — Poland: Świetokrzyskie Mts., Mójcza, Middle Ordovician (*Amorphognathus tvaerensis* — *A. superbus* Zones).

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EWA OLEMPSKA

MOJCZELLA, NOWY RODZAJ MAŁŻORACZKÓW Z ORDOWIKU GÓR ŚWIĘTOKRZYSKICH

Streszczenie

Wśród bogatego zespołu małżoraczków występujących w osadach ordowiku w profilu Mójczy pod Kielcami, Góry Świętokrzyskie, stwierdzono występowanie form zaliczonych do nowego rodzaju *Mojczella* gen. n. Wyróżniono trzy nowe gatunki: *Mojczella polonica* sp. n. stwierdzona w osadach poziomu *Amorphognathus variabilis* (pogranicze Arenigu i Lanwirnu), *Mojczella jaanussoni* sp. n. stwierdzona w osadach poziomu *Pygodus serra* — *Pygodus anserinus* (Lanwirn — Landeilo), oraz *Mojczella*

sanctacrucensis sp. n. występująca w osadach poziomu *Amorphognathus tvaerensis* — *Amorphognathus superbus* (Karadok).

Biometryczne badania zmienności morfologicznej dorosłych oraz młodocianych osobników wyróżnionych gatunków są przedmiotem oddzielnego opracowania (Olempska, 1989).

Praca wykonana w ramach problemu CPBPO4.

EXPLANATION OF PLATES 17—19

Plate 17

Mojczella polonica sp. n.
Lower Ordovician, *Amorphognathus variabilis* Zone

1. Juvenile valve, LV lateral view, ×57, ZPAL O.XXV/212, sample MA-118.
2. Juvenile valve, LV lateral view, ×57, ZPAL O.XXV/105, sample MA-36.
3. Juvenile valve, LV lateral view, ×57, ZPAL O.XXV/169, sample MA-36.
4. Tecnomorph valve, LV lateral view, ×57, ZPAL O.XXV/206, sample MA-120.
5. Heteromorph valve, RV lateral view, ×34, holotype ZPAL O.XXV/208, sample MA-118.
6. Heteromorph valve, RV lateral view, ×34, ZPAL O.XXV/207, sample MA-120.

Mojczella jaanussoni sp. n.
Middle Ordovician, *Pygodus serra* Zone

7. Juvenile valve, LV lateral view, ×57, ZPAL O.XXV/88, sample MA-46.
8. Juvenile valve, LV lateral view, ×57, ZPAL O.XXV/18, sample Ma-46.

Mójcza, Świetokrzyskie Mts.

Plate 18

Mojczella jaanussoni sp. n.
Middle Ordovician, *Pygodus serra* — *Pygodus anserinus* Zones

1. Juvenile valve, *a* RV lateral view, *b* ventral view, ×70, ZPAL O.XXV/41, sample MA-52.
2. Juvenile valve, LV lateral view, ×57, ZPAL O.XXV/2, sample MA-56.
3. External mould with ornamental details, ×330, ZPAL O.XXV/222, sample MA-58.
4. Juvenile valve, LV lateral view, ×57, ZPAL O.XXV/219, sample MA-58.
5. Juvenile valve, RV lateral view, ×57, ZPAL O.XXV/213, sample MA-59.
6. Juvenile valve, RV lateral view, ×43, ZPAL O.XXV/218, sample MA-58.
7. Juvenile valve, RV lateral view, ×43, ZPAL O.XXV/214, sample MA-59.

Mójcza, Świetokrzyskie Mts.

Plate 19

Mojczella jaanussoni sp. n.
Middle Ordovician, *Pygodus anserinus* Zone

1. Tecnomorph valve, RV lateral view, ×34, ZPAL O.XXV/216, sample MA-58.
2. Tecnomorph valve, LV lateral view, ×25, holotype ZPAL O.XXV/24, sample MA-62.
3. Tecnomorph valve, LV lateral view, ×34, ZPAL O.XXV/217, sample MA-58.
4. Heteromorph valve, LV lateral view, ×25, ZPAL O.XXV/185, sample MA-59.

Mojczella sanctacrucensis sp. n.
Middle Ordovician, *Amorphognathus tvaerensis* Zone

5. Juvenile valve, RV lateral view, ×57, ZPAL O.XXV/209, sample MA-84.
6. Juvenile valve, RV lateral view, ×57, ZPAL O.XXV/175, sample MA-86.
7. Tecnomorph valve, RV lateral view, ×43, ZPAL O.XXV/210, sample MA-84.
8. Tecnomorph valve, LV lateral view, ×30, holotype ZPAL O.XXV/260, sample MA-85.

Mójcza, Świetokrzyskie Mts.


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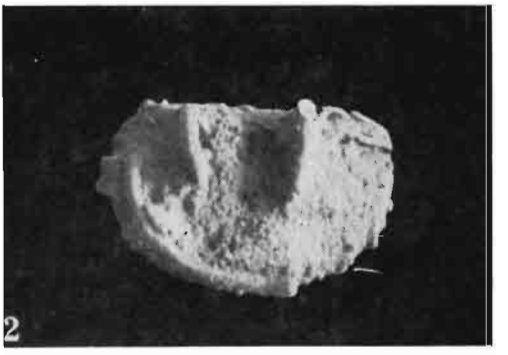
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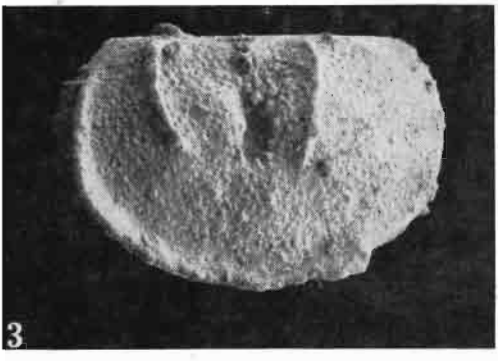
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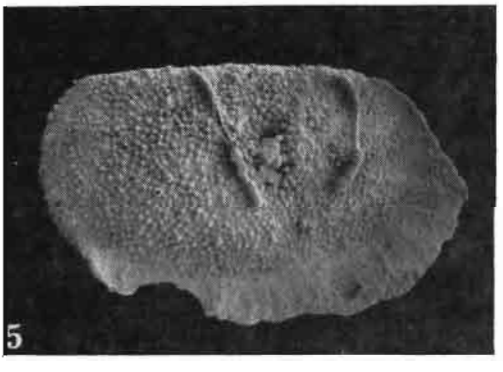
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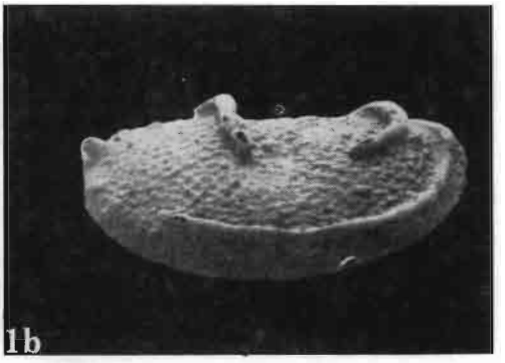
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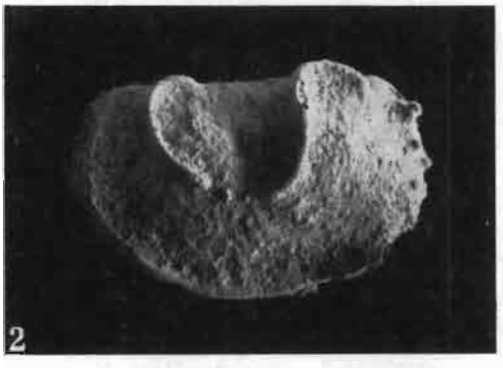
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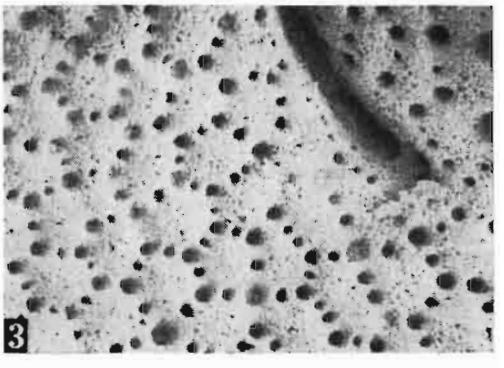
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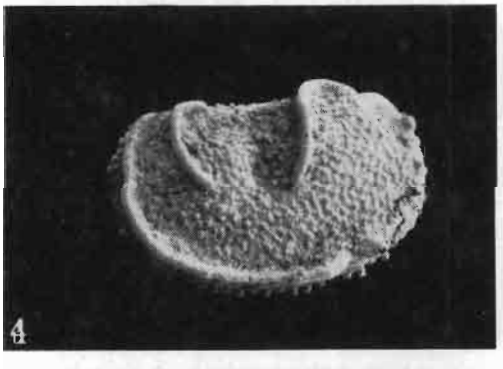
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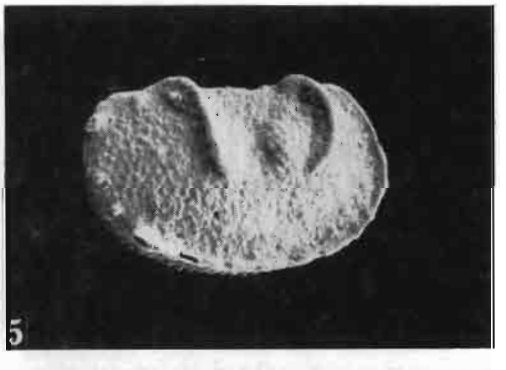
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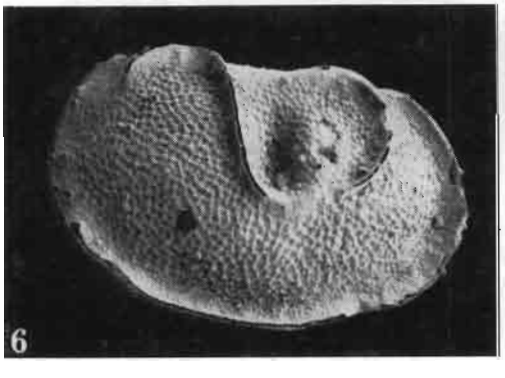
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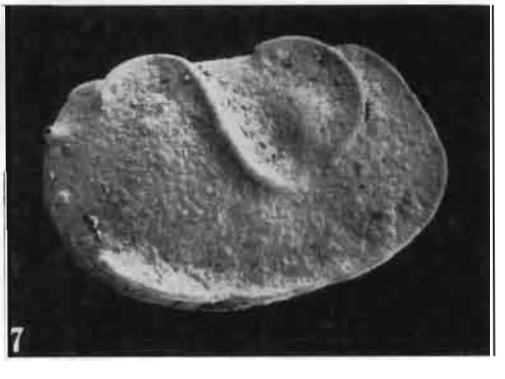
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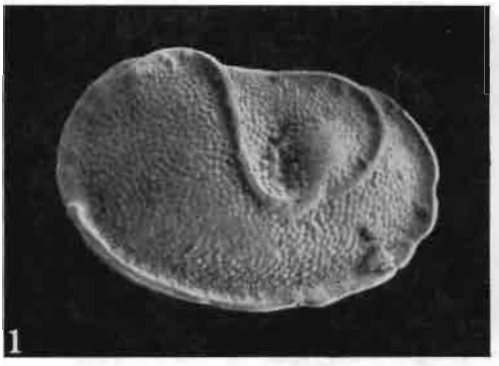
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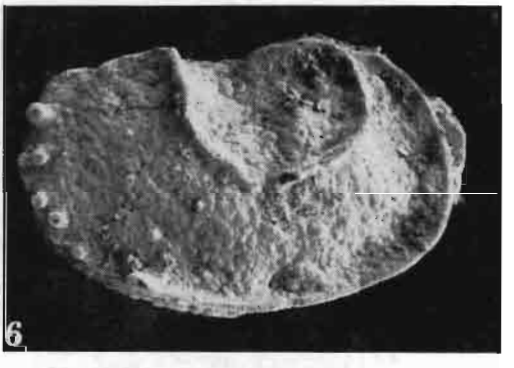
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