

ZOFIA KIELAN-JAWOROWSKA

ON TWO ORDOVICIAN POLYCHAETE JAW APPARATUSES

Abstract. — Two Ordovician polychaete jaw apparatuses of a new pattern: *Vistulella kozłowskii* n. gen., n. sp. and *Mochtyella cristata* n. gen., n. sp., from the erratic boulders of Poland, are described and figured. Some questions of scolecodont terminology are discussed.

INTRODUCTION

Within the erratic boulders spread all over the northern Poland there occur the limestones, some of them of the Ordovician Age. During the past ten years these limestones were systematically collected and dissolved in hydrochloric and acetic acids by Professor Roman Kozłowski in connection with researches on the Ordovician graptolites. In addition to the graptolites, there occur in the boulders numerous scolecodonts, the hydrozoans, chitinozoa, conodonts and other microfossils. The scolecodonts are especially well preserved, including some dozens of entire or nearly entire jaw assemblages. If one takes into consideration that jaw assemblages are extremely rare as fossils, the collection from the erratic boulders seems to be of a particular interest. A part of this material has been described by Kozłowski (1956). In 1960 Professor Kozłowski put at the writer's disposal for an investigation the remaining collection of scolecodonts which embraces several thousands of isolated jaws and, as mentioned above, a number of entire jaw apparatuses. The characteristics of the boulders from which the specimens were etched out (see p. 242), have been kindly given by Professor Kozłowski.

At the beginning of the investigations on scolecodonts, the writer has found it necessary to start her research by investigating the variation of the jaws in the recent polychaete annelids, especially within the family Eunicidae sensu lato, to which the majority of Ordovician scolecodonts belongs. The writer hopes that these studies would help to answer, whether or not it is possible to recognize good species within the Eunicidae on the jaw structure only when dealing with the entire jaw apparatuses.

As the elaboration of all the scolecodonts from the erratic boulders, as well as the jaw variation in the recent Eunicidae will take some time, the writer has thought it desirable to publish separately the description of two jaw assemblages of especially interesting patterns: *Vistulella kozłowskii* n. gen., n. sp. and *Mochtyella cristata* n. gen., n. sp. As the writer has found that the terminology used thus far for describing scolecodonts is somewhat confused, it appears necessary to include here some terminological considerations, introducing some new terms. The questions of jaw variation, the significance of the proboscidual armature in the Eunicidae for taxonomic purposes, the homology of particular jaws, and the recognition of higher taxonomic units will be discussed later.

The jaw assemblages of *Vistulella* and *Mochtyella* consist of several pieces, and the detached jaws of similar shape were described under different specific and generic names. Unfortunately, an attribution of isolated jaws to the forms known as entire assemblages could seldom be done, as similarly shaped jaws may form different maxillary plates in various genera. For these reasons it is impossible to observe the law of priority of detached jaws in describing the entire jaw apparatuses, and the conclusion is that for the isolated jaws, the parataxonomic system must be adopted. The entire jaw apparatuses of fossil eunicids are extremely rare; only about a dozen species have been described thus far (Ehlers, 1867—70, Hinde, 1896; Eller, 1934, 1935, 1936; Roger, 1946; Lange, 1947, 1949; Šnajdr, 1951; Kozłowski, 1956; Martinsson, 1960). Among them only those described by Lange and Kozłowski are satisfactorily preserved, and the detached jaws preserved in the same material may be identified as belonging to the complete jaw assemblages and recorded within the same taxonomic system. However one should be aware that as the proboscidual armature in the recent Eunicidae seems to be of little taxonomic value, neither can the taxonomic system based on the jaw assemblages be regarded as entirely "natural". This question will be discussed in detail in the forthcoming paper.

The scolecodonts were etched out from the erratic boulders by hydrochloric and acetic acids and kept in glycerine. The specimens were examined under the binocular Leitz microscope, using the magnifications up to $\times 216$, and under the Zeiss microscope Lumipan. The specimens were measured using the eye piece scale with a binocular microscope. The drawings were made using the camera lucida.

All the specimens are housed in the Palaeozoological Laboratory of the Polish Academy of Sciences in Warsaw.

The writer wishes to express her gratitude to Professor Roman Kozłowski for placing his scolecodont collection at her disposal. His advice and encouragement have been of a great value for the writer's

investigations. Thanks are due to Dr. V. Jaanusson (Uppsala University) for identifying the trilobite specimen and the brachiopods from boulder 0.366, and to Mr A. Sulimski for making the drawings from the writer's pencil sketches.

TERMINOLOGY

In the recent Eunicidae the jaws are composed of the ventral mandible and dorsal maxillae, the latter consisting of the maxillary carriers and four to six pairs of dorsal plates, some of which in certain genera may be single. The dorsal maxillary pieces have been called different names by various authors and it is most convenient to use the method adopted by Fauvel (1923), Hartman (1944) and others, of numbering them by successive Roman numerals from back to front as MI—MVI.

In scolecodonts Lange (1949) noted the occurrence of one additional unpaired, right piece, and called it the basal piece. It occurs in the Devonian *Paulinites paranaensis* Lange and it is situated at the base of the right forceps. Kozłowski (1956) in the Ordovician species *Polychaetaspis wyszogrodensis* Kozł. described the presence of two additional right pieces, the basal plate, comparable with that of Lange, and a small tooth, called the intercalary tooth, situated in front of it. The greatest known number of maxillary plates (paired or singles) — the carriers not being taken into consideration — is thus 8. Kozłowski (1956) gives the tabular account of the terminology of these 8 pairs in four languages.

The genera *Vistulella* and *Mochtyella* here described, though recorded within the Eunicidae *sensu lato*, represent the new pattern of the jaw apparatuses, not known to date in the recent and fossil genera. A discussion on the homology of the particular pieces between the genera in question and known recent and fossil Eunicidae, requires more detailed comparative studies and the elaboration of the remaining material from the erratic boulders of Poland. For these reasons the present writer has thought it more practical to number for the time being the particular plates in *Mochtyella* and *Vistulella* by Arabic, instead of Roman numerals, in order to avoid the suggestions on the homology.

The simplest type of maxillary plate in the Eunicidae *sensu lato* seems to be the jaw, developed as an elongated plate convex dorsally, with a ridge of denticles on the dorsal side. Right M₁ of *Vistulella* here described is of this pattern. Similar jaws are common in the Palaeozoic sediments and were described under the generic names *Staurocephalites* Hinde, 1879, and *Marleneites* Eller, 1945, and as some species of other genera. The concave ventral side — attachment side — in these examples forms a cavity for muscular attachment, called here a *pulp cavity*. The

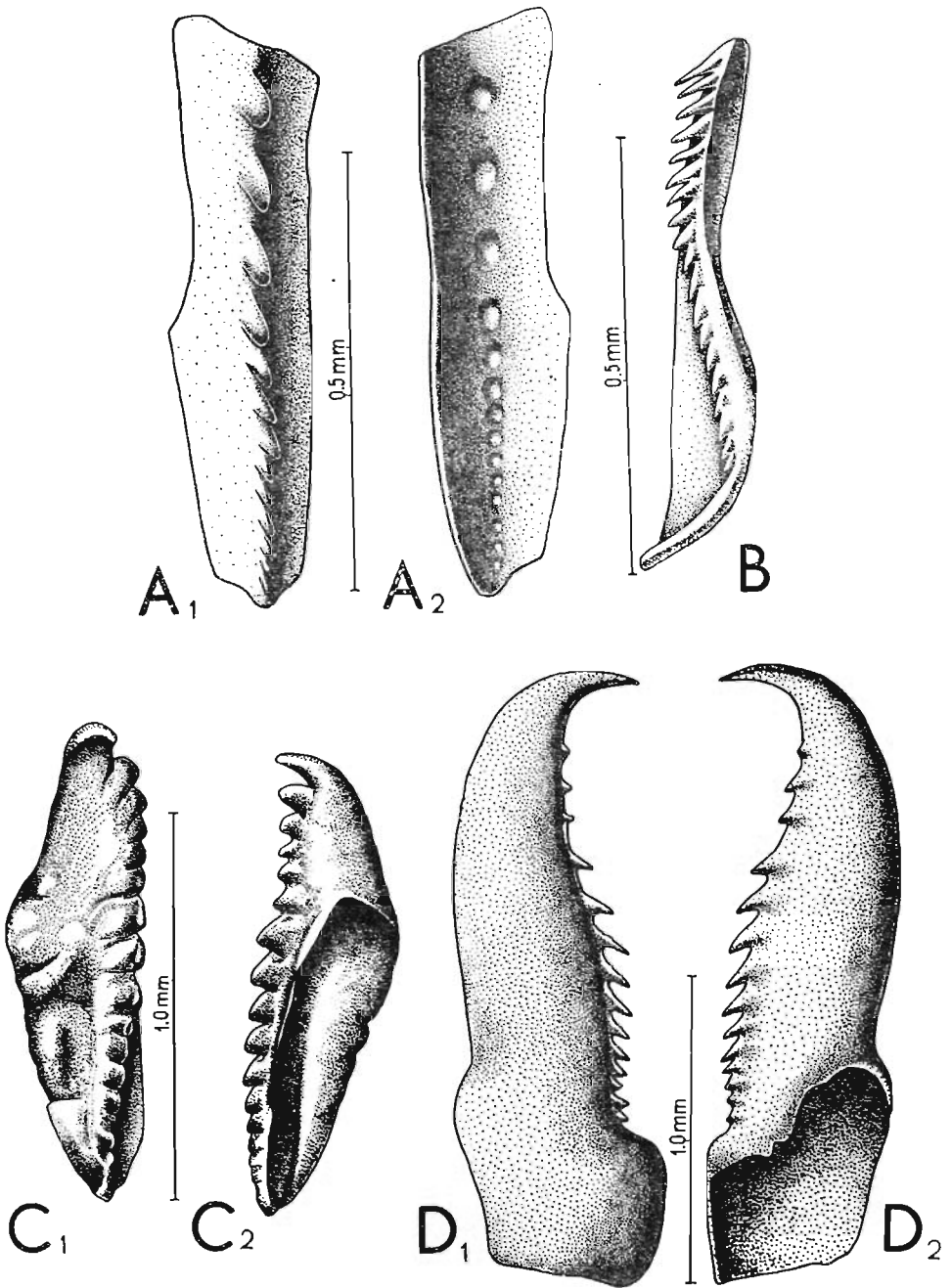


Fig. 1. — Different types of pulp cavities: A *Vistulella kozłowskii* n. sp., right M₁ — the gaped pulp cavity (A₁ in dorsal view, A₂ in ventral view); B the same species, right M₂ in side view — pulp cavity narrowly opened; C *Polychaetaspis wyszogrodensis* Kozł., left M₁ — pulp cavity slightly enclosed (C₁ in dorsal view, C₂ in ventral view); D *Paulinites paranaensis* Lange, left M₁ — pulp cavity strongly enclosed (D₁ in dorsal view, D₂ in ventral view).

opening of the pulp cavity is here very large, corresponding to the outline of the jaw. Such pulp cavity may be called *gaped* (text-fig. 1 A). The jaw provided with one ridge of denticles is called *simple*. The jaws provided with two or three ridges of denticles, or with one denticulated and one simple ridge, are called *compound* (pl. V, VI). In such cases the pulp cavity may be divided into two or three smaller cavities, and may be called compound too. The compound jaws are characteristic of the genus *Mochtyella* here described, and were described earlier as *Staurocephalites? tripulus* Eller, *S. devinctus* Eller, and others.

In M_2 (right and left) of *Vistulella kozłowskii* n. sp. (text-fig. 1 B), the walls of the jaw are almost parallel to each other. The pulp cavity is here deep and narrow, with a fissure-like opening. Such a pulp cavity may be called *deep, narrowly open*. The pulp cavity in the forceps of the Ordovician genus *Polychaetaspis* Kozł. is different in shape. The anterior part of the forceps — one third of the length — forms a hollow cone. The opening is large, but does not correspond to the forceps outline, occupying only two thirds of the jaw length. The anterior part of the pulp cavity is enclosed within the walls of the jaw. In the Devonian *Paulinites* Lange and in the recent Eunicinae, Onuphinae, Lumbriconereinae, the forceps are falcate, hollow inside, the opening situated at the base of the ventral side occupies only one fourth or one fifth of the forceps length. The pulp cavity, which even in a small part only is surrounded by the walls of the jaw, may be called *enclosed*. If the opening occupies more than a half of the jaw length, the pulp cavity may be called *slightly enclosed* (text-fig. 1 C); if the opening occupies less than a half of the jaw length, the pulp cavity may be called *strongly enclosed* (text-fig. 1 D).

The surface of the jaw between the denticulated ridge and the margin is called here the *slope* of the jaw. In simple jaws there are two slopes: *right* and *left*. In the compound jaws each ridge has its own slopes.

The terminology used to date for naming the pulp cavity and its opening was somewhat confused. These morphological characters were not always clearly separated from each other and the same term was often used for defining the pulp cavity and its opening as well. The most commonly used is the term "fossa" introduced by Eller (1938). But *fossa ex definitione* (Latin: *fossa* = ditch) means the pulp cavity and in this meaning is used by Kozłowski, 1956 (French: *fosse pulpaire*, corresponding to our pulp cavity). Eller (1938 and later papers), Lange (1949), Šnajdr (1951) and Sylvester (1959) used the term *fossa* in the meaning of an opening. Eller (1938) described some isolated left jaws as the right ones and *vice versa*, and the opening occurred in this way on the dorsal side of the jaw. Unfortunately this confusion concerns all his papers, the

concave attachment side of the jaws being called ventral. In this respect he has been followed by Sylvester (1959) who gave a wrong definition of the fossa (*l. c.*, p. 34): "Fossa — a distinct opening for muscle attachment on the upper side of the jaw". In fact, as in all the recent Eunicidae the pulp cavities and their openings occur on the lower (ventral) side of the jaws, these characters in scolecodonts must be defined in the same way. In Sylvester's paper consequently such terms as "under side of the jaw" and "upper side of the jaw" are wrongly defined. Moreover Sylvester made the diagrammatic drawing of a jaw apparatus (*l. c.*, text-fig. 1), with the pulp cavities and their openings on the dorsal side. As the jaw assemblages in the Eunicidae are strongly asymmetrical, that drawn by him does not exist in nature. As the term fossa was used already in such a confused way, it seems reasonable to avoid it. Stauffer (1933, 1939) called the opening a "basal opening", but as it has been shown above, the opening is not always situated on the base of the jaw. Croneis (1941) introduced the term myocoele, but this term has been used by Croneis also rather for the opening than for the pulp cavity. Pokorný (1954, 1958) used the term myocode for the same structure. By the courtesy of Dr Pokorný, the present writer learned that the "myocode" used by him is only a misspelling of the "myocoele" of Croneis. Unfortunately, Pokorný has been already followed by Martinsson (1960) and Špínar (1960). The pulp cavity has been called by Lange (1949) "the cavity for muscular attachment", by Stauffer (1939) — a hollow, and by Kozłowski (1956) — fosse pulpaire. From all the terms discussed and already used, the pulp cavity and opening seem to be the most adequate for describing the discussed structures in scolecodonts.

CHARACTERISTICS OF THE BOULDERS FROM WHICH THE SPECIMENS WERE ETCHED OUT

(All the localities are from the province of Warsaw)

Boulder No. 0.132. Wyszogród—Zakroczym, Baltic limestone (Ostsee Kalk); numerous Chitinozoa.

0.141. Wyszogród—Zakroczym, compact limestone, similar to Baltic limestone; *Glaeocapsomorpha* sp., Chitinozoa.

0.143. Wyszogród—Zakroczym, compact, light-grey limestone; *Mastigograptus* sp., *Climacograptus* sp.

0.147. Wyszogród—Zakroczym, fine-grained, compact limestone.

0.152. Wyszogród—Zakroczym, coarse-grained organogenic limestone; *Climacograptus* sp., *Tasmanites* sp.

0.182. Mochty, coarse-grained, plate, light-grey, organogenic limestone; *Dendroidea*, *Desmochitina* sp., Dasycladaceae?

0.188. Mochty, coarse-grained limestone; *Mastigograptus* sp., pyritized shells of young gastropods.

0.201. Zakroczyń, compact limestone, with calcite crystals; silicified brachiopod shells, Stomatoporoidea, fragmentary Graptolithina.

0.202. Zakroczyń, grey, coarse-grained limestone; Conodonta, silicified brachiopods.

0.228. Zakroczyń, very compact, cream-coloured limestone, similar to the Baltic limestone; numerous Dendroidea, *Corynites divnoviensis* Kozł., silicified brachiopods.

0.239. Mochty, grey, compact limestone; Hydroida, *Tasmanites* sp., fragmentary graptolites.

0.323. Mochty, grey, coarse-grained limestone; numerous *Tasmanites* sp., silicified brachiopods.

0.335. Mochty, grey, fine-grained limestone; numerous *Mastigograptus* sp., *Dictyonema* sp., other Dendroidea, Hydroida.

0.337. Mochty, Baltic limestone; silicified brachiopods.

0.348. Zakroczyń, dark-grey limestone, compact; numerous silicified brachiopods, *Tasmanites* sp., Chitinozoa, Hydroida, *Mastigograptus* sp., Tuboidea.

0.349. Zakroczyń, Baltic limestone; silicified brachiopods, Foraminifera, Chitinozoa, *Climacograptus* sp.

0.366. Zakroczyń, grey, coarse-grained limestone; silicified brachiopods (*Climacograptus anomalus* (Schlotheim) and *Sowerbyella* sp. among them), Trilobita (*Asaphus* (*Neasaphus*) *jevensis* Schmidt), *Idiotubus* sp., *Climacograptus* sp., Chitinozoa.

0.372. Mochty, Baltic limestone; Foraminifera, *Dendrograptus* sp.

DESCRIPTIONS

Family **Eunicidae** sensu lato

Genus *Vistulella* n. gen.

Type species: *Vistulella kozłowskii* n. sp.

Derivation of name: *Vistulella* — Latin name of the main Polish river Wisła (Vistula).

Occurrence: Ordovician-Devonian of North America, Ordovician erratic boulders of Poland.

Diagnosis. — Strongly asymmetric jaw apparatus consisting of gaped or narrowly opened jaws in the posterior part, and denticulated teeth anteriorly. The carriers unknown. In the posterior part on each side there are two parallel jaws, elongated longitudinally. On the left side in front of these jaws there are only teeth. On the right side between the elongated jaws and anterior teeth 1—3 jaws are present.

Vistulella kozłowskii n. sp.

(pl. I—IV; text-fig. 2)

Type specimen: Right side of the posterior part of the apparatus, composed of 5 pieces, figured on pl. I (No. O.245/6).

Derivation of name: Named in honour of Professor Roman Kozłowski.

Occurrence: As for the genus.

Diagnosis. — In the posterior part the right side of the apparatus consists of 5 pieces, 4 jaws and one tooth, the left side of two jaws and

one tooth. M_1 right subrectangular, much shorter (long.) than left M_1 which is outwardly bent in the anterior part. The anterior part of the apparatus incompletely known, consisting of several cone-like, bent, secondary denticulated teeth.

Origin of the material. — The jaws were found in samples from boulders numbered: O.132, O.141, O.201, O.228, O.245, O.265, O.267, O.279, O.285, O.322, O.335, O.337, O.349, O. 366, O.372.

Material. — 3 incomplete assemblages with some jaws of the left and right sides preserved together; more than a dozen of entire (5 pieces) or nearly entire right sides, and nearly as many specimens of the left side; two incomplete assemblages of the anterior teeth preserved in the pulp cavities of right M_1 ; numerous detached jaws, chiefly left and right M_1 .

Description. — The jaws are of a brown-yellowish tint, or brown-dark, non-transparent. Only the chitin of M_2 and M_3 right and left is thinner than those of the other plates, and is distinctly lighter and more transparent. Between the particular pieces of the apparatus there is a thin transparent pellicle joining the pieces, and that is why they are often preserved together. It seems that in the younger forms (smaller apparatuses) the pellicle joins the jaws more strongly than in the adult ones, so that in some small assemblages left M_1 and M_2 are entirely fused. Unfortunately, the material concerning the ontogenetic development of the jaw apparatuses is too small for study of this question in more detail.

The position of particular elements in the apparatus is as follows. The right side (posterior part) is composed of 5 elements, 4 pieces and 1 tooth. M_1 and M_2 are the elongated jaws of equal length, parallel, M_2 covering M_1 somewhat from the dorsal side. In front of M_2 there is a tooth (M_3) similar to the anterior denticles of M_2 . M_4 is a subquadrate plate, situated in front of M_1 and M_3 . M_5 is placed most anteriorly and interiorly, and embraces M_4 and the anterior part of M_1 . The left side is composed of 3 pieces. M_1 is the greatest, elongated longitudinally and bent exteriorly in the anterior part. It is much longer than the right M_1 and corresponds to the right M_1 and M_5 in their normal position. M_2 situated parallel, exteriorly to M_1 , occupies 2/3 of its length and slightly covers M_1 from the dorsal side. M_3 — the tooth is situated in front of M_2 behind the bent posterior part of M_1 . The pieces of the anterior part of the apparatus are never preserved in the natural position.

Description of particular pieces. M_1 right is a simple jaw with a gaped pulp cavity. In the dorsal view its outline is subrectangular, strongly elongated longitudinally, the anterior margin being directed slightly obliquely, postero-laterally. The right margin forms a straight line, the left one is slightly bent in its course, running at first posteriorly, slightly

towards the middle of the jaw, and in a half of the jaw length bending outward, and then running posteriorly again. On account of this, the jaw is narrower (tr.) in the anterior part than posteriorly, its minimum diameter being in the middle of its length. The left margin ends more anteriorly than the right one, the posterior margin being strongly sigmoid. Running from the left margin it forms an arch strongly concave posteriorly and then bends and forms the second arch convex posteriorly, situated in the prolongation of the ridge of denticles. In the transverse section the jaw is strongly convex, forming a triangle with a denticle on its tip. Along the highest elevation of the jaw there runs a ridge of denticles, which number varies between 11—15. The denticles are directed posteriorly, slightly towards the right margin. They decrease in size posteriorly and end before reaching the very end of the jaw. In some specimens this ridge forms a straight line, in others its anterior part may be slightly bent towards the right margin, the anterior denticle lying outside the prolongation of the ridge. The right slope of the jaw is slightly narrower (tr.) than the left one. In the top view there is a small triangular surface, formed by the anterior margin, and the anterior denticle forming the tip of a triangle. In the left side view the anterior margin is directed obliquely, the left margin and the denticulated ridge run subparallel, slightly converging posteriorly. In the anterior part the left slope is slightly concave. In the very posterior part of the jaw, on account of the sigmoid course of the posterior margin, a posterior part of the pulp cavity is visible in this view.

In the right side view the right margin and the ridge run subparallel. As the right slope is slightly narrower than the left one, a part of the pulp cavity is visible in this view along the right margin.

Along the anterior and the left margins one can see in some specimens one or two terrace lines, subparallel to the jaw outline. The whole ventral side is occupied by the pulp cavity, along the bottom of which one can see a row of pits, corresponding to the denticles on the dorsal side.

M₂ right is a narrow, strongly elongated jaw, with a pulp cavity narrowly opened. There is a longitudinal ridge of 18—26 sharp, long, pointed denticles, directed transversely, slightly posteriorly. The left slope is very narrow in the anterior part, strongly widens posteriorly, causing the curved course of the denticulated ridge. The posterior margin of the left slope forms an undenticulated ridge, directed obliquely postero-medially. It reaches the denticulated ridge by its right end and forms an obtuse angle with it. The right slope in the anterior part narrower than the left one, widens posteriorly forming a thin, transparent inflated pellicle, often broken off. The very posterior part of the right slope bends postero-medially, forming the lower side of the posterior ridge described

above. In the anterior part M_2 fits tightly to M_1 , posteriorly the denticulated ridges of M_1 and M_2 diverge, and there is a narrow fissure between these jaws filled up by the pellicle. The left end of the posterior ridge of M_2 touches M_1 .

In the anterior part of the right slope one can see the faint transverse furrows, laying in the prolongations of the boundaries between the denticles. Along these furrows the anterior denticles are easily parted.

M_3 *right* is a tooth in form of a bent cone, laying in the prolongation of M_2 and similar in shape to its anterior denticles. It is however quite distinctly separated from M_2 provided with its own pulp cavity. The tooth is directed transversely, slightly posteriorly and is provided with two rows of fine hairs along its anterior and posterior margins.

M_4 *right* is a simple jaw with a gaped pulp cavity subquadrate in dorsal view, slightly elongated transversely. The anterior margin forms a straight line, the right and left margins run subparallel, slightly converging posteriorly, the concave part of the arch being filled up by a thin, transparent pellicle. There is a ridge of 4—5 large denticles, running transversely, slightly postero-laterally along the jaw. The denticles are directed posteriorly. In the side view the anterior slope is slightly convex, the posterior one concave. In the anterior part of the jaw in front of the anterior margin one can see one or two terrace lines, subparallel to the outline of the margin. The whole ventral side is occupied by the aperture of the pulp cavity.

M_5 *right* is a jaw in form of an arch with a row of 15—20 denticles, with a gaped pulp cavity. It is composed of the anterior part, wide (long.), elongated transversely, and the posterior one, elongated longitudinally, narrow (tr.), produced into an acute posterior end. The right slope is comparatively wide (long.) in the anterior part, the left slope is narrower, prolongating into a thin, transparent pellicle. The denticles are smaller than those of M_1 and M_4 , strongly decreasing in size posteriorly.

M_1 *left* is a simple, longitudinally elongated jaw, with a gaped pulp cavity, bent exteriorly in the anterior part to form an arch. In the dorsal view, the anterior part of the jaw in front of the bent ridge of denticles is elongated anteriorly to form a subtriangular surface. On this surface there are several folds, subparallel to the outline of the jaw, more or less developed, sometimes obsolete, sometimes forming the distinct ridges. The posterior (longitudinal) part of the jaw tapers to a narrow truncate posterior end.

The denticles in the anterior, transverse part of the jaw increase in size towards the greatest curvature, and then decrease again posteriorly. The number of denticles varies between 16—20. The right slope of the jaw is wider than the left one. The slopes become more steep posteriorly,

and consequently the pulp cavity gaped in the anterior part becomes deeper and narrower posteriorly. The inside part of the arch is prolonged into the pellicle, to which the tooth (M_3) and the anterior part of M_2 fit tightly.

Left M_2 and M_3 are a mirror reflection of the corresponding right plates.

Anterior part. In two specimens in the pulp cavity of the right M_1 (pl. IV) there are preserved some teeth which, judging from the position of similar pieces in other thus far undescribed jaw assemblages, form the

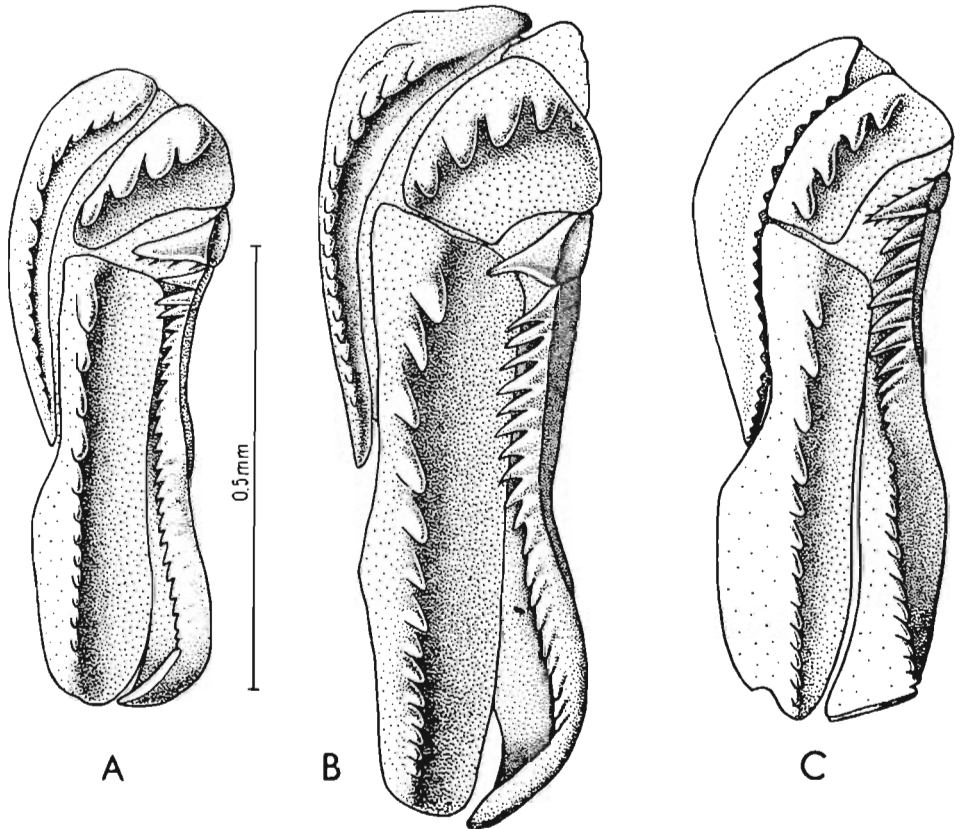


Fig. 2. — *Vistulella kozlowski* n. sp., right side of the apparatus; the diagram illustrating the variation in shape and size of the jaws and in number of teeth in three different specimens (A specimen No. O.245/7, B — No. O.245/6, C — No. O.201/2).

anterior part of the apparatus. These teeth form bent cones, with two longitudinal distinct ridges, provided with a row of minute denticles or hairs. One can distinguish the lower concave and the upper convex side of the tooth. At the base of the concave side there is an opening of the pulp cavity which is strongly enclosed. In one specimen 4 teeth are preserved, lying one after the other, with the tips and pulp cavities

situated along the straight lines. The lowermost is the largest provided with about 12 denticles along one ridge, the uppermost is the smallest (half as long as the lower one) with very small and indistinct denticles. In the other specimen there are two teeth similarly shaped and situated, and one smaller tooth situated in an opposite direction with its tip intruded in the space between two teeth.

The *variation* (text-fig. 2) concerns the number of teeth in particular jaws, as it was shown in the description of particular elements. Moreover the shape of the jaws and the relations between the particular elements may be also a subject of variation. Right side is better known in this respect than the left one. In the right side M_2 in the majority of specimens is approximately of the same length as M_1 , M_3 being situated in front of both M_1 and M_2 . Sometimes (e.g. specimen No. O.245/6) M_2 is shorter than M_1 and M_3 lies at the level of the anterior margin of M_1 , in other cases M_2 is longer than M_1 , the first denticle of M_2 is situated in front of the anterior margin of M_1 , and consequently M_3 is put further forward. In case when M_2 is shorter or equal to M_1 , M_4 is situated nearly transversely; when however M_2 is long and M_3 situated farther forward, M_4 becomes directed more obliquely, nearly longitudinally. Also the shape and size of M_5 is a subject of a variation, it may be longer or shorter, and in connection with this the incision on the left margin of M_1 may be situated in a half of the jaw length or more posteriorly. On the left side of the apparatus M_1 may be more or less bent anteriorly and the folds in the anterior part of the jaw may be more or less distinct or missing.

Discussion — see p. 252.

Genus *Mochtyella* n. gen.

Type species: *Mochtyella cristata* n. sp.

Derivation of name: *Mochtyella* — from the village Mochty near Warsaw, where the boulders yielding *Mochtyella cristata* were found.

Occurrence: Ordovician (Richmond, Trenton) of North America, Ordovician erratic boulders of Poland.

Diagnosis. — Asymmetric jaw apparatus consisting in the posterior part on each side of one compound (M_1) and one simple (M_2) jaw; M_2 is parallel to M_1 , situated externally, and covers somewhat M_1 from the dorsal side. In the anterior part there are some incompletely known teeth. The pulp cavities are gaped or narrowly opened. The carriers unknown.

Mochtyella cristata n. sp.

(pl. V — VII)

Type specimen: The apparatus composed of right and left M_1 preserved together, some fragments of M_2 , and the anterior teeth preserved in the pulp cavity of right M_1 , figured on pl. VII C (No. O.188/1).

Derivation of name: cristata — Lat. *crista* = ridge.

Occurrence: as for the genus.

Diagnosis. — M_1 right — a compound jaw provided with three denticulated ridges (*a*, *b*, *c*), M_1 left with two denticulated ridges (*a*, *b*). M_2 right and left — very narrow jaws forming a ridge of large, secondary denticulated teeth. The anterior part composed of some teeth, imperfectly known.

Origin of the material. — The jaws were found in samples from boulders numbered: O.132, O.143, O.147, O.152, O.182, O.188, O.202, O.239, O.243, O.275, O.311, O.322, O.323, O.332, O.335, O.348, O.349, O.366.

Material. — 4 incomplete assemblages with left and right M_1 preserved together, one of them (type specimen) with some fragments of M_2 , and the anterior teeth preserved in the pulp cavity of M_1 . One left and two right sides composed of M_1 and M_2 . Some dozens of the detached M_1 right and left.

Description. — The chitin of the jaws is bright and transparent, of the brown-yellowish tint. The position of the particular elements in the apparatus is as follows. Right and left M_1 are approximately of the same length. When the jaws are preserved together, there occurs an incision in the middle of the posterior margin, filled up by the thin, colourless pellicle, visible under the magnification. When preserved in the chewing position the ridge *a* of the left M_1 is embraced by the ridges *a* and *c* of right M_1 , the right ridge *a* being situated between the ridges *a* and *b* of the left jaw. Judging from the position of M_2 right and left as preserved in the specimens O.152/1 and O.152/2 (pl. VII A), one can presume that M_2 formed the side jaws, situated parallelly, outside the right and left M_1 . Consequently in the chewing position left M_1 is situated between right M_1 , *b* and right M_2 , the latter being placed most exteriorly of the whole apparatus. Thus the chewing apparatus was composed of 4 longitudinal denticulated ridges on the right side and 3 ridges on the left side, fitting each other.

M_1 right is a longitudinally elongated jaw, suboval in outline, provided with three denticulated ridges called here *a*, *b* and *c*. In the dorsal view the anterior margin is subtriangular or forms half an ellipse, the right and left margins run subparallel, slightly converging posteriorly, the posterior margin is somewhat sigmoid, convex posteriorly on the right side of the jaw and slightly incised on the left side. Ridge *a* is directed posteriorly, slightly obliquely towards the left margin. It is composed of 16—25 denticles, directed posteriorly, slightly to the right side in the anterior part of the jaw, and then to the left, in the posterior. In the anterior part the ridge is bent somewhat to the right side, the first denticle

being situated outside the prolongation of the whole ridge. The first 10 denticles are larger and occupy about 2/3 of the ridge length, the posterior denticles are much smaller and less sharp, rounded in the side view.

In front of the ridges *a* and *c* there is a small subtriangular surface, on which one can see some terrace lines, subparallel to the outline of the margin.

Ridge *c*, situated anteriorly on the left side of *a*, runs in an arch from the anterior part of *a*, following the outline of the jaw. It is composed of 7—12 denticles, directed posteriorly, slightly outwards. It runs along 1/2 of the jaw length. The right slope of *a* narrows posteriorly and is narrower than the left one which widens posteriorly. The right slope of *c* is moderately steep and the furrow between *a* and *c*, which is directed obliquely, postero-laterally, is wide and shallow. The left slope of *c* is moderately steep, narrow. Ridge *b*, situated on the right side of *a*, runs along the posterior one third of the jaw length. It is situated close to the right margin, and runs posteriorly, subparallel to *a*, then bends to the left and runs as an undenticulated ridge transversely or postero-medially, towards *a*, reaching its end. It is composed of 13—16 denticles, two thirds of which are sharp, the posterior ones being in some specimens rounded, small and indistinct. The right slope of *b* is narrow, the left one wider, somewhat inflated and strongly widening posteriorly. The furrow between *a* and *c* is deep and directed postero-medially. The inflated slopes of ridge *b* are lighter and more transparent than the remaining parts of the jaws.

In the left side view the anterior margin is directed obliquely, the left margin and ridge *a* run subparallel; in the very posterior part, on account of the incision on the left side of the jaw a small part of the pulp cavity is visible. Ridge *c* in this view forms an arch.

In the right side view the anterior margin is obliquely directed, ridge *a* and the right margin diverge posteriorly, in the anterior part, part of the pulp cavity is visible.

In the ventral view the gaped pulp cavity is divided by two ridges into three parts. Along the bottom of each part there is a row of pits, corresponding to the denticles.

*M*₁ *left* is a longitudinally elongated jaw with two denticulated ridges, called here *a* and *b*. In the dorsal view it is suboval, bent slightly anteriorly to the left. The ridge *a* is composed of 16—22 denticles directed posteriorly, slightly outside. In the anterior part it is bent to the left following the shape of the jaw. The first 12—15 denticles, occupying about 3/4 of the ridge length, are large and sharp. The posterior ones are much smaller and less sharp.

The left and right margins meet each other anteriorly in a high arch. The surface embraced by this arch, in front of the ridge *a* prolongates into the right slope of *a*. On this frontal surface and on the right slope there run several terrace lines, more or less distinct, sometimes missing, subparallel to the outline of the jaw. The right slope of ridge *a* is wider (tr.) than the left one. The left slope of *a* becomes very narrow and steep in the posterior part of the jaw. Ridge *b*, situated on the left side of *a*, occupies about 1/2 of the length of the jaw, and runs subparallel to *a*. It is composed of 14—17 small, sharp denticles. Posteriorly it prolongates into the undenticulated ridge, running nearly transversely, postero-medially, towards the end of *a*. This undenticulated ridge forms an obtuse angle with *b*. The right slope of *b* is steep, widening posteriorly. The longitudinal depression between *a* and *b* is deep with steep walls. As the left slope of *a* narrows posteriorly and the right slope of *b* widens, the furrow occupying the bottom of the depression is directed obliquely, posteromedially. Along this furrow the chitin is thin and transparent, and the jaw often split along it. The left slope of *b* is wide (tr.) and strongly inflated, forming a transparent pellicle. Posteriorly it bends in an arch forming the posterior side of the undenticulated ridge.

In the right side view the anterior margin is directed obliquely, the ridge *a* and the right margin converge somewhat posteriorly. In the left side view the anterior margin is directed obliquely, the left margin and ridge *a* run subparallel, slightly diverging posteriorly. Ridge *b* in this view is obliquely directed. In the anterior part, a pulp cavity is visible. Posteriorly, under the inflated transparent part of the left slope of *a*, one can see the outline of the right margin.

In the ventral view there are two gaped pulp cavities, divided by a distinct ridge. Along the bottom of each cavity there are the pits, corresponding to the denticles of *a* and *b*.

The posterior margin of the jaw is somewhat sigmoid, forming two arches convex posteriorly, the left situated more posteriorly than the right one.

*M*₂ *right* is a very narrow, elongated jaw, forming a ridge of 8 denticles or so, which form the cones with secondary denticulated sides. In the side view one can see the tip and 2—3 lower tips along the slope of the cone on each side. Between the denticles there are the furrows reaching the base of the jaw. In the ventral view the elongated, gaped pulp cavity is divided into subquadrate pulp cavities, corresponding to the base of the denticles. The denticles of *M*₂ are larger than those of *M*₁.

*M*₂ *left* seems to be identically shaped.

The *anterior part* of the apparatus in front of *M*₁ and *M*₂ is composed of cone-like secondary denticulated teeth whose number and position are

imperfectly known as in none of the specimens were they preserved in the normal position.

The *variation* concerns the number of denticles in particular ridges and the shape of the jaws which may be more or less elongated. The slopes of the jaws are more or less deep; this may be, however, connected with the state of preservation.

Discussion. — As has been stated above, it is impossible to observe the priority of detached jaws, when describing the entire jaw assemblages. Many of the isolated jaws hitherto described have been inadequately figured and it would be beyond the scope of the present paper to give an exhaustive list of the parataxonomic species (detached jaws) which could be assigned with any certainty as belonging to *Vistulella kozłowskii* n. sp. or *Mochtyella cristata* n. sp. The following discussion has only a tentative character and concerns the generic rather than a specific attribution of parataxonomic species.

The detached jaws of *Vistulella* and *Mochtyella*, especially M_1 and M_2 of both genera, were most commonly assigned to *Staurocephalites* Hinde. Hinde (1879) gave the following diagnosis of this genus: "Jaws of more or less elongated, denticulated plates, resembling those of the existing genus *Staurocephalus*". The type species, *S. niagarensis* Hinde, is a simple, elongated jaw with a row of denticles which might be perhaps the right M_1 of *Vistulella* n. gen., but it might also represent the basal piece of *Polychaetura* Kozłowski. Up to the present, more than two dozens species of *Staurocephalites* were described, mainly from the Ordovician-Devonian beds of North America and some from Europe (Hinde, 1880; Stauffer, 1933; Eller, 1941, 1943, 1944, 1945, 1946, 1955; Šnajdr, 1951). Among them are: *S. aequilateralis* Eller, *S. articulatus* Eller (Eller, 1955, fig. 23 on pl. 2 representing right and left M_1 preserved together), *S. altercstris* Eller, *S. bijugus* Eller (right M_1 and M_2), *S. externus* Eller (left M_1), and some others, all of which belong to *Vistulella*.

On the other hand, the following species may be recorded within *Mochtyella*: *S. ? tripulus* Eller — right M_1 , *S. appositus* Eller (Eller, 1945, fig. 6, 7 on pl. 4 representing left M_1 , whereas it is difficult to decide what is represented by the specimen figured on pl. 4, fig. 8—9), *S. devinctus* Eller — left and right M_1 , *S. paquentensis* Eller, *S. nettingli* Eller — probably broken M_1 .

Some species of *Staurocephalites* cannot be considered as belonging to *Mochtyella* or *Vistulella* and evidently belong to other genera (*S. admirabilis* Eller, *S. agroides* Eller, *S. absis* Eller, *S. arcus* Eller and others).

There are jaws assigned to other genera which may be also tentatively assigned to M_1 of *Vistulella*: *Oeononites marginatus* Eller, *O.*

spiculatus Stauffer, *Lumbriconereites perfectus* Stauffer, *Lumbriconereites* sp. Stauffer, 1939, *Arabellites* sp. a Stauffer, 1933, *Lumbriconereites* sp. a Stauffer, 1933, *Oeononites caducus* Eller, some representatives of *Marleneites* Eller and others.

Eunicites geisacanthus Eller and *Eunicites barbaricus* Eller seem to represent the anterior teeth of *Vistulella*.

The known fossil jaw apparatuses (as quoted on p. 238) are of the pattern comparable with *labidognatha* type (Ehlers, 1864—68) of the recent Eunicidae. They usually differ from the recent forms in having the forceps denticulated and moreover (some of them) in presence of one or two additional right pieces: the basal plate and intercalary tooth.

The apparatuses of *Mochtyella* and *Vistulella* differ distinctly from all the recent and fossil assemblages hitherto known and could not be assigned to the *labidognatha* or *prionognatha* type either. The main difference is in the position of particular pieces in the apparatus: in presence of two longitudinal, parallel jaws in the posterior parts of the assemblages. The second difference concerns the pulp cavities, which in both *Mochtyella* and *Vistulella* are gaped or narrowly opened, whereas in the apparatuses hitherto known they are usually slightly enclosed or strongly enclosed. Lastly the jaw apparatus of *Mochtyella* consists of compound jaws.

It would be beyond the scope of the present paper to homologize the particular plates of *Vistulella* and *Mochtyella* with those of other Eunicidae, the present author is however of the opinion that both genera here described seem to represent the most primitive type of the jaw structure within the Eunicidae *sensu lato*. This is in accordance with their geological range, as *Vistulella* is known only from the Palaeozoic beds (Ordovician-Devonian) and *Mochtyella* is restricted to the Ordovician only.

Palaeozoological Laboratory
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ZOFIA KIELAN-JAWOROWSKA

O DWÓCH ORDOWICKICH APARATACH SZCZĘKOWYCH WIELOSZCZETÓW
(ANNELIDA, POLYCHAETA)*Streszczenie*

Materiał skolekodontów z ordowickich głazów narzutowych Polski został wy-preparowany i częściowo opracowany przez Prof. R. Kozłowskiego (1956). W roku 1960 Prof. Kozłowski przekazał autorce pozostałą kolekcję, obejmującą wiele tysięcy izolowanych szczęk i kilkadziesiąt całych aparatów szczękowych. Jeżeli wziąć pod uwagę, że liczba opisanych dotychczas kopalnych aparatów szczękowych Annelida Polychaeta nie przekracza 10, kolekcja ta wydaje się mieć szczególną wartość. Ponieważ opracowanie całości materiału wymagać będzie dłuższego czasu, autorka uznała za wskazane opublikować osobno opisy dwóch aparatów, reprezentujących nieznaną dotychczas typ budowy, określonych tu jako *Vistulella kozłowskii* n. gen., n. sp. i *Mochtyella cristata* n. gen., n. sp.

W części terminologicznej wprowadzono rozróżnienie między mieszanymi dotychczas pojęciami: jamy miękiszowej i jej otworu. Ponadto wprowadzono pojęcia szczęk prostych, opatrzonych jednym szeregiem ząbków, i szczęk złożonych, opatrzonych dwoma lub więcej szeregami ząbków, oraz — w zależności od typu otworu jamy miękiszowej — wyróżniono jamę o otworze rozwartym, szczelinowatym, nieco zakrytym i silnie zakrytym.

Opisywane tu aparaty szczękowe złożone są z wielu szczęk, które w stanie izolowanym były opisywane pod różnymi nazwami rodzajowymi i gatunkowymi. Ponieważ podobnie wyglądające izolowane płytki mogą tworzyć różne szczęki w wielu rodzajach, przy opisywaniu złożonych aparatów nie można stosować prawa priorytetu szczęk izolowanych.

Znane dotychczas kopalne aparaty szczękowe przedstawiają typ budowy, który można porównać do szczęk labidognatycznych (Ehlers, 1864—68), występujących u dzisiejszych Eunicidae. Na ogół różnią się one od form dzisiejszych obecnością uzębionych cęgów (maxillae I) oraz występowaniem (w podrodzinie Paulinitinae) jednego lub dwóch dodatkowych, nieparzystych, prawych elementów — płytki bazalnej i zęba interkalarnego.

Aparaty szczękowe typu *Mochtyella* i *Vistulella* różnią się zasadniczo od wszystkich znanych, kopalnych i dzisiejszych aparatów szczękowych i nie mogą być zaliczone ani do typu labidognatycznego, ani też do prionognatycznego. Główna różnica dotyczy tu układu poszczególnych szczęk w aparacie — obecności dwóch równoległych, wydłużonych szczęk w tylnej części z każdej strony. Drugą różnicę stanowi budowa jam miękiszowych, które u *Mochtyella* i *Vistulella* są rozwarte, gdy tymczasem w znanych dotychczas aparatach szczękowych jamy miękiszowe są nieco zakryte lub silnie zakryte. Wreszcie aparat szczękowy *Mochtyella* zbudowany jest ze złożonych szczęk.

W pracy niniejszej autorka nie przeprowadzała homologizacji poszczególnych płytek szczękowych *Mochtyella* i *Vistulella* ze szczękami innych Eunicidae, gdyż zagadnienie to będzie rozpatrzone szczegółowo później. Wyraża ona jednak zdanie, że oba te rodzaje wydają się przedstawiać najprymitywniejszy typ budowy aparatów szczękowych w obrębie Eunicidae sensu lato. Zgadza się to z ich występowaniem w czasie, gdyż *Vistulella* znana jest jedynie z utworów paleozoicznych (ordowik-dewon), a występowanie *Mochtyella* ograniczone jest tylko do ordowiku.

DIAGNOZY NOWYCH GATUNKÓW

Rodzina **Eunicidae** sensu lato

Rodzaj *Vistulella* n. gen.

Vistulella kozłowskii n. sp. — gatunek typowy

(fig. 2; pl. I-IV)

Diagnoza. — Asymetryczny aparat szczękowy, złożony w części tylnej z prostych szczęk o rozwartych jamach miękiszowych, a w części przedniej z wtórnie poząbkowanych ząbków. Tylna prawa strona aparatu złożona z 5 części, 4 szczęk (M_1 , M_2 , M_4 , M_5) i jednego zęba M_3 , lewa strona z 2 szczęk M_1 i M_2 oraz jednego zęba M_3 . Prawa M_1 prostokątna, krótsza niż lewa M_1 , która w przedniej części wygina się silnie na zewnątrz. Przednia część aparatu słabo poznana. Podpory nie znane.

Występowanie. — Ordowik-dewon Ameryki Północnej. Ordowickie głązy narzutowe Polski.

Rodzaj *Mochtyella* n. gen.

Mochtyella cristata n. sp. — gatunek typowy

(pl. V-VII)

Diagnoza. — Asymetryczny aparat szczękowy, składający się w części tylnej z każdej strony z jednej złożonej (M_1) i jednej prostej (M_2) szczęki, w części przedniej z kilku źle poznanych ząbków. M_1 prawa opatrzona trzema szeregami ząbków, M_1 lewa opatrzona dwoma szeregami ząbków. M_2 złożona z kilku dużych, wtórnie poząbkowanych ząbków, umieszczona równolegle do M_1 , na zewnątrz, przykrywając nieco M_1 od strony grzbietowej. Podpory nie znane.

Występowanie. — Ordowik (Richmond i Trenton) Stanów Zjednoczonych. Ordowickie głązy narzutowe Polski.

OBJAŚNIENIA DO ILUSTRACJI

Fig. 1 (p. 240)

Typy jam miękiszowych: *A Vistulella kozłowskii* n. sp., prawa M_1 — jama miękiszowa rozwarta (A_1 od strony grzbietowej, A_2 od strony brzusznej); *B* ten sam gatunek, prawa M_2 widzana z boku — jama miękiszowa o szczelinowatym otworze; *C Polychaetaspis wyszogrodensis* Kozł., lewa M_1 — jama miękiszowa nieco zakryta (C_1 od strony grzbietowej, C_2 od strony brzusznej); *D Paulinites paranaensis* Lange, lewa M_1 — jama miękiszowa silnie zakryta (D_1 od strony grzbietowej, D_2 od strony brzusznej).

Fig. 2 (p. 247)

Vistulella kozłowski n. sp., prawa strona aparatu. Schemat ilustrujący zmienność kształtu i wielkości szczęk oraz liczby ząbków u trzech różnych okazów (A okaz Nr O.245/7, B — Nr O. 245/6, C — Nr O.201/2).

Pl. I

Vistulella kozłowski n. sp., holotyp, prawa strona aparatu złożona z 5 elementów (M_1 — M_5); pc jama miękiszowa, A od strony grzbietowej, B z boku z prawej strony, C od strony brzusznej (dolki odpowiadające poszczególnym ząbkom nie są widoczne od strony brzusznej, gdyż jamy miękiszowe są wypełnione osadem). (Nr O.245/6).

Pl. II

Vistulella kozłowski n. sp., lewa strona aparatu złożona z 3 elementów (M_1 — M_3); pc jama miękiszowa, A od strony grzbietowej, B z boku z lewej strony, C z boku z prawej strony, D od strony brzusznej (Nr O.345/8).

Pl. III

Vistulella kozłowski n. sp., niekompletny aparat w pozycji żującej, złożony z M_1 , M_2 i M_3 z lewej strony, oraz z prawej strony z M_1 , M_5 i niekompletnej M_2 (tylko 4 ząbki). Prawa M_3 i M_4 nie zachowały się (R prawa, L lewa, pc jama miękiszowa); A z boku, B lewa część aparatu od strony grzbietowej, prawa od strony brzusznej (Nr O.141/1).

Pl. IV

Vistulella kozłowski n. sp., prawa strona aparatu: w jamie miękiszowej M_1 zachowały się 4 użębione zęby, prawdopodobnie pochodzące z przedniej części aparatu; A od strony brzusznej, B z lewej strony z boku, C z prawej strony z boku, pc jama miękiszowa, at przednie zęby (Nr O.245/12).

Pl. V

Mochtyella cris'ata n. sp., prawa M_1 z trzema rzędami ząbków (a—c); A od strony grzbietowej, B z boku z prawej strony, C z boku z lewej strony, D od strony brzusznej (Nr O.366/14).

Pl. VI

Mochtyella cristata n. sp., lewa M_1 z dwoma rzędami ząbków (a, b); pc jama miękiszowa, A od strony grzbietowej, B z boku z prawej strony, C z boku z lewej strony, D od strony brzusznej (Nr O.182/27).

Pl. VII

Mochtyella cristata n. sp., A prawe szczęki M_1 i M_2 zachowane razem, szereg ząbków b niewidoczny pod M_2 , A_1 od strony grzbietowej, A_2 z boku z lewej strony (Nr O.152/1); B M_1 prawa i lewa, w pozycji żującej (Nr O.182/11); C okaz typowy złożony z M_1 prawej i lewej, w pozycji żującej, i niekompletnej M_2 zachowanej w jamie miękiszowej prawej M_1 ; dwa zęby przednie również zachowane (Nr O.188/1).

L lewa, R prawa, pc jama miękiszowa, at przednie zęby, a—c szereg ząbków w M_1 i M_2 prawej i lewej.

ЗОФИЯ КЕЛЯН-ЯВОРОВСКА

О ДВУХ ЧЕЛЮСТНЫХ АППАРАТАХ МНОГОЩЕТИНКОВЫХ КОЛЬЦЕЦОВ
ИЗ ОРДОВИКА

Резюме

Материал сколекодонтов из ордовикских валунов Польши отпрепарирован и отчасти обработан проф. Козловским (1956). В 1960 г. проф. Козловски передал авторше оставшуюся коллекцию, содержащую много тысяч изолированных челюстей и несколько десятков цельных аппаратов. Если принять во внимание, что количество описанных до сих пор ископаемых челюстных аппаратов многощетиновых кольцецов не превышает 10, коллекция эта представляет исключительную ценность. Ввиду того, что обработка всего материала требует более продолжительного времени, авторша признала целесообразным опубликовать отдельно описание двух аппаратов, представляющих неизвестный до сих пор тип строения, описанных тут как *Vistulella kozlowskii* n. gen. n. sp. и *Mochtyella cristata* n. gen. n. sp.

В терминологической части введено различие в смешиваемых до сих пор понятиях: пульпной полости и ее отверстия. Кроме того введено понятия: простых челюстей снабженных одним рядом зубчиков и сложных челюстей снабженных двумя или большим числом рядов зубчиков; в зависимости от типа отверстия пульпной полости выделено полости с отверстиями: открытым, щелевидным, несколько закрытым и сильно закрытым.

Описываемые тут челюстные аппараты состоят из многих челюстей, которые в изолированном состоянии были описаны под разными родовыми и видовыми названиями. Ввиду того, что изолированные пластинки сходного облика могут входить в состав разных челюстных аппаратов многих родов, при описывании сложных аппаратов нельзя применять закон приоритета изолированных челюстей.

Известные до сих пор ископаемые челюстные аппараты представляют тип строения, который можно сравнивать с лабидогнатическими челюстями (Ehlers, 1864—1868) современных Eunicidae. В общем они отличаются от современных форм наличием челюстей (maxillae I) снабженных зубцами и (в подсемействе Paulinitinae) присутствием одного или двух добавочных непарных правых элементов — базальной пластинки и интеркалярного зуба.

Челюстные аппараты типа *Mochtyella* и *Vistulella* отличаются принципиально от всех известных ископаемых и современных челюстных аппаратов и не могут быть причислены ни к лабидогнатическому, ни к прионогнатическому типу. Главное различие касается тут расположения отдельных челюстей в аппарате — присутствия двух параллельных, удлинённых челюстей в задней части с каждой стороны. Другим различием является строение пульпных полостей, которые у *Mochtyella* и *Vistulella* открыты, а в известных до сих пор челюстных аппара-

тах несколько закрыты или сильно закрыты. Наконец челюстный аппарат *Mochtyella* построен из сложных челюстей.

В настоящей работе авторша не провела гомологии отдельных челюстных пластинок *Mochtyella* и *Vistulella* с челюстями других Eunicidae ввиду того, что вопрос этот будет разобран подробно позже. Однако высказывает мнение, что оба эти рода представляют повидимому самый примитивный тип строения челюстных аппаратов в пределах Eunicidae sensu lato. Это согласуется с их временем выступления, так как *Vistulella* известна только из палеозойских отложений (ордовик — девон), а выступание *Mochtyella* ограничивается только до пределов ордовика.

ДИАГНОЗЫ НОВЫХ ВИДОВ

Семейство **Eunicidae** sensu lato

Род *Vistulella* n. gen.

Vistulella kozłowskii n. sp. — вид типичный
(фиг. 2; пл. 1—IV)

Диагноз. — Ассимметрический челюстный аппарат, составлен в задней части из простых челюстей с открытыми пульпными полостями, а в передней с вторично зазубренными зубцами. Задняя правая сторона аппарата составлена из 5 частей, 4 челюстей (M_1 , M_2 , M_4 , M_5) и одного зуба M_3 , левая сторона — из 2 челюстей M_1 и M_2 и одного зуба M_3 . Правая M_1 прямоугольна, короче чем левая M_1 , которая в передней части изгибается сильно наружу. Передняя часть аппарата слабо изучена. Подпорки неизвестны.

Нахождение. — Ордовик-девон Северной Америки. Ордовикские валуны Польши.

Род *Mochtyella* n. gen.

Mochtyella cristata n. sp. — вид типичный
(пл. V—VII)

Диагноз. — Ассимметрический челюстный аппарат, составлен в задней части с каждой стороны из одной сложной (M_1) и одной простой (M_2) челюсти; в передней части — из нескольких плохо изученных зубцов. Правая M_1 снабжена тремя рядами зубчиков, а левая — двумя. M_2 составлена из нескольких больших, вторично зазубренных зубчиков, расположена параллельно M_1 , к наружи, несколько прикрывая M_1 со спинной стороны. Подпорки неизвестны.

Нахождение. — Ордовик (Richmond и Trenton) Соединенных Штатов. Ордовикские валуны Польши.

EXPLANATIONS OF PLATES

Pl. I

Vistulella kozłowskii n. sp., type specimen, right side of the apparatus composed of 5 elements (M_1 — M_5), pc pulp cavity, A in dorsal view, B in right side view, C in ventral view (the pits corresponding to the particular denticles are not visible in ventral view, as the pulp cavities are filled up by the residuum). (No. O.245/6).

Pl. II

Vistulella kozłowskii n. sp., left side of the apparatus composed of 3 elements (M_1 — M_3); pc pulp cavity, A in dorsal view, B in left side view, C in right side view, D in ventral view (No. O.245/8).

Pl. III

Vistulella kozłowskii n. sp., fragmentary apparatus in the chewing position, with preserved left M_1 , M_2 , M_3 , and right M_1 , M_5 and fragmentary M_2 (4 teeth only). Right M_3 and M_4 lacking. A in side view, B left side in dorsal view, right side in ventral view, R right, L left, pc pulp cavity (No. O.141/1).

Pl. IV

Vistulella kozłowskii n. sp., right side of the apparatus, in the pulp cavity of M_1 four denticulated teeth preserved, probably from the anterior part of the apparatus; A in ventral view, B in left side view, C in right side view, pc pulp cavity, at anterior teeth (No. O.245/12).

Pl. V

Mochtyella cristata n. sp., right M_1 with three ridges of denticles (a—c); A in dorsal view, B in right side view, C in left side view, D in ventral view (No. O.366/14).

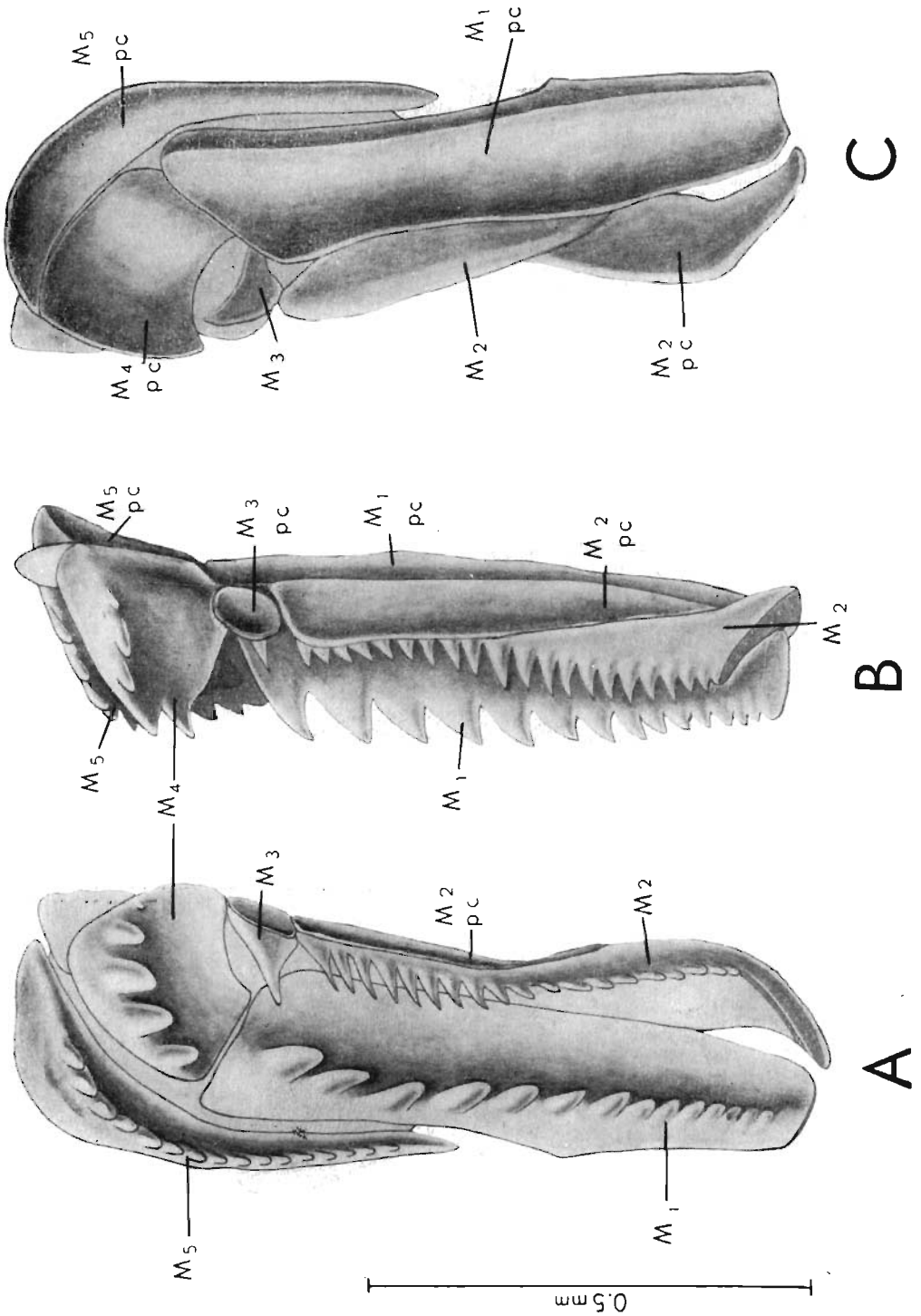
Pl. VI

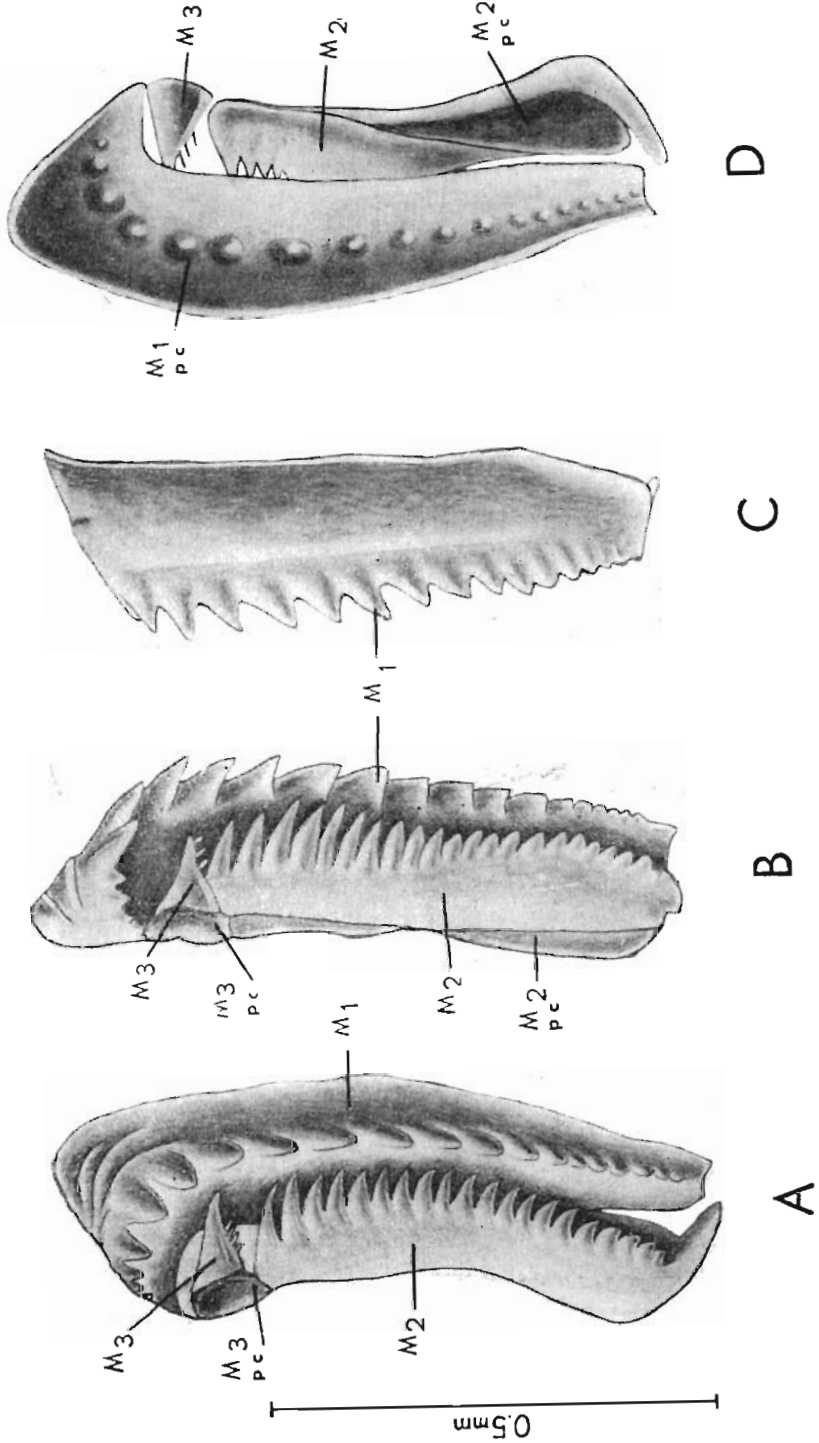
Mochtyella cristata n. sp., left M_1 with two ridges of denticles (a, b); pc pulp cavity, A in dorsal view, B in right side view, C in left side view, D in ventral view (No. O.182/27).

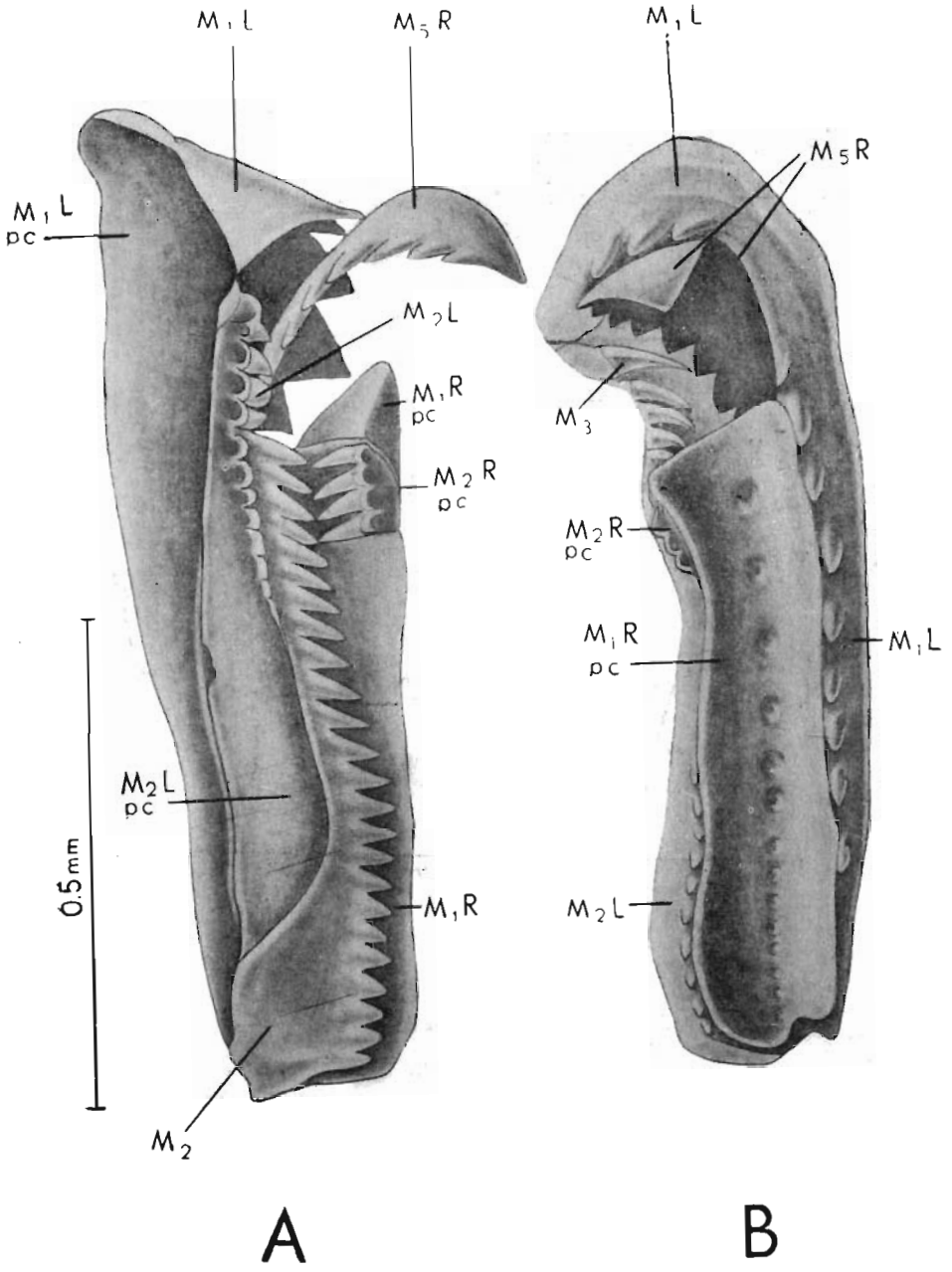
Pl. VII

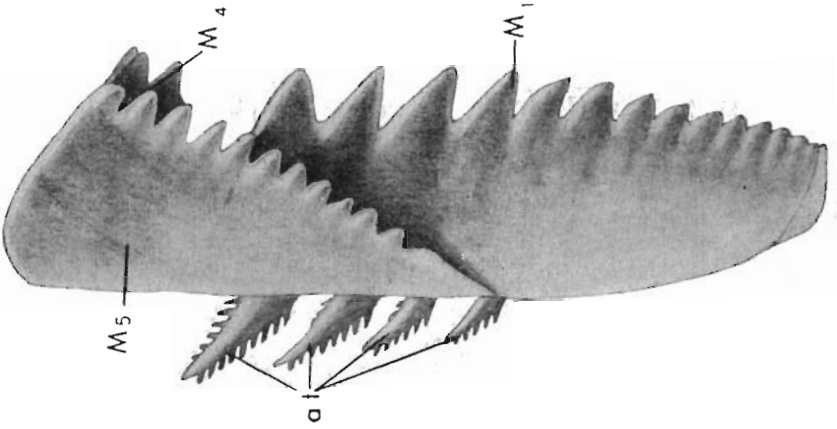
Mochtyella cristata n. sp., A right M_1 and M_2 preserved together, the denticulated ridge b not visible under M_2 , A_1 in dorsal view, A_2 in left side view (No. O.152/1); B M_1 right and left preserved in chewing position (No. O.182/11); C type specimen: M_1 right and left preserved in chewing position, and fragmentary M_2 preserved in the pulp cavity of right M_1 . Two fragmentary anterior teeth are also preserved (No. O.188/1).

L left, R right, pc pulp cavity, at anterior tooth, a—c the particular denticulated ridges of M_1 right and left.

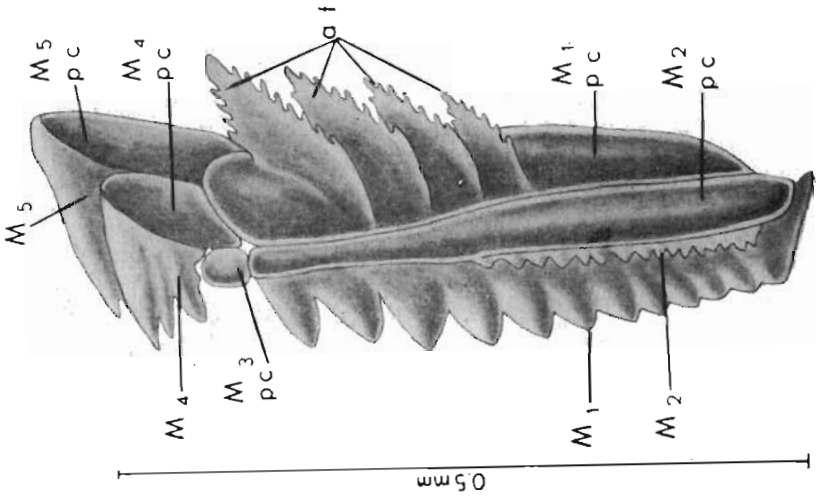




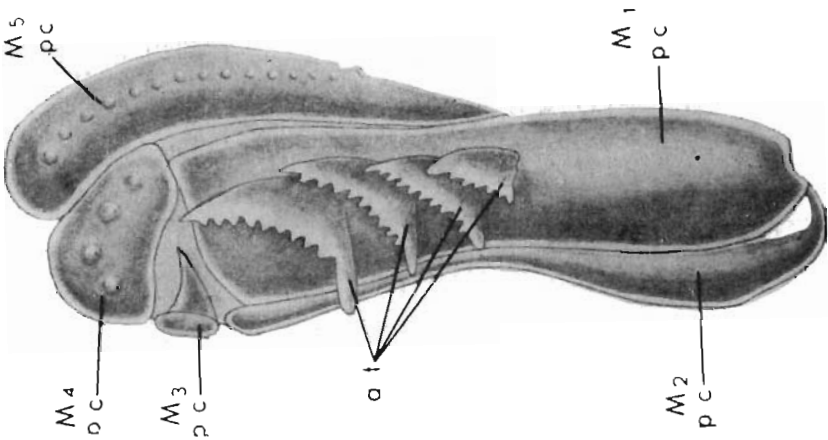




C



B



A

