

A. RÕOMUSOKS

THE GENERA *TRIGRAMMARIA* AND *MICROTRYPA*
(STROPHOMENIDAE) IN THE ORDOVICIAN OF BALTOSCANDIA

A preliminary account of the stratigraphic distribution of strophomenid brachiopods in the Ordovician of Estonia has been given by the author (Рыбмусокс, 1963, табл. I). The occurrence of the genera *Trigrammaria* and *Microtrypa* is also indicated there respectively in the Nabala and Rakvere Stages. This paper describes new species of these genera. In addition to the Estonian material, the material from the Ordovician of Sweden was also at the author's disposal. The types of the new species are housed at the Institute of Geology of the Academy of Sciences of the Estonian SSR (Tallinn) and in the Swedish Museum of Natural History, Section of Palaeozoology (Stockholm) (= Swedish Mus. Nat. Hist.).

I thank Prof. V. Jaanusson (Swedish Mus. Nat. Hist.) for the loan of the Swedish specimens. I am indebted to Dr. H. Jaeger (Palaeontological Museum of Humboldt-University, Berlin) for giving me an opportunity to study the strophomenids from North German Ordovician boulders; to Dr. M. I. Copeland (the Geological Survey of Canada, Ottawa) for allowing me to study A. E. Wilson's types; and to my kind guide in Canada, Dr. R. W. Macomber. I thank Dr. M. G. Bassett for reading and correcting the manuscript.

Order Strophomenida Öpik, 1934

Superfamily Strophomenacea King, 1846

Family Strophomenidae King, 1846

Subfamily Strophomeninae King, 1846

Genus *Trigrammaria* Wilson, 1945

Type species. *Trigrammaria trigonalis* Wilson by original designation.

Diagnosis emended. Strophomeninae with strongly convex, subtriangular brachial valve, with a rounded median fold. Ornament unequally parvicostellate. Costae with fine concentric fila. On the brachial muscle field is a pair of fine, short, oblique transmuscle septa, and a pair of strong sinuous ridges, is located anterior to stout median septum. No foramen.

Comparison. The distinction between *Strophomena*, *Trigrammaria* and *Microtrypa*, as noted by A. Williams (1962), depends ultimately on the septal arrangement within the brachial valve. Thus, *Trigrammaria* differs from *Microtrypa* mainly by its more convex brachial valve, the interior of which has a median septum with a pair of strong sinuous ridges extending anteriorly (Pl. I, Figs 7—8). The chilidium of *Tri-*

grammaria is not grooved medially, but that of *Microtrypa* is grooved. The radial ornament is unequally parvicostellate, but that of *Microtrypa* is parvicostellate.

Differences from *Strophomena* lie in the lack of transmuscle septa in the brachial valve and in the different structure of the cardinal process lobes. In *Strophomena* the lobes are tubular, with a deep posterior groove, but those of *Trigrammaria* are triangular posteriorly and lack a groove (Pl. I, Fig. 8). Finally, *Strophomena* has a minute foramen.

It is necessary to note that the interiors of the Canadian species of *Trigrammaria* are poorly preserved. The internal structure of the type species is therefore insufficiently known. Up to now there was a single species; *T. winchelli* (Hall and Clarke), for which excellent interiors of both valves have been published (Cooper; 1956).

Species assigned: *Strophomena winchelli* Hall and Clarke, 1892; *Trigrammaria trigonalis* Wilson, 1945; *T. trigonalis parva* Wilson; 1945; *T. trigonalis prima* Wilson, 1945; *T. trigonalis tumida* Wilson, 1945; *T. pulchra* Wilson, 1945; *T. wilsoniae* Cooper, 1956; *T. virve* sp. n.; *T. valdari* sp. n.; *T. sp.*

Distribution. *Trigrammaria* is known from the Caradoc of North America and Europe. The oldest representative of the genus is *T. winchelli* from the Platteville Formation (lowermost Caradoc) in the USA; the youngest is *T. virve* sp. n. from the lower beds of the Nabala Stage (top of Caradoc) in the Estonian SSR. It is possible, therefore, that the centre of divergence for that genus may be the north-eastern part of the North American Ordovician basin. In Baltoscandia the species of *Trigrammaria* occurs in the Oandu and Nabala Stages in Estonia, in Skälberg limestone (= lateral equivalent of Moldå limestone; Jaanusson, 1976, 1982) in Sweden and in boulders of the Gräsgård siltstone on Öland as well as in the NW part of the German Democratic Republic, which all have been assigned to the *Amorphognatus superbis* Zone (Bergström, 1971). The Gräsgård siltstone includes both Keila and Oandu equivalents (Jaanusson, Mutvei; 1982).

Trigrammaria virve sp. n.

Pl. I, Figs 1—9

Holotype. Complete shell (Br 1190) figured in Pl. I, Figs 1—3; Nabala Stage, Paekna Member, village Laitse, NW Estonia. Old collection.

Diagnosis. *Trigrammaria* with a relatively convex shell of strongly triangular outline. Ventral interarea high; catacline. Socket plates anterolaterally divergent at about 90°.

Description. Shell of medium size for the genus; strongly geniculated ventrally. Anterior margin of brachial valve bears a broad median fold. Posterior third of pedicle valve noticeably concave. High narrow pseudodeltidium. No foramen. Brachial valve strongly but unevenly convex in lateral profile (posterior slope of valve steeper than the anterior slopes). Chilidium low; broad and without median groove. Radial ornament unequally parvicostellate. Every 4th or 5th costella is thicker than the others near the anterior margin. There are 6—7 costellae per 2 mm near the anterior margin.

Ventral muscle field almost circular, with high elevated margins and a coarse, long median septum that becomes finer anteriorly. Teeth trigonal posteriorly, finely striated.

Notothyrial platform with a short; thick median ridge. Cardinal process broad and high, with triangular lobes; posterior side finely striated. Socket plates thin, short, high and divergent at about 90°. Sockets triangular. Posterior pair of transmuscle septa thin and very short, anterior pair thick and sinuous. The internal surface of the valves bears very fine, relatively sparse papillae.

Dimensions of the figured specimens (in mm):

	length	width	thickness
Holotype Br 1190	21.4	26.9	6.5
Complete shell Br 1191	22.8	29	?
Pedicle valve Br 1194	27.1	33.4	?
Brachial valve Br 1193	23.5	?	?
Brachial valve Br 1195	?	21.2	?

Comparison. *T. virve* sp.n. differs from *T. valdari* sp.n. mainly in its somewhat smaller size, stronger convexity, less developed fold, and smaller number of fine costellae between the stronger costae. From two Canadian species, *T. virve* sp.n. is differentiated in lacking sharp geniculation and by its better developed parvicostellate ornamentation.

Distribution. Nabala Stage, Paekna Member: from Estonia — Laitse, 1 specimen; Nõmmeküla, 25 specimens; Oru, 2 specimens; from Lenin-grad Region — Slantsy, Plyussa river-bank, 2 specimens.

Trigrammaria valdari sp.n.*

Pl. II, Figs 1—6

Holotype. Complete shell (Br 108 636) figured in Pl. II, Figs 1—4; Skälberg limestone, Skälberget, Siljan district, Sweden. Coll. by V. Jaanusson, 1945.

Diagnosis. *Trigrammaria* with relatively large shell; outline rounded-triangular. Narrow antero-median fold well developed. Ventral interarea high, apsacline.

Description. Shell moderately geniculated ventrally, with a narrow dorsal fold. Maximum concavity is located in the centre of pedicle valve. Ventral interarea high, apsacline. Pseudodeltidium forms an isosceles triangle. No foramen. Chilidium low, broad and without median groove. Radial ornament unequally parvicostellate. Every 10th costella becomes thicker than the others near the anterior margin. There are 10—11 costellae per 2 mm near the anterior margin.

The muscle field, studied on a single fragmentary pedicle valve (Pl. II, Fig. 5), has a high elevated margin. Median septum thick; becoming finer anteriorly. The teeth are not preserved. The internal surface of valve bears sparse papillae of medium size.

Dimensions of the figured specimens (in mm):

	length	width	thickness
Holotype Br 108 636	25.5	?	12.7
Brachial valve Br 6830	17.2	?	?
Pedicle valve Br 108 637	18	?	?

Comparison. Differences from *T. virve* sp. n. are given on p. 135 and those from *T. sp.* on p. 136.

* The species is named after Prof. Valdar Jaanusson who collected the material of this species.

Distribution. Skålberg limestone, Siljan district, Sweden: Skålberget, 4 specimens; Amtjärn, 2 specimens; Kullsberg, 6 specimens; Fjäcka, 1 specimen; Ask, Östergötland, 4 specimens.

Remarks. The specimens are all poorly preserved, with none complete. The holotype is the biggest shell. Although there are no interiors of brachial valves, all other characteristics indicate *Trigrammaria*. This is the species named *Trigrammaria* sp. n. A. by V. Jaanusson (1982).

Trigrammaria sp.

Pl. II, Figs 7—9

Discussion. This is a relatively large *Trigrammaria*, based on the following specimens: one complete but badly preserved shell (Br 19869, Swedish Mus. Nat. Hist.), an interior of a brachial valve (Br 19865, Swedish Mus. Nat. Hist.) and one complete valve (latex cast) from the collection of the Palaeontological Museum of Humboldt-University, Berlin. In shape and outline it closely resembles *T. valdari* sp. n., but the dorsal anterior-median fold seems narrower and more prominent anteriorly (Pl. II, Fig. 8). The brachial valve is flatter, the deltidium narrower and the radial ornament coarser (almost parvicostellate) than that of *T. valdari*. The internal surface of the brachial valve is densely and relatively coarsely pseudopunctate. Cardinal process not preserved.

Dimensions of the figured specimens (in mm):

	length	width	thickness
Brachial valve Br 19865	26	?	?
Latex cast (no catalogue number)	26	32.7	10.1

Occurrence. From boulders of Gräsgård limestone, Öland, Sweden (Br 19869 and Br 19865) and from a boulder of «Macrourus limestone», probably Gräsgård limestone, Boltenhagen, NW part of the German Democratic Republic (latex cast). In the same block as the Boltenhagen specimen there are also the trilobites *Conolichas* cf. *deflexus* (Angelin); *Scopelochasmops bucculentus* (Sjögren); *Toxochasmops extensus* (Boeck) and the brachiopod *Sowerbyella* cf. *forumi* Röömusoks. They probably suggest a late Keila age for this limestone block. If this is correct, then *Trigrammaria* sp. is the oldest representative of the genus in Baltoscandia.

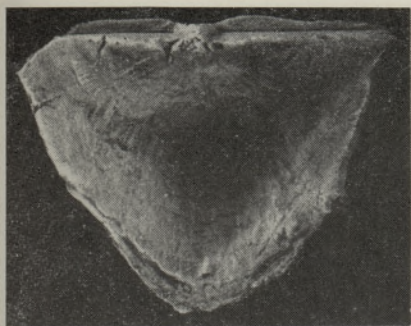
PLATE I

Figs 1—9. *Trigrammaria virve* sp. n., all from Nabala Stage. Paekna Member. 1—3 — ventral, posterior (x 1.7) and lateral views of complete shell. Holotype Br 1190. Laitse, old coll., x 2; 4 — interior of pedicle valve Br 1194. Nömmeküla, coll. by the author, x 1.7; 5 — the same, x 3; 6 — dorsal view of complete shell Br 1191, Oru, old coll., x 1.7; 7 — interior of adult brachial valve Br 1193. Nömmeküla, coll. by the author, x 2; 8 — the same, x 4; 9 — interior of young brachial valve Br 1195. Nömmeküla, coll. by the author, 1961. x 2.

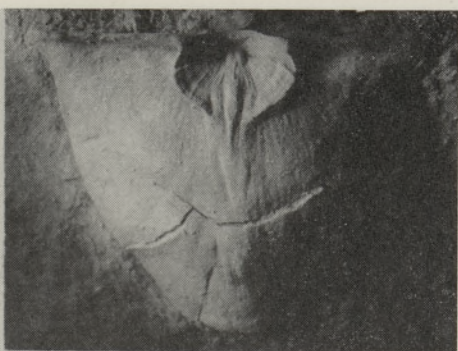
PLATE II

Figs 1—6. *Trigrammaria valdari* sp. n., all from Skålberg limestone, Siljan district, Sweden. 1—4 — ventral, dorsal, posterior and lateral views of complete shell. Holotype Br 108636. Skålberget, coll. by V. Jaanusson, 1945, x 2; 5 — interior of pedicle valve Br 108637. Kullsberg SE, coll. by V. Jaanusson, 1946, x 2; 6 — exterior of brachial valve Br 6830. Fjäcka, coll. by G. Holm, 1880, x 2.

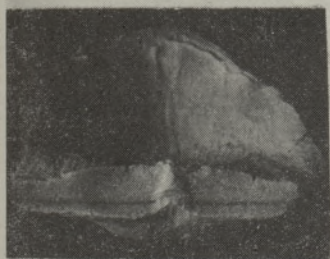
Figs 7—9. *Trigrammaria* sp. 7—8 — ventral and anterior views of complete shell (latex cast), «Macrourus limestone» boulder, Boltenhagen, NW part of the German DR. x 2; 9 — interior of brachial valve Br 19865. Gräsgård limestone boulder, Hulterstad, Öland, coll. by J. G. Andersson, 1892, x 2.



1



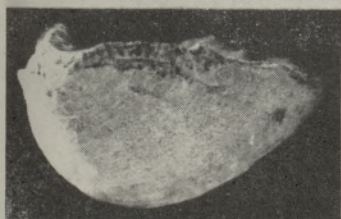
4



2



5



3



6



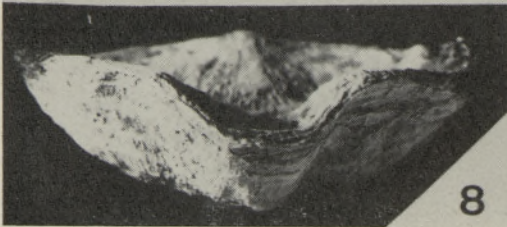
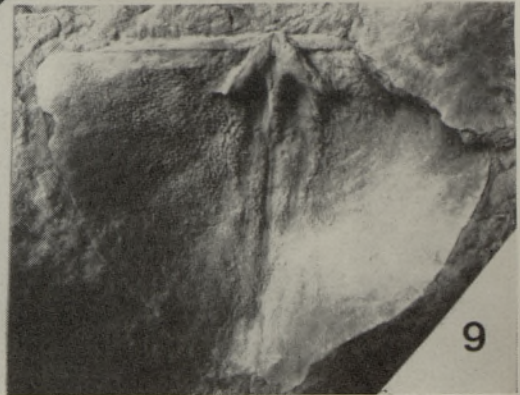
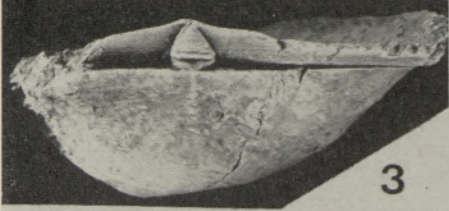
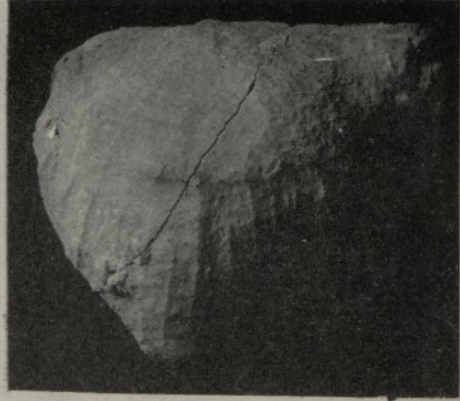
7



8

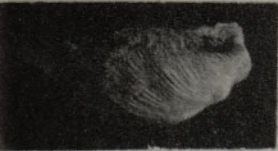


9

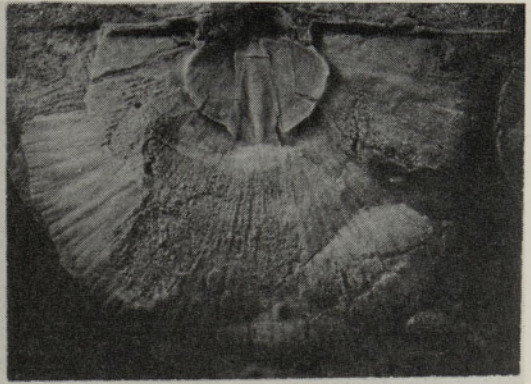




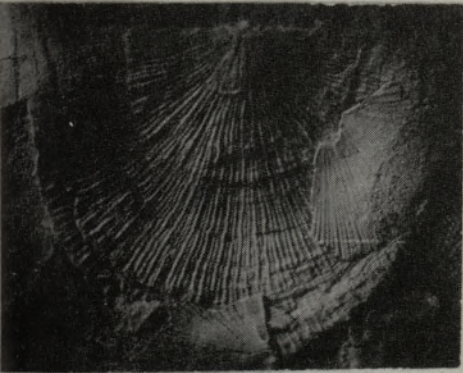
1



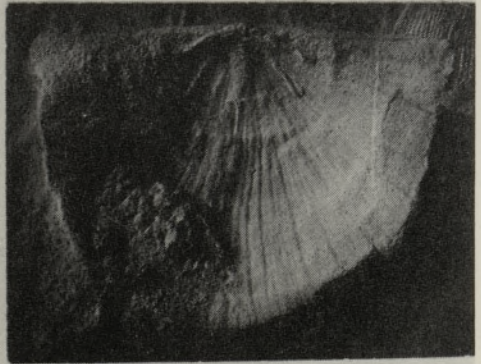
2



3



4



5



6



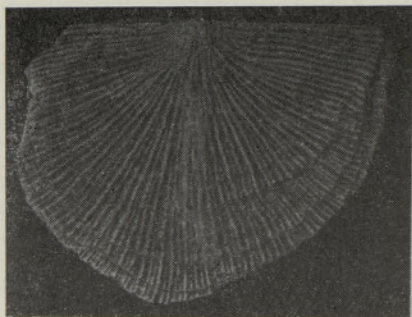
7



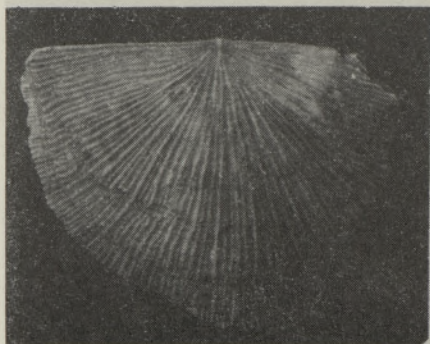
8



9



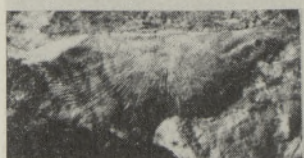
1



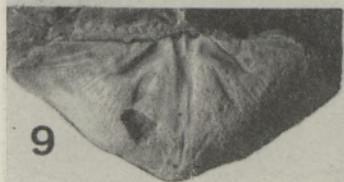
2



6



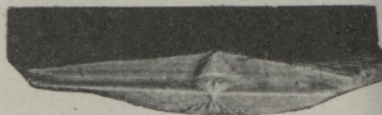
7



9



3



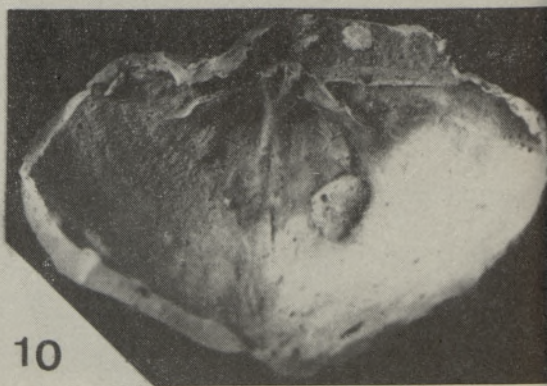
4



5



8



10

Genus *Microtrypa* Wilson, 1945

Type species. *Microtrypa attilis* Wilson, by original designation.

Diagnosis. Strophomeninae usually with a small, weakly resupinate, moderately concavo-convex shell of rounded-triangular outline. The narrow sector of the anterior-median margin of the brachial valve sometimes bears a weakly developed fold. Ornament parvicostellate. Costellae somewhat irregular, with fine concentric fila. Growth lines usually visible on the external surface of valves. Minute foramen present. Chilidium grooved medially. Median septum of brachial valve forked anteriorly. On the muscle field there is a pair of oblique transmuscle septa.

Species assigned: *Microtrypa attilis* Wilson, 1945; *M. ? modesta* Wilson, 1945; *M. ? nasuta* Wilson, 1945; *M. ? nitida* Wilson, 1945; *M. ? plana* Wilson, 1945; *M. ? tersa* Wilson, 1945; *M. cassata* Williams, 1962; *M. estonica* sp. n.; *M. ? minima* sp. n.; *M. oelandica* sp. n.

Remarks. The diagnostic characters of the genus are in the interior of the brachial valve. Unfortunately, these valves are rare in collections. Therefore the generic status of the five species described by A. E. Wilson is not clear. For the same reason the generic identification of *Microtrypa ? minima* sp. n. is also questionable, although due to other characters it is congeneric with *M. estonica* sp. n.

Distribution. *Microtrypa* is a typical Caradoc genus. The oldest known species appear simultaneously with the oldest species of *Trigrammaria* in the Lower Caradoc of Canada. In Scotland *Microtrypa* appears approximately at the same time as in Baltoscandia, i. e., in Keila and Oandu equivalents. The youngest species known are *M. estonica* sp. n. and *M. ? minima* sp. n. from the Upper Caradoc of Estonia (Rakvere Stage).

Microtrypa estonica sp. n.

Pl. III, Figs 1—9

Holotype. Interior of brachial valve (Br 1302) figured in Pl, III;

PLATE III

Figs 1—9. *Microtrypa estonica* sp. n., Figs 1—5 all from Rakvere Stage, Piilse Member. 1, 2 — posterior and lateral views of complete shell Br 1305. Voore, coll. by A. Oraspöld, x 1.7; 3 — interior of pedicle valve Br 1307. Voore, coll. by the author, 1953, x 2.5; 4 — exterior of pedicle valve Br 1303, Munalaskme, coll. by expedition 1946, x 2.6; 5 — interior of brachial valve. Holotype Br 1302. Munalaskme, coll. by expedition, 1946, x 2.5.

Figs 6—9. All from Oandu Stage, Hirmuse Formation. 6—8 — dorsal, lateral and posterior views of complete shell Br 1313. Oandu River, coll. by O. I. Nikiforova, 1962, x 2; 9 — interior of pedicle valve Br 1314. The town of Rakvere, coll. by A. Öpik, x 2.

PLATE IV

Figs 1—5. *Microtrypa ? minima* sp. n., all from Rakvere Stage, Piilse Member. 1—4 — ventral, dorsal, anterior and posterior views of complete shell. Holotype Br 1290. Moonaküla, coll. by H. Palmre, x 3; 5 — interior of pedicle valve Br 2386. Rägavere, coll. by A. Öpik, x 2.6.

Figs 6—10. *Microtrypa oelandica* sp. n., all from Gräsgård siltstone boulders, Öland, Sweden. 6 — exterior of pedicle valve. Holotype Br. 18 553. Eriksöre, coll. by J. G. Andersson, 1891, x 2; 7 — exterior of brachial valve Br 18 556. Eriksöre, coll. by J.G. Andersson, 1981, x 2; 8 — interior of pedicle valve Br 19 470. Gräsgård, x 2; 9 — internal mould of brachial valve Br 16 410. Segerstad, coll. by N. P. Angelin, x 2; 10 — the same (latex cast), x 3.

Fig. 5; Rakvere Stage, Piilse Member, village Munalaskme, NW Estonia. Coll. expedition, 1946.

Diagnosis. *Microtrypa* with a relatively convex brachial valve and weakly sulcate anterior commissure. Costellae somewhat irregular, very fine, particularly near the umbo. Ventral interarea apsacline.

Description. Shell of medium size for the genus, with rounded triangular outline and a broad dorsal fold. Pedicle valve gently concave in centre. Pseudodeltidium broad, convex. Chilidium broad with a narrow median groove. Radial ornament parvicostellate. Every 2nd or 3rd costella is thicker than the others near the anterior margin. Costellae with interspaces crossed by fine concentric fila. Growth line well developed. Weakly defined, small, oblique wrinkles are sometimes developed near the posterior margin on both sides of the umbo.

Ventral muscle field almost circular, with high elevated margins. Median septum relatively broad and low. Teeth relatively large.

Brachial interior known from one specimen (holotype) only. Median ridge of notothyrial platform broad, low and forked anteriorly. Cardinal process not preserved. Socket plates narrow and long. Transmuscle septa long and slender. Internal surfaces of valves irregularly and relatively coarsely pseudopunctate.

Dimensions of the figured specimens (in mm):

	length	width	thickness
Holotype Br 1302	19	22	?
Conjoined valves Br 1305	21	25.4	7.5
Pedicle valve Br 1307	20	?	—
Conjoined valves Br 1313	25	30.5	10.4
Pedicle valve Br 1314	16.9	19.8	—

Comparison. The closest species to *M. estonica* sp. n. is *M. ? minima* sp. n., from which it differs in its greater size, more convex brachial valve and more sulcate anterior margin. The costellae are thinner than those of *M. ? minima* sp. n.

Distribution. Oandu Stage, Hirmuse Formation — Oandu River, 1 specimen; the town of Rakvere, 1 specimen; Rakvere Stage, Piilse Member — Paeküla, 8 specimens; Määra, 2 specimens; Munalaskme, 6 specimens; Voore (SW from Saku), 16 specimens; Vaida, 3 specimens.

Microtrypa ? minima sp. n.

Pl. IV Figs 1—5

Holotype. Complete shell (Br 1290), figured in Pl. IV, Figs 1—4. Rakvere Stage, Piilse Member; Moonaküla, NE Estonia. Coll. by H. Palmre.

Diagnosis. *Microtrypa ?* with a small, flat shell. Anterior commissure somewhat sulcate. Brachial valve gently convex. Ventral interarea catacline.

Description. Shell small for the genus; with rounded triangular outline. Pedicle valve gently concave anteriorly. Pseudodeltidium broad, convex. Foramen small. Brachial valve slightly but evenly convex longitudinally. The height of the dorsal interarea is one-third the height of the ventral interarea. Chilidium grooved medially. Radial ornament parvicostellate. Costellae weakly irregular and relatively equal (every second costella thickened near the anterior margin). There are 5—7 costellae per 2 mm near the anterior margin. Costellae and interspaces

crossed by very fine concretic lines. Near the posterior margin some weak wrinkles are visible.

Ventral muscle field trapezoidal in outline, with elevated margins. Median septum strong, with a pair of weak parallel septa alongside. Teeth relatively large, triangular posteriorly and finely striated. Internal surface irregularly and relatively coarsely pseudopunctate.

The interior of the brachial valve is unknown.

Dimensions of the figured specimens (in mm):

	length	width	thickness
Holotype Br 1290	12.6	?	3.6
Pedicle valve Br 2386	17.1	19.8	—

Distribution. Rakvere Stage, Piilse Member, NE Estonia, Kullaru ditch, 3 specimens; Tõrremägi, 1 specimen; Moonaküla, 3 specimens; a ditch, 2.5 km north from the town of Rakvere, 1 specimen; exposures in the town of Rakvere, 25 specimens; Rägavere, 6 specimens; Kaarli, 1 specimen.

Microtrypa oelandica sp. n.

Pl. IV, Figs 6—10

Holotype. Fragmentarily preserved brachial valve (Br 18553) figured in Pl. IV, Fig. 6, from a boulder of Gräsgård siltstone, Eriksöre, Öland, Sweden, coll. by J. G. Andersson 1891.

Diagnosis. *Microtrypa* with a comparatively convex, abruptly geniculated brachial valve. Anterior commissure sulcate. Near the posterior margin on both sides of the umbo there are 4—5 distinct oblique wrinkles.

Description. Shell of medium size for the genus with subtriangular outline geniculated ventrally with a narrow, low dorsal fold which reflects also in the interior of the pedicle valve (Pl. IV, Fig. 8). Brachial valve strongly convex. Radial ornament generally parvicostellate. On the average there are 9 costellae per 2 mm near the lateral margin. Near the posterior margin on both sides of the umbo there are 4—5 oblique wrinkles.

Ventral muscle field almost circular, with high elevated margins. Median septum broad and relatively high anteriorly, with a very weak narrow ridge on both sides. Teeth not preserved. Lateral and anterior margins with low thickenings.

Median ridge of notothyrial platform short and forked anteriorly. Cardinal process lobes stout and rounded (not fully preserved in the available collection). Socket plates broad, short and divergent at about 90°. Transmuscle septa straight, short and narrow. Internal surface of valves finely and irregularly pseudopunctate.

Dimensions of the figured specimens (in mm):

	length	width
Holotype Br 18553	15.5	24
Brachial interior Br 16410	15.4	24.5
Pedicle interior Br 19470	16.2	21.5

Comparison. *M. oelandica* sp. n. differs from the other species described here in being comparatively convex, with an abruptly geniculated brachial valve, and in having distinct oblique wrinkles near the posterior margin.

Distribution. Gräsgård siltstone boulders on Öland, Sweden. Eriksöre block, 9 specimens; Gräsgård block, 2 specimens; Segerstad block, 6 specimens.

REFERENCES

- Bergström, S. M.* Conodont biostratigraphy of the Middle and Upper Ordovician of Europe and eastern North America. — *Geol. Soc. Amer. Mem.* 127, 1971, 83—157.
- Cooper, G. A.* Chazyan and related brachiopods. — *Smithsonian Misc. Coll.*, 127, 1956.
- Jaanusson, V.* Faunal dynamics in the Middle Ordovician (Viruan) of Balto-Scandia. — In: *The Ordovician System: Proc. Palaeontol. Ass. Symp.*, Birmingham, Sept., 1974. Birmingham, 1976, 301—326.
- Jaanusson, V.* The Siljan District. — *Paleont. Contr. Univ. Oslo*, 1982, ser. 279, 15—42.
- Jaanusson, V., Mutvei, H.* Ordovician of Öland. — In: *IV Int. Symp. Ordovician System. Guide to Excursion 3*. Oslo, 1982, 1—23.
- Williams, A.* The Barr and Lower Ardmillan Series (Caradoc) of the Girvan District, South-West Ayrshire, with description of the Brachiopoda. — *Geol. Soc. London Mem.* 3, 1962.
- Wilson, A. E.* Strophomena and its homomorphs *Trigrammaria* and *Microtrypa* from the Ottawa limestone of the Ottawa—St. Lawrence Lowlands. — *Trans. Roy. Soc. Can.*, 1945, ser. 3, 39, N 4, 121—150.
- Рыбусокс А.* Strophomenoidea ордовика и силура Эстонии. II. Новые роды и виды из харьбюской серии. — *Изв. АН ЭССР, сер. биол.*, 1963, № 3, 231—241.

Tartu State University

Received
Feb. 27, 1985

A. RÕOMUSOKS

PEREKONNAD *TRIGRAMMARIA* JA *MICROTRYPA* (STROPHOMENIDAE) BALTOSKANDIA ORDOVIITSIUMIS

Artiklis on kirjeldatud seni vaid Põhja-Ameerikast tuntud perekonna *Trigrammaria* kaks uut liiki (*T. virve* sp. n., *T. valdari* sp. n.) ja üks veel vähe tuntud vorm (*T. sp.*), mis koos perekonnast *Microtrypa* kirjeldatud kolme uue liigiga (*M. estonica* sp. n., *M. ? minima* sp. n., *M. oelandica* sp. n.) esinevad Baltoskandia Caradoci setendeis. Viimasest perekonnast on Euroopa ordoviitsiumist seni tuntud vaid üks liik Sotimaalt.

Baltoskandia liigid on Põhja-Ameerika liikidest nooremad. See viitab nende perekonnade esindajate sisserändele Baltoskandia ordoviitsiumibasseini (Keila ea lõpul ja Oandu ea alguses).

A. РЫБУСОКС

РОДЫ *TRIGRAMMARIA* И *MICROTRYPA* (STROPHOMENIDAE) ИЗ ОРДОВИКА БАЛТОСКАНДИИ

Из рода *Trigrammaria*, известного до сих пор только из Северной Америки, описаны два нового вида (*T. virve* sp. n., *T. valdari* sp. n.) и одна малоизвестная форма (*T. sp.*). Из рода *Microtrypa* описаны три нового вида (*M. estonica* sp. n., *M. ? minima* sp. n., *M. oelandica* sp. n.). Все они встречаются в отложениях верхнего карадока Балтоскандии. До сих пор в ордовике Европы из рода *Microtrypa* был известен только один вид в Шотландии.

Виды Балтоскандии моложе видов из Северной Америки. Это указывает на иммиграцию представителей названных родов в ордовикский бассейн Балтоскандии в конце кейлаского и в начале оандуского времени.