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FOUR NEW BRACHIOPOD GENERA OF THE SUBFAMILY OEPIKINAE (STROPHOMENACEA) FROM THE ORDOVICIAN OF ESTONIA

Abstract. Four new genera, *Panderites*, *Tallinnites*, *Bekkerina* (with one new species), and *Geniculina* are described. *Panderites* sp. from the Kunda Stage is the earliest representative of Oepikinae in the Ordovician of Baltoscandia. *Bekkerina* include species heretofore usually assigned to the genus *Oepikina*.

The earliest Ordovician strophomenaceans in Estonia belong to the subfamily Oepikinae, first erected by Sokolskaya (Сокольская, 1960, p. 211) as a subfamily Oepikinae, and later promoted to the familial rank by Pope (1976, p. 148). The original diagnosis of Sokolskaya is as follows: "Small, strongly convex, geniculate, without concentric rugae on the visceral disc. Elements of the interior sharply developed. Pseudopunctae very fine, dense." Williams (1965, p. 388) presented an emended diagnosis for the subfamily Oepikinae. This diagnosis is acceptable, except that posterolateral impersistent rugae are hardly **common** within the group. Factually oblique wrinkles occur only in the new genera *Tallinnites* and *Geniculina*, and on some species of *Oepikina*, described by Cooper (1956). However, the taxonomical significance of the presence of the wrinkles as well as that of the denticulated socket plates is not yet clear.

The study of the Estonian oepikins has shown that the generic content of the subfamily Oepikinae is greater than hitherto presumed. In this paper the new genera *Panderites*, *Tallinnites*, *Bekkerina*, and *Geniculina* are erected. Besides, the genera *Oslomena* and *Dactylogonia* probably occur in the upper part of the Viru Series of Estonia.

In North Estonia several strophomenacean genera such as *Septomena* and *Estonomena* among leptaenins, *Actinomena* among strophomenids, and *Tallinnites* and *Bekkerina* among oepikins appear in the Lasnamägi and Uhaku stages (U. Llanvirn and Llandeilo). The earliest known strophomenacean is *Panderites*, which occurs already in the uppermost part of the Kunda Stage (L. Llanvirn). The existence of many related strophomenacean genera in the Ordovician basin of Baltoscandia probably indicates that this basin may have been a centre of development and radiation of this superfamily (Rõõmusoks, 1989).

The types and illustrated specimens of the new genera are housed in the Museum of Geology of Tartu University (Br marks the brachiopod types catalogue number).

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Subfamily Oepikinae Sokolskaya, 1960
Genus *Panderites* nov.

Derivation of name. After Christian Pander.

Type species. *Plectambonites imbrex* Pander, 1830 from the Aseri Stage (U. Llanvirn) of Ingria (St. Petersburg area), in Russia.

Diagnosis: Medium-size Oepikinae (known maximum width of the interarea 22 mm) with concavo-convex shell at right angle geniculated in dorsal direction. Disc in both valves almost flat. Trail more than twice longer than disc. Ornament unequally parvicostellate, strongly filate, 10—12 relatively thin, accentuated costellae which have very broad interspaces. Pseudodeltidium small, apical; chilidium large. Cardinal process lobes small, inclined towards hinge line. Posterior platform broad, low, with broad low medial ridge. Long, thin brevisseptum. Two pairs of short thin, diverging transmuscle septa. Ventral muscle field subcircular, faintly impressed, without bounding ridges. Shell substance very finely and densely pseudopunctate.

Distribution. Ontika Subseries, Kunda Stage (L. Llanvirn) to lower part of the Viru Series, Aseri Stage (U. Llanvirn) of North Estonia; Ingria, Russia. The earliest specimen of *Panderites* for Estonia, probably a new species, was collected by V. Jaanusson in 1940 from the upper part of the Kunda Stage (Aluoja Substage) at Mäeküla near Tallinn. In Ingria *P. imbrex* was reported to occur already in the lowermost Kunda Stage (Lamansky, 1905, pp. 57, 59, 76). Thus *Panderites* is the earliest Baltoscandian oepikin known.

Panderites imbrex (Pander)

Pl. I, figs. 1—5

1830 *Plectambonites imbrex* Pander p. 91; pl. XIX, fig. 12.

1830 *Plectambonites triangularis* Pander p. 91; Pl. XIX, fig. 11.

1954 *Oepikina imbrex* (Pander) in Сокольская, p. 48; Pl. II, figs. 5—8, non fig. 9.

Neotype (selected here). Complete shell (Br 1583) from the Aseri Stage (U. Llanvirn) at Pavlovsk, Ingria, Russia.

Diagnosis: as for the genus.

Remarks. Pander's original collection has got lost (see Lamansky, 1905, p. 24; Öpik, 1930, p. 119); therefore, it seems to be suitable to select here a neotype from topotype specimens. Pander has not named the locality of the illustrated specimens, but he mentioned in the text that his material was collected in several localities, among them Pavlovsk. Apart from Pander's paper the true *imbrex* from exposures at the Volhov River (east from St. Petersburg) has been described and illustrated only by Sokolskaya (Сокольская, 1954). All other forms named by different authors as *imbrex* are not conspecific (see Öpik, 1930, p. 196). The interiors of *P. imbrex* have never been illustrated before.

Discussion. *Panderites* differ from all other oepikins known possessing strong geniculation at right angle, long trail and peculiar ornament. Dorsal interior is most similar to *Bekkerina*, its probable successor.

Genus *Tallinnites* nov.

Derivation of name. After Tallinn, the capital of Estonia, where good exposures of the Lasnamägi and Uhaku stages are located.

Type species. *Oepikina* (?) *imbrexoidea* Sokolskaya (Сокольская, 1954, p. 51; Pl. II, figs. 11—13, text-fig. 14) from the Uhaku Stage, Kõrgekallas Formation (Llandeilo) of North Estonia (see Pl. II, figs. 1—4 in the present article).

Diagnosis: Medium-size Oepikinae (known maximum length of the shell 30 mm) with shells subrectangular in outline; the length exceeds slightly the width; anterior margin broadly rounded. Ventral valve evenly and strongly convex in both profiles, dorsal valve correspondingly concave. The ornament unequally parvicostellate with relatively broad interspaces between accentuated costellae and 4—6 finer costellae between them on medial part of the shell near anterior margin. Short weak wrinkles posterolaterally. Pseudodeltidium small, apical; chilidium large, broad. Ventral muscle field long, elliptic with strong anteriorly converging bounding ridges and a medial ridge. The posterior platform narrow, with long medial ridge and broad, weakly developed low lateral ridges bearing very short, broad socket plates. Anterior pair of transmuscle septa high, thin, short, subparallel to medial ridge. Posterior pair long, high, anteriorly divergent. Long brevisseptum. The shell structure finely and densely pseudopunctate.

Discussion. The type species was described and illustrated by Öpik (1930, p. 196; Pl. XXI, fig. 272) as *Rafinesquina* aff. *imbrex* (Pander) and Sokolskaya (Сокольская, 1954, p. 51; Pl. II, figs. 10—13, text-fig. 14) based on the exterior character only. Now I have some excellent interiors that indicate a *Bekkerina*-like internal structure of the dorsal valve but a very different ventral one. Ornament, weak posterolateral wrinkles, and ventral interior resemble those of the younger genus *Geniculina*, except for the socket plates, which are gently developed and do not bear denticles. The ancestor of *Tallinnites* is not known. Characteristics of the interior, ornament, and strong evenly convex, not geniculate, ventral valve are the best distinguishing features for the new genus.

Distribution. Viru Series of North Estonia; Ingria, Russia, Lasnamägi Stage (U. Llanvirn) and Uhaku Stage, Vão and Kõrgekallas formations (Llandeilo) (*Pygodus serrus* and *P. anserinus* Conodont Zones of Bergström, 1971).

Genus *Bekkerina* nov.

Derivation of name. After Hendrik Bekker, the first Estonian professor of geology at Tartu University.

Type species. *Rafinesquina dorsata* Bekker, 1921, p. 73; Pl. III, figs. 9—13; Pl. V, figs 4—8 from the Kukuruse Stage.

Diagnosis: Small Oepikinae (known maximum width of the interarea 20 mm) with suboval to rounded-trapezoidal shell, widest in the middle. Ventral valve strongly convex, evenly geniculated, with small hemispherical disc. No posterolateral oblique wrinkles. Dorsal valve strongly concave. Radial ornament clearly unequally parvicostellate, commonly with many accentuated costellae. Pseudodeltidium vestigial or absent;

chilidium small, medially weakly grooved. Interareas small. Ventral muscle field impressed, very large, occupying more than half of the interior, radially striated, without raised bounding ridges. There is a long narrow medial ridge. Teeth crenulate. Cardinal process lobes high, stout, posteriorly inclined. They have a deep groove for muscle attachment on the posterior side. Laterally from the base of cardinal process to posterior part of subperipheral rim extends a pair of wide, high and long ridges bearing thin, long socket plates. Anterior transmuscle septa mostly high and long. Subperipheral rim well developed, interrupted by short vascular markings. The shell structure finely and densely pseudopunctate.

Species assigned

Rafinesquina dorsata Bekker, 1921, p. 73 (see Pl. I, fig. 10; Pl. II, figs. 5—10 in the present article) from the Kukruse Stage, Viivikonna Formation, North Estonia; Ingria, St. Petersburg area, Russia.

Rafinesquina jaervensis Bekker, 1921, p. 75; Pl. I, fig. 23; Pl. III, figs. 5—8 from the Kukruse Stage, Viivikonna Formation (Llandeilo), North Estonia.

Rafinesquina angusta Öpik (Öpik, 1930, p. 194; Pl. XV, fig. 177) from uppermost Kukruse Stage, Peetri Member of the Viivikonna Formation (L. Caradoc?), NW Estonia.

Oepikina dorsata var. *assatkini* Alichova (Алихова, 1951, p. 51; Pl. IV, fig. 64; see Pl. III, figs. 1—4 in the present paper). From the Idavere Stage, Vasavere Formation (L. Caradoc), North Estonia; Ingria, Russia.

Bekkerina raricostellata sp. n., Pl. I, figs. 6—9. Derivation of name. From Latin *rarus*, sparse, referring to the few accentuated costellae.

Holotype. Complete shell (Br 1579) from the Uhaku Stage. Koljala Member of the Kõrgekallas Formation (Llandeilo), Kiviõli-Erra ditch, 200 m north of the road, coll. author, 1964. **Diagnosis:** Small *Bekkerina* (maximum known width of the interarea 11 mm). Ornament with few accentuated costellae. Dorsal transmuscle septa short, low. **Remarks.** *B. raricostellata* is the earliest *Bekkerina* species in the Ordovician of Estonia and differs from all the other species of that genus in the character of the radial ornament. In this respect it somewhat resembles *Panderites* from the underlying Aseri Stage, but otherwise it is a typical *Bekkerina*.

Distribution. Lasnamägi (?) and Uhaku stages. Vão and Kõrgekallas formations (U. Llanvirn—L. Llandeilo), North Estonia.

Discussion. Salmon (1942, p. 589) erected the genus *Oepikina*. In the course of that study Öpik sent her 18 specimens of *R. dorsata* from the Kukruse Stage. She described this species too and included it in her new genus (Salmon, 1942, p. 592). Salmon noted: "In the brachial valve, the septa are more high and thin, and the anterior pair is curved inward at the posterior end and outward at the anterior. The only American species that resembles *Ö. dorsata* is *Ö. minnesotensis* (Winchell). The latter is somewhat larger and, although highly convex, has a definite geniculation and a long strait slope in the anterior portion, so that its lateral aspect is quite different."

Salmon's opinion regarding the inclusion of the *R. dorsata* group of species to *Oepikina* has been followed by all subsequent authors (Алихова, 1951, 1953; Сокольская, 1954, 1960; Spjeldnaes, 1957; Андреева, 1961). Cooper (1956) described numerous new species of *Oepikina* from North American lower Middle Ordovician. It seems to me that this genus is in his interpretation somewhat heterogeneous — representatives of several genera may perhaps be included.

I have studied the originals of Bekker and Öpik as well as new material in our collections, and I am sure that a new genus should be erected for the Baltoscandian species. However, two species formerly included in *Oepikina*, *Rafinesquina anijana* Öpik (1930, p. 197) and *Oepikina anijana grandis* Alichova (Алихова, 1953, p. 115), probably belong to *Oslomena* Spjeldnaes, 1957.

Bekkerina includes the smallest oepikins known. This genus differs from North American *Oepikina* in having smaller shells with greater convexity, more highly developed transmuscle septa, particularly anterior ones, which are usually anteriorly curved outwards, and a distinctive cardinalia. The relatively high, long ridges, bearing socket plates are fused to the posterior ends of the subperipheral rim.

Bekker and Öpik described some additional species and subspecies, such as *Rafinesquina imbrex* (Pander) sensu Bekker, 1921, p. 72; *R. dorsata media* Öpik, 1930, p. 189 (non *Oepikina dorsata media* Öpik in Spjeldnaes, 1957, p. 169 = *Oslomena*), *R. bekkeri* Öpik, 1930, p. 190; *R. troedssoni* Öpik, 1930, p. 195 (only two pathological specimens known) — all from the lower part of the Kukruse Stage, Kiviõli Member. Examination of the types of these species and subspecies has shown that these taxa fall into the intraspecific variation of *B. dorsata*.

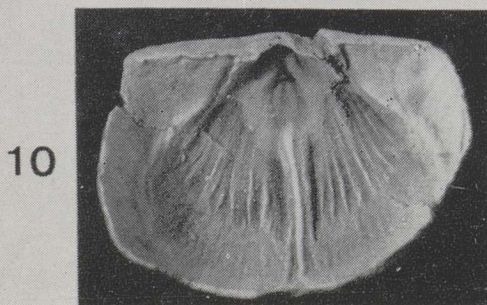
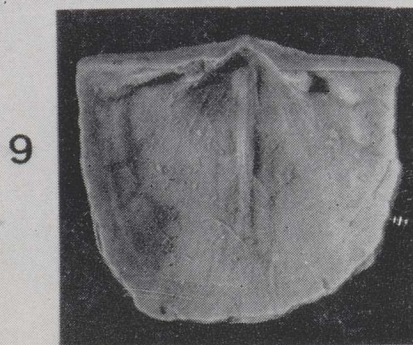
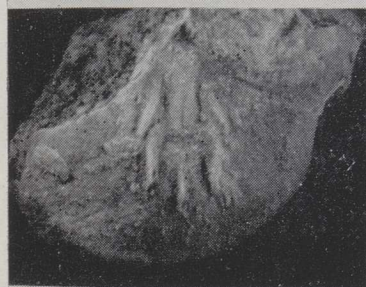
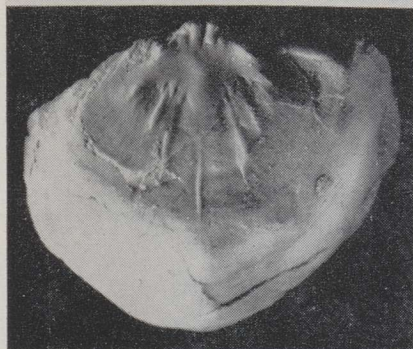
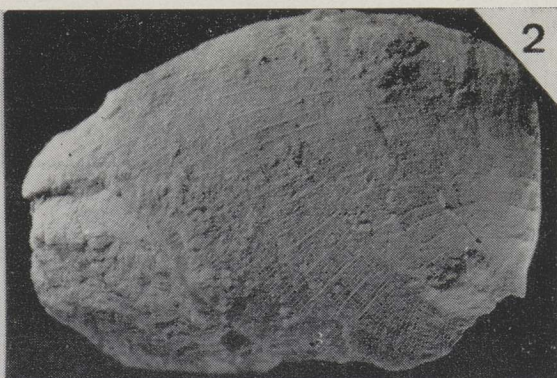
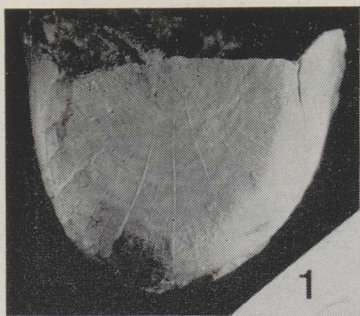
Distribution. Viru Series of Baltoscandia. The Lasnamägi? and Uhaku stages (U. Llanvirn—L. Llandeilo), the Kukruse Stage (U. Llandeilo) and Idavere Stage, Vasavere Formation (L. Caradoc); (*Eoplacognathus foliaceus* Subzone of the *Pygodus serrus* Zone to *Prioniodus gerdæ* Subzone of the *Amorphognathus tvaerensis* Conodont Zone), North Estonia; Ingria, Russia; Northern Öland (Lower Dalby Limestone; *Oepikina* cf. *dorsata* in Jaanusson, 1960, p. 230).

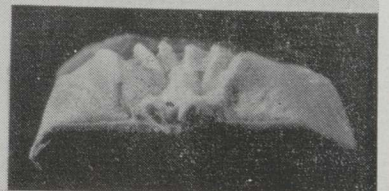
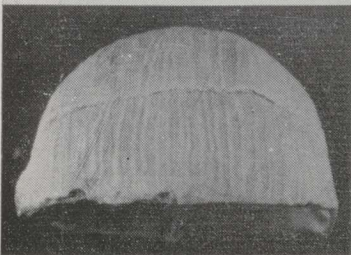
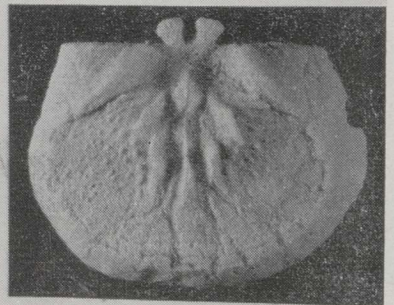
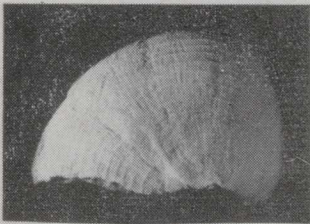
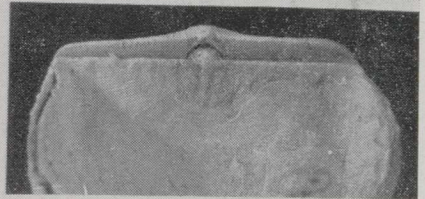
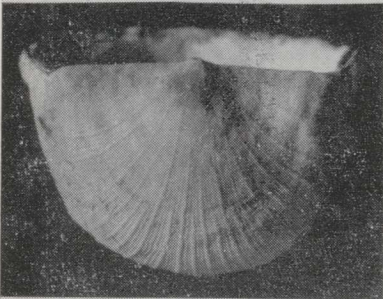
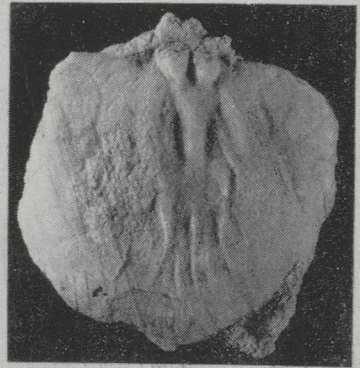
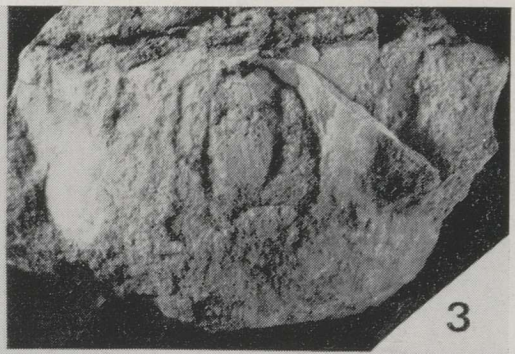
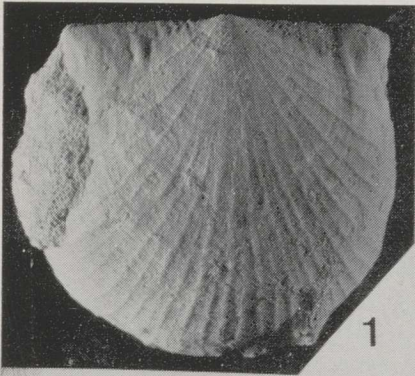
PLATE I

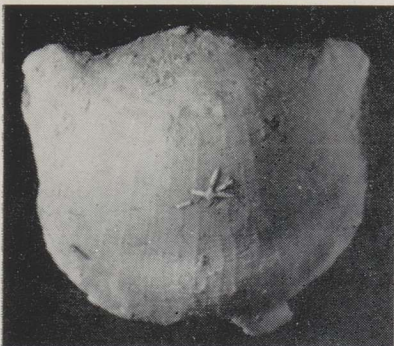
Figs. 1—5. *Panderites imbrex* (Pander), all from Aseri Stage. 1—3 — posterior and lateral views ($\times 2$), sculpture ($\times 3$) of complete shell, neotype (Br 1583); Pavlovsk, Ingria, St. Petersburg area, Russia, old collection. 4 — dorsal interior ($\times 2$) (Naturhistoriska Riksmuseet, Br 131660). Popovka, Ingria. 5 — ventral interior ($\times 2,5$) (Br 1625). Pavlovsk, Ingria. Figs. 6—9. *Bekkerina raricostellata* sp. n., all from Uhaku Stage, North Estonia. 6 — dorsal interior ($\times 4$) (Br 1580). Harku, coll. author, 1951. 7—8 — posterior and lateral views of complete shell, holotype ($\times 4$) (Br 1579). Kiviõli-Erra ditch, coll. author, 1964. 9 — ventral interior ($\times 4$) (Br 1581). Lasnamägi, coll. author, 1949. Fig. 10. *Bekkerina dorsata* (Bekker) from Kukruse Stage, Kohtla. Ventral interior ($\times 4$) Br 236 (168). Kohtla (Öpik, 1930, pl. XV, fig. 168).

PLATE II

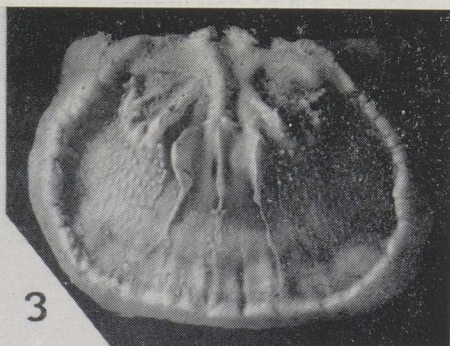
Figs. 1—4. *Tallinnites imbrexoides* (Sokolskaya), all from Uhaku Stage. 1—2 — ventral and lateral views of complete shell ($\times 2$) (Br 1572). Kohtla-Järve, coll. author, 1966. 3 — ventral interior ($\times 2,5$) (Br 1617). Loo, coll. R. Usar, 1953. 4 — dorsal interior ($\times 2$) (Br 1574). Lasnamägi, coll. author and V. Nurm, 1949. Figs. 5—10. *Bekkerina dorsata* (Bekker), all from Kukruse Stage. 5—8 — posterior ($\times 4$), lateral ($\times 3$), anterior ($\times 3,6$) and dorsal ($\times 4$) views of complete shell Br 227 (160). Kohtla. Öpik (1930, pl. XIV, fig. 160). 9—10 — dorsal and posterior views ($\times 3,6$) Br 229 (276). Kohtla. Öpik (1930, p. 184, text-fig. 22).







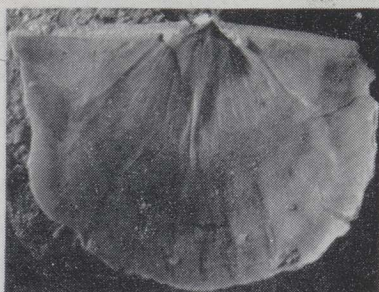
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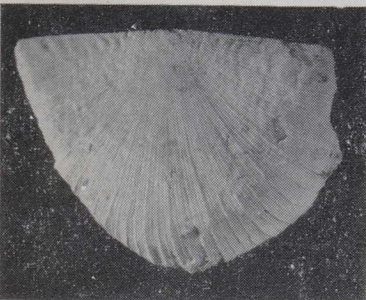
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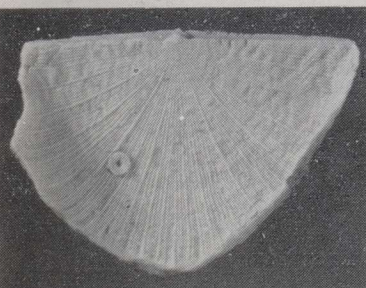
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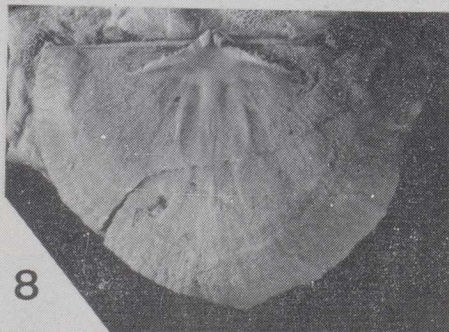
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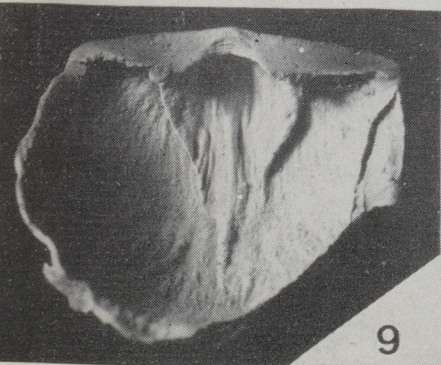
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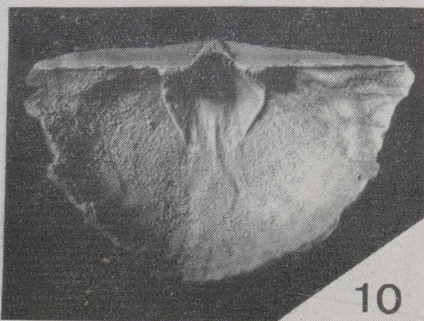
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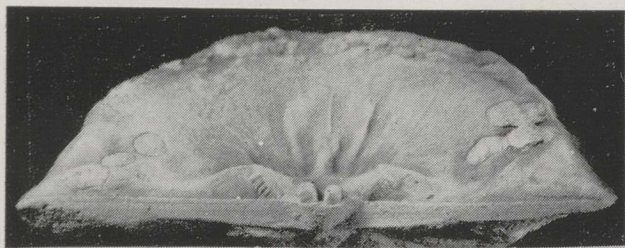
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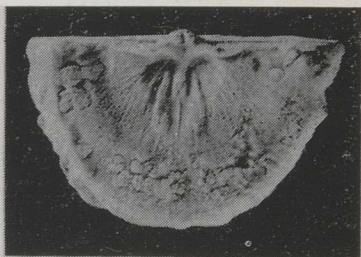
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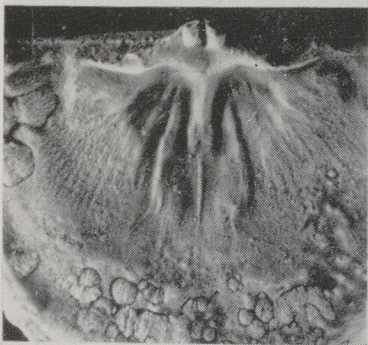
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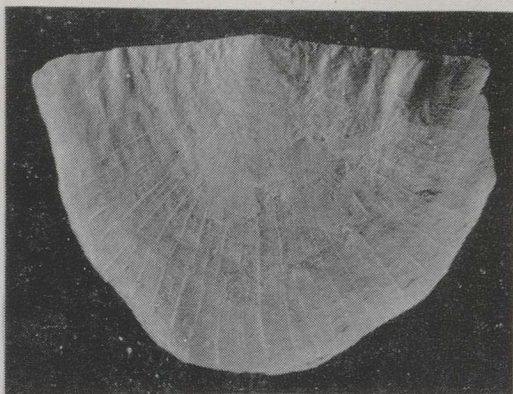
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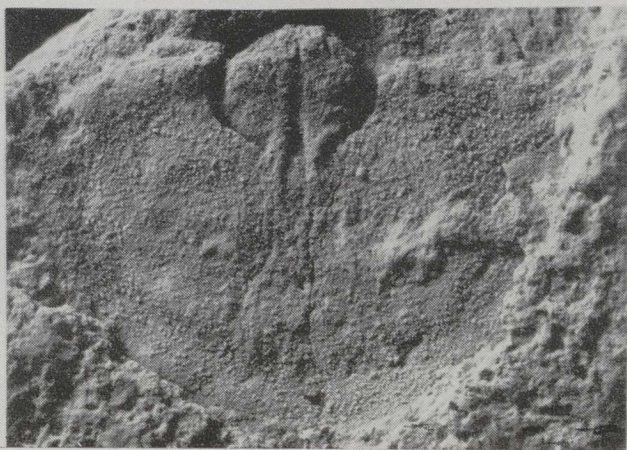
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Genus *Geniculina* nov.

Derivation of name. From Latin, *genu*, knee, referring to the geniculation.

Type species. *Strophomena pseudoalternata* Schmidt 1858, p. 214 from the Pirgu Stage, Adila Formation with Rõa Member (M. Ashgill) of North Estonia.

Diagnosis: Medium-size to large Oepikinae (maximum known width of the interarea 38 mm) with concavo-convex suboval strongly geniculated shell. Widest at the hinge line. Disc in both valves almost flat. The trail longer than the disc. The ornament strongly unequally parvicostellate. Short, irregular, usually oblique wrinkles posterolaterally. Large pseudo-deltidium and chilidium, almost equal in size, the latter medially grooved. Ventral muscle field large, subcircular or rhomboidal with sharply raised bounding ridges and a medial ridge. The posterior platform short, socket plates with small denticles. Anterior pair of transmuscle septa thin and long; posterior pair weakly developed or absent. Long thin brevisseptum. Well-developed, high and long subperipheral rim. The shell structure very finely and densely pseudopunctate.

Species assigned

Oepikina (?) *subaequiclina* Alichova (Алихова, 1951, p. 57; Pl. IV, figs. 72, 73) (see Pl. III, figs. 5—9 in the present paper) from the Rakvere Stage (L. Ashgill?), North Estonia; St. Petersburg area, Russia.

Oepikina limbrata Wang, 1949, p. 22; Pl. 6, figs. 1—7 from the L. Maquoketa Shale, Clermont, Iowa, USA. I had the opportunity to examine specimens of this species in the collections of the Swedish Museum of Natural History, Stockholm, in 1991. Similar species are "*Rafinesquina*" *pergibbosa* Foerste, 1917 from North Michigan and "*Rafinesquina*" *altdorsata* Bradley, 1921 from Iowa. Unfortunately the ventral interior of these two species is not known, and the generic assignment remains somewhat unclear. The problem is discussed in detail by Macomber (1970, p. 441—442), who gives some good illustrations (except the interior of the ventral valve) of "*Oepikina*" cf. *O. pergibbosa* from the U. Bighorn Formation of Wyoming.

PLATE III

Figs. 1—4. *Bekkerina assatkini* (Alichova), all from Idavere Stage, Vasavere Formation. 1—2 — ventral and posterior views of complete shell ($\times 3$) (Br 1584). Aluvere, coll. A. Öpik. 3 — dorsal interior ($\times 3$) (Br 1585), Aluvere, coll. A. Öpik. 4 — ventral interior ($\times 3$) (Br 1586). Aluvere, coll. author, 1962. Figs. 5—10. *Geniculina subaequiclina* (Alichova), all from Rakvere Stage, Rägavere Formation, at Rakvere. 5—7 — ventral, dorsal, and posterior views ($\times 2$) (Br 1543); coll. H. Palmre, 1937. 8 — dorsal interior ($\times 2$) (Br 1558), coll. G. Mechmershausen, 1920. 9—10 — ventral interiors (Br 1556) and (Br 1557) ($\times 2,2$ and $\times 2$), coll. G. Mechmershausen, 1920.

PLATE IV

Figs. 1—6. *Geniculina pseudoalternata* (Schmidt), all from Pirgu Stage, Adila Formation. 1—3 — dorsal interior views of lectotype ($\times 2$, $\times 1,2$, $\times 2$) (Br 1460). Vardi, coll. Fr. Schmidt. 4—5 — dorsal and posterior views ($\times 2$) (Br 1463). Piirsalu, coll. Fr. Schmidt. 6 — ventral interior mould ($\times 2$) (Br 1539). Rõa, coll. author, 1975. Fig. 7 — *Geniculina* sp. n., dorsal interior ($\times 1,9$) (Naturhistoriska Riksmuseet Br 6753), Osmundsberget, Dalarna, Boda Limestone.

Geniculina pseudoalternata (Schmidt, 1858)

Pl. IV, figs. 1—6

- 1858 *Strophomena pseudoalternata* Schmidt, p. 214.
non 1916 *Rafinesquina pseudoalternata* Schmidt, in Høltedahl, p. 21;
Pl. III, figs. 9—11 (= *Geniculina* sp. n.).
1956 *Rafinesquina pseudoalternata* (Schmidt), Jaanusson, pp. 375,
377, 379, 383 (named only).
1991 "*Rafinesquina*" *pseudoalternata* (Schmidt), Рыымусокс, p. 33;
Pl. II, fig. 1; Pl. III, figs. 1—4.

Lectotype (here selected). Dorsal valve interior (Br 1460), Pl. IV, figs. 1—3 from the Pirgu Stage, Adila Formation. This specimen and three more with good dorsal interiors were collected by Schmidt from the glacial boulders at Vardi, Western Estonia (see Schmidt, 1908, p. 725).

Diagnosis: Large *Geniculina* with subcircular, almost flat, relatively long ventral disc. Some broad short wrinkles posterolaterally. Ornament with many accentuated costellae and 5—7 finer ones between them at the geniculation. Ventral muscle field relatively small, almost circular, with narrow strong medial ridge. Cardinalia delicate, with thin long medial ridge. Socket plates with well-developed denticles. Muscle field somewhat depressed. Very thin brevisseptum. No posterior transmuscle septa.

Remarks. Specimens of *G. pseudoalternata* from Estonia had never been illustrated before 1991. The original short diagnosis by Schmidt (1858, p. 215) is as follows: "The shell distinctly geniculated. Ornament regular, always 7—8 fine costellae between the coarser. The ventral interarea higher, the beak with foramen projected posteriorly from hinge line." *S. pseudoalternata* sensu Schmidt (1858) is thus certainly identical with the specimens in our collections as far as this is the single strophomenacean in the Pirgu Stage with strong, dorsally directed geniculation.

Distribution. Harju Series, Pirgu Stage, Adila Formation with Rõa Member (M. Ashgill), North Estonia.

Geniculina sp. n. (Pl. IV, fig. 7 in the present article). Boda limestone (Ashgill), Siljan district, Sweden.

Species questionably assigned

Stropheodonta (*Eostropheodonta*) *helgoeyensis* Spjeldnaes, 1957, p. 191; Pl. 12, fig. 6 from the upper part of the Mjøsa Formation (= probably equivalent of the Rakvere Stage of Estonia) (Uppermost Caradoc or L. Ashgill), Norway. Author's examination of the holotype in Paleontologisk Museum, Oslo, shows that it is clearly a species of *Geniculina* by the features of its cardinalia, particularly with regard to the denticulated socket plates and anterior transmuscle septa. Unfortunately, the interior of the ventral valve is not known. Harper and Boucot (1978, p. 102) regarded this species as a leptaenid. It might be the oldest known species of *Geniculina*.

Rafinesquina pseudoalternata Schmidt in Høltedahl, 1916, p. 21; Pl. III, figs. 9—11 from 5a beds (= Bønsnes Formation), (Ashgill), Norway. Author examined these specimens in the Paleontologisk Museum, Oslo. They should evidently be assigned to a new species of *Geniculina* which differs from the true *G. pseudoalternata* in having smaller shell and thinner oblique posterolateral wrinkles. Unfortunately no interiors are known.

Discussion. The most characteristic distinguishing features of *Geniculina* are well-defined but rounded geniculum, almost flat disc on both valves, long trail (the trail is seldom completely preserved), oblique, short

irregular posterolateral wrinkles, moderately raised bounding ridges of the ventral muscle field and small denticles on the socket plates.

The Baltoscandian species of *Geniculina* form a closely related group of species, each member of which has a relatively limited stratigraphical range in units from the Oandu to Pirgu stages.

Ventral interior and geniculation of *Geniculina* resemble those of *Mjoesina*, proposed by Spjeldnaes in 1957. The systematic status of the latter genus is, however, still somewhat uncertain, because dorsal interior of the type species — *Rafinesquina mjoesensis* Høltedahl, 1916 — is not known. In spite of this fact, species of *Mjoesina* have been described by several authors (Spjeldnaes, 1957; Williams, 1962; Mitchell, 1977; Кульков and Севергина, 1989). Emended diagnosis of *Mjoesina* presented by Williams (1962) was based only on the material from Girvan. He noted that the notothyrial platform and median ridge are faint or absent, socket plates curved and denticulate in adult shells, and the muscle field is generally indistinct. In his description of the new species and subspecies Williams noted that both *M. rugata* and *M. rugata plana* have short rugae posterolaterally, not mentioned in the descriptions of the Norwegian species and in the diagnosis of the genus by Spjeldnaes (1957).

The species of *Geniculina* described here differ from *M. rugata* Williams, *M. rugata plana* Williams, and *M. moorei* Mitchell in having a large, commonly subcircular ventral muscle field, strongly developed cardinalia, anterior transmuscle septa, high subperipheral rim, and a weaker differentiated sculpture.

Distribution. Upper Caradoc to Ashgill of Baltoscandia, North American Midcontinent Richmondian (*Amorphognathus superbis* and *A. ordovicicus* Conodont Zones).

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NELI UUT BRANHIPOODI PEREKONDA ALÄMSÜGUKONNAST OEPİKINAE
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On kirjeldatud uusi perekondi *Panderites*, *Tallinnites*, *Bekkerina* (koos ühe uue liigiga) ja *Geniculina*. Baltoskandia ordoviitsiumi vanim õpikiniid on *Panderites* sp. Kunda lademest. Perekonda *Bekkerina* kuuluvad liigid, mida seni tavaliselt peeti perekonda *Oepikina* kuuluvaks.

ЧЕТЫРЕ НОВЫХ РОДА БРАХИПОД ПОДСЕМЕЙСТВА ОЕРИКИНАЕ
(СТРОФНОМЕНАЦЕА) ИЗ ОРДОВИКА ЭСТОНИИ

Дано описание новых родов *Panderites*, *Tallinnites*, *Bekkerina* (с одним новым видом) и *Geniculina*. Древнейшим представителем Оерикинае в ордовике Балтоскандии является *Panderites* sp. из кундаского горизонта. К роду *Bekkerina* отнесены виды, которые до сих пор причисляли к роду *Oepikina*.