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New Early Katian species of Leptestiidae and Hesperorthidae (Brachiopoda) from Lithuania

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Abstract. A new leptestiid brachiopod species of the genus *Sampo* and a hesperorthid species of the genus *Dolerorthis* are described from the Early Katian Oandu Stage of southern Lithuania. The new species *Sampo suduvensis* and *Dolerorthis nadruvensis* are common brachiopods for the *Howellites wesenbergensis–Hedstroemina subaequiclina–Reushella magna* community of the Lithuanian shelf. In the East Baltic the brachiopods of the genus *Sampo* appear first in the deeper part of the Lithuanian shelf in siliciclastic lithologies. The genus *Dolerorthis* is identified for the first time in the East Baltic. The new species *Dolerorthis nadruvensis* differs from other related Hesperorthidae brachiopods in the region. An exception is the Late Katian species *Boreadorthis recula* from Estonia, which shows similarity with *D. nadruvensis* in shell size and ornamentation. Still, the generic relationship of these species requires further studies. The new species of brachiopods are a supplement to the brachiopod fauna of southern Lithuania.

Key words: Brachiopoda, Leptestiidae, Hesperorthidae, Katian, Lithuania.

INTRODUCTION

A rich and diverse brachiopod fauna occurs in the East Baltic in the lower Katian Oandu Stage (Rõõmusoks 1970; Hints & Rõõmusoks 1997; Paškevičius 1997; Hints & Harper 2003; Kaljo et al. 2011) (Fig. 1). Due to gaps, including the sedimentary gap on the lower boundary (Dronov & Rozhnov 2007), the Oandu Stage is stratigraphically less complete in the Estonian shallow shelf than in the sections in the deeper part of the Lithuanian Shelf (Fig. 2). The thick (up to 20 m), predominantly siliciclastic lithologies in southern Lithuania comprise the oldest strata, which could be included to the Oandu Stage (Hints et al. 2016).

The Ordovician brachiopod fauna of Lithuania comprises mostly species which are common or related with those in northern Estonia. The composition and stratigraphical distribution of Lithuanian brachiopods are presented in a summarized list of species according to formations and stages in Paškevičius (1997, table 5, pp. 330–336). The data on the distribution of brachiopod species in different Lithuanian drill core sections are available in Paškevičius (1973, 1997), Laškovas et al. (1984), Laškovas & Paškevičius (1989) and Hints et al. (2016). The brachiopods, which are specific to or most characteristic of the Lithuanian sections, have been described in a few papers (Alikhova et al. 1954; Hints 1973, 1975) or are mentioned under open nomenclature (Paškevičius 1997). Two new species, *Sampo suduvensis* and *Dolerorthis nadruvensis*, are described in the present paper. Their detailed distribution in the Pajevonys-13 core section is presented in Hints et al. (2016).

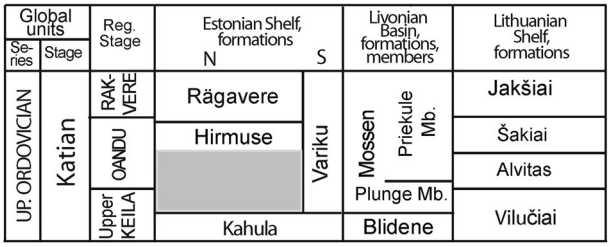

Fig. 1. Generalized correlation chart of the early Katian, formations and members (Mb.) of the East Baltic. Up. Ordovician, Upper Ordovician; Reg. Stage, Regional Stage; N, northern; S, southern part of the Estonian Shelf; the grey area marks the possible interval missing in the Keila–Oandu transitional interval of the shallow part of the Estonian Shelf.

The faunal differentiation in relation to facies and supposed bathymetry has enabled the identification of several benthic associations (Paškevičius 2000) in the southern part of the Baltic Basin. The new species *S. suduvensis* and *D. nadruvensis* associate with those of the *Howellites wesenbergensis–Hedstroemina*

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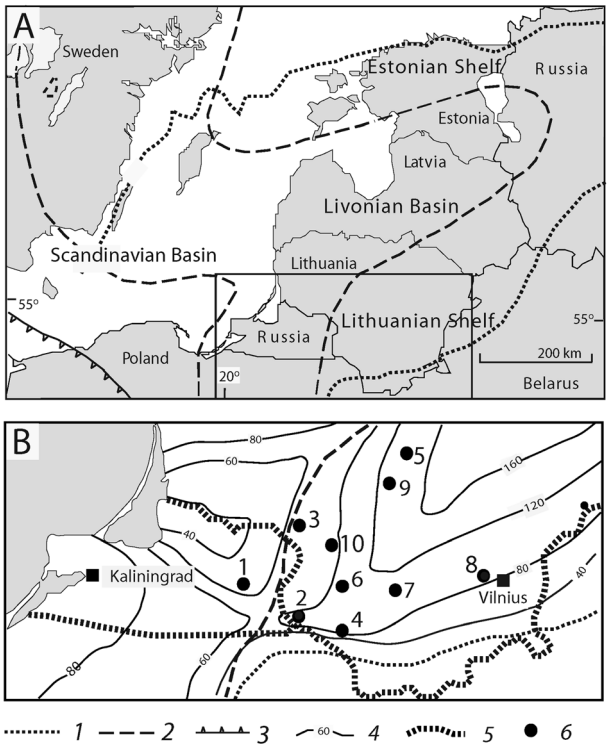

Fig. 2. A, major palaeogeographic features of the Baltic Basin (after Harris et al. 2004). **B**, localities of drill core sections with described brachiopods: 1, Nesterov-1; 2, Pajevonys-13; 3, Jurbakas-36; 4, Kalvarija-2; 5, Krekenava-7; 6, Sasnava-6; 7, Prienai-3; 8, Vilnius (Griškekes)-1; 9, Ledai-179; 10, Sutkai-89. Legend: *1*, outer limit of the distribution of Ordovician deposits; *2*, boundary between main facies belts; *3*, Caledonian front; *4*, isopachs (m) (Paškevičius 1997); *5*, administrative boundary; *6*, drill core.

subaequiclina–Reuschella magna community, which probably represents the Oandu age benthic association BA4 by Boucot (1975) (Paškevičius 2000). Several taxa of that community (*Dolerorthis*, *Eoplectodonta*, *Platystrophia*, *Skenidioides*, leptestiids *Sampo* or *Leptestiina*) are common with the *Nicolella* brachiopod community of the lowermost Woolstonian Substage (= uppermost Longvillian) of the Cheneyan Stage of North Wales of Avalonia (Pickerill & Brenchley 1979). The Cheneyan Stage is correlated with the Rakvere Stage (Ferretti et al. 2014) or with the Oandu Stage and part of the Rakvere Stage (Webby et al. 2004). This correlation suggests that the mentioned two brachiopod communities are almost contemporaneous in Baltica and Avalonia. Beside that, the *Nicolella* community is distributed in lithologies (fine silt) similar to those in the Oandu–Rakvere stratigraphical interval of the deeper part of the Lithuanian Shelf. This confirms the great affinity of the Early Katian brachiopod faunas on Baltica and Avalonia, identified by global studies on brachiopod distribution (Harper et al. 2013).

The new species *Sampo suduvensis* and *Dolerorthis nadruvensis* contribute to the data on early Katian brachiopod diversity. The latter species is the first identification of the genus *Dolerorthis* in the Ordovician of the East Baltic. Both species are found in the Oandu Stage, while occurrences in the younger strata of the Rakvere Stage are unclear.

The new species *Sampo suduvensis* and its comparison with the type species of the genus *Sampo hiiuensis* enabled us to specify the morphology of the cardinalia. Cocks & Rong (1989, p. 82) defined the terms *socket plates* or *ridges* for the plectambonitacean brachiopods 'as structures attached to the hinge line and arising from near the notothyrial platform'. *Sampo suduvensis* and *S. hiiuensis* have cardinalia with somewhat unusual socket plates, which have posterolaterally the plate-like callosity of shell material (Fig. 3).

The described new species occur in the Alvitas and Šakiai formations of the Oandu Stage (Fig. 1). Few finds come from the Jakšiai Formation (Fm.), whose position in the Rakvere Stage is unclear in some sections. The rock samples with fossils were collected from drill core sections in southern Lithuania (Fig. 2) in the 1960s. The brachiopods were studied later by J. Paškevičius and L. Hints. The specimens are housed at Vilnius University (VU, institutional abbreviation) and at the Institute of Geology at Tallinn University of Technology (GIT).

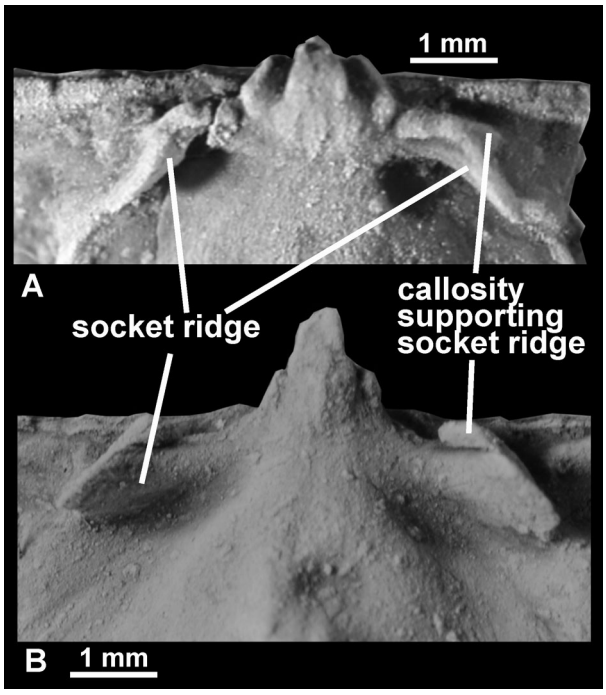

Fig. 3. Views of cardinalia: **A**, *Sampo suduvensis* sp. nov., dorsal valve VU B23. **B**, *Sampo hiiuensis* Öpik, dorsal valve GIT 675-340.

SYSTEMATIC PALAEONTOLOGY

Order STROPHOMENIDA Öpik, 1933
Superfamily PLECTAMBONITOIDEA Jones, 1928
Family LEPTESTIIDAE Öpik, 1933
Genus *Sampo* Öpik, 1933

Sampo suduvensis Paškevičius & Hints sp. nov.
Figures 3A, 4, Table 1

1954 *Sampo hiiuensis* Öpik; Alichova in Alikhova et al., p. 27, pl. 17, figs 5–9.

Derivation of name. From the name *Suduva* used in the 13th century for the Aisčiai region in southern Lithuania where the species is distributed.

Holotype. VU B23, dorsal valve, Figs 3A, 4A, Kalvarija-2, depth 900.3 m, Jakšiai Fm., Upper Ordovician.

Material. 84 shells and valves from 9 drill cores in Lithuania and Kaliningrad Region of Russian Federation.

Diagnosis. Medium-sized *Sampo*, posterior subdivision of bema undercut up to socket ridges, anterior part developed as two short extensions, cardinal process stout, socket plates supported posteriorly by small plate-like thickenings. Ventral muscle field short, widely bilobed anteriorly. Five accentuated costae appear around the umbo. Up to 20 small denticles occur along edge of ventral interarea.

Description. Medium-sized concavo-convex shell with semi-circular to laterally elongate outline; shell length forms 50–70%, thickness 27–36% of shell width; maximum width and the strongest convexity in posterior half of ventral valve. Cardinal angles rounded to acute. Ornament parvicostellate with 5–10 costae at umbo of ventral valve, up to 8 additional accentuated ribs appear by intercalation on the middle of valve with up to 20 fine costellae between ribs.

Ventral valve strongly convex, thickness about 50% of valve length and 27–36% of its width; middle sector of valve flattened, with weakly developed costae; interarea slightly concave orthocline to anacline, length about 4% of hinge line width. Ventral valve with small laterally inclined teeth; up to 20 tiny densely spaced denticles occur along the anterior margin of interarea (Fig. 4C4, H), which is separated from rest part of interarea by distinct growth line parallel to hinge line; denticulated margin turns anterolaterally to join with papillated lateral part of valve (Fig. 4H). Delthyrium triangular, up to 2 mm high and 0.8 mm wide; apical pseudodelthidium small (Fig. 4C1, F). Muscle field about 60% as wide as long (Fig. 4C4, F), anteriorly slightly bilobed, in dorsal view may be hidden in the strongly convex posterior part of valve. Interior surface covered by papillae, more strongly developed around the marginal area with mantle canals.

Dorsal valve strongly concave in umbonal area. Cardinal process robust, with strong grooves for diductor bases and higher median part (Fig. 3A). Hinge line with small fossettes. Sockets below the hinge line are separated from anterolaterally directed socket ridges by oblique plate-like thickenings; socket ridges merge with posterolateral edges of bema (Figs 3A, 4A). Bema about 40% as wide as valve width, reaches anteriorly about 60% of valve length; posterior part suboval, undercut up to the socket ridges, the anterior part developed as two weakly undercut short extensions. Low fold on bema has two weakly developed anterolaterally directed branches which separate the adductor scars (Fig. 4A1, A2). *Vascula myaria* are developed on anterolateral edges of bema (Fig. 4A). Platform sub-triangular, rimmed with papillae. Mantle canals deeply expressed on valve floor before platform.

Comparison. The new species differs from the type species of the genus *Sampo hiiuensis* (Öpik 1933, pl. VI, figs 1–3; pl. VII, figs 4, 5, pl. VIII, figs 3–5; text-figs 6, 16; fig. 6A) (Fig. 3B) from the uppermost Katian in smaller size and interior features of the dorsal valve (Fig. 4A1, 4B). *Sampo hiiuensis* has a two-stepped bema, high posteriorly directed cardinal process and laterally directed socket ridges instead of a bema with anteriorly directed lobes, a stout cardinal process and anterolaterally directed socket ridges on *S. suduvensis*. *Vascula myaria* on *S. hiiuensis* divide the bema into middle and lateral parts; on *S. suduvensis* they delimit the middle sector of the bema with its anteriorly extending parts. *Sampo suduvensis* has also less frequent 10–12 accentuated ribs against 14 on *S. hiiuensis*.

Sampo suduvensis is similar to *Sampo transversa* Cocks from the Late Katian of north (Hiller 1980) and southwestern Wales (Cocks 2014). It differs from *S. transversa* in smaller size (maximum widths 15.5 and 23.8 mm, respectively), higher average width/length ratio (0.59 and 0.54) and in the shape of the bema. In *S. transversa* the anterior sector of the bema (Cocks 2014) is about the same length as the posterior sector. The shells of *S. suduvensis* resemble in shell form and ornamentation another plectambonitacean species *Sampo* (*Leptellina*) *indentata* Spjeldnaes, 1957 [= *Bilobia indentata* in Cocks & Rong 1989; *Leangella* (*Leptestiina*) *indentata* in Hansen 2008] from Norway (Harper & Owen 1984) and Sweden (Hansen 2008). However, the latter differs from species of *Sampo* in a simple bema and absence of denticles on the ventral interarea (Harper & Owen 1984).

Distribution. The new species occurs in the southern East Baltic, in easternmost and central Lithuania and

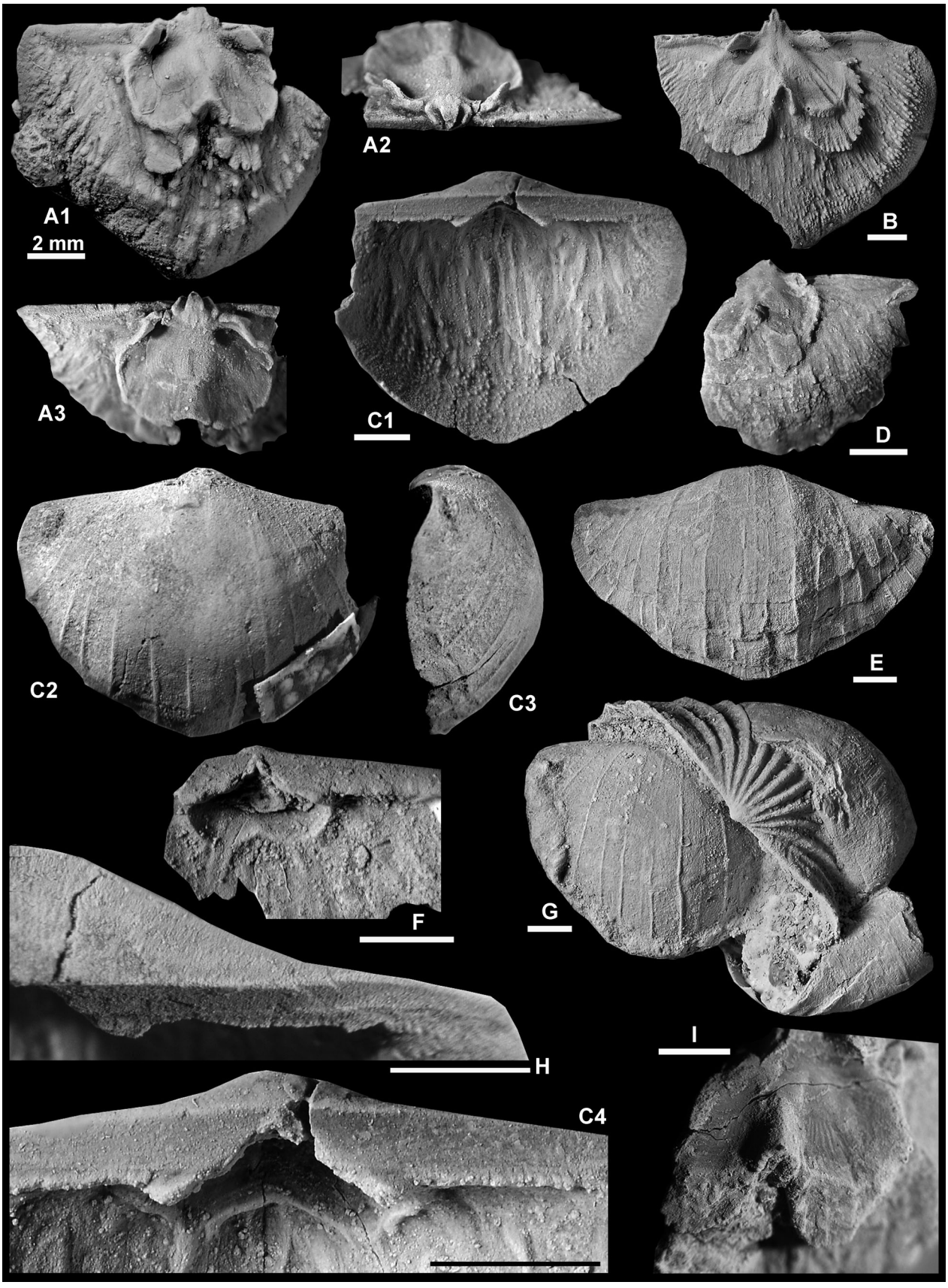
A1
2 mm
A2
B
A3
C1
D
C2
C3
E
F
G
H
I
C4

Table 1. Measurements of shells. D.v., dorsal valve; V.v., ventral valve; S., shell

Specimen	Length (mm)	Width (mm)	Length/ width ratio	Thickness (mm)	Number of costae
Holotype	9.2	ca 12.7	ca 0.7	–	–
VU B23, D.v.					
VU B24, V.v.	11	13	0.8	5	10
VU B25, V.v.	11	13	0.8	6.3	10
VU B47, V.v.	10	12	0.82	5	10
VU B19, V.v.	12	14	0.85	5	–
VU B20, V.v.	7.4	12	0.61	5	10
VU B21, V.v.	9	12	0.8	4	10
GIT 716-59, S.	7.7	11.6	0.66	3.3	–
GIT 716-61, V.v.	9.6	15	0.64	4.6	–
GIT 716-106, S.	8	14	0.57	3.8	–

Kaliningrad region (Russian Federation) in the Alvitas and Šakiai formations of the Oandu Stage and in the basal beds of the Jakšiai Fm. of the Rakvere? Stage.

Localities (Fig. 2) (drill cores with depth and specimen numbers in the Lithuanian collection): Kalvarija-2 (900.3 m, VU B23–28, VU B45–47; 900.2 m, VU B39, 40; 9006.0 m, VU B31); Krekenava-7 (942.7 m, VU B20–22; 936.2 m, VU B19); Ledai-179 (862.9 m, VU B29); Sasnava-6 (877.65 m, VU B33); Jurbarkas-36 (1394.5 m, VU B30); Pajevonys-13 (specimens in the interval 1188.9–1199.8 m (1196.6 m, VU B37); Nesterovo-1 (1342.0 m; VU B35); see the Estonian collection 716, http://sarv.gi.ee/); According to Alikhova et al. 1954, Preinai-3 (667.5 m; pl. XVII, figs 5–8), Vilnius-1 (261.96–264.16 m; pl. XVII, fig. 9).

Order ORTHIDA Schuchert & Cooper, 1932
Superfamily ORTHOIDEA Woodward, 1852
Family HESPERORTHIDAE Schuchert & Cooper, 1931
Genus *Dolerorthis* Schuchert & Cooper, 1931

Type species. *Orthis interplicata* Foerste, 1909, non M'Coy, 1846, from the Osgood Fm. (Telychian) of Indiana, USA.

Dolerorthis nadruvensis sp. nov.
Figure 5, Table 2

Derivation of name. From *Nadruva*, a historical 13th-century name for the Aisčiai area of southwestern Lithuania where the drill cores with the described new species are located.

Holotype. Shell VU B66, Fig. 5A, Sutkai-89 drill core, depth 1191.6 m, Oandu Stage, Lithuania.

Material. 46 shells, valves and incomplete valves.

Diagnosis. Weakly biconvex large shell with alate to angular cardinal angles, brachiophores long, with dorsally tilting anterior parts. Ventral muscle scar oval to trapezoidal with narrow adductor scar separated from diductors by subparallel fine septa, which join and continue anteriorly as weakly developed median septum. Density of ribs 2 per mm in 10 mm growth stage, shell surface densely covered by concentric lamellae.

Description. Large, biconvex shell, outline suboval, maximum width at hinge-line or in the middle, cardinal extremites alate or angular. Anterior commissure rectimarginate. Ventral valve weakly and evenly convex in lateral and anterior profile, 70–80% as long as wide. Dorsal valve with weakly developed sinus in umbonal part. Ventral interarea 5 mm long, about 20% as long as wide, flat, with parallel growth lines, apsacline, slightly concave below umbo, delthyrium narrow, triangular, with thickened indented rough edges (Fig. 5B2). Edges of delthyrium often broken on loose valves and delthyrium seems wider than its natural size. Small apical plate is present. Dorsal interarea half the length of ventral interarea, weakly concave, notothyrium open, with thickened edges.

Ornament costellate, with up to about 42 costae and costellae subangular in posterior half, rounded in anterior half and along the shell margins. Up to 15 costae appear around the umbo of ventral valve, up to 10 costae appear along the posterior edge of valve, density of ribs 2 per mm at 10 mm from umbo. Exterior surface of valves is covered by continuous and discontinous densely spaced lamellae, 7–8 in 1 mm (Fig. 5B5).

Fig. 4. A, *Sampo suduvensis* sp. nov.: **A1**–**A3**, holotype, dorsal valve VU B23, interior, posterior view of cardinalia and view of bema; Kalvarija-2 drill core, depth 900.3 m, Jakšiai Fm., Rakvere Stage(?). **B**, *Sampo hiiuensis* Öpik, interior of dorsal valve GIT 675-340; Kõrgessaare, Hiiumaa Island, Estonia, Vormsi Stage, Upper Ordovician. **C**–**I**, *Sampo suduvensis* sp. nov.: **C1**–**C3**, ventral valve VU B24, interior, exterior and lateral views; **C4**, view of interarea with denticles along anterior edge. Kalvarija-2 drill core, depth 900.3 m, Jakšiai Fm., Rakvere Stage(?). **D**, interior of incomplete dorsal valve GIT 716-400, Kybartai-29 drill core, depth 1266.9 m, Oandu Stage (formations are not identified). **E**, GIT 716-82, ventral valve exterior, Pajevonys-13 drill core, depth 1193.2–1193.3 m, Šakiai Fm., Oandu Stage. **F**, view of interior of incomplete ventral valve VU B28, Kalvarija-2 drill core, depth 900.3 m, Jakšiai Fm., Rakvere Stage(?). **G**, ventral valves VU B45, 46, 47 together with ventral valve of *Nicolella* sp., Kalvarija-2 drill core, depth 900.3 m, Jakšiai Fm., Rakvere Stage(?). **H**, ventral valve GIT 716-54, view of ventral interarea with the denticles along edge; Pajevonys-13 drill core, depth 1189.7–1189.8 m, Šakiai Fm., Oandu Stage. **I**, fragment of dorsal valve, view of bema, GIT 716-70, Pajevonys-13 drill core, depth 1190–1190.6 m, Šakiai Fm., Oandu Stage.

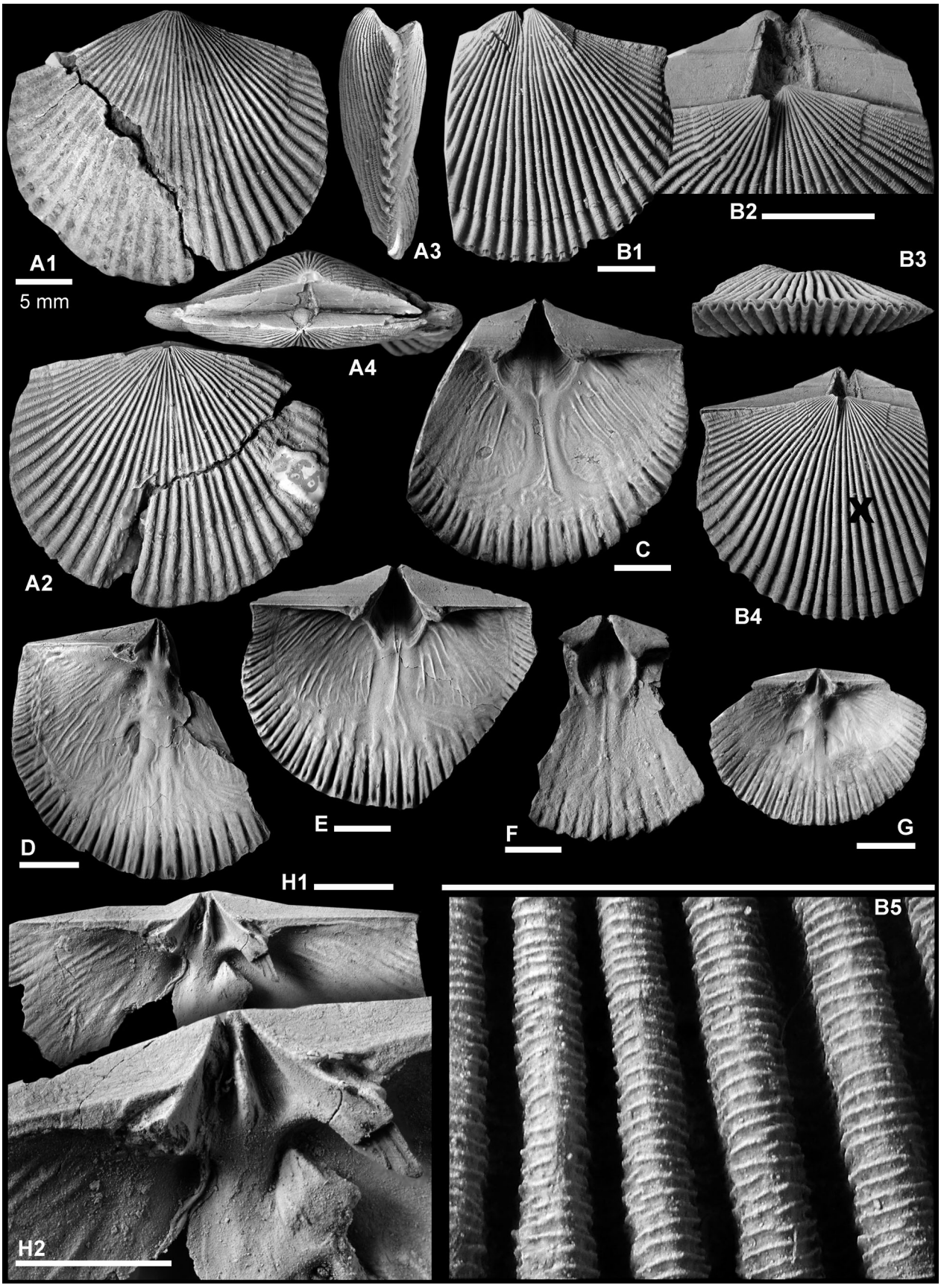
A1
5 mm
A3
B1
B2
B3
A4
A2
C
X
B4
D
E
F
G
H1
B5
H2

Table 2. Measurements of specimens. D.v., dorsal valve; V.v., ventral valve; S., shell; frag., fragment. The larger than measured size is marked by '+'

Specimen	Length of the ventral/dorsal valve (mm)	Width (mm)	Length of the ventral interarea (mm)	Length/width of the ventral muscle field	Number of ribs per mm at 10 mm from umbo	Total number of costae
GIT 716-232, D.v.	–/14	19.3	1.8	–	–	34+
GIT 716-436, V.v.	24/–	25+	5	9/8	2	41
GIT 716-226, V.v. frag.	19.8/–	–	4	7/5	–	–
GIT 716-436, D.v. frag.	–/23.7	23.5+	2	–	–	–
GIT 716-227, S.	16.8/16.7	23.5	–	–	–	–
GIT 716-440, V.v. frag.	21.4/–	25.2+	5	7.5/5.5	2	42
VU B66, S.	24.8/23.0	28.8	4	–	2	36

Ventral interior with triangular teeth, crural fossets as oblique incisions on inner side of tooth, dental plates short, formed as anterior extensions of walls of delthyrial chamber, which delimit the muscle scars laterally. Small pits occur laterally of teeths on thickened posterior margin of valve. Oval diductor lobes extend anteriorly 35–40% of valve length; narrow adductor scar of the same length is bordered by thin septa, which continue anteriorly as thin median septum between subparallel v*ascula media*. Mantle canal system saccate. Exterior ribbing expressed strongly around interior margin.

Dorsal valve with simple wedge-like cardinal process, which rises on the narrow notothyrial platform up to the level of interarea. Brachiophores long, with dorsally inclined anterior part (Fig. 5H), posteriorly merge with anterior part of notothyrial platform. Sockets as oblique depressions between fulcral plates and posterior edge of interarea, raised from valve surface. Small accessory sockets occur laterally to brachiophores. Notothyrial platform continues anteriorly as wide median ridge extending for 60% of valve length. Short anterior sub-triangular adductor scars are separated from larger posterior scars by anterolaterally inclined septa. Mantle canal system unclear. Exterior ribbing strongly expressed around interior margin.

Comparison. The Hesperorthidae brachiopods commonly have a narrow delthyrium. However, Öpik (1934) has referred to a wide delthyrium on *Dolerorthis*. The studied specimens allow us to believe that the wide delthyrium on *Dolerorthis* could be apparent rather than real. The edges of the narrow delthyrium hanging above the delthyrial chamber are often broken and the delthyrium seems wider than its real size. Among the Baltic Hesperorthidae brachiopods *Dolerorthis nadruvensis* stands out by relatively large shells, long brachiophores, occurrence of a thin median septum between *vascula media*, well-developed vascular system and densely lamellose external sculpture. This species still reminds by the number of costae and shell size of the species *Boreadorthis recula* Öpik (number of ribs up to 46; width up to 25 mm; Oraspõld 1959) from the uppermost Katian Nabala Stage in Estonia. *Boreadorthis recula* from the Ashgillian in Belgium (Sheehan 1987) differs from the Baltic species in ornamentation with fine parvicostellae (=? capillae in Jaanusson & Bassett 1993), which are unknown on the new species and on the Baltic species of *Boreadorthis*. Insufficient data on the interiors of *Boreadorthis recula* and *B. recula aequivalvat* identified by Öpik (1934) complicate making decisions about their exact relationship with *Dolerorthis*

Fig. 5. A, *Dolerorthis nadruvensis* sp. nov.: **A1**–**A4**, holotype, damaged shell VU B66, ventral and dorsal exteriors, lateral and posterior views. Sutkai-89 drill core, depth 1191.6 m, Oandu Stage (formations not identified). **B**, shell GIT 716-366: **B1**, ventral exterior; **B2**, view of ventral interarea with thickened edges of delthyrium; **B3**, **B4**, anterior view and dorsal exterior; x on B4 marks the place of **B5**, view of the ornamentation with the lamellae. Pajevonys-13 drill core, depth 1190.9–1191.0 m, Šakiai Fm., Oandu Stage. **C**, ventral valve interior of GIT 716-436-2, Kybartai-29 drill core, depth 1268.8–1268.9 m, Oandu Stage (formations not identified). **D**, dorsal valve interior, GIT 716-436-1, Kybartai-29 drill core, depth 1268.8–1268.9 m, Oandu Stage. **E**, view of interior of incomplete ventral valve GIT 716-440, Kybartai-29 drill core, depth 1275.9 m, Oandu Stage. **F**, interior of incomplete ventral valve GIT 716-226, Pajevonys-13 drill core, depth 1188.9–1189.0 m, Jakšiai Fm., Rakvere Stage(?). **G**, interior of dorsal valve GIT 716-232. Pajevonys-13 drill core, depth 1192.0–1192.2 m, Šakiai Fm., Oandu Stage. **H**, incomplete dorsal valve GIT 716-231: **H1**, **H2**, views of cardinalia, left brachiophore is broken; on the right side the brachiophore is long wing-shaped, the socket and accessory socket occur below the anterior edge of the interarea. Pajevonys-13 drill core, depth 1192.0–1192.2 m, Šakiai Fm., Oandu Stage.

nadruvensis and their possible belonging to the same genus with the latter species.

The new species differs from other species of the genus *Dolerorthis* occurring in Baltica (Norway, Sweden), Avalonia (Wales, England) and eastern Laurentia (Girvan, Scotland) mainly in shell outline and size, the density of ribbing and size of brachiophores. The species *Dolerorthis* cf. *virgata* (J. de C. Sowerby) from the upper Furuberget Fm. and the Nakkholmen Fm. in Norway (Harper & Owen 1984; Harper et al. 1984), the Avalonian species *D. virgata* from the Woolstonian to Onnian substages of Wales (Hurst 1979) and the Laurentian species *D. intercostata* (Mitchell 1977) differ from the Baltic species in more rounded outline, different arrangement of ornamentation and short or stout brachiophores. Some other Laurentian species, *D. rankini* (Davidson) (Lower Ardwell Fm. in Girvan; Williams 1962) and *D. inaequicostata* Wright (the Drummuck Group in Scotland; Harper 1984; the Killey Bridge Fm. in Ireland; Mitchell 1977) differ in having a strong sulcus on the convex dorsal valve. In addition to these differences, the species *D. inaequicostata* Wright (Portrane Limestone and Killey Bridge Fm. of Ireland; Wright 1964) and *D.*? *wattersorum* (Whitehouse Group, Scotland; Harper 1984) differentiate in finer ornamentation of numerous costellae.

Distribution. The new species occurs in the lowermost Katian Oandu Stage in Lithuania, southern East Baltic (Hints et al. 2016). Few fragments are found in strata whose age, Oandu or Rakvere, is not very clear.

Localities (Fig. 2) (drill cores with depths and specimen numbers in the Lithuanian collection): Virbalis-5, 1174.1 m (VU B46), 1175.75 m (VU B47, 48), 1175.8 m (VU B49), 1176.1 m, 1177.4 m (VU B51, 52), 1178.8 m (VU B53, 54), 1179.1 m (VU B55); Sutkai-89, 1178.8 m (VU B65), 1191.6 m (VU B66); Pajevonys-13, 1185.35 m (VU B60), 1188.75 m (VU B61–63); specimens from the collection GIT 716 (Tallinn) see http://sarv.gi.ee/; Pajevonys-13, 1189.6 m (?), 1190.0 m, 1190.9–1191.0 m, 1197.7 m; Kybartai-29, 1268.4 m, 1268.7 m, 1269.8–1268.9 m, 1270.5 m, 1270.9 m.

CONCLUDING REMARKS

1. The new species *Sampo suduvensis* and *Dolerorthis nadruvensis* contribute to the data on early Katian brachiopod diversity in the southern East Baltic.
2. *Sampo suduvensis* and also the type species of the genus *Sampo hiiuensis* have unusual socket ridges, which are posteriorly supported by plate-like callosities.
3. The described species *Sampo suduvensis* and *Dolerorthis nadruvensis* belong to the *Howellites wesenbergensis–Hedstroemina subaequiclina–Reuschella magna* brachiopod community of the Oandu Stage in the southern East Baltic. The appearance of brachiopods of that community in the lowermost part of the Oandu Stage marks the faunal renovation event on the Sandbian–Katian transitional interval.
4. The brachiopod community of Baltica with the new species has affinity with the more or less contemporaneous *Nicolella* community in Avalonia.
5. The age of the last occurrences of the described species is not clear. Some finds belong to the strata which are included to the Rakvere Stage. However, at least in some drill cores (Hints et al. 2016) the Rakvere age needs more detailed palaeontological improvement.

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Leptestiidae ja Hesperorthidae (Brachiopoda) Vara-Kati uued liigid Leedust

Juozas Paškevičius ja Linda Hints

On kirjeldatud kaht uut brahhiopoodiliiki *Sampo suduvensis* (Leptestiidae) ja *Dolerorthis nadruvensis* (Hesperorthidae), mis esinevad Ülem-Ordoviitsiumi Vara-Kati Oandu lademes Lõuna-Leedus. Need liigid täiendavad *Howellites wesenbergensis – Hedstroemina subaequiclina – Reuschella magna* brahhiopoodikooslust. *Sampo suduvensis*'e dorsaalse poolme lukustuselemendid sisaldavad täiendavat plaatjat paksendit, mida teistel perekonna esindajatel ei ole täheldatud. Erandiks on perekonna tüüpliik *Sampo hiiuensis* Öpik. *Dolerorthis nadruvensis* on perekonna *Dolerorthis* liigi esmane nimetamine ja kirjeldamine Baltikumis. Uus liik eristub sugukonna Hesperorthidae teistest esindajatest suuruse ja radiaalse skulptuuri poolest ning sellel on siiski suurim sarnasus liigiga *Boreadorthis recula* Öpik. Viimase liigi perekondlik kuuluvus vajab edaspidist täpsustamist uute leidude põhjal.