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**Ostracoda from the Old Red Sandstone
of Tartu, Estonia**

BY

A. ÖPIK

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ANNALES ETC. OF THE NATURALISTS SOCIETY OF TARTU UNIVERSITY XLII (1—2)

TARTU, 1935

Ostracoda from the Old Red Sandstone of Tartu, Estonia

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The material described below was collected by mag. E. Orvik
in 1927.

A. 363

LIST OF GENERA AND SPECIES

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ANNALES ETC. OF THE NATURALISTS' SOCIETY OF TARTU UNIVERSITY XLII (1—2)

1. *Lophoceras* sp.
2. *Lophoceras* n. sp.
3. *Lophoceras* sp. aff. *littorale*.
4. *Lophoceras* *densigranulata* n. sp.
5. *Postoceras* *rubescentis* n. sp.

The origin of this fauna is not clear enough. Probably it is connected with a marine transgression into the Old Red area. It might have been one of the first steps of the latter great marine invasion into the Old Red area, into the lakes and marine lagoons.

All the Ostracoda found are doubtlessly marine; their relatives are spread over the Middle Devonian marine faunas of Europe and their ancestors may have been introduced into the marine Silurian and Ordovician.

TARTU 1935

Gastropoda from the Old Red Sandstone
of Tartu, Estonia

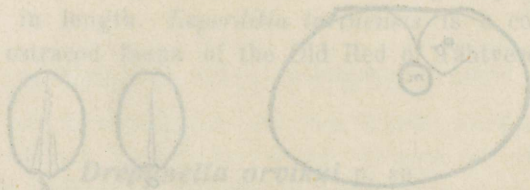
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Ostracoda from the Old Red Sandstone of Tartu, Estonia.

The Ostracoda described here occur in the middle Devonian Old Red beds of the town of Tartu in the exposures of Tähtvere Park. They are accompanied by the well known *Heterostius*, *Homostius* and the bones of other fishes of the Middle Old Red.

The best preserved Ostracoda are found in lime- and dolomite-bearing fine-grained sandstone. In more pure sands and clays the preservation is bad.

The material described below was collected by mag. K. Orviku in 1927.

List of genera and species.

1. *Leperditia tartuensis* n. sp.
2. *Drepanella orvikui* n. sp.
3. *Kloedenella rubra* n. sp.
4. „ *tähtverensis* n. sp.
5. „ sp. aff. *tähtverensis*.
6. „ *densigranulata* n. sp.
7. *Pontocypris?* *rubescens* n. sp.

The origin of this faunula is not clear enough. Probably it is connected with a marine transgression into the Old Red area. It might have been one of the predecessors of the later great marine invasion into the Old Red region of deltas and marine lagoons.

All the Ostracoda found are doubtlessly marine; their relatives are spread over the Middle Devonian marine facies of Europe and their ancestors reach into the marine Silurian and Ordovician.

The absence of Entomidae, which otherwise are rather abundant in the Devonian is surprising.

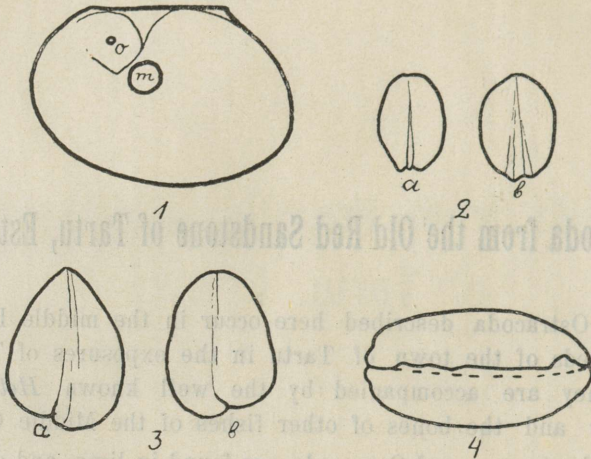


Fig. 1. Lateral view of the holotype of *Leperditia tartuensis*, $\times 8$. o — eye spot with the eye-tubercle; m — central muscle spot. Cf. Fig. 6 in the text.

Fig. 2. *Kloedenella tahtverensis* n. sp., a — specimen Pl. II, Fig. 4, view from the posterior edge; b — holotype (Pl. I, Fig. 3), anterior view, near $\times 20$.

Fig. 3.—4. *Kloedenella rubra* n. sp., holotype (pl. II, Fig. 6), a — posterior, b — anterior view; Fig. 4 — ventral side of same specimen, near $\times 20$

Leperditia tartuensis A. Ö. (4).

Pl. I, Fig. 1—5; Fig. 1 and 6 in the text.

The most distinctive character of this species is the well defined median sulcus, which begins broadly on the dorsal margin and the thin prolongation of which surrounds the eye spot in a broken line.

The eye tubercle and the central muscle spot (Pl. I, Fig. 2) are feebly developed. The hinge (Pl. I, Fig. 1 b) is crenellated as in many Devonian species described by Kegel (1) and as appears occasionally in some Silurian forms. The ventral border (Pl. I, Fig. 1 a) is sigmoidal and the right valve as a rule overlaps the left. The outlines of the left valve (Pl. I, Fig. 3 and 4) are more oblique than those of the right (Pl. I, Fig. 5). The hinge line is short and the hinge angles appear a little flattened.

The left valve of Fig. 6 in the text is the holotype.

Measurements of the holotype: length 4,5 mm., height — the length of the hinge line, 3 mm. The larger specimen measures 6 mm. in length. *Leperditia tartuenssis* is a common species in the ostracod fauna of the Old Red of Tähtvere at Tartu (Estonia).

Drepanella orvikui n. sp.

Pl. II, Fig. 1 a — 1 c and 2; Fig. 5 c in the text.

The isolated valve Pl. I, Fig. 1 a, 1 b and 1 c is a holotype. Measurements: length 1,7 mm., height 1,2 mm., length of the hinge 1,3 mm.

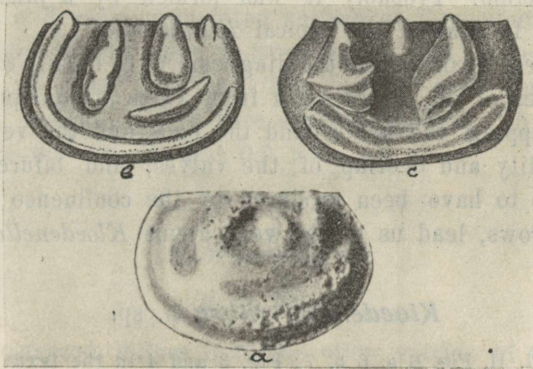


Fig. 5. *Drepanella orvikui* n. sp., in comparison with other Drepanellids. a — *D. orvikui*, holotype, retouched. b — *Drepanella crassinoda* Ulrich.; c — *Scofieldia* (= *Drepanella*) *bilateralis* Ulrich. b and c from Ulrich and Bassler (3).

The characters of the genus *Drepanella* as observed in our new species are: the presence of the marginal ridge and the isolated nodes of the lateral face of the valve. But *Drepanella orvikui* represents a separate group in this genus because the marginal ridge is low and is connected with the posterior lateral node (Pl. II, Fig. 1 a and Fig 6 c in the text). Less important in shape and size but peculiar to this species are the crescent-shaped posterior node, the rounded anterior node and a little node near the anteriodorsal angle. In the exterior the marginal ridge

and the nodes are more pronounced than in the interior (comp. fig. 1 a with 1 b and 2 of Pl. II).

Drepanella orvikui is a rare species; only five specimens were found.

Gen. *Kloedenella* Ulrich & Bassler (2).

The species, which here are classified with the genus *Kloedenella* form a separate group, probably of generic value. This group differs from the true *Kloedenella* in having: 1) a granulate sculpture [the true *Kloedenella* has a "surface generally smooth and polished, and without ornamented markings" (2), p. 318]; 2) a convex ventral edge (true *Kloedenella*, according Ulrich and Bassler have "ventral edge somewhat concave"); 3) our specimens have a single dorsal furrow, which is bifurcated in the ventral direction. Probably it was formed by a junction of the two primary furrows of the typical *Kloedenella*.

However, according to the diagnosis of Ulrich & Bassler (2) the valves of the *Kloedenella* from Tartu are unequal and "the right overlapping the left around the ends and the ventral side". This inequality and overlap of the valves, and bifurcate furrow which seems to have been produced by the confluence of the two primary furrows, lead us to the very genus *Kloedenella*.

Kloedenella rubra n. sp.

Pl. II, Fig. 6 a, 6 b, 7; Fig. 3 and 4 in the text.

The specimen Pl. II, Fig. 6 a — 6 b with the fragmentary preserved shell substance is the holotype. Length 1,5 mm., length of the hinge, 1,1 mm., height, 1 mm. and thickness 0,7 mm.

The overlap of the valves can be seen in Fig. 3 a, 3 b and 4 in the text. The cross section is oval. The anterior and posterior edges are equally and moderately convex. The bifurcate sulcus is deep and surrounds a slightly elevated flattened circular node dorsally. The surface appears finely and widely granulated.

Kloedenella tähtverensis n. sp.

Pl. II, fig. 3 a, 3 b, 4, 5 and Fig. 2 in the text.

The specimen, a nucleus, Pl. II, Fig. 3 a, 3 b is the holotype. Measurements: length 1,1 mm., length of the hinge 0,7 mm.,

height 0,6 mm. and thickness 0,45 mm. *K. tähtverensis* differs from *K. rubra* in having a smooth surface and an elliptical cross section (Fig. 2 in the text); the rounded node is displaced toward the posterior edge; the lateral view of the valve shows an oblique outline (the greatest height is developed more posteriorly than by *K. rubra*). The sulcus is vertical, sigmoidal, and the posterior branch produced by the bifurcation is less deep. The tricarinate ventral edge (Pl. II, Fig. 4) of the interior cast can be observed in all species of our Old Red *Kloedenellae*.

***Kloedenella densigranulata* n. sp.**

Pl. II, Fig. 8.

The specimen reproduced here is the holotype. *K. densigranulata* has a densely granulated surface as the name shows; the posterior edge of the valve is more convex and more conspicuous than that of other species. The sulcus and node resemble those of *K. rubra*. It is a rare species. Length 1,5 mm., length of the hinge 0,9 mm., height 0,9 mm.

***Kloedenella* sp.**

Pl. II, Fig. 8.

This ostracod differs from the other species of the Estonian Old Red in having a simple sigmoidal sulcus with the node very indistinct; it suggests in this case rather a *Primitia* than a *Kloedenella*.

***Pontocypris? rubescens* n. sp.**

Pl. II, Fig. 10 a, 10 b.

The specimen reproduced here is the holotype. As in the true *Pontocypris*, our specimen has "a simple, non-overlapping hinge, the left valve is a little larger than the right and overlap on the ventral margin." But the outline of our specimen is *Lepeditia*-like, the hinge margin nearly straight, and in the anterior portion of both valves is a large indistinct sulcus which reaches up to the middle of the valve. Probably this species is a member of a new sulcate

genus of Bairdiidae. It is abundant in a lime-bearing sandstone bed of the Old Red of the Tähtvere exposures at Tartu. Length, 1,8 mm., height 0,9 mm.

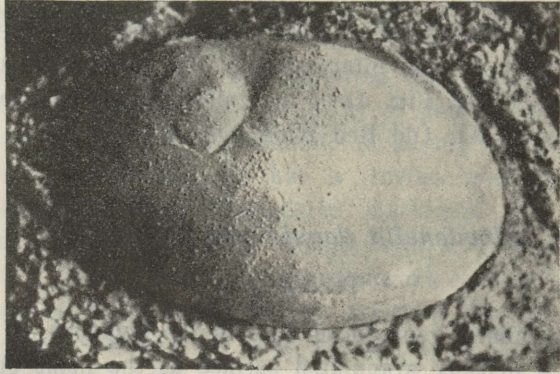
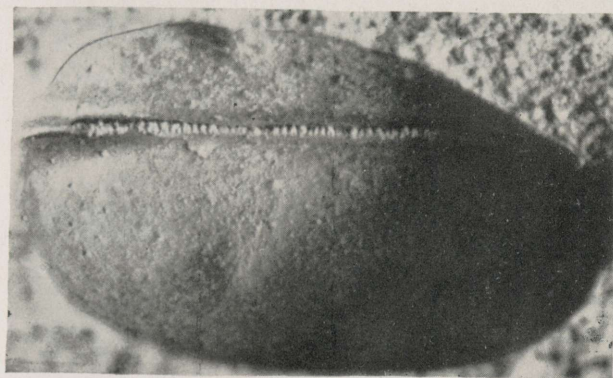


Fig. 6. *Leperditia tartuensis* n. sp., holotype. $\times 13$. Reprinted from "Eesti Loodus", 1935.



1a



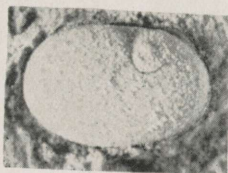
1b



3



4



5



2

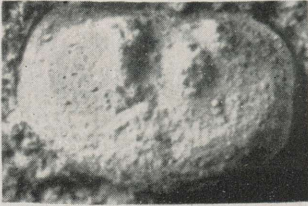


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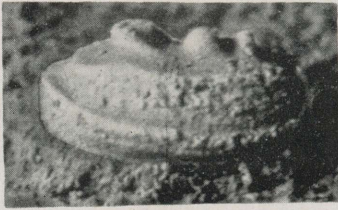
Plate II.



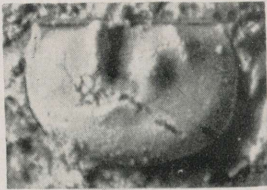
1a



1b



1c



2



10a



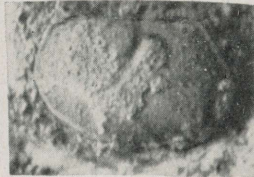
3a



5



6a



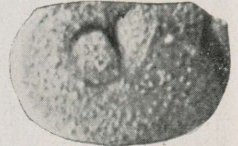
7



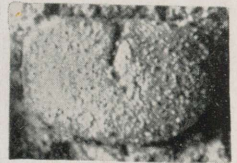
3b



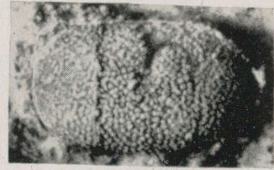
4



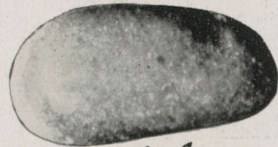
6b



8



9



10b

Explanation of plates.

I.

Leperditia tartuensis A. O. (4)

Fig. 1. Ventral (a) and dorsal (b) view from the interior of a complete specimen, showing the overlap of valves and crenellation of the hinge, $\times 15$.

Fig. 2. Central muscle spot of another specimen, $\times 20$.

Fig. 3. A right valve, the greatest well preserved specimen, $\times 5$. More oblique than the specimen Fig. 5 and probably a variety of the species.

Fig. 4. Holotype, a left valve (same Fig. 1 and 6 in the text) placed in juxtaposition with fig. 5, $\times 5$.

Fig. 5. A right valve, interior cast, $\times 5$.

Fig. 6. Left valve of a young specimen with a more acuminate and marginate posterior edge, $\times 20$.

II.

Magn. $\times 20$ diameters.

Fig. 1 a — 1 c and 2. *Drepanella orvikui* n. sp. 1 a — guttapercha-cast of the exterior; 1 b — natural cast of the interior; 1 c — ventral view of the exterior (guttap.-cast) of the holotype. Fig. 2. Lateral view of another specimen.

Fig. 3 a — 3 b, 4, 5. *Kloedenella tähtverensis* n. sp. Fig. 3 a — right, Fig. 3 b — dorsal side of the holotype (nucleus). Fig. 4. Ventral margin of another specimen, interior cast; Fig. 5. — a left valve.

Fig. 6 a, 6 b and 7. *Kloedenella rubra* n. sp. Fig. 6 a — dorsal, 6 b — right side of the holotype (comp. fig. 3—4 in the text); fig. 7 — a left valve of a young specimen.

Fig. 8. *Kloedenella* sp., an almost *Primitia* — like left valve.

Fig. 9. *Kloedenella densigramulata* n. sp. a left valve, holotype.

Fig. 10 a — 10 b. *Pontocypris* ? *rubescens* n. sp., holotype. a complete specimen. 10 a — dorsal and 10 b — right (left ?) side.

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