

Stop 1: Tartu cemetery outcrop

Tõnu Meidla and Peep Männik

Location: Latitude 58°23'42.1"N, longitude 26°42'41.3"E; Tartu, Estonia.

Stratigraphy: Middle Devonian, Givetian, Aruküla RS.

Status: The outcrop is under nature protection; no hammering, but loose material may be collected.

More information: <https://geoloogia.info/en/locality/13574>

The outcrop of the Aruküla Regional Stage (Fig. 1.1) is situated on the left slope of the Emajõgi River valley, just below the Uus-Jaani and Vana-Peetri cemeteries, near the end of the Ujula Street. The outcrop (cliff) is about 250 m

long and up to 5.5 m high, with the maximum height in its southeastern part. It comprises a part of the composite stratotype of Aruküla RS. Here, the Viljandi Beds of the lower part of the Aruküla Formation are exposed.



Fig. 1.1. Southeastern part of the Tartu cemetery outcrop. Photo: Gennadi Baranov, 2015.

Description of the section (from the top to the base, based on Kleesment 1991):

0.5–2.0 m – Quaternary cover (argillaceous till);

3.0 m – interval is dominated by red to yellowish-brown cross-bedded sandstone. Its upper part, up to 0.7 m thick, is represented by platy, brownish-grey, reddish-brown and grey siltstone with dolomitic cement, yielding thin interbeds of reddish-brown clay and yellowish-grey dolomitic marlstone with cubic caverns;

0.2 m – brownish-red sandy siltstone;

2.0+ m – pinkish- to yellowish-brown cross-bedded fine-grained moderately cemented sandstone with lenses of whitish-grey mica-rich sandstone and occasional small clay pebbles. These lenses yield fragments of fossil fishes.

The accumulation of sands took place in a subaqueous tide-dominated delta environment (Tänavsuu-Milkevičiene & Plink-Björklund, 2009).

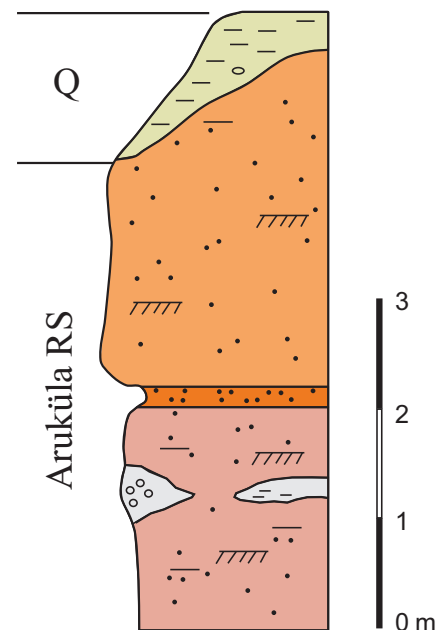


Fig. 1.2. A composite section of the outcrop, modified from Kleesment (1991). For details see the description.

Fossils

The succession (Fig. 1.1) is nearly equivalent to the stratigraphic interval exposed in the walls of Aruküla Caves, the famous fossil vertebrate locality comprising the other part of the composite stratotype of the Aruküla RS. The fossil-rich conglomeratic layer that was formerly exposed in the caves has not been documented in the cemetery section located about 1 km south of the caves. Several vertebrate taxa have still been recorded

in the lower part of the outcrop, like *Heterostius ingens* Asmuss, *Pycnosteus palaeformis* Preobrazhensky, *Homostius* sp. and fragments of *Crossopterygii* (eMaapõu, 2024). A rich assemblage of vertebrate microremains, most abundantly represented by acanthodians, is known from the cemetery outcrop (Niit et al. 2005). Examples of fossils from the outcrop are shown in Fig. 1.3.

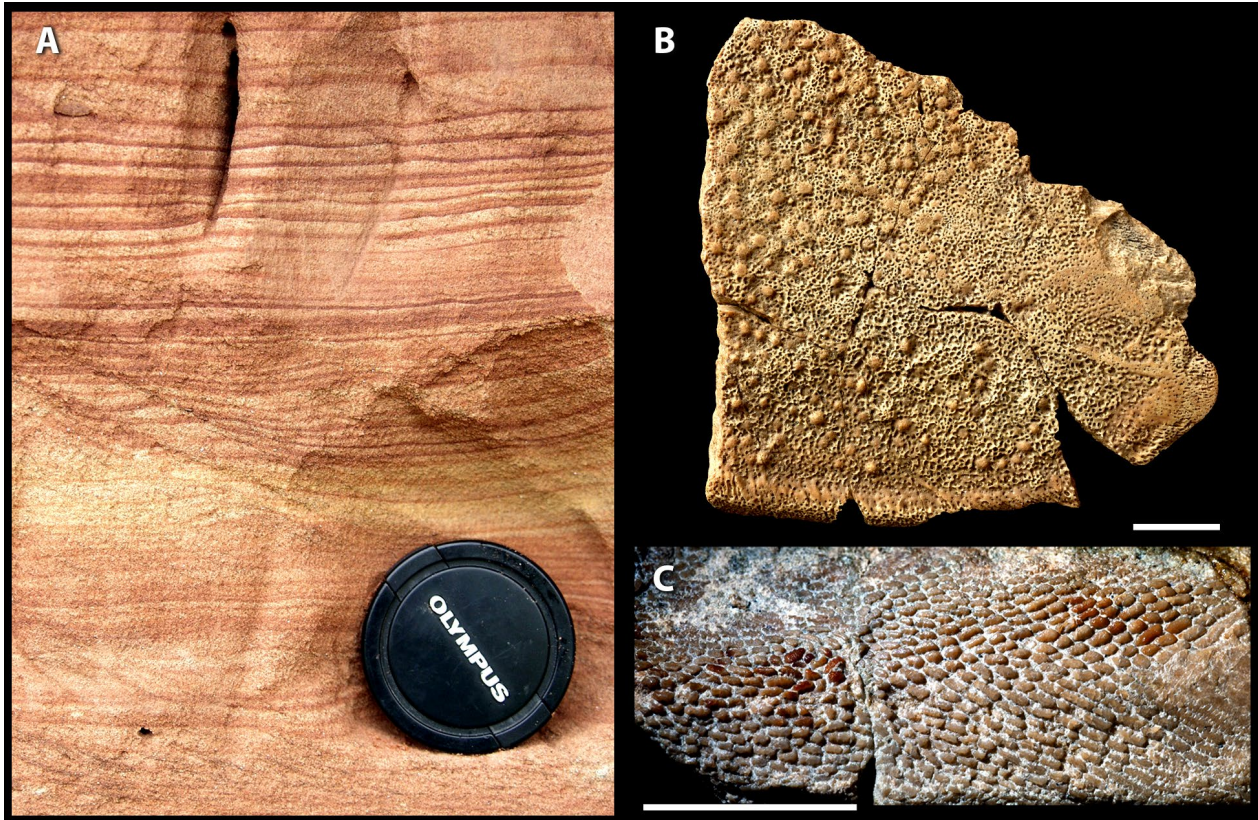


Fig. 1.3. Lithology and selected fossils from the Tartu Cemetery outcrop, Aruküla Regional Stage. **A** – close-up photo of the section, red cross-bedded sandstone. Photo: Kairi Põldsaar. **B** – placoderm *Homostius* sp., a fragment of left inferognathal plate, GIT 99-48. **C** – psammosteid *Pycnosteus palaeformis* Preobrazhensky, close-up from the surface of squama fastigiata, GIT 116-115. Scale bars B, C – 1 cm.

References

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