

Supplementary 1. Lithogenetic types of the Lower (tables 1-8) and Upper (tables 9-18) Ust-Yarega Subformations.

Table 1

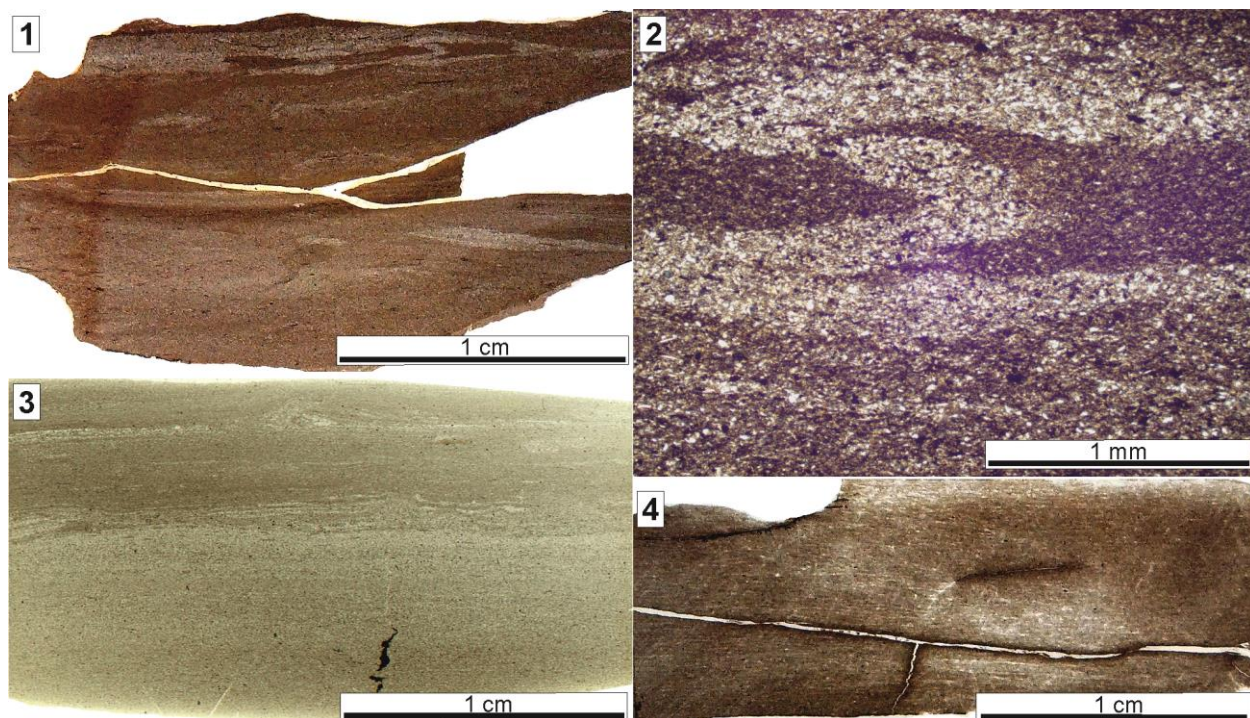


Table 1. Lithotype *LT-1t* – claystones: 1, 2 – gently wavy micro-layering with an erosion surface and intrusion texture, sample 14-61; 3 – micro-layered texture, sample 14-z7; 4 – unclear layered texture with rare flakes of micaceous minerals, sample 14-62.

Table 2

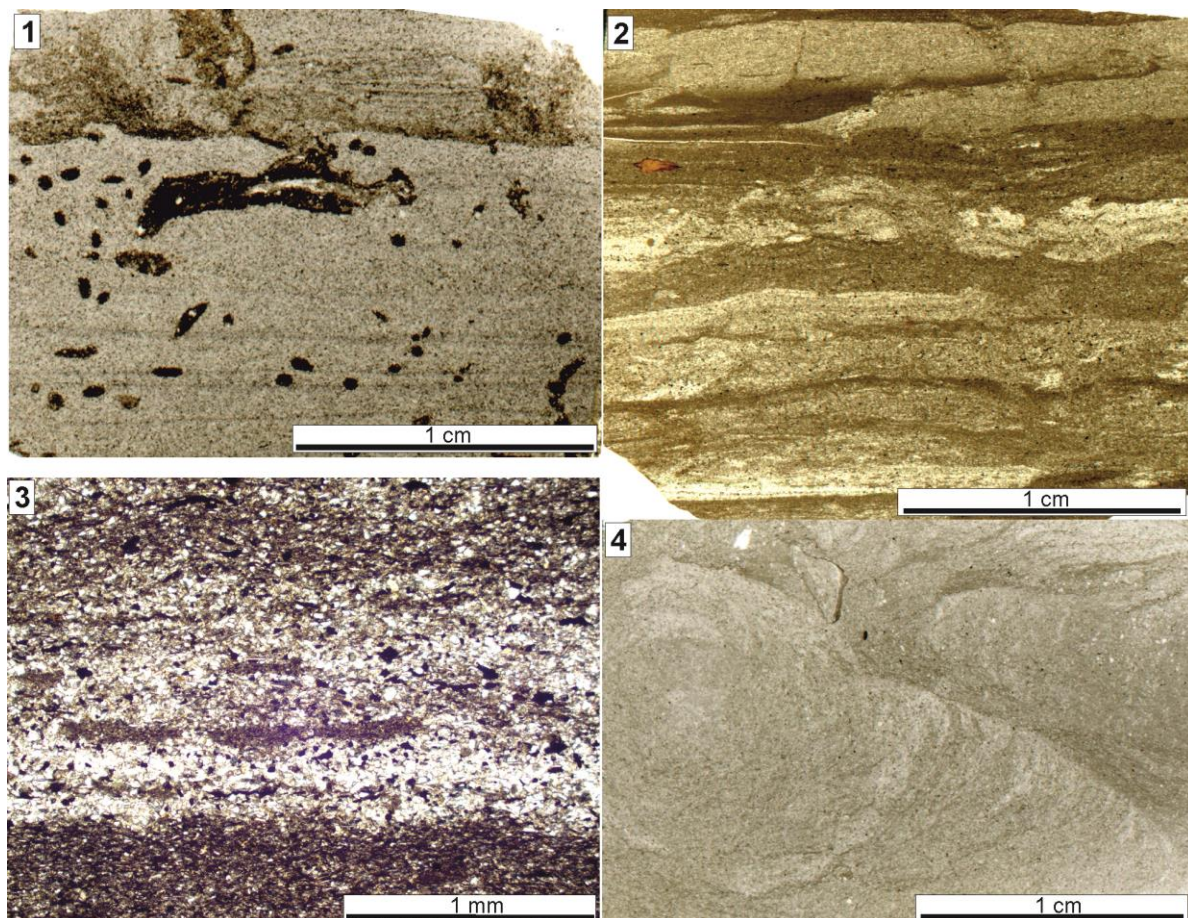


Table 2. Lithotype *LT-2t*: 1 – bioturbated silty limestone with microlayered texture, sample 14-22; 2, 3 – argillite and silty argillite with gently wavy microlayered texture and deformation texture of intrusion, sample 14-60; 4 – bioturbated silty limestone, sample 14-39.

Table 3

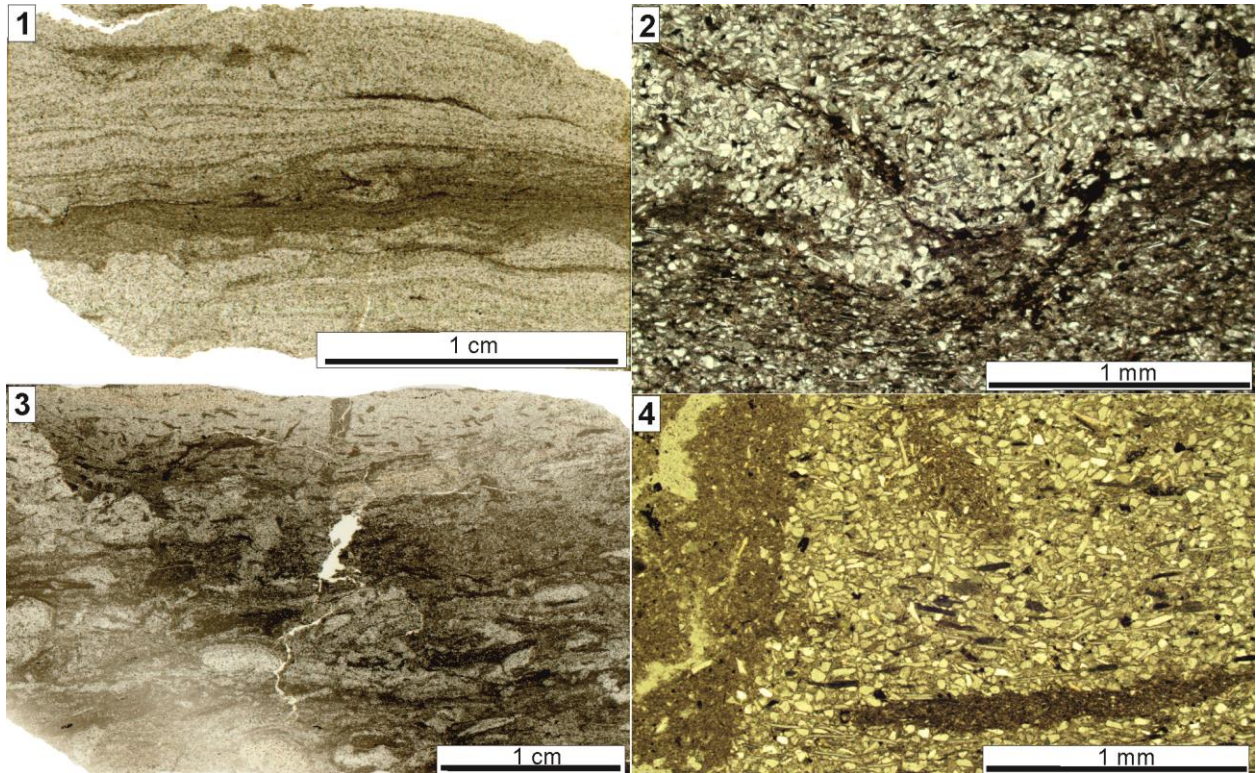


Table 3. Lithotype *LT-3t*: 1, 2 – deformation textures of intrusion in microlayered calcareous siltstones and mudstones, sample 14-14; 3, 4 – bioturbated siltstones and mudstones, sample 14-73.

Table 4

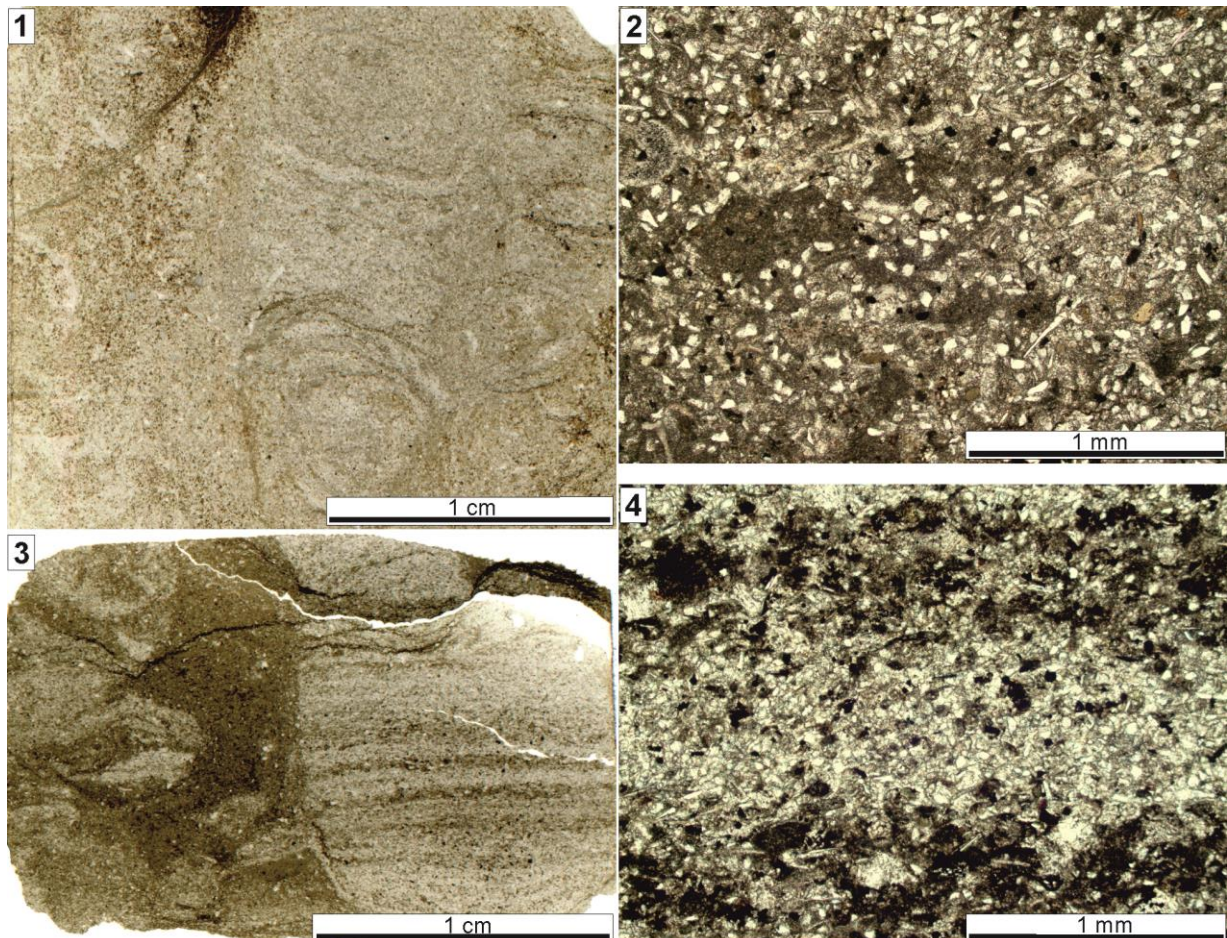


Table 4. Lithotype *LT-4t*: 1, 2 – sandy limestones, sample 14-11a: 1 – complete bioturbation of sediment, 2 – quartz grains, rare bioclasts and individual pellets in carbonate-clay cement; 3, 4 – conglobreccia, intraclasts of microlayered sandy limestones in calcareous argillites, sample 14-13.

Table 5

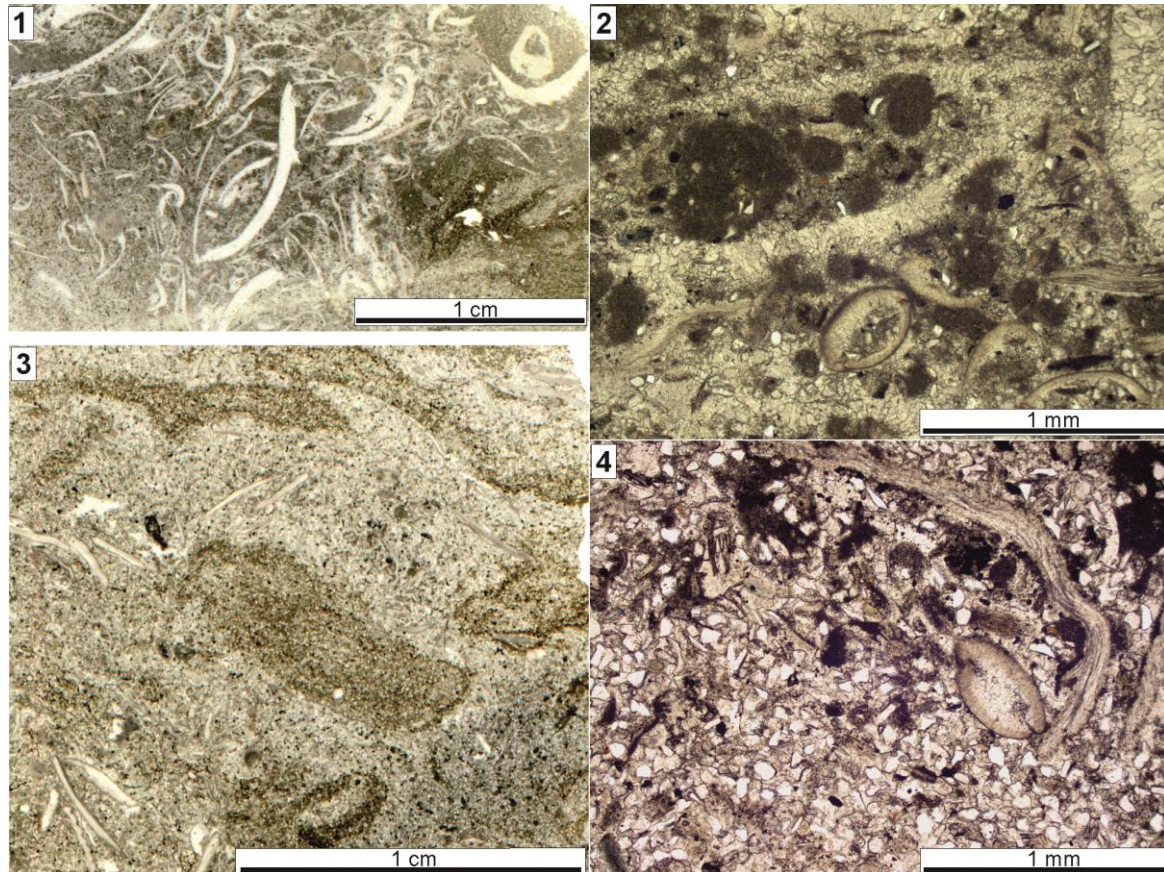


Table 5. Lithotype *LT-5t*: 1, 2 – peloidal-bioclastic limestone, sample 14-38; 3, 4 – sandy limestone with bioclasts, sample 14-40: 3 – bioturbation and deformation textures of intrusion are clearly visible, 4 – fine-sand (peloids), fine-sand (quartz) and coarse-sand (brachiopods) structure.

Table 6

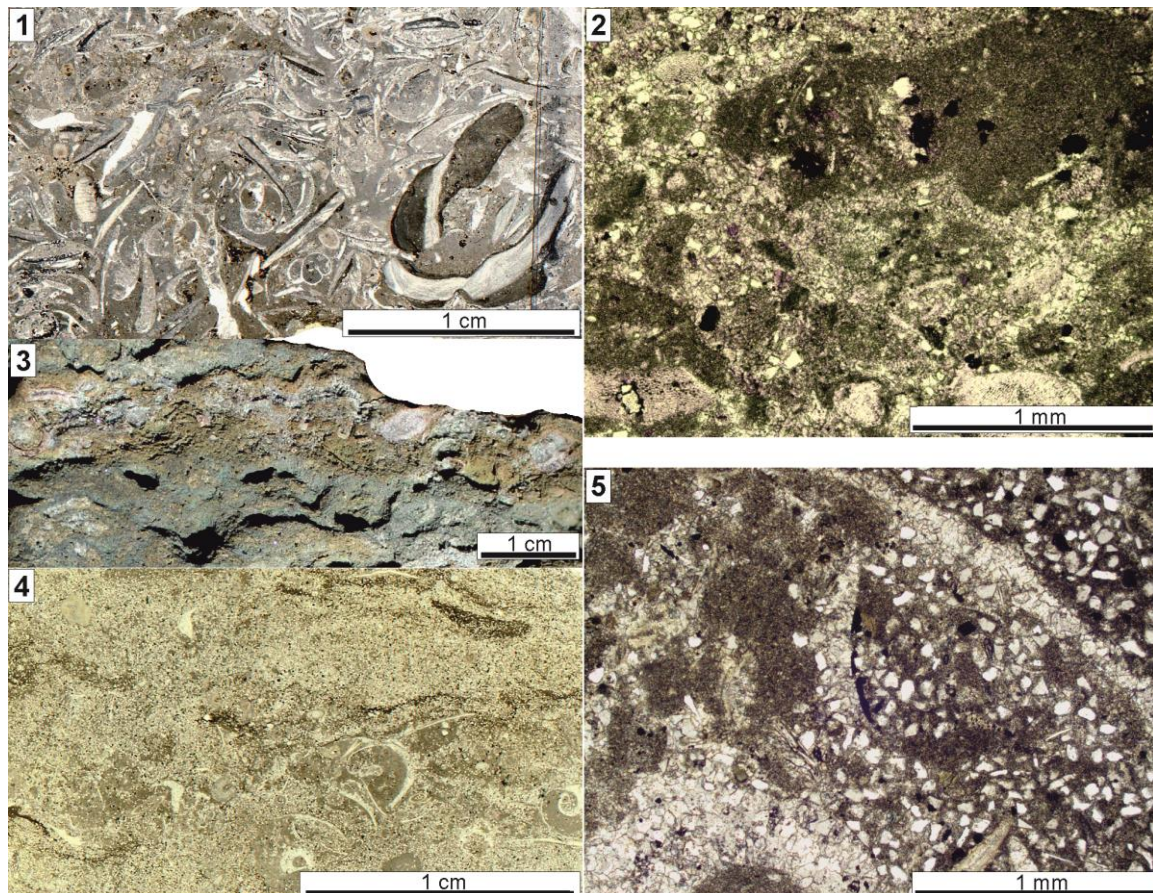


Table 6. Lithotype *LT-6t*: 1, 2 – poorly mixed sandy limestone and bioclastic pelitomorphic limestone with intraclasts, sample 14-9; 3, 4, 5 – interlayer of bioclastic limestones in sandy, sandy-clayey limestones, sample 14-z3.

Table 7

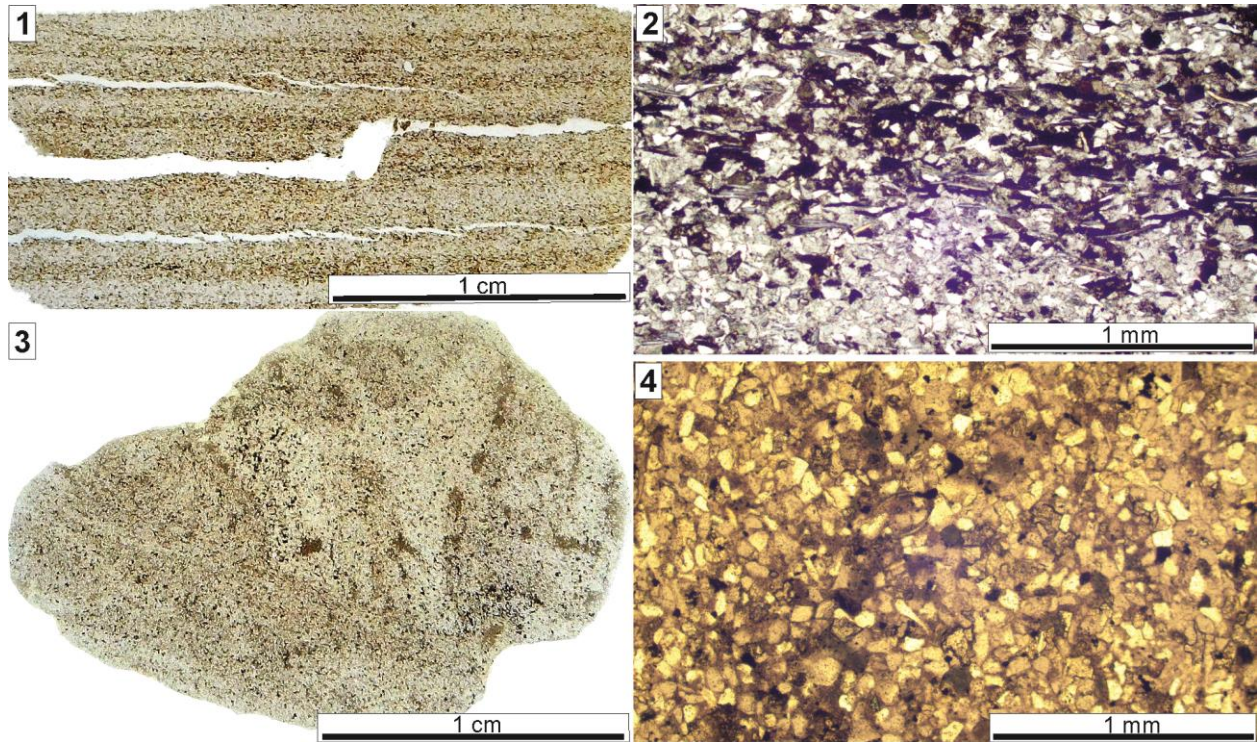


Table 7. Lithotype *LT-7t*: 1, 2 – quartz sandstones with microlayered texture, sample 14-47; 3, 4 – bioturbated sandstone with rare intact thin-walled ostracod shells, sample 14-z1.

Table 8

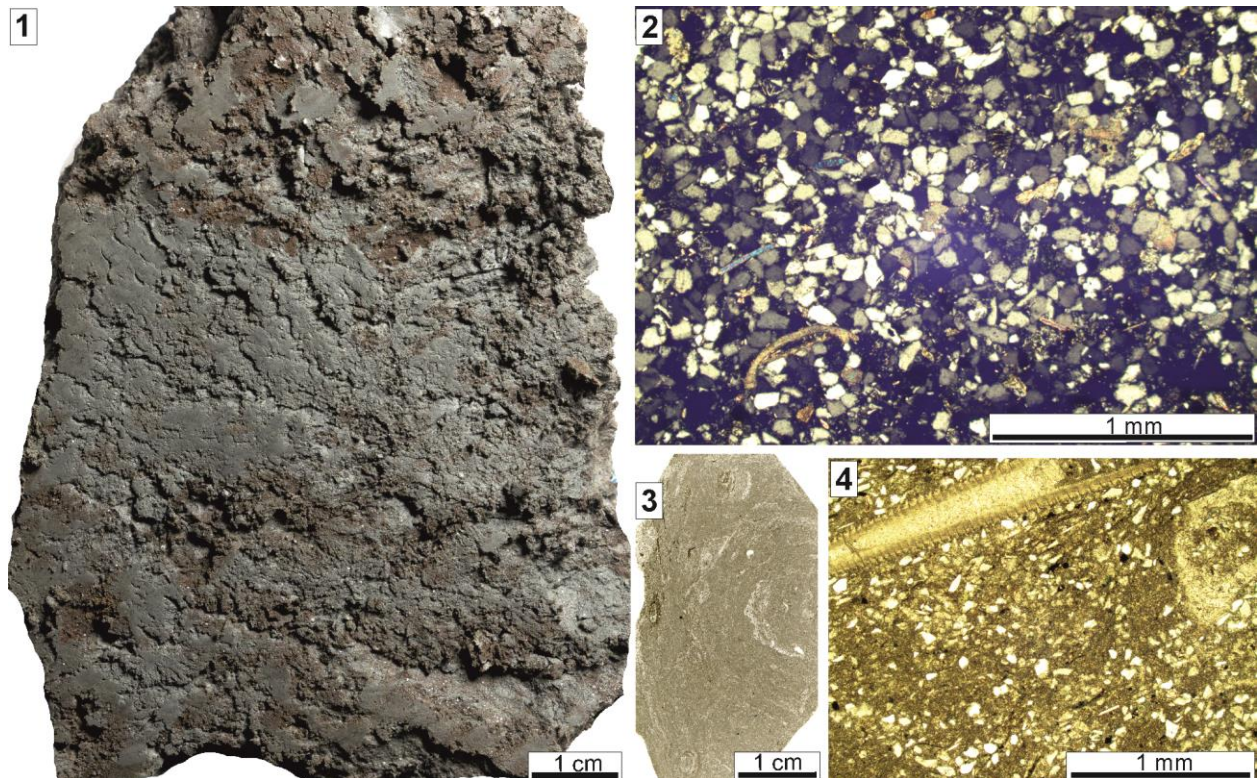


Table 8. Lithotype *LT-8t*: 1 – siltstones (greenish-gray) with interlayers and lenses of quartz oil-saturated sandstones (brown), sample 14-75; 2 – quartz sandstone with rare ostracod valves, sample 14-75/2; 3, 4 – fragment of intraclast represented by bioturbated sandy limestones, sample 14-75/1.

Table 9

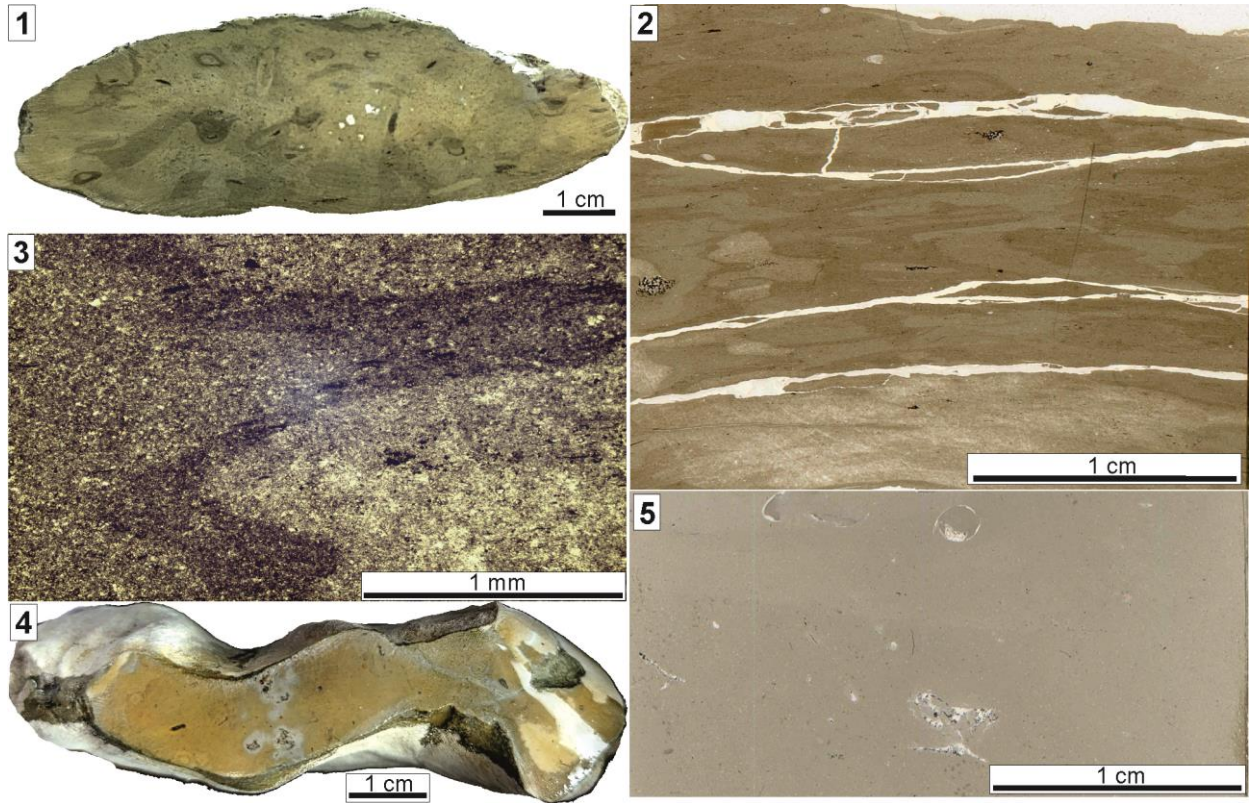


Table 9. Lithotype *LT-1c*: 1 – intensely bioturbated calcareous concretion with pelitomorph structure, sample 16-33; 2-3 – bioturbated weakly calcareous clays with deformation textures, apparently formed during compaction of sediment, sample 16-33; 4, 5 – calcareous concretion with pelitomorph structure, sample 16-37.

Table 10

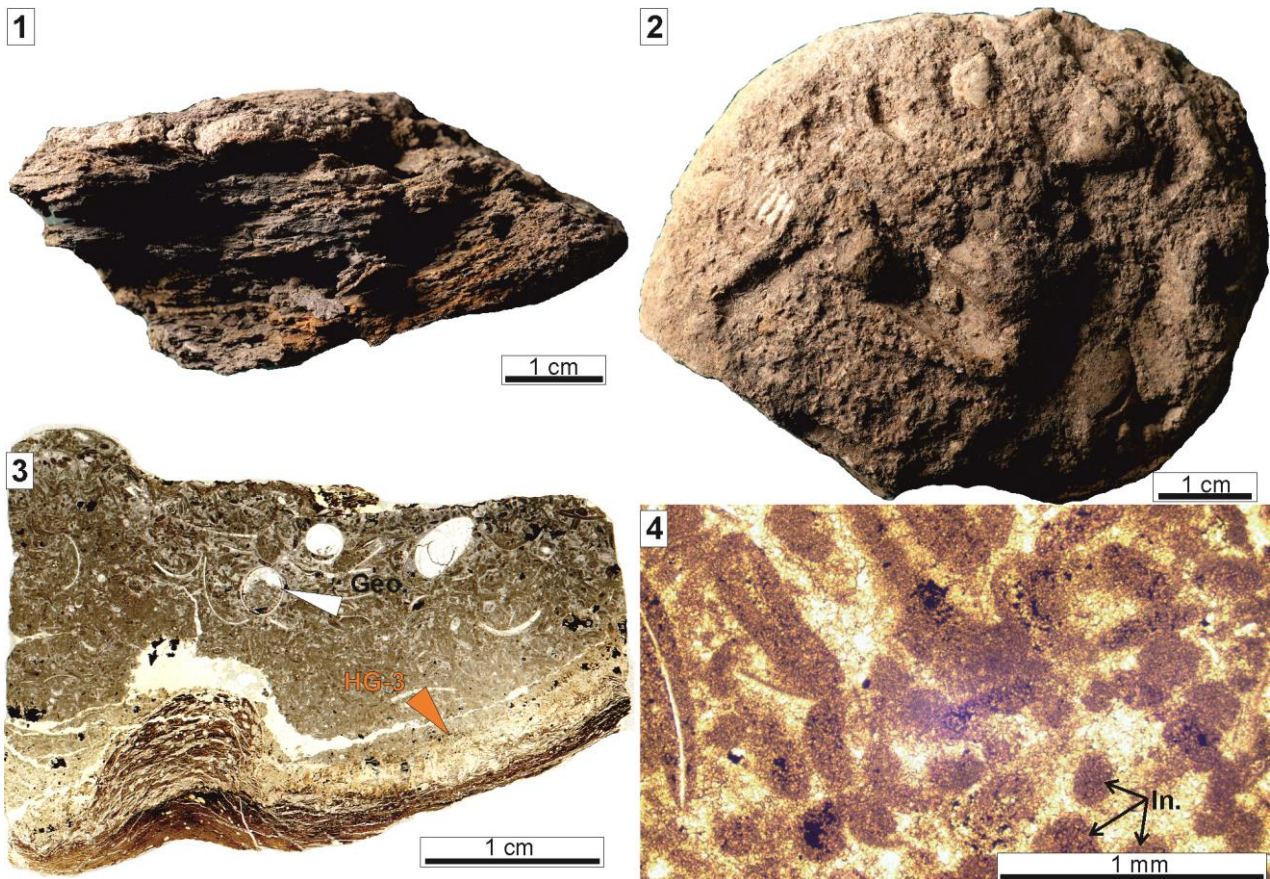


Table 10. Lithotype *LT-2c*. 1 – stylioline mudstones, sample 7-13; 2-4 – pebbles of bio-intraclastic limestones (*LT-10c*), sample 7-14: 2 – rounded in plan view shape of flattened pebbles; 3 – geopetal (Geo.) structures (internal geopetals) in eroded limestones with hardground surfaces (HG-3), indicating its burial in an inverted position; 4 – intraclasts (In.), composed of carbonate peloids and cortoids.

Table 11

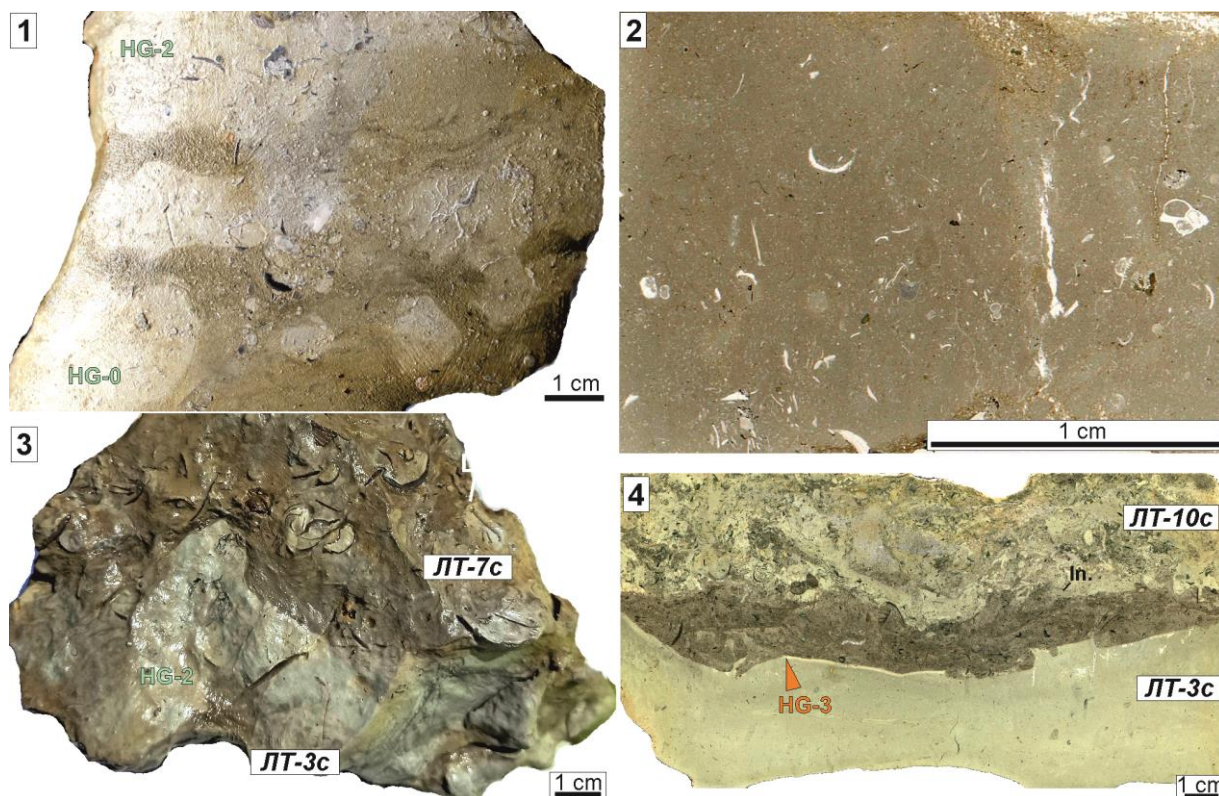


Table 11. Lithotype *LT-3c*. 1 – initial stages of formation of a concretionary slab, sample 16-31; 2 – pelitomorphic limestone with rare bioclasts, sample 16-31; 3 – erosional contact with bioclastic limestones (*LT-7c*), sample 16-1; 4 – partially eroded surface of the hard bottom and filling of formed cuts with bio-intraclastic material (*LT-10c*), sample 16-43.

Table 12

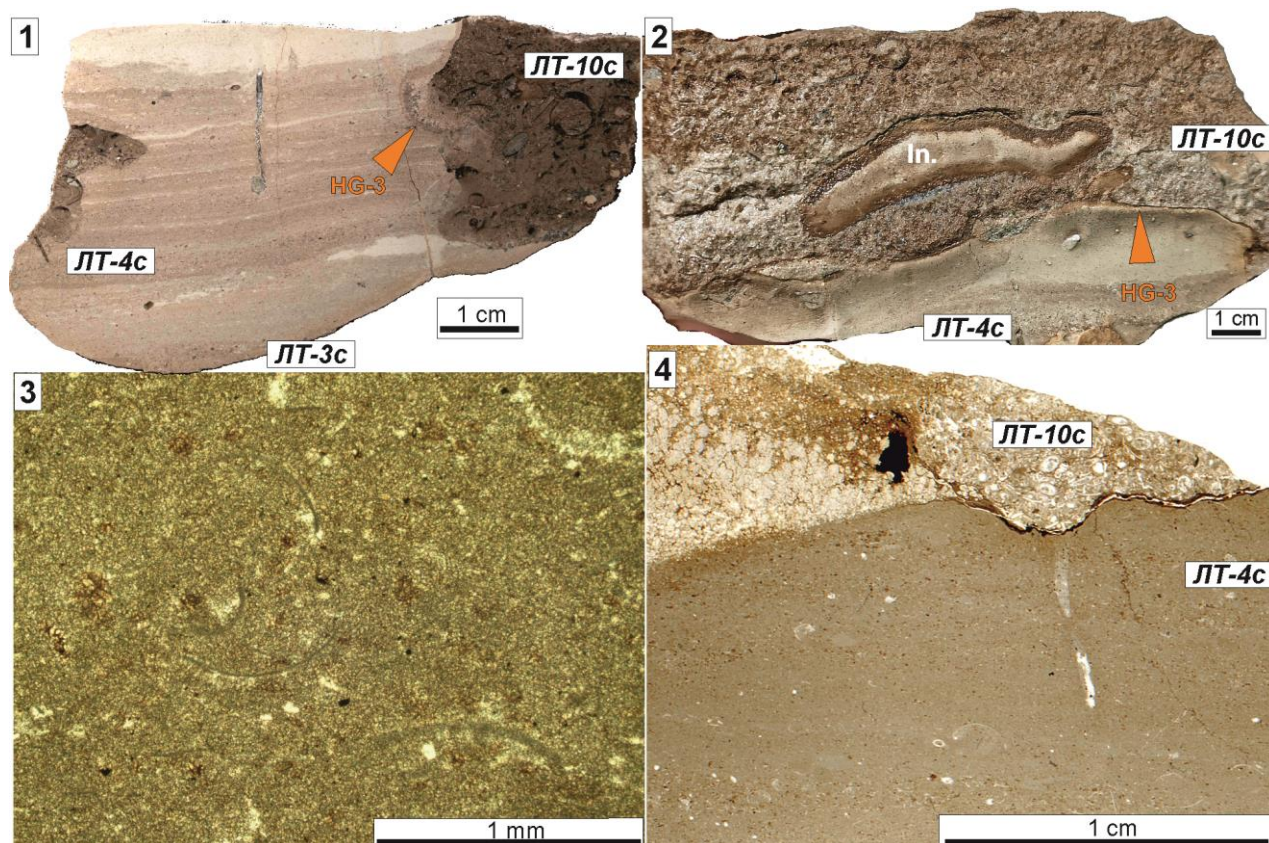


Table 12. Lithotype *LT-4c*. 1 – erosional contact of *LT-4c* and *LT-10c* with a buried vertical burrow, sample C1242-7b; 2 – eroded surface of *LT-4c* overlain by bio-intraclastic limestones *LT-10c*, sample C1242-9; 3 – rare scattered shells of planktonic ostracods and unidentifiable bioclasts in pelitomorphic limestones, sample C1242-7b; 4 – erosional contact of *LT-4c*/*LT-10c* and uneven distribution of bioclasts in microlayered limestones *LT-4c*, sample C1242-8.

Table 13

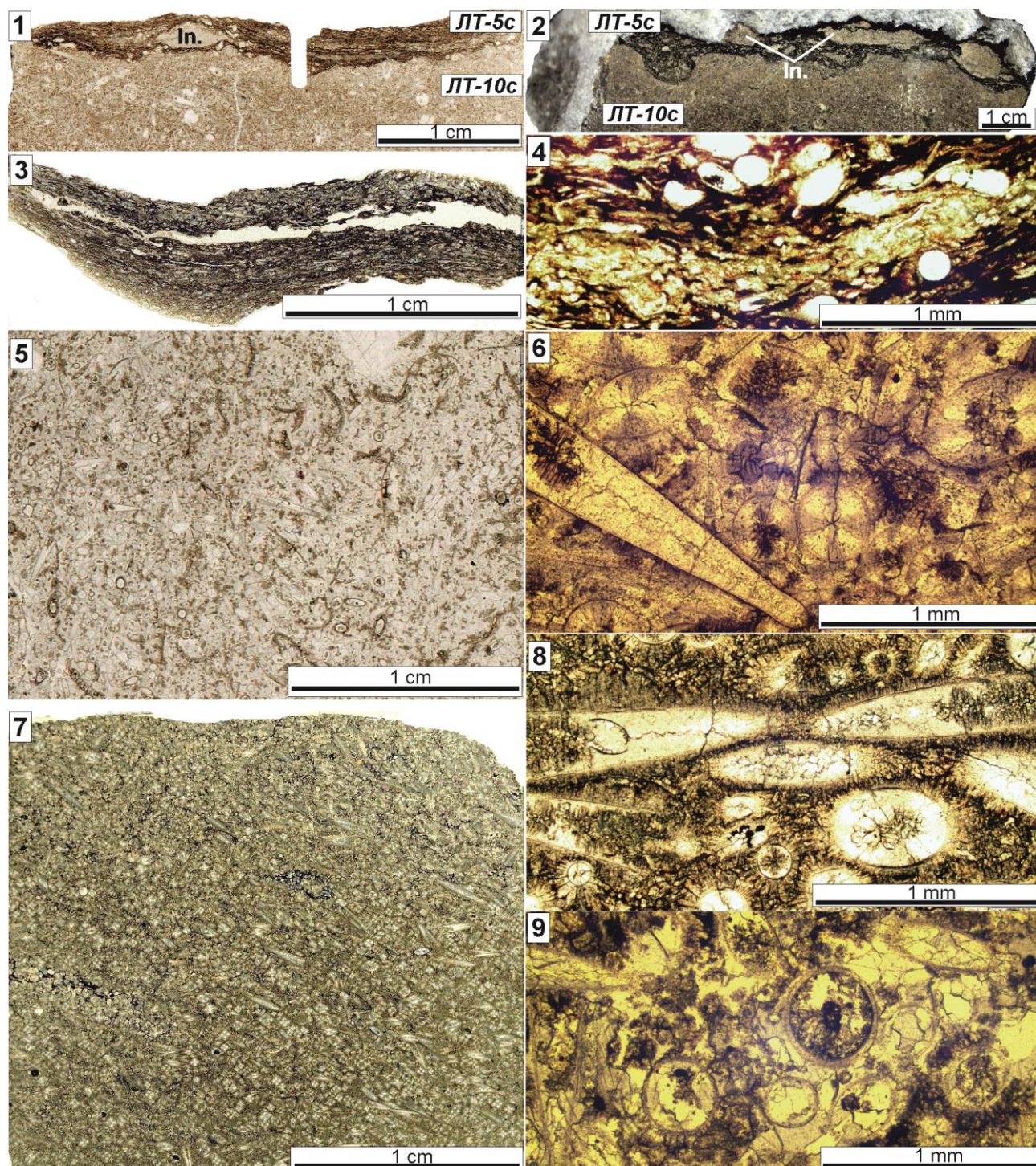


Table 13. Lithotype *LT-5c*. 1-6 – variety *LT-5/1c*. 1, 2 – erosional contact of *LT-10c* and *LT-5/1c* with intraclasts (In.) at the base of stylioline mudstones: 1 – sample C1242-11; 2 – sample 7-6/6a; 3 – stylioline mudstones enriched in organic matter, sample 7-6a; 4 – uneven distribution of dispersed organic matter in stylioline mudstones, sample 7-6a; 5, 6 – peloid relics in the interlayer of recrystallized stillioline limestones, sample C1242-12; 7-9 – variety *LT-5/2c*. 7 – massive, unclear layered texture in stillioline limestones, sample 7-11; 8 – Stillioline shells, sample 7-11; 9 – relics of peloids in recrystallized stillioline limestones, sample C1242-13a.

Table 14

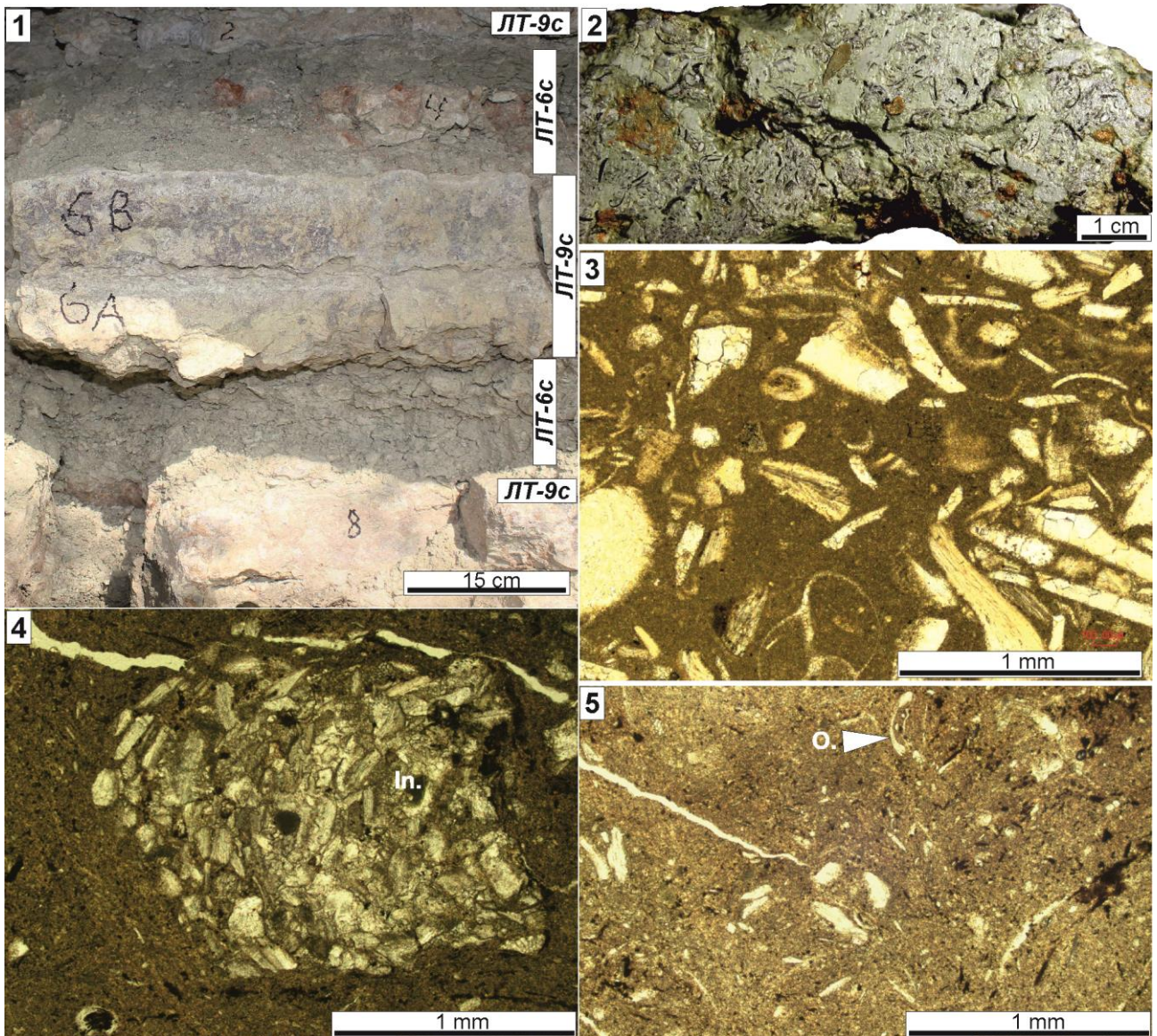


Table 14. Lithotype *LT-6c*. 1 – interlayers of calcareous clays with bio-intraclasts (samples 14-3, 5, 7) and interlayers of bioclastic limestones (sample 14-4) in outcrop 14; 2, 3 – interlayer of poorly sorted bioclastic limestones (wackestone, floatstone), sample 14-4; 4 – subrounded intraclast (In.) in calcareous clays, composed of very well sorted and subrounded bioclastic material, sample 14c-5; 5 – poorly sorted bioclasts in calcareous clays, ostracod (O.) valves with traces of abrasion, sample 14c-5.

Table 15

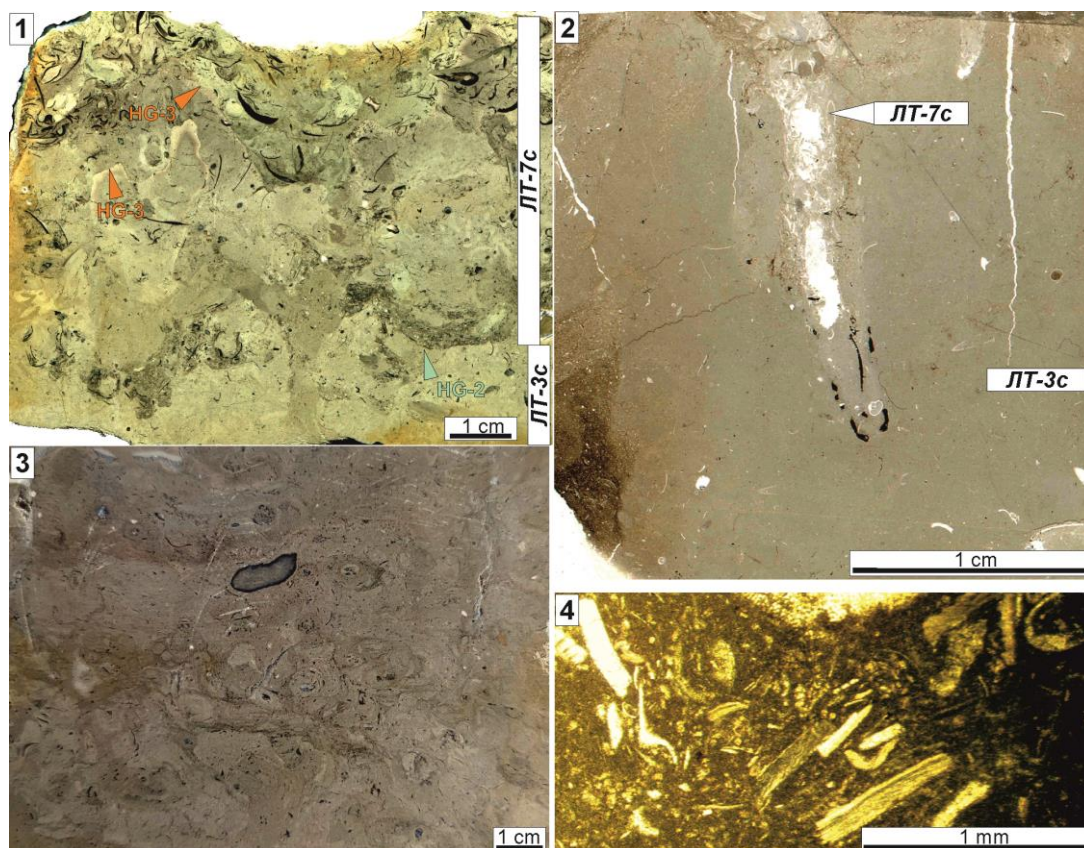


Table 15. Lithotype *LT-7c*. 1 – partially eroded stylolite-like surfaces of hardgrounds in bioclastic limestones (wackestone), sample 16-41; 2 – traces of eroded lithotype *LT-7c* preserved in the burrow of a burrowing organism, sample 16-21; 3, 4 – intensely bioturbated limestone with well-rounded intraclasts and poorly sorted bioclasts, sample 16-16.

Table 16

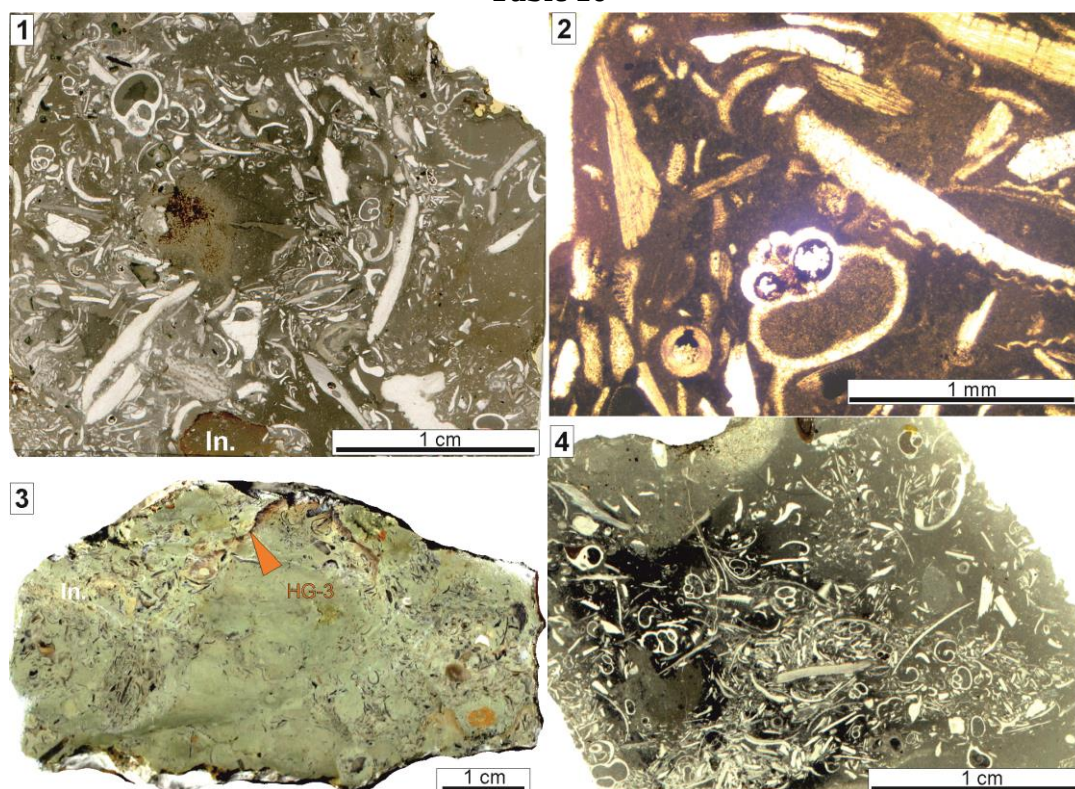


Table 16. Lithotype *LT-8c*. 1 – bioturbated bioclastic limestone (floatstone) with rare intraclasts of pelitomorphic limestones (mudstone), 2 – bimodal structure of bioclastic limestones, sample 14-1e; 3 – partially eroded stylolite-like surface of the hardground in unevenly mechanically mixed and bioturbated pelitomorphic (mudstone) and bioclastic limestones (wackestone, floatstone), sample 14-1c; 4 – uneven distribution of unsorted bioclasts in pelitomorphic carbonate cement, sample 14-1b.

Table 17

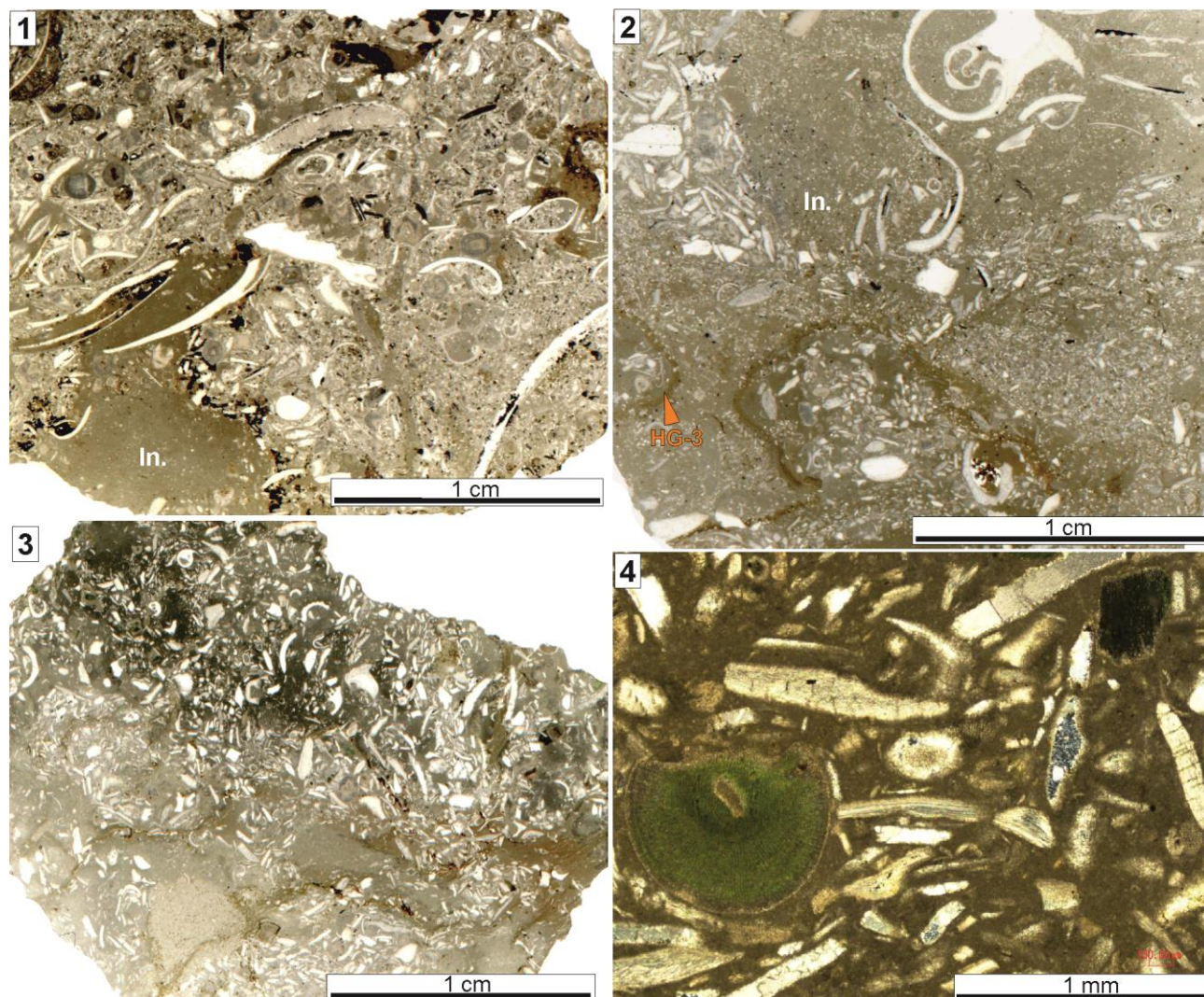


Table 17. Lithotype *LT-9c*. 1-3 – peloidal-bioclastic limestones (packstones) with intraclasts of micritic limestones (mud-wackestones): 1 – sample 14-8; 2 – sample 14-6; 3 – sample 14-2; 4 – crinoids replaced by glauconite in bioclastic limestones (packstones), sample 14-2.

Table 18

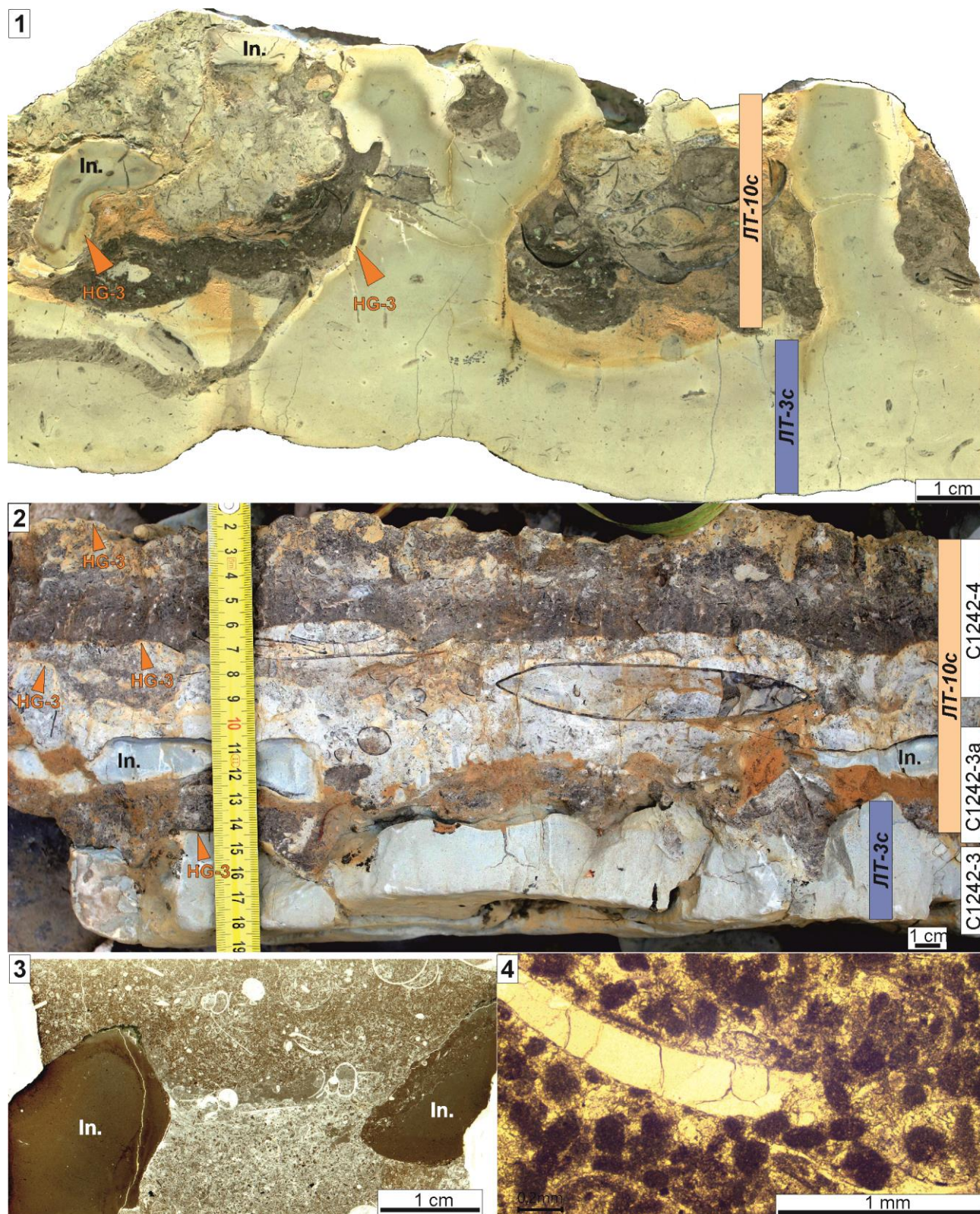


Table 18. Lithotype *LT-10c*. 1 – erosional cuts made by bio-intraclastic limestones with pebbles of underlying deposits, sample 16-44; 2 – gently undulating textures of bio-intraclastic limestones with flat pebbles of pelitomorphic limestones, samples C1242-3-4; 3, 4 – abundance of very well sorted peloids of fine-small sand size, sample C1242-9.