

Well-preserved Late Bathonian to Callovian radiolarian faunas from the Lókút Radiolarite in the Gerecse Mountains (Transdanubian Range, Hungary)

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The age of the Lókút Radiolarite in the Gerecse Mountains is believed to be of Bajocian to Oxfordian age, but direct age data from the radiolarites, i.e. well dated radiolarian faunas are not available. The estimated age of this radiolarite formation is established from well constrained ammonite faunas, which occur in the limestones below (Tölgyhát Formation) and above the radiolarite (Pálihálás Formation, Saccocoma Limestone). The Jurassic of the Gerecse Mountains show an important change in sedimentation in the (Late) Oxfordian or around the Oxfordian/Kimmeridgian-boundary with the deposition of mass transport deposits (“Oxfordian breccia”) which occur above the Lókút Radiolarite or, in rare cases, is intercalated in the radiolarite succession. These mass transport deposits contain reworked parautochthonous material.

To get exact ages from the Lókút radiolarite we studied two key-sections in the Gerecse Mountains. In the Margittető section the mass transport deposits are intercalated in radiolarites, in the Tölgyhát quarry section they rests on top of the radiolarite. Moderate to good preserved radiolarian faunas from these two successions yielded Late Bathonian to Middle Callovian radiolarian faunas. The lower part of the Lókút Radiolarite has: *Striatojaponocapsa conexa*, *Striatojaponocapsa synconexa*, *Theocapsommella bicornis*, *Theocapsommella medvednicensis*, *Semihsuum amabile*, *Praewilliriedellum* cf. *robustum*, *Protunuma* cf. *turbo*, *Gongylothorax* sp. aff. *favosus*, *Pantanellium riedeli*, *Saitoum trichylum*. Similar radiolarian fauna exists in the upper part: *Striatojaponocapsa synconexa*, *Striatojaponocapsa conexa*, *Praewilliriedellum robustum*, *Hemicryptocapsa marcucciae*, *Hemicryptocapsa yaoi*, *Hemicryptocapsa buekkensis*, *Theocapsommella cucurbitiformis*, *Kilinora spiralis*, *Saitoum trichylum*.

In the Tölgyhát quarry the youngest datable radiolarian sample is 50 cm below the “Oxfordian breccia”. The silicified limestone directly below the breccia could not be dated and therefore the age of the breccia horizon could be not more precisely defined as known from literature. Of more importance is the Margittető section with intercalated mass transport deposits in the radiolarite. The age of the radiolarite below the breccia horizon is Callovian as constrained by following radiolarian association: *Hemicryptocapsa carpathica*, *Striatojaponocapsa synconexa*, *Semihsuum* cf. *amabile*.

A radiolarian sample above the mass transport deposits yielded a similar radiolarian fauna, with *Gongylothorax* sp. aff. *favosus*, *Pantanellium* cf. *riedeli*, *Saitoum* cf. *trichylum*, *Striatojaponocapsa conexa*, *Striatojaponocapsa synconexa*, *Striatojaponocapsa naradaniensis*, and point to Late Bathonian to Middle Callovian. Some species give a hint that this sample can be a little younger, but surely not younger than Early/Middle Oxfordian, as constrained from the Túzköves-árok section near Tardos.

Our radiolarian data confirm the known ages from the radiolarites deposited on the pelagic platforms in the Western Tethyan realm on top of the drowned Late Triassic Hauptdolomite/Dachstein Carbonate platform, i.e., in a central to proximal shelf position. The Lókút Radiolarite in the Gerecse Mountains as part of the Transdanubian Range belongs therefore to the overall Jurassic radiolarite event in the Callovian–Oxfordian. Early Late Jurassic mass transport deposits of the Gerecse Mountains experienced an influence of the Middle to early Late Jurassic mountain building process in the Western Tethyan realm.