

CALLOVIAN TO OXFORDIAN RADIOLARIANS FROM A "SLOVENIAN/BOSNIAN TROUGH"-TYPE SUCCESSION ALONG THE PERIADRIATIC LINEAMENT (KARAVANK MOUNTAINS, AUSTRIA)

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The Karavank Mountains (Austria) display a suite of individual stratigraphic successions of partly different palaeogeographic derivations, today forming imbricates of variable size. A geological complex segment with a "Slovenian/Bosnian Trough"-type succession is located between the Maria-Elend Sattel and the Schwalbenwand. Above grey thin bedded turbiditic to bioturbatic Sevatian to Rhaetian radiolarian-rich limestones with mass-flow and sliding complex horizons (= Frauenkogel Formation; KRYSZYN et al. 1994) and the Rhaetian to Early Jurassic grey argillo-calcareous bioturbate to turbiditic wackestones (= Hahnkogel Formation; KRYSZYN et al. 1994) follow grey, thin bedded, turbiditic, radiolarian-rich wackestones of Middle/Late Jurassic age (= Kahlkogel Formation, as a part of the Ruhpolding Radiolarite Group).

In these radiolarian-rich wackestones, from the Kahlkogel Formation with mostly poor preserved radiolarians, the occurrence of Middle/Late Jurassic radiolarians is reported for the first time. From these dark radiolarian wackestones, following radiolarians can be identified: *Bernoullius cristatus* BAUMGARTNER 1984, *Archaeodictyomitra* sp., *Hsuum* cf. *brevicostatum* (OZVOLDOVA 1975), *Parvicingula* cf. *dhimenaensis* BAUMGARTNER 1984, *Dictyomitrella* sp., *Triversus* cf. *hungaricus* (KOZUR 1985), *Podobursa* cf. *nodosa* (CHIARI, MARCUCCI & PRELA 2002), *Unuma gorda* HULL 1997 [= *Unuma* sp. A sensu BAUMGARTNER et al. 1995], *Quarticella* cf. *ovalis* TAKEMURA 1986, *Williriedellum dierschei* SUZUKI & GAWLICK in GAWLICK et al. 2004, *Williriedellum glomerulus* (CHIARI, MARCUCCI & PRELA 2002), *Zhamoidellum* cf. *ovum* DUMITRICA 1970, *Stylocapsa oblongula* KOCHER 1981, *Gongylothorax* aff. *favosus* DUMITRICA 1970, *Gongylothorax* sp. C sensu SUZUKI & GAWLICK 2003, *Theocapsomma medvednicensis* GORICAN in HALAMIC et al. 1999, *Tricolocapsa conexa* MATSUOKA 1983, *Tricolocapsa undulata* (HEITZER 1930) [= *Sethocapsa funatoensis* AITA 1987], *Praewilliriedellum* cf. *spinsum* KOZUR 1984, *Stichocapsa convexa* YAO 1979, *Eucyrtidiellum* cf. *unumaense* (YAO 1979), *Eucyrtidiellum unumaense* ssp. (YAO 1979), *Eucyrtidiellum* cf. *ptyctum* (RIEDEL & SANFILIPPO 1974).

BECCARO (2004) reported the occurrence of *Eucyrtidiellum unumaense* from an Ammonitico Rosso section of northwestern Sicily dated by ammonites as Middle Oxfor-

dian to Late Kimmeridgian. The last appearance horizon of *E. unumaense* is revised at least to Middle Oxfordian (upper limit of the *Williriedellum dierschei* subzone of the *Zhamoidellum ovum* zone after SUZUKI & GAWLICK 2003). The radiolaria *Zhamoidellum ovum* (Callovian to Early Tithonian, respectively U.A. Zones 7-11) is the index species for the *Zhamoidellum ovum* zone (Callovian to Oxfordian). *Gongylothorax* aff. *favosus* is defined for the U.A. Zones 7-8 (Late Bathonian to Early Oxfordian - BAUMGARTNER et al. 1995), respectively for the *Protunuma lanosus* subzone (Callovian) to *Williriedellum dierschei* subzone (Early to Middle Oxfordian) of the *Zhamoidellum ovum* zone. Thus, recent systematic studies on *G.* aff. *favosus* obtain in this sample an atypically species, with an inflated, less depressed cephalis in the thoracic cavity. The radiolaria *Podobursa nodosa* indicate only a Middle to early Late Jurassic age, its stratigraphic range should be further studied. *Triversus hungaricus*, originally described in the *Unuma echinatus* zone of southwest Japan and Hungary are determined to be Bajocian in age (YAO & BAUMGARTNER 1995). SUZUKI & GAWLICK (2003) reported this species from the *Zhamoidellum ovum* zone of the Northern Calcareous Alps. *Praewilliriedellum spinosum* was originally also described from the *Unuma echinatus* zone (Bajocian) of the southern Bükk Mountains (KOZUR 1984), and is also reported from the *Williriedellum dierschei* subzone. Consequently, radiolarians from these radiolarian-rich wackestones of this segment south of Maria Elend indicate a Callovian to Early/Middle Oxfordian age.

Hence, the sedimentation until the Middle/Late Jurassic in this belt is in line with the model of out-of-sequence thrusting in the Juvavicum since the Early/Middle Jurassic boundary, and continuous sedimentation on the backlimbs of the nappes. Lateral motions since the Turonian formed a mega-imbricate zone between the Dinarides and the Eastern Alps contemporaneous with the movement of the Drau Range and the Transdanubian Range towards the east, to their present position.

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