

ON THE AGE OF THE SURROUNDING SILICEOUS LIMESTONE OF THE HALLSTÄTTER SALZBERG, NORTHERN CALCAREOUS ALPS (AUSTRIA)

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In the Northern Calcareous Alps, salt deposits of Permo-Triassic age are distributed and excavated. The tectonic position of these salt deposits is discussed very controversially as in situ (v. HAUER 1857, MOJSISOVICIS 1905) or transported (HAHN 1913, GAWLICK et al. 2001) (summarised in TOLLMANN 1985, GAWLICK et al. 2001). One of the key points to solve the question of the emplacement of the Alpine salt deposits is to date the surrounding sedimentary rocks (siliceous limestone to siliceous marls). We examine, therefore, the radiolarian age of one sample (BNU) that derives from the end of the borehole BHTNU 040 bored at the Hallstätter Salzberg in the Salzkammergut area. The sample BNU is a dark grey laminated siliceous limestone, in which most radiolarian tests are calcified and few ones are preserved as quartz.

Until now the following radiolarians are identified: *Archaeodictyomitra rigida* PESSAGNO, 1977; *Cinguloturris carpatica* DUMITRICA, 1982; *C. cf. cylindra* KEMKIN & RUDENKO, 1993; *Cyrtocapsa mastoidea* YAO, 1979; *Dictyomitrella kamoensis* MIZUTANI & KIDO, 1983; *Eucyrtidiellum circumperforatum* CHIARI et al., 2002; *E. ptyctum* (RIEDEL & SANFILIPPO, 1974); *E. unumaense* (YAO, 1979); *Gongylothorax favosus* DUMITRICA, 1970; *G. aff. favosus* DUMITRICA, 1970; *Gongylothorax* sp. C sensu SUZUKI & GAWLICK, 2003; *Hsuum brevicostatum* (OZVOLDOVA, 1975); *H. maxwelli* PESSAGNO, 1977; *Loopus doliolum* DUMITRICA, 1997; *Neorelumbra skenderbegi* (CHIARI et al., 2002); *Parahsuum* sp. S sensu MATSUOKA 1986; *Parvicingula cappa* CORTESE, 1993; *Praewilliriedellum spinosum* KOZUR, 1984; *Praezhamoidellum buekkense* KOZUR, 1984; *Protunuma matsukai* (SASHIDA, 1999); *Podobursa nodosa* (CHIARI et al., 2002); *Quarticella ovalis* TAKEMURA, 1986; *Saitoum levium* DE WEVER, 1981; *Spongocapsula* sp. A sensu SUZUKI & GAWLICK, 2003; *Stichomitra annibill* KOCHER, 1981; *Stichocapsa convexa* YAO, 1979; *S. himedaruma* AITA, 1987; *S. japonica* YAO, 1979; *S. tegiminis* YAO, 1979; *S. naradaniensis* MATSUOKA, 1984; *Stichocapsa* sp. E sensu BAUMGARTNER et al., 1995; *Theocapsomma cordis* KOCHER, 1981; *Th. medvednicensis* GORICAN, 1999; *Tricolocapsa conexa* MATSUOKA, 1983; *Tr. fusiformis* YAO, 1979; *Tr. plicarum* YAO, 1979; *Tr. tetragona* MATSUOKA, 1983; *Tr. undulata* (HEITZER, 1930); *Tr. sp.* S sensu BAUMGARTNER et al. 1995; *Triversus hexagonatus* (HEITZER, 1930); *Triversus hungaricus* (KOZUR, 1985), *Unuma typicus*

ICHIKAWA & YAO, 1976; *Williriedellum crystallinum* DUMITRICA, 1970; *W. dierschei* SUZUKI & GAWLICK, 2004; *Williriedellum* sp. A sensu MATSUOKA, 1983; *Zhamoidellum ovum* DUMITRICA, 1970; *Z. ventricosum* DUMITRICA, 1970.

This fauna resembles that from the Brielgraben which is dated with ammonites as a Middle Callovian (SUZUKI & GAWLICK 2006), and it is included in the *Protunuma lanosus* subzone in the *Zhamoidellum ovum* zone after SUZUKI & GAWLICK (2003). To correlate with the Japanese radiolarian zone, some important species can be mentioned, which indicate a horizon around the boundary between *Tricolocapsa plicarum* and *Tr. conexa* zones: *Cyrtocapsa mastoidea*, *Tricolocapsa plicarum*, *Tr. conexa*, *Tr. fusiformis*, *Tr. tetragona*, *E. ptyctum* (MATSUOKA 1983, 1995). Although *Tricolocapsa* aff. *fusiformis* sensu MATSUOKA 1983 that has a smaller basal appendage than typical *T. fusiformis* is commonly included in the samples from Brielgraben of the Middle Callovian, it has not so far been found in BNU of Hallstätter Salzberg. Taking the occurrence of *Z. ovum*, *S. annibill* and *G. favosus* into consideration, the horizon of the sample BNU is located above the lowermost Callovian (SUZUKI et al. 2001, SUZUKI & GAWLICK 2003). Therefore, the horizon of BNU lies in the Lower or Middle Callovian.

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