

## Geologic relationship between the Ultra-Tamba Terrane in the Sasayama (Hyogo Prefecture) and Hokusetsu (Osaka Prefecture) areas

# Yoshiaki SUGAMORI[1]

[1] Dept. Geosci., Fac. Sci., Osaka City Univ.

The Ultra-Tamba Terrane, mainly consists of Middle to Late Permian clastic rocks, was established by Caridroit et al. (1985). After that Ishiga (1990) etc. redefined and divided this terrane into three subterrane. Although Ishiga (1990) defined the Inagawa Group as the Upper Jurassic which covers the Permian accretionary complex of the Ultra-Tamba Terrane in the Hokusetsu area (the northern Osaka Pref.) and the Sasayama area (the eastern Hyogo Pref.), it was clear that the depositional ages of the equivalent to the Inagawa Group (Inagawa Complex : tentative name by Sugamori, 2007 and the Takatsuki Formation) in the Hokusetsu area are assigned to late Middle to Late Permian (Kusunoki et al., 1997; Sugamori, 2006, 2007). Therefore a problem has arisen about the depositional age and tectonic setting of the Inagawa Group. The Ajima Formation in the Sasayama area, equivalent to the Inagawa Group, has some problems about the depositional age and the tectonic setting (Takashiroyama Research Group, 1993; Miyachi et al., 2005). The author reports the finding of Late Permian radiolarians from the Ajima Formation and discusses its geologic significance herein.

The Ajima Formation mainly consists of clastic rocks. Alternating beds of sandstone and mudstone (partly broken) are distributed around the fossil locality at Oyamashimo, western part of the Sasayama City, Hyogo Prefecture.

The outcrop, yielding Late Permian radiolarian fossils, consists of alternating beds of red siliceous mudstone and red siltstone with sandstone layers. Six layers of siliceous mudstone include Permian radiolarians (4 layers yield *Albaillella levis* and 1 layer yields *Albaillella lauta*). In a particular siliceous mudstone layer below sandstone layer is characterized by the abundant occurrence of *A. levis*. These siliceous mudstone layers are correlated with the upper part of the *Neoalbaillella ornithoformis* Assemblage Zone and the *A. levis* Abundance Zone. The depositional age of these siliceous mudstone layers is assigned to middle Late Permian on the basis of the Upper Permian radiolarian biostratigraphy of Kuwahara et al. (1998) and Yao and Kuwahara (2004).

This discovery of Late Permian radiolarians indicates that the depositional age of the Ajima Formation is around middle Late Permian and this formation is not the Jurassic. Clastic rocks of the Inagawa Complex and the Takatsuki Formation in the Hokusetsu area and the Ajima Formation are thought to be closely formed in late Middle to middle Late Permian time, because their lithologic facies and depositional ages are similar each other.

The youngest rock of the Inagawa Complex and the Takatsuki Formation are correlated with the lower and the lower to middle part of *N. ornithoformis* Assemblage Zone, respectively. On the other hand, the youngest rocks of the Ajima Formation is correlated with the upper part of *N. ornithoformis* Assemblage Zone. In the Hokusetsu area, the Inagawa Complex tectonically underlies the Kunisaki Complex (tentative name by Sugamori, 2007); the former includes younger rocks than the latter. Moreover it is supposed that the Takatsuki Formation tectonically underlies the Inagawa Complex (Sugamori, 2007). If the Ajima Formation is applied the relationship of the above-mentioned structural features and depositional ages, a possibility can be suggested that the Ajima Formation tectonically underlies the Takatsuki Formation.

Takashiroyama Research Group (1993) reported Middle Triassic radiolarians from mudstone that Kurimoto et al. (1993) regarded as the Ajima Formation in the Sasayama area. The author thinks a possibility that this mudstone belongs to the Kamitaki Formation on the basis of preliminary examination. It is necessary further study about the identity of Triassic sediments and solution of the relationship among the Ultra-Tamba Terrane in the Sasayama, Hokusetsu and other areas.