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Middle Permian Cimmerian fusuline succession of the Plateau Limestone in the Linwe area, Eastern Myanmar

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In terms of fundamental geotectonic subdivision, the eastern part of Myanmar is attributed to the Sibumasu Block, which constitutes the eastern part of Gondwana-derived Cimmerian continent. The Permian fusuline fauna of this Gondwanan continental fragment is known to possess a peculiar paleobiogeographic character, consistently showing rather low taxonomic diversity compared with those of coeval paleo-equatorial Tethyan domain such as Indochina and South China (Ueno, 2003). Permian carbonates widely underlying that part of Myanmar are conventionally referred to as the Plateau Limestone and show two essentially different successions. One represents continuous sedimentation over the clastic sediments of the Mergui Series or Taungnyo Series or Lebyin Group of probably Late Carboniferous-Early Permian age (Tin Tin Latt *et al.*, 2008), and the other shows unconformable relationship upon older Paleozoic sediments (Thura Oo *et al.*, 2002). Although the stratigraphic aspect of the Plateau Limestone has been studied by Amos (1975), Garson *et al.* (1976), and Zaw Win (2004), basic paleontologic and chronologic information on its fusuline fauna is still limited. In this presentation, we report a fusuline faunal succession of the Plateau Limestone exposed in the Linwe area of Eastern Myanmar.

The examined Linwe section is located in Ywa-ngan (Ye-ngan) township in southern Shan State of Eastern Myanmar. In this section, the Plateau Limestone lies unconformably upon peculiar phacoidal limestone of the Silurian Linwe Formation. It attains about 570 m in thickness and is lithostratigraphically subdivided into four parts. The lowermost part (about 10 m thick) consists of alternations of bedded limestone and shale; the overlying lower part (about 60 m thick) is comprised of massive to very thick-bedded limestone with dominant wackestone/floatstone; the middle-upper part (about 460 m thick), which constitutes the major portion of the succession, is composed of massive limestone with grainstone as dominant microfacies and minor packstone; and the uppermost part (30 m+) is made up of thick-bedded limestone with chert nodules, which is represented by wackestone/floatstone in microfacies. In this study, about 450 thin sections were prepared from a total of 98 samples for lithological and paleontological examination.

Fusulines occur in many levels consisting of grainstone and floatstone. We recognized three fusuline assemblages in the middle-upper to uppermost parts of this section. The first (lower) assemblage contains *Rugososchwagerina* and *Yangchienia*. The second (middle) assemblage is represented by *Kahlerina*, *Chenella*, *Dunbarula*, *Afghanella*, *Verbeekina*, *Pseudodoliolina*, *Jinzhangia*, *Chusenella*, and *Skinerella*?. The third (upper) assemblage is essentially similar in composition to the second one, except the absence of *Verbeekina* and the diagnostic occurrence of an oval schwagerinid genus with a large proloculus and rapidly expanded shell. The first assemblage, characterized by *Rugososchwagerina*, is referable to the Late Murgabian (Leven, 2009). The second and third ones are probably assigned to the Early Midian, judging from the stratigraphic position and occurrence of *Kahlerina* and *Chenella* (Leven, 1993).

The first assemblage, supposed to be of Late Murgabian, is essentially characterized by the Cimmerian-type genus *Rugososchwagerina* (Ueno, 2003). It was then replaced by the second and third Midian assemblages yielding more Tethys-type genera such as *Afghanella*, *Verbeekina*, and *Pseudodoliolina*. Somewhat similar Midian fusuline assemblage, containing Tethys-type neoschwagerinids and verbeekinids, was also reported by Tin Tin Latt *et al.* (2008) from the Permian Plateau Limestone exposed in the Lebyin area, about 50 km south of the Linwe area. They concluded that, during Midian time, the eastern Cimmerian areas had paleobiogeographic influences from the paleo-equatorial Tethys region, suggesting some overestimation by Ueno (2003) who emphasized the essential paucity of Tethys-characterizing neoschwagerinids and verbeekinids in eastern Cimmerian fusuline faunas during the entire Middle Permian (Guadalupian). Also as concluded by Tin Tin Latt *et al.* (2008), however, the eastern Cimmerian Midian fusuline fauna is not identical in diversity and frequency of occurrence with coeval genuine Tethyan faunas such as those found in the Indochina and South China blocks. The eastern Cimmerian fauna lacks advanced neoschwagerinids (*Yabeina* and *Lepidolina*) and, as a whole, shows definitely lower diversity and frequency of occurrence compared with the Indochina and South China ones.

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