

ICHO FABRICS AND THEIR ENVIRONMENTAL INTERPRETATION FROM LOWER SILURIAN OF TARIM BASIN, CHINA

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Two ichnofabrics are recognized from Tataaiertage Formation (Lower Silurian) of Tarim Basin, China. ***Helminthopsis-Diplocraterion* composite ichnofabric** containing *Helminthopsis Planolites Zoophycus Chondrites* and *Diplocraterion* is preserved in dark grey greyish green mudstones, silty mudstones. Intense bioturbation destroys all of the primary lamination so that the discrete trace fossils are often blurred. The ichnofabric is composed of two trace suites occurring within the same sediment, that is, two suite of burrows are juxtaposed upon one another to produce a composite ichnofabric. The early trace suite is characterized by feeding burrows like *Helminthopsis* etc. and preserves most poorly; the late trace suite, preserved best, is composed of a spreiten dwelling burrow *Diplocraterion* and is commonly crosscutting the early trace suite 20-30cm below the bed junction. This crosscutting relationship indicates that the feeding burrows are formed in softground substrate, and the dwelling burrow *Diplocraterion* is formed in firmground substrate. The mudstones containing this ichnofabric are regarded as formed in offshore environments below maximum or storm wave base. The firmground substrate trace fossil *Diplocraterion* demarcates discontinuity surface that reflect pauses in sedimentation, generally accompanied by submarine erosion.

***Palaeophycus* ichnofabric** is preserved in interbedded with silty mudstone beds and fine sandstone beds. Silty mudstone beds are intensely bioturbated by feeding burrows like *Palaeophycus Chondrites Bothriotrephes Rhizocorallium Taenidium Terebellina Thalassinoides* and associated with wave bedding and sandstone lens. Wave bedding is often destroyed by the feeding burrows and become irregular and uncomplete. Fine sandstone beds are locally excavated by dwelling burrow like *Skolithos* and associated with many primary physical structures. Every fine sandstone bed is composed of a complete storm deposit sequence: 1) storm erosion, a basal erosion surface which may be undulatory, with sole mark and intraclasts of pebbles shells; 2) main storm deposition, hummocky cross-stratification, which is gradually replaced by parallel bedding to the up, the dwelling burrows are initiated from the middle of the storm bed and become abundant at the top; 3) fairweather silty mud deposition, reflecting the return to normal background sedimentation. This ichnofabric can be interpreted as formed in lower shoreface environments periodically influenced by storm between fairweather wave base and storm wave base.