MICROFACIES ANALYSIS AND DIAGENETIC FABRIC OF THE LOCKHART LIMESTONE EXPOSED NEAR TAXILA, MARGALLA HILL RANGE, PUNJAB, PAKISTAN

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Abstract

The microfacies analysis and digenetic fabric of the Lockhart Limestone are studied at an outcrop section exposed in the Margalla Hill ranges. The Lockhart Limestone is predominantly comprised of medium to thick bedded, nodular and occasionally brecciated, highly fossiliferous limestone with thin interbeds of marl and shale. On the basis of detailed petrographic investigation, four microfacies and twelve sub-microfacies have been identified. The microfacies identified includes packstone (mixed bioclastic, bioclastic foraminiferal and bioclastic algal foraminiferal); wackestone (bioclastic foraminiferal, bioclastic miscellanea rich, bioclastic algal foraminiferal and siliciclastic bioclastic rich); wackestone-packstone (bioclastic foraminiferal, bioclastic miscellanea rich and bioclastic algal foraminiferal) and mudstone-wackestone (mixed planktic-benthic foraminiferal and bioclastic foraminiferal). Based on the microfacies analysis, the Lockhart Limestone is interpreted to have been deposited in the inner ramp lagoon, inner ramp foraminiferal shoal and fore-shoal open marine depositional environments. The diagenetic fabric of the Lockhart Limestone is characterized by several diagenetic features such as micritization, neomorphism (aragonite to calcite transformation and development of microspar), compaction, pressure dissolution (microstylolites) and cementation (calcite filled microfractures). Such diagenetic features are developed in marine, meteoric and burial diagenetic settings.