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Sedimentary Characters and Evolution of the Rimmed Platform in Upper Ordovician of the Tazhong Area, Tarim Basin, NW China

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The depositional rimmed platform include open platform facies and platform margin facies in Lianglitage formation depositional stage in Upper Ordovician of the Tazhong area. The typical sub-facies assemblage in open platform facies is bottomland (interbank sea)~patch reef~intraplatform bank. There deposit 3~5 cycles of reef~bank complex in the platform margin, which formed very thick edge. The Lianglitage formation are divided into five members called Liang 5 member to Liang 1 member from bottom to top, which have different petrological characters. The Liang 5 member mainly contain grey heavy-bedded micrite, cryptalgal micrite, grainstone, and they are interbedded. The Liang 4 member mainly contain grey heavy-bedded grainstone, cryptalgal boundstone, cryptalgal micrite, micrite, and it contains micritic streak. The Liang 3 member mainly contain light grey grainstone, bioherm limestone, cryptalgal boundstone. The Liang 2 member mainly contain thick grainstone, bioherm limestone. The Liang 1 member mainly contain argillaceous limestone and clastozoic micrite, and it contains a great quantity of micritic streak. Its have high GR, which have higher figure in the upper part than the lower part. The GR log curve and the resistivity log curve express infundibuliform. The denuded area distribute in the central blockuplift, some part in the eastern burial hill. The overlap area distribute in the northwestern part of the North slope tectonic region, where Liang 5~4 member are absent. The open platform facies can be divided into patch reef, grain bank, tide flat, interbank sea, intra-platform bottomland. The platform margin facies can be divided into reef mound, carbonate mound, granule shoal, interbank sea. These subfacies also can be divided into different microfacies. The reef mound or the carbonate mound superpose the granule shoal vertically in the rimmed platform margin, and there can be identified 3~5 reef-bank sedimentary cycles. Reef in the open platform facies are smaller than in the platform margin in scale, and

they are isolated. Their biological category and quantity are less than in the platform margin. The typical subfacies sequence is bottomland (interbank sea)~patch reef~intra-platform bank, and the reef-bank complex are smaller than in the platform margin. The five sedimentary period of Liang 5 member~Liang 1 member are the five development stages of the rimmed carbonate platform, which are the formation stage, construction stage, maturation stage, formalized stage and depauperization stage. The Liang 5 member and Liang 4 member sedimentary period are inundation phase, so the open platform is mainly low energy sedimentary environment like interbank sea and intra-platform bottomland. The sedimentary area of the granule shoal become wider gradually in platform margin, and the reef begin to deposit. The Liang 5 and Liang 4 member are the formation and construction stage of the rimmed carbonate platform. The Liang 3 member and Liang 2 member sedimentary period are the maturation stage and the formalized stage. They are the main sedimentary period of the reef and the granule shoal. The sedimentary area of the platform margin become broaden, but depositional topography have inheritance, so that the multiphasic reef-bank complex buildup an apparent higher depositional topography than the open platform, which formed the rimmed platform margin. The sedimentary period of the Liang 1 member is the depauperization stage. In this period, the depositional water depth become deeper, so the rimmed carbonate platform mainly deposit low energy interbank sea, and the sedimentary area of reef-bank complex become small. The Lianglitage formation uplift and experienced the karstification, and formed the unconformity between the Lianglitage formation and the overlying Sangtamu formation.

Key words: sedimentary evolution, rimmed carbonate platform, Lianglitage formation, Late Ordovician; Tazhong area, Tarim basin

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