ABSTRACT

TITLE:	Microbial Carbonate Buildups of the Basal Akah Salt Interval, Western Paradox Basin
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PRESENTED AT:	5th Annual Natural & Behavioral Sciences Undergraduate Research Symposium, Fort Lewis College

ABSTRACT: Within the deeply incised canyon of southeastern Utah's San Juan River, six stromatoform carbonate buildups are exposed in the lower Akah interval of the Middle Pennsylvanian, (Desmoinesian) Hermosa Group of the western Paradox Basin. The buildups appear in 5- 20 meter thick sequences below a major regional unconformity within the Akah Interval of the Paradox Formation (Gianniny 1995). Restricted circulation leading to elevated salinity conditions may have controlled buildup composition on this low relief shelf margin. As evidence to this, evaporates were deposited several kilometers to the northeast during the following lowstand. Above the depositional shelf edge, parasequences and sequences in this section of the upper shelf Akah show a shallowing upward trend with a coarsening upward carbonate facies, grading from mudstones to boundstones and grainstones. The orientation of the lower Akah buildups is possibly due to filling in accommodation space adjacent to the topography created by older Barker Creek chaetetid and phylloid algal bioherms and biostromes. Akah buildups can be observed in offset stacks or satellites around the Barker Creek buildups. Alternately, the orientation of the buildups perpendicular to the regional basin shelf and evidence of mound growth progradation, suggests that the buildup orientation may have developed due to tidal currents or trade wind driven waves. Mound facies successions, like the facies trend locally, coarsen upward from wackestone to grainstone dominated by encrusting foraminifera, ramose bryozoan, ostracod, brachiopod, and peloids. The top of the buildups are draped by a prograding bryozoans-rich grainstone, which is truncated on top of several of the buildups by a siliclacstic rich mudstone, marking the regional uncomformity. The dominate mound core facies are alternating cm scale layered thromboltic-textured peloid- rich grain and boundstones, with encrusting foraminifera occurring more than any other fauna. Thin section scale microbial fabrics appear exclusively in these thromboltic facies as micritic crusts binding peloids and as micritic rims around grain clusters. The thrombolitic texture is common in thin section, while stromatolitic laminae are more distinguished in hand sample on a cm scale.