

Carbonate mounds of the Green River Formation represent hydrothermal fluids within an ancient lake from Eocene Wyoming

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Poster Presentation Abstract:

The Laney Member of the Green River Formation in Wyoming contains localized carbonate mounds that have a questionable origin. The purpose of this study is to explain the origin of the mounds and interpret the conditions associated with their deposition. The Green River Formation is ancient 50- million-year-old lacustrine system in western United States. The Laney Mounds are interpreted to have formed primarily by epithermal hydrothermal processes based on, petrographic, and hand-sample analysis. Mounds of similar appearance are also present in surrounding areas and within other members of the Green River Formation. Those mounds are interpreted to have formed by the accumulation and layering of microbes (cyanobacteria) and sediments, interacting with calcium carbonate within the water; therefore, they are considered stromatolites. Travertine, which is associated with hot-spring deposition, is seen in the samples in bulbous forms and laminar forms, surrounding massive carbonate. Microscopically, dendritic travertine is apparent, signifying hydrothermal influences on the margins of the lake basin, with microbial influences on precipitation. The study of these carbonate mounds improves our understanding of this ancient lacustrine system, and the effects of localized thermal fluids on paleo environments of the Green River Formation.

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