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explained by an episode of base level fall downstream. The cause of the base level fall was likely due to stream capture by a more energetic river. Using the Lava Creek B age constraint, the maximum incision rate measured was 64 cm/ky at Chukar Hill, a location that was probably close to the confluence of Bostwick Park Creek and the ancestral Gunnison River. Comparisons of the elevations of Chukar Hill and the modern the Gunnison River suggest that up to 74% of the Black Canyon of the Gunnison was incised in the last 640 ky. These incision rates are much higher than those found in other areas of the Western U.S., and suggest that high incision rates in the Rocky Mountains may be local phenomena rather than the product of large scale climate change or neo-tectonics.

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**Late Pleistocene gravel deposits of ancient  
Bostwick creek in the Uncompahgre River  
valley of southwestern Colorado**

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The discovery of Lava Creek B ash localities and river gravel outcrops between the Black Canyon of the Gunnison and the San Juan Mountains suggest the presence of a Quaternary paleovalley of Bostwick Creek, a tributary of the ancestral Gunnison River. The geometry and deposits of this paleovalley can be compared with modern valleys to infer change within the basin over the last 640 ky. The paleovalley contains lenticular gravel deposits up to 20 m thick, overlain by fine-grained valley fill sediment up to 55 m thick. Lava Creek B ash, dated to 640 ka, directly overlies the river gravel. Field mapping and GPS surveys suggest that the valley was approximately one mile wide. The percentage of volcanic clasts in the river gravels ranged from 47% to 82%. Imbrication measurements and the primarily volcanic composition of gravels are evidence that the flow direction of the river was south to north, from the San Juan Mountains.

Downstream divergence of the profiles of ancient Bostwick Creek and the modern rivers suggests rapid recent incision due to knickpoint migration. The Bostwick Creek profile has a much shallower slope than that of the modern Uncompahgre and Gunnison Rivers. This difference in slope is probably