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Gary Haynes

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PERSPECTIVE



Reply to Holen et al. Regarding the Cerutti Mastodon

Gary Haynes 

Department of Anthropology, University of Nevada, Reno, NV, USA

ABSTRACT

This reply continues the contretemps between S. Holen et al. and myself regarding the newly reported Cerutti Mastodon. The Cerutti Mastodon materials may have been modified by hominins 130,000 years ago, as claimed by Holen and colleagues, but an alternative hypothesis that earthmoving disturbances could be to blame still has not been adequately considered.

KEYWORDS

Cerutti Mastodon; peopling of the Americas; proboscidean taphonomy

There are some misleading statements and errors in the otherwise useful response by Holen et al. (2017) to my comments about the Cerutti Mastodon site (Haynes 2017a).

Holen et al. criticize my remarks about the Cerutti dating, without acknowledging that I was only repeating what the dating specialist Andrew Millard had written about the site in his blog (<http://archaeometer.blogspot.com/>). This comment appears in Millard's conclusion: "The lack of stratigraphic context and the hints of unpublished contradictory evidence weaken the robustness of the claimed date."

Holen et al. (2018) propose their combined experiences excavating proboscidean sites make them authorities on equipment-caused damage to bones. They therefore dismiss two examples I offered of fossil sites showing evidence that heavy machinery can break buried proboscidean bones. Their discounting of my conclusion about the Inglewood mammoth site (Maryland) is based on the demonstrably wrong interpretation of the site by Karr (2015), who did not understand the nature of the sedimentary matrix enclosing the material and who never saw the excavation records, logbooks, and data sheets about this site and its sediments (see Haynes 2015a, 2015b, 2017b). The broken bones at the site (tusk, cranium, mandible, innominate, and long limb bones) were the thickest elements and thus the first to be impacted by mechanical excavator buckets shaping the drainage ditch where the bones were buried underwater in an anaerobic sedimentary matrix. Before the disturbance, the bones had never been affected by carnivores, trampling, and weathering, and were not "considerably displaced," as misinterpreted by Karr (2015, 338).

Holen et al. (2018) also try to dismiss my suggestion that subsurface mastodon bones were broken by

mechanical equipment at the Orleton Farms site (Ohio). Although Holen et al. (2018) state that only two bones were reported broken, this is misleading. Only two elements were named in the site report, but the skeleton as a whole was described as "badly disturbed and the bones crushed and broken" (Thomas 1952, 3). The breakage on one femur was described as "squarely across" (Thomas 1952, 3, figure 3 caption), but a nearly full-page photograph – admittedly grainy, but still decipherable – shows the visible break at midshaft is curvilinear (Thomas 1952, 3, figure 3). Holen et al. (2018) themselves proposed in their response to my commentary that "fragmentation produced by the weight of heavy equipment acting through sediment cover would result in refitting fragments that, when finally exposed, would be found adjacent to one another." That is exactly the case at Orleton Farms. Thus, according to Holen et al. (2018), the mastodon femur at Orleton Farms had been broken while buried.

The main point in Holen et al. (2018) is that earthmoving equipment could not have broken the Cerutti material, because the Caltrans excavating equipment was never directly atop the buried Cerutti bones and stones. I encourage them to fully eliminate any possibility that other heavy equipment ever impacted the ground, before the Caltrans construction of the sound berm; this possibility is suggested by the existence of level ground surfaces in the backyards of the adjacent housing development only a few meters away from the excavation units, as shown in a photograph in Zimmer (2017) and the videos published the *Los Angeles Times* online (Curwen 2017). It is important to rule out all other potential sources of ground pressure at the site. The high hump of sediment (which is the sound berm) abruptly rising next to the level ground appears unusual

in this context. A history of any previous ground leveling (if it occurred) and the possible shaping of the higher landform might be available through Google Earth.

The bottom line with the Cerutti Mastodon claims is that potential traces of Pleistocene human activity at the site are either minimal or questionable; alternative explanations still should be treated as hypotheses for further testing. More solid evidence supporting human dispersal into the Americas so long ago in the Pleistocene is needed for the Cerutti claims to be convincing.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

Gary Haynes is Foundation Professor of Anthropology, Emeritus, at the University of Nevada, Reno. He has studied modern and fossil proboscidean bonesites for more than 40 years, and has published extensively on taphonomy.

ORCID

Gary Haynes  <http://orcid.org/0000-0003-3797-3669>

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