

A LIMESTONE BIRD-FORM ARTIFACT FROM MUSKINGUM COUNTY, OHIO

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by

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In the summer of 2012 a lady (who prefers to remain anonymous at this time) uncovered a rather abstractly but quite identifiably bird-shaped limestone (Figures 1 and 2) at about twenty cm (8") beneath the surface of previously undisturbed/uncultivated dense clay terrain while tilling in preparation for a new garden on her hilltop property just above the old Zane's Trace south of Norwich, Ohio. (Zane's Trace was cut in about 1798 along a path known to have been a long-existing Indian trail, and the find site is close to the location of a prehistoric mound recorded in the 1914 Archaeological Atlas of Ohio.) The finder had earlier observed generally bird-shaped stones beneath the surface of her property, but none quite so striking as this one, and she gave this piece to Alan Day, an avocational archaeologist in Cambridge, Ohio, knowing of his interest in such material, and of his work at 33GJ218 in Guernsey County, also a hilltop site along Zane's Trace.

The figure is 81 mm long, 62 mm high, and a maximum of 28 mm wide at its base, on which it can stand upright. It weighs 113 g (4 oz).

Mr. Day surmised that this stone had almost certainly not acquired its current form entirely through natural geological processes, and examined the extensive polished surface on the front of the bird-form under a stereoscopic microscope at about 9X magnification, with illumination at a shallow angle across it, noting that the subperpendicular striations (under calcite deposits) reached to a shallow but significant depth beneath the rock's surface, strongly suggesting artificial abrading and polishing (see Figure 2). Altogether, the object incorporates nine separate polished facets along its peripheral sides, except for the bird's back, which is sharply and bifacially edged. The rougher surfaces appear to have been pecked, and the stone as a whole is well patinated.

For a technical assessment by someone who actually knows what he is seeing, Mr. Day took the stone to the geology laboratory at Muskingum University

in New Concord, Ohio, for examination by Prof. Eric Law, a specialist in petrology, the branch of geology that deals with the origin, composition, structure, and alteration of rocks. (Dr. Law co-authored the article in the Summer 2009 issue of *Ohio Archaeologist* on a large sandstone turtle head effigy unearthed near Fort Ancient.) After careful consideration, Dr. Law declared with certainty that the stone in its current form is a product of human manufacture. Although all this seemed sufficient evidence that the limestone bird was an artifact, and an old one, Mr. Day thought it might be appropriate or at least interesting to run high-resolution photographs of it past the staff of the Ohio Historical Society's Archaeology Natural History Unit, since Dr. Bradley Lepper, the manager of that department, was proclaiming on the OHS's website that anyone wondering about "the oddly shaped rock you found" should show it to them for a determination of whether it is an artifact or "just a rock." This was with some misgivings, since their earlier assessments of lithic artifacts other than clearly diagnostic flint projectile points had been demonstrated by professional geologists/petrologists to be inaccurate and misleading. But their confident offer of a free "authentication" service seemed too good to pass up. Following is their quick response to the same photos that been sent to Prof. Law prior to his personal inspection:

From Dr. Lepper: "I would speculate that the faceted surfaces and the parallel striations and smoothing were caused by the stone being embedded in glacial ice as it was dragged across the surface at the bottom (or along the side) of the glacier." And "Certainly I see no clear cut evidence of human modification in the images." Bill Pickard, likely being aware that the area of the find had not been glaciated, stated "I would guess that the rock is naturally formed and what looks like striations are actually calcite crystals or crystallization. They intersect each other too close to have been made by abrasion." The other members of the staff, Linda Pansing and Dr. Robert Glotzhober,

concurred with Bill Pickard's assessment. An offer to bring the stone to Columbus for in-person inspection was met with the reply "No value in examining it further." Mr. Day then informed Dr. Lepper that Prof. Law would author a formal laboratory report confirming artifactuality, and that this report would, upon request, be made available to him prior to publication so that he might address any technical errors it might contain. Dr. Lepper declined this offer.

Following is Prof. Law's report on the physical evidence supporting human agency, also addressing the OHS archaeologists' assessments:

"This small piece of limestone is micritic in nature, meaning that the calcite crystals in the rock average around 100 micrometers or less in diameter. This microscopic size rules out any possibility that the linear or facial features visible on this stone are the result of the mineral properties of calcite, such as cleavage traces or crystal faces.

The second distinguishing feature of this stone is the polished facets. Indeed, the natural process most likely to have produced these polished faces would be glacial abrasion. However, the most distinctive feature of this small rock is the apparent form of bird head/beak and neck, the features of which are confined to a cross-sectional area of about nine square centimeters. Within this small area, the rock was polished along at least four different directions in a 3D distribution, with interfacial angles ranging from about 40° to 120°. Glacial abrasion on rock normally progresses in only one straight linear direction, and its occurring in such a specific 3D geometry within such a small space would certainly be quite rare. In particular, such a rare case of polishing happening to shape the vivid image of bird head/beak and neck would be virtually miraculous.

One can say with good confidence that the polished facets visible on this small rock are not likely to have been created by any natural process."



Figure 1 (Day) Side view of limestone effigy.



Figure 2 - 3 (Day) Underside of neck area and close-up of grinding marks.