

Late Archaic and Early Woodland Stone Tools from Killbuck, Holmes County, Ohio

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Introduction

In summer 2019 Kent State archaeologists, students, and colleagues visited Killbuck, Ohio in order to assess the archaeological potential of a possible rockshelter. The “shelter” turned out to be no more than the undercut of a small creek. However, upon returning to the location where vehicles had been parked, we noticed several pieces of lithic debitage in the recently plowed field, which we are provisionally calling the T.S.J. site (Figure 1). With permission of the landowner, over the course of an hour we collected a sample of the lithic specimens. Here, we report specimen counts and weights, temporally diagnostic artifacts and their morphometrics, and microwear. Following our usual practice when working with and publishing with collectors and avocational archaeologists (Bebbler et al. 2017; Boulanger et al. 2021; Eren et al. 2016, 2018, 2019; Norris et al. 2019; Perrone et al. 2020; Werner et al. 2017), all specimens have been donated to, and are now curated by, the Cleveland Museum of Natural History.

We collected 662 lithic specimens weighing 4,189 grams. Overall, specimen weight ranged from 0.01 g to 183 g with a median of 1.88 g and mean of 6.33 g (Figure 2). These specimens were overwhelmingly, if not entirely, produced from chert macroscopically consistent with Upper Mercer chert. A small number of specimens showed evidence of fire damage (e.g. pot-lidding). While the vast majority of specimens are lithic debitage in the form of bifacial thinning flakes, resharpening flakes, and blockshatter, cores are also present (Figure 3).

The collection exhibits several bifaces in various stages of manufacture (Figure 4) and, granting previously published caveats (e.g. Buchanan et al. 2018; Eren et al. 2018, 2021; Maguire et al. 2018; Norris et al. 2019; Redmond 2017) eight potential temporally diagnostic projectile points (Figure 5, Table 1). One point is a Late Woodland triangular point (Justice 1987). Four points are consistent with the Early Woodland Stemmed cluster (Justice 1987). Finally, three points are consistent with the form of the Late Archaic Brewerton or Matanzas cluster (Justice 1987).

We employed the methods of microwear analysis to further examine the collection. Microscopic examination was conducted at low magnification with a stereo-microscope with

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Figure 1. Location of the T.S.J. site. The oval represents the area where the majority of lithic specimens were found, but small numbers of artifacts were found beyond this boundary.

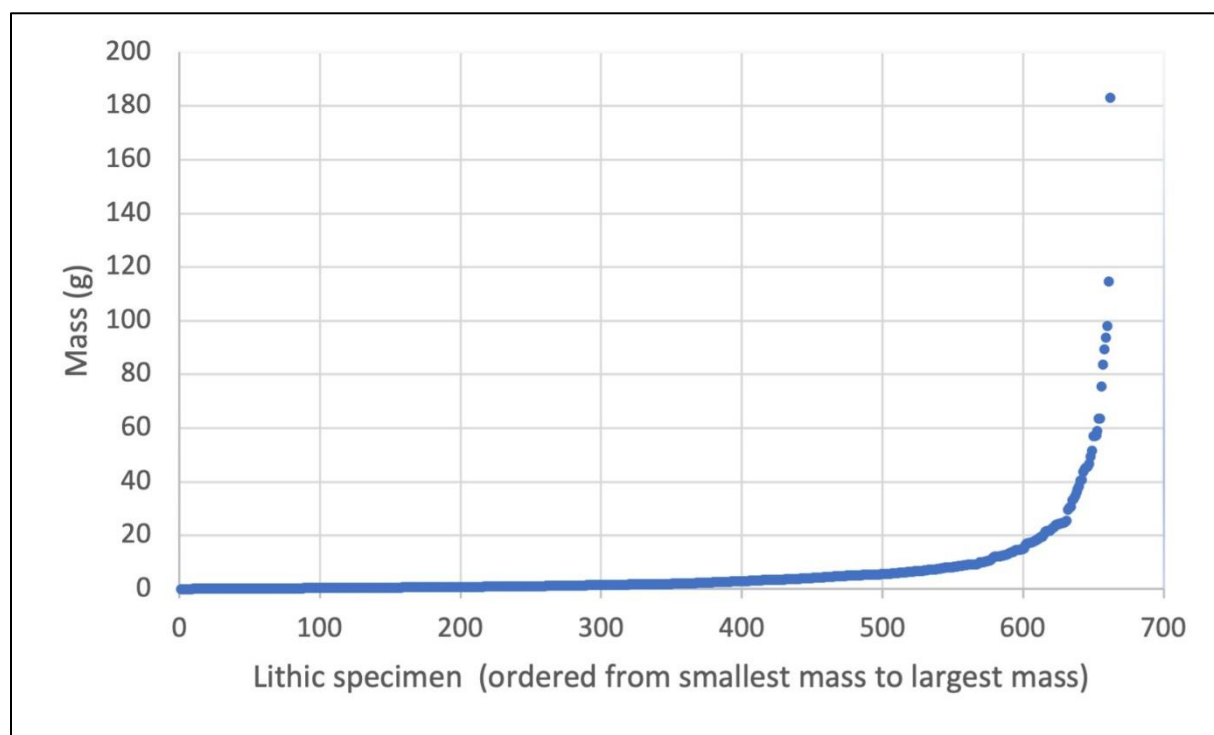


Figure 2. Distribution of lithic specimens' mass (g).

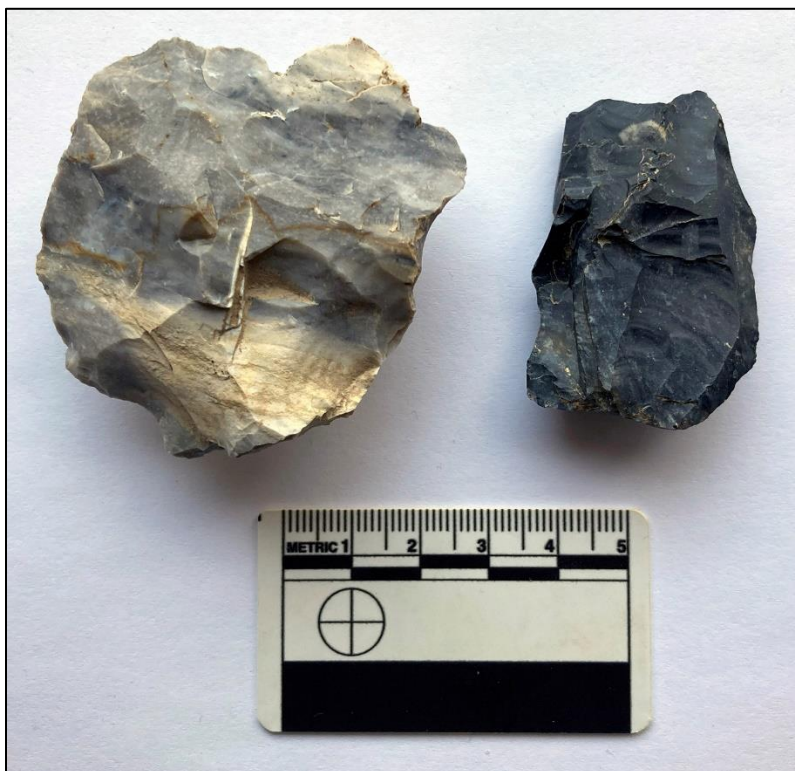


Figure 3. Selected cores recovered from the T.S.J. site: discore core (left) and a bipolar core (right).



Figure 4. Bifaces from the T.S.J. site in various stages of manufacture.

magnifications between 10x and 30x, and at high magnification using an Olympus BX51M incident light metallurgical microscope with magnifications ranging between 50x and 500x. The artifacts selected for use microwear analysis were first examined with a stereomicroscope to examine patterns in edge damage. Following this step, each artifact was cleaned in an ultrasonic cleaner with liquid soap and then fresh tap water prior to examination for use wear traces under incident light microscope.

All projectile points, bifaces, and biface fragments ($n=33$) were included in the sample for microwear analysis. Additionally, all retouched artifacts ($n=6$ retouched flakes and graters) were included in the microwear analysis. An initial sample of 28 unmodified flakes were selected for microwear analysis based on the presence of at least one relatively long, straight, sharp edge. After finding no evidence of use on any of these 28 flakes, no additional flakes were examined. Thus, in total, 67 artifacts were examined. Seven displayed evidence of use in the form of edge wear or hafting and these are described below.

Bright linear streaks of polish, diagnostic of projectile impact (Van Gijn 1990), were documented near a break at the tip of one side notched projectile point (Figure 6A). Numerous hafting bright spots were also documented in the haft area of this projectile point (Figure 6B). Hafting bright spots were also present on a side notched point base, but no additional determination of use could be made because the blade was missing (Figure 6C).

Relatively dull, matte textured, invasive polish was well developed in association with heavy edge rounding and striations parallel to the working edge on one biface fragment (Figure 6D). This pattern is consistent with slicing dry hide (Keeley 1980; Van Gijn 1990). Dry hide working, in the form of dull, invasive polish with large pits associated with edge rounding, was also documented on another bifacial fragment. In this case, however, striations were oriented perpendicular to the working edge, indicating a scraping motion (Figure 7A). Lightly developed dull, greasy textured, invasive polish along with slight edge rounding, all of which are consistent with butchering soft tissue, was present on one biface fragment (Figure 7B).

One graver spur, produced on a relatively blocky flake, exhibited bright, domed polish from engraving wood (Figure 7C). An additional graver spur on a small flake displayed evidence of use in the form of edge damage and generic weak polish (Figure 7D). This pattern is consistent with use on some sort of hard material but the combination of a low edge angle on hard material meant that edge attrition occurred at a faster rate than diagnostic polish formation.

In sum, at the T.S.J. site, seven of the eight temporally diagnostic projectile points date to the Late Archaic or Early Woodland periods; stone tool production and re-sharpening activities are evident; and lithic implements were used for a variety of functions. We thus tentatively suggest that this site may be a long-term base camp, perhaps even a village, dating to approximately 5000-2000 B.P. Future fieldwork may be able to establish a more precise date range, site boundaries, and further site activities, as well as the presence of sub-surface features which may help better characterize the site overall.



Figure 5. Seven potentially temporally diagnostic projectile points were recovered from the T.S.J. site: top row, Late Woodland; middle row, Late Archaic; bottom row, Early Woodland. See also Table 1.

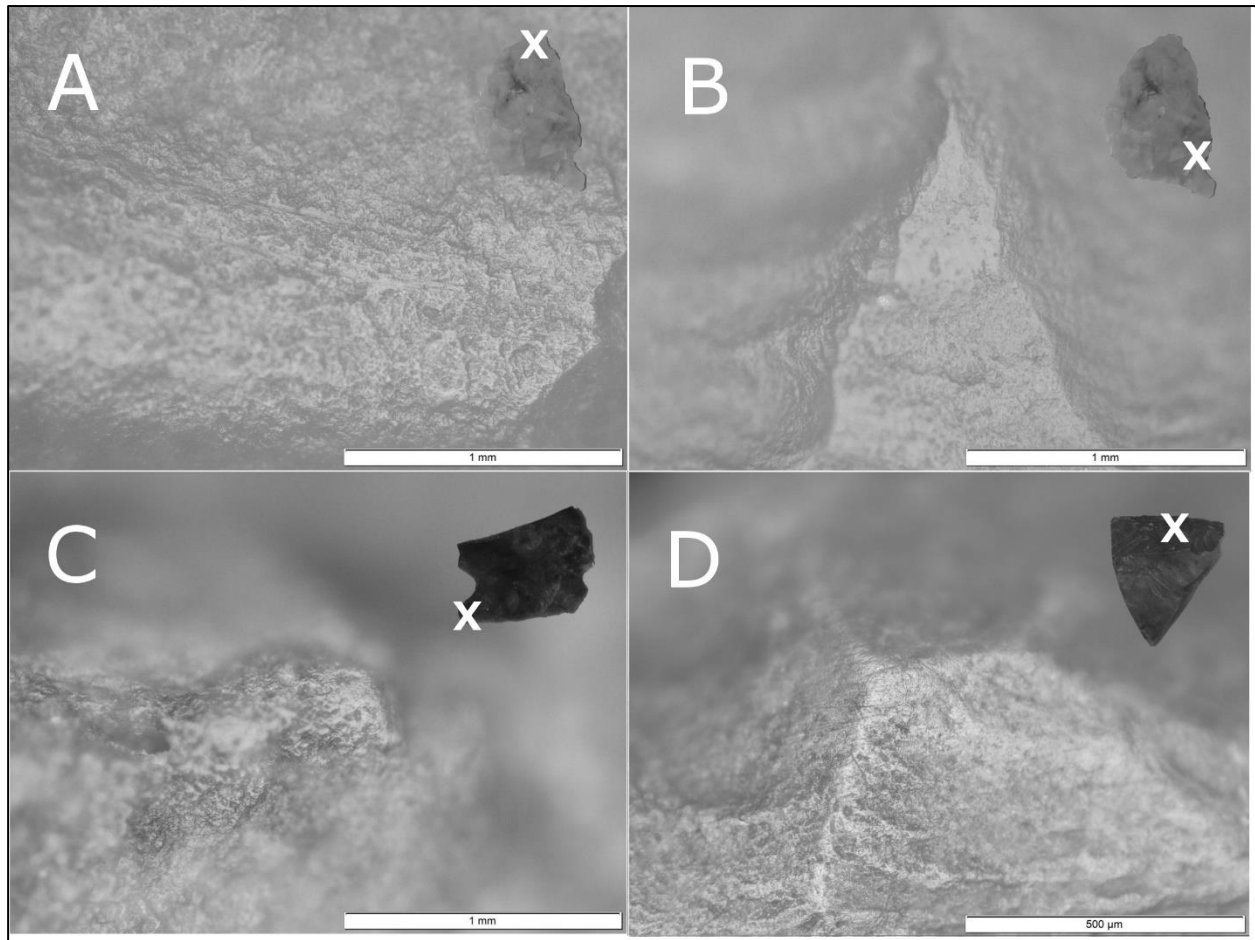


Figure 6. A. Linear streaks of polish indicating use as a projectile. (Note that the microphoto is rotated 90 degrees clockwise to the position of the point in the inset photo. Magnification is 100x and the location is indicated by the X in the inset photo.) **B. Hafting bright spot near a notch on the same point pictured in A.** (Magnification is 200x and the location is indicated by the X in the inset photo.) **C. Hafting bright spot on a side notched point base.** (Magnification is 200x and the location is indicated by the X in the inset photo.) **D. Hide polish, edge rounding, and striations parallel to the working edge on a biface fragment.** (Magnification is 200x and the location of the photo is indicated by the X in the inset photo.)

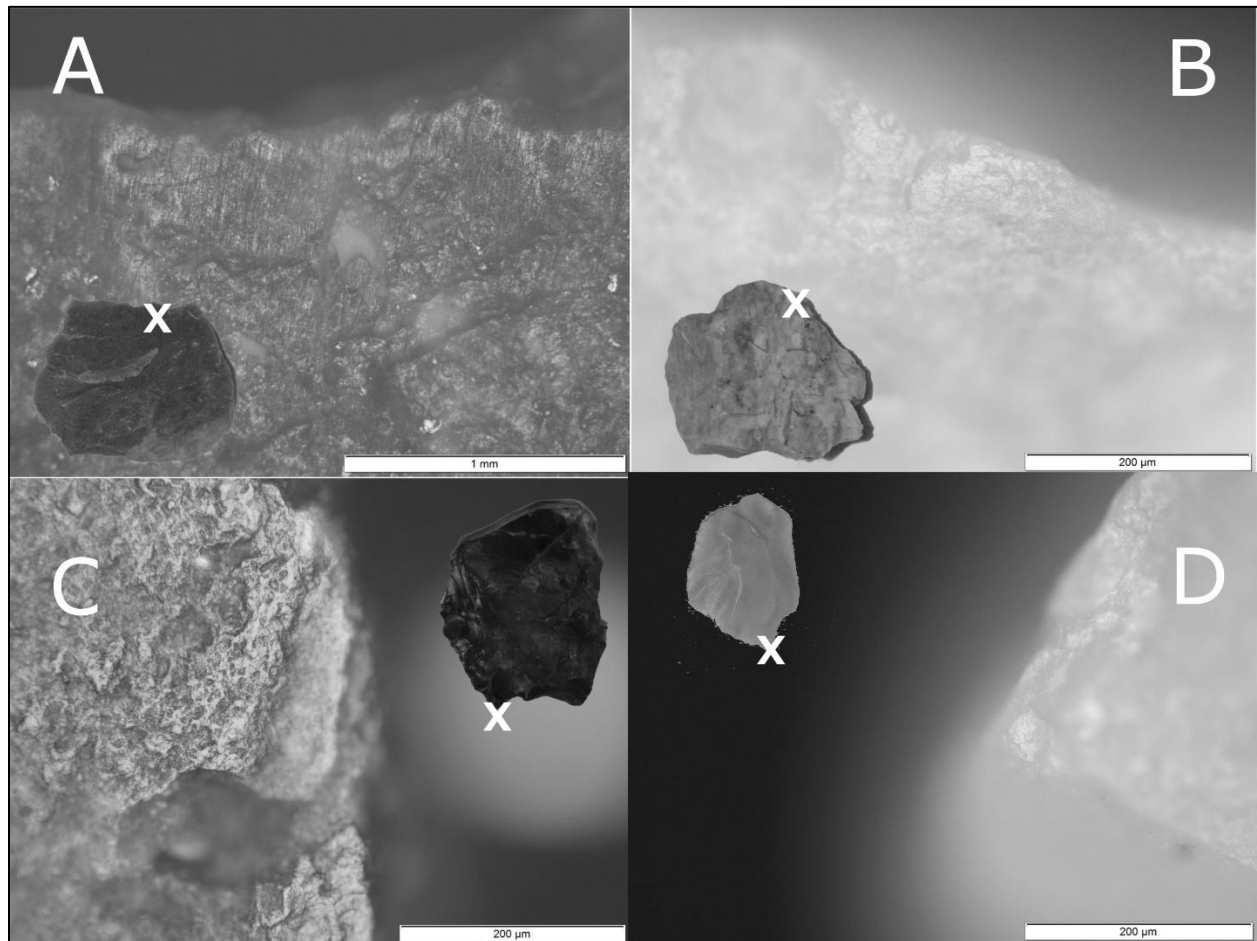


Figure 7. A. Dry hide polish, edge rounding, and striations perpendicular to the working edge on a biface fragment. (Magnification is 50x and the location is indicated by the X in the inset photo.) **B. Greasy soft tissue polish on a biface fragment.** (Magnification is 200x and the location of the photo is indicated by the X in the inset photo.) **C. Bright wood polish on a graver spur.** (Magnification is 200x and the location of the photo is indicated by the X on the inset photo.) **D. Edge damage and weakly developed polish on a graver spur.** (Magnification is 200x and the location of the photo is indicated by the X in the inset photo.)

Table 1. Measurements on the seven potentially temporally diagnostic projectile points.
(See also Figure 5.)

Specimen	Time period	Mass (g)	Length (mm)	Width (mm)	Thickness (mm)
Figure 5, Top Row	Late Woodland	1.3	24.73	13.43	3.95
Figure 5, Bottom Row, Left	Early Woodland	4.8	33.10	22.11	5.96
Figure 5, Bottom Row, Center Left	Early Woodland	8.2	32.95	24.63	8.53
Figure 5, Bottom Row, Center Right	Early Woodland	5.7	28.53	27.12	7.31
Figure 5, Bottom Row, Right	Early Woodland	6.7	39.70	21.30	8.85
Figure 5, Middle Row, Left	Late Archaic	4.1	30.42	23.25	6.48
Figure 5, Middle Row, Center	Late Archaic	3.1	18.43	23.43	5.92
Figure 5, Middle Row, Right	Late Archaic	3.0	26.92	18.15	5.81

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