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CHAPTER SEVEN

Hopewellian Occupations at the Northern Periphery of the Newark Earthworks

The Newark Expressway Sites Revisited

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ABSTRACT

Artifacts, feature plans, and other data from a testing program performed in the 1970s along the right-of-way of State Route 79 as it passes through the remnants of the Newark Earthworks are reexamined in this chapter. Two clusters of postmolds and pit features, named Hale's House (33L1252) and Meridian Alley (33L1260), were encountered during the testing; each contained artifacts suggestive of a Middle Woodland age. Microwear analysis and other properties of these sites suggest that they were used as seasonally occupied camps. Their closeness to the earthworks argues against the idea that these public works were uninhabited.

The purpose of this paper is to review the archaeological investigations of Everett Hale at the Newark Earthworks. Apart from a summary treatment by Lepper (1988) and Pacheco (1988), this work has not heretofore been presented in a widely accessible form. The Newark expressway sites warrant the attention of students of Hopewell archaeology. The evidence for Hopewellian habitation sites in such close proximity to a major earthwork complex casts doubt on the very idea of a vacant ceremonial center. The present volume offers an opportunity to review these important data in the broader context of Hopewell settlement archaeology.

This paper goes beyond a simple review and includes the results of a microwear analysis of lithic artifacts and radiocarbon dates for features from the Newark expressway sites. These data contribute to our understanding of the role played by the great earthwork complexes in Hopewell societies.

The Newark Earthworks

The reports of my death are greatly exaggerated.

—Mark Twain

There have been few scientific explorations undertaken at the Newark Earthworks in spite of the long-recognized preeminence of this site as the largest complex of geometric earthworks ever built in Ohio (Lepper 1988). One reason for this neglect is the long-standing and widespread assumption that virtually all evidence of a prehistoric presence here was obliterated (or at least hopelessly compromised) by Euro-American development in the early nineteenth century. This assumption was a logical extension of the progressive destruction of the mounds and embankments of the Newark complex throughout the nineteenth century (compare Figs. 7.1 and 7.2).

The devastation wrought upon the earthworks was graphically portrayed in emotional appeals for the preservation of the site: "The ancient lines can now be traced only at intervals, among gardens and outhouses. . . . A few years hence, the residents upon the spot will be compelled to resort to this map [Fig. 7.1], to ascertain the character of the works which occupied the very ground upon which they stand" (Squier and Davis 1848:71). "The 'Octagonal Fort,' . . . is suffering a vandalism much more destructive. . . . The circular wall . . . has been torn up by the plow. . . . A wagon road is biting off a portion of the octagonal walls on the other side, and ambitious potato patches are creeping over them wherever it suits their convenience. In a few more years the complications of this truly wonderful structure . . . will be wholly destroyed" (Fulton 1868).

The authors might have expected such accounts to awaken the sympathies of a neglectful citizenry. Indeed, ultimately the Great Circle as well as the Observatory Circle and Octagon were acquired and preserved by the Ohio Historical Society, but the square enclosure, the burial mounds, the numerous small circular earthworks, and the parallel walls that connected the major enclosures were plowed flat, dug through, and forgotten. Yet, contrary to an-

tiquarian hyperbole, they were not utterly destroyed. Although little could be seen from the surface, much of Hopewellian Newark slept beneath a veneer of nineteenth-century architecture: "Everywhere we seem to be walking upon the dust of the departed. The workmen engaged in excavating for the building of the Agricultural Works in West Newark, and at a point where it is said some ancient mounds were removed years ago, found portions of a human skeleton and a stone image supposed to be of ancient manufacture" (Dragoo and Wray 1964:197, quoting from an 1881 Newark newspaper).

The Newark Expressway Project

In October 1977 consultant archaeologist Everett E. Hale initiated an archaeological reconnaissance of the proposed corridor for the Newark expressway project (LIC 79-12.55). Hale's literature review was perfunctory, though he did recognize that the project would cross the heart of Ohio's "largest and most elaborate" Hopewellian earthwork complex (Hale 1978:9).

After a brief review of a few early maps of the Newark Earthworks, Hale (1980:13) claimed that "no early site plan is any more accurate or useful today than [*sic*] any other site plan." This is an odd claim. Belt's (1925) cartoonish sketch for a newspaper article clearly is not as useful today as are the scholarly efforts of Whittlesey, Squier, and Davis (1848) and Wyrick (1866). Moreover, at another point in his review, Hale noted that Wyrick's rendering of "the north and south parallel mounds near the entrance to the Great Circle are much more representative of the extant mounds than are the parallels drawn by Squier and Davis" (Hale 1980:7). Instead of concluding that Wyrick's map was more accurate in representing this feature, Hale alleged that the reason why the modern converging walls do not closely match those drawn by Squier and Davis (1848) is that the present configuration reflects "the handiwork of the W.P.A. laborers" who assisted in the restoration of the earthworks at Moundbuilders Park (Hale 1978:15; 1980:12). Hale referred to discussions with Charles Frizzell, a lifelong resident of Newark, who "witnessed the W.P.A. restoration" of the park, and he further states that Frizzell "argued that the North Parallel Mound inside the memorial did not exist prior to the W.P.A. work" (Hale 1978:14-15). However, Frizzell indicated to Lepper (personal interview, May 3, 1988) that he never told Hale that the north wall did not exist in the 1930s, merely that it was much reduced and that the restorations had been extensive. This statement is supported by the blueprints prepared for the W.P.A.

restoration work, which are on file at the Ohio Historical Society and which had been viewed by Hale (1978:15).

Hale's cursory literature review and the interpretations he drew from his limited background research indicate that, from the earliest phases of the project, he was working under the assumption that the Newark Earthworks, and any associated archaeological record, had been destroyed and that the remnants which had been preserved in archaeological parks were, more or less, the products of modern reconstruction efforts (Hale 1980:12). This assumption was to be challenged at every subsequent stage of Hale's field work, but he never abandoned it. Hale's methods, interpretations, conclusions, and recommendations were all colored by this unfortunate misconception.

Methods

Archaeological investigations along the "proposed" corridor of the Newark expressway were preceded by the razing of houses and other modern structures within this corridor. It is regrettable that this extensive landscape modification occurred prior to the initial archaeological reconnaissance. The bulldozing, cutting, and filling must have destroyed much, if not most, of the surviving archaeological record within the corridor; it certainly did make Hale's job more difficult.

Hale began his investigation of the LIC-79 corridor with a futile surface examination of a 1 percent random sample of real estate lot parcels that had been "freshly dozed exposing large portions of bare earth" (Hale 1978:15). In addition, the affected portions of Moundbuilders State Memorial and White Athletic Field were walked, although the vegetation had not been cleared from these areas. Those lot parcels that had not been "freshly dozed" were "shovel tested," but the shovel testing only consisted of "cutting through the vegetation to view an area of top soil . . . from one to five square feet in area" (1978:16). For some reason, shovel testing apparently was never undertaken at White Field, where "the carpet of lawn grasses" with "no bare spots or erosion cuts" must have impeded "the search for artifacts" (1978:16). Therefore, the actual area subjected to adequate archaeological survey was far less than the 1 percent claimed by Hale. Not surprisingly, Hale concluded that "partially due to vegetation cover and partially due to recent churning up of the land in the razing process the examination of the sample parcels proved fruitless (1978:17).

Nevertheless, there were two important results of the 1977 field work. First of all, the "surface examination of the corridor did reveal that the original land contours are amazingly well preserved considering the extent of the modern occupation" (1978:17). Secondly, a 2 x 10 ft (.61 x 3.04 m) trench was excavated adjacent to the Wright Earthworks State Memorial on a line that would intersect the projected northeastern wall of the square enclosure. This was done in order to see if subsurface remnants of the wall were preserved beneath the disturbed surface. Hale encountered "stratified zones of light orange clay, dark brown clay, and light brown clay . . . approximately on line with the reconstructed Wright linear mound" (Hale 1978:19). From this evidence Hale concluded that "mound fill was indeed touched upon" (1978:19).

The report of the 1977 investigation was completed in May 1978. Hale concluded that "surface indications of aboriginal occupation in the areas not protected by the state are non-existent" and the earthworks preserved at Moundbuilders and Wright Earthworks State Memorials had been extensively reconstructed with questionable accuracy (1978:20). Nevertheless, he recommended "an extensive sub-surface sampling of the corridor to ascertain whether or not the apparent mound profile in the test trench is: one, cultural and not natural in origin; two, part of a series of mounds and not a unique survival among the Twentieth Century disturbance" (1978:21).

The next phase of field work began in October 1978 and continued in spurts until January 1980. It consisted of apparently haphazard backhoe excavations at scattered locations along the LIC-79 corridor between Raccoon Creek and Moundbuilders State Memorial and a series of 1x1 m test units hand-excavated in the area of a parking lot proposed for Moundbuilders Park. The decision to use a backhoe was based on "the extensive amount of overburden brought in or shoved about during the right-of-way preparation process" (Hale 1980:16).

Based on Hale's 1978 recommendations for subsequent work along the LIC-79 corridor, it may be assumed that the backhoe excavations were concentrated in areas where he expected that remains of earthworks might possibly be found. Indeed, Hale encountered probable remnants of earthworks in three areas: adjacent to the Wright Earthworks where he uncovered the "stratified zones" of different colored clays in line with the restored wall of the square enclosure (1978:19); "in two trenches on opposite sides of Pine Street in the vicinity of Wright Mounds," where Hale described "a compact, fine grained, moisture resistant soil area" that appeared to have "a linear distribution" (1980:42); and "between Wilson Street and Malholm Street," near a concentration

of features, where he identified an extensive buried lens of "fire reddened soil and charcoal," which he asserted "was clearly pre-modern" (1980:43).

Nevertheless, Hale ultimately concluded that the excavations "did not locate mound fill or sub-mound structures" (1980:49): "Although some anomalous soils were found, there was *no suggestion* of the presence of earthworks in this part of the project area" (1980:55; emphasis added). Given the documented presence of an intricate series of earthworks in this area (Fig 7.1), it is surprising that these "anomalous soils" (Hale 1980:43) could be so easily dismissed as natural sedimentary structures without detailed soils analysis.

Feature Archaeology

In spite of the fact that in his previous report Hale had concluded that the "original land contours" of the project area were "amazingly well preserved" (1978:17), he asserts in the 1980 report that "the archaeology of Newark is feature archaeology, that is to say archaeology without the benefit of the original land's surface" (1980:53). This is how Hale justified the mechanical stripping of some areas, including at least one site "where the original ground surface has been preserved" (1980:45). When features were encountered, they were usually assigned a number, sometimes mapped and photographed, and then excavated. There was no apparent attempt to investigate the surfaces between the features, presumably because they had already been removed by the backhoe. Several artifacts were recovered outside of features. Usually these were collected from backdirt or from a disturbed surface, and only a single artifact, a projectile point, seems to have been piece plotted (Hale 1980:78). Two general concentrations of features were identified: we have named these Hale's House site (33LI252) and the Meridian Alley site (33LI260) (Figs. 7.1 and 7.2).

Hale's House Site (33LI252)

Hale's House site is a cluster of twenty-three cultural features situated approximately 150 m south of Raccoon Creek and approximately 120 m north and west of the enclosure surrounding the Cherry Valley Cluster of burial mounds (Figs. 7.1, 7.3, 7.4). The features include twelve postmolds, one hearth, one earth oven, one cylindrical pit, four basins, one shallow "hour-glass shaped" basin lined with pebbles and containing mica sheets (Hale 1980:40), one "large refuse pit"

(1980:44), one shallow irregular basin, and one "shallow pit" (1980:46). Patterns of superimposed features, diagnostic artifacts within features, and radiocarbon dates suggest that there were at least four separate occupations of the site including at least one Early Woodland component.

Feature 9a is the remnant of a postmold that was truncated by Feature 9b, the remnants of a hearth (Fig. 7.4). This postmold may be associated with three others (unnumbered) to form "a rough semicircle post pattern" with a shallow basin inside the structure. The hearth was constructed within the "prepared floor" (Hale 1980:45) of an apparently rectangular structure approximately 4.6 m on one side (see also Pacheco 1988:110). Therefore, the semicircular structure, or at least Feature 9a, must predate the rectangular structure.

A large refuse pit (Feature 3) was dug through the floor of the western edge of the rectangular structure apparently obliterating several postmolds. Finally, a postmold (Feature 12) intrudes into Feature 3. Although mica and other artifacts are present within the fill of this postmold, Hale mentions the possibility that this might be a historic postmold (1980:44-45).

Hale collected numerous charcoal samples from the various features and stated that several were "submitted to the laboratory at the University of Georgia" (1980:25). In fact, this never happened.

Lepper obtained the LIC-79 project collections from Hale in 1988 and arranged for three charcoal samples from features at Hale's House site to be processed. Feature 10, a deep earth oven that contained no artifacts other than fire-cracked rock, dates from $2,670 \pm 70$ B.P. (Beta-27446). Feature 15, a shallow basin that contained mica, Middle Woodland ceramics, a "cache blade" and other lithic artifacts (Hale 1980:28, 34, 38, 40) dates from $1,845 \pm 60$ B.P. (Beta-28062/ETH-4593). Feature 1, the "hour-glass shaped pit" that was covered with a layer of mica sheets (Hale 1980:40-41) dates from $1,640 \pm 90$ B.P. (Beta-58450).

Hale recovered numerous sherds of local Scioto Series Middle Woodland ceramics and four others which he classed as exotic "sand tempered" Southeastern Series (1980:38). Recently, James Stoltman (personal communication) determined that these exotic sherds actually were tempered with ground granite from an as-yet-undetermined source in North Carolina.

Hale's House site has been a locus of human occupation since Early Woodland times, but certainly the most intensive use of the site occurred during the Middle Woodland period. The close proximity of the site to the Newark Earthworks is a forceful argument that the activities undertaken here relate, in some way, to the use of this giant complex of geometric earthworks.

The Meridian Alley Site (33LI260)

The Meridian Alley site is a small cluster of four features situated very near, and quite possibly within, what were once, two converging earthen walls (Figs. 7.1 and 7.3). These walls were a part of the network of earthworks that connected the square enclosure and the burial mounds. There are no longer any visible traces of these walls, but Hale did encounter a buried lens of "fire reddened soil and charcoal" in this area (1980:43).

Two of the features are apparently sterile, shallow basins. Feature 17 is a shallow basin containing some mica and the basal fragment of a "cache blade" (1980:40, 34). Finally, Feature 18 is a postmold that contained some mica flakes in the fill (1980:44). Hale noted very few artifacts from this locality, yet five projectile points and one bladelet were collected.

The Meridian Alley site is much smaller than Hale's House site with evidence for only an ephemeral occupation. Its proximity to the walls of the Newark Earthworks suggests a function directly connected with the special activities taking place within the earthworks.

Microwear Analysis

In all, Hale recovered 1,354 lithic artifacts from the LIC-79 sites (Table 7.1); 78 of these, principally from Hale's House site (33LI252), were examined for microwear traces. The focus of this study is on the function of the Middle Woodland artifacts from the sites (particularly the bladelets) and a comparison of the activity patterns at these sites with activity patterns that have been reconstructed at other small Middle Woodland sites in the Upper Ohio River Valley (Yerkes 1990). Although the microwear sample included only 78 (6 percent) of the lithic artifacts (Table 7.1), 95 percent of the formal tools that were available for study (points, bifaces, bladelets, cores, and scrapers) were examined, along with 13 percent of the retouched flakes and 1 percent of the unretouched flakes. Microwear analysis revealed that 14 percent of the examined pieces had been utilized. It should be noted that most of the 1,223 unretouched flakes from the project were small flint chips, whose greatest dimension was less than 2 cm, or blocky, amorphous pieces of chert. Prior studies of chips and chunks like these revealed that they represent flint knapping debris and do not provide much functional information (Yerkes 1987:117; 1990:172). Consequently,

only 13 large unretouched flakes were included in the microwear sample; and microwear traces were observed on only one of these objects. As for the three points that were available for study (six cataloged points and some other specimens are missing from the collection), two were bases of points that seem to have been broken in manufacture or during use as projectiles (as indicated by impact fractures).

Hale's House Site (33LI252)

Two putative structures and their associated features were excavated at the Hale's House site. Only a single unretouched flake was recovered from the floor of the rectangular structure, while two unretouched flakes were found in the hearth fill. All of these artifacts were deemed too small for inclusion in the microwear sample. Feature 15, the shallow basin dating from $1,845 \pm 60$ B.P., contained 39 percent of the lithic and 73 percent of the ceramic artifacts found in the features at the Hale's House site. The large oval refuse pit (Feature 3) accounted for 29 percent of the lithic and 25 percent of the ceramic artifacts from these features. Most of the lithic artifacts (94 percent) from Feature 15 were small unretouched flakes, and none of these was examined for wear traces. However, all three bladelets found in the fill of Feature 15 were included in the microwear sample. In addition, a total of 33 (29 percent) of the 115 lithic artifacts from Feature 3 were included in the microwear sample.

A cylindrical pit (Feature 2) was located northeast of the structures. Three bladelets, representing 14 percent of the 21 artifacts recovered from the pit fill were examined for microwear traces. One retouched flake and 26 unretouched flakes were found in the remaining pits and postmolds of the Hale's House site. The retouched flake was not available for study, and the unretouched flakes were cataloged as recovered from the plowzone above the features at 33LI252. An additional 149 chipped stone pieces were recovered from the excavation backdirt. A total of 163 lithic artifacts were collected from the surface of Parcels 866 and 867, and 9 stone implements were found in an apparent midden deposit that Hale referred to in his notes as the "ash and trash" layer of the site. Two bifaces, one scraper, one core, twenty-four bladelets, two retouched flakes, and two unretouched flakes from these surface, plowzone, and backdirt contexts were included in the 33LI252 microwear sample (Table 7.3).

Meridian Alley Site (33LI260)

Only a single bladelet from the plowzone at the Meridian Alley site was included in the microwear sample. The five points and one biface from the site were not available for study, and the flakes from the site may have been produced during pre- or post-Hopewell occupations of the site.

Methods of Microwear Analysis

The artifacts were examined under incident light at magnifications of 50x, 100x, 200x and 500x using the "high-power" microwear technique developed by Keeley (1980). This method involves the examination of microwear polishes, striations, and edge damage in order to determine the area of a tool that was used, the method of tool use, and the material that was worked. Functional interpretations are based on comparisons between the wear traces that form on experimental tools used for specific tasks and wear traces observed on the artifacts. The method has been evaluated through a series of "blind tests" (Bamforth 1988; Keeley and Newcomer 1977) and successfully applied in over one hundred studies of stone tool function in both the Old and New Worlds (Bamforth 1988; Juel Jensen 1988; Yerkes 1987, 1990; Yerkes and Kardulias 1993).

Results

None of the bifacial tools (points and bifaces) or cores in the microwear sample showed visible edge-wear traces (Table 7.3). Hale remarked that most of the points from the site were "abandoned during the process of manufacture or remanufacture" (1980: 36). From the illustrations in the site report (Hale 1980: Pls II and III), it appears that some of the points that were not available for the microwear study may have broken during manufacture or resharpening, while others seem to exhibit impact fractures that occurred when the points were used as projectiles. The only point examined in the present study was a broken corner notched point from Feature 3 at Hale's House site (cat # 375). This point was snapped at the base and at the tip, possibly reflecting breakage on impact. One of the lateral edges shows fine retouch above the corner notch; this seems to be the "original" edge of the point. The other lateral edge has

been removed by what appears to be hard-hammer percussion. This suggests that the point was being reworked, but there is no evidence that it was used as anything other than a projectile point.

Hale classified three bifaces from these sites as "cache blades" (1980:34). One of these was available for study: a broken specimen, both halves of which (cat. #84 and #101) were found in the plowzone at Hale's House site. Microwear analysis revealed only technological traces on the edges of this biface. It may have broken during manufacture as suggested by Hale (1980:34). Two bifaces found in the fill of Feature 3 were examined (#269 and #281); neither had been utilized, nor had a biface from the surface of the Hale's House site (cat. #474). All bifaces examined seem to have been preforms that were broken during manufacture, rather than bifacial knives or other finished tools.

The end scraper found in the "ash and trash" layer at the Hale's House site was a broken piece of black-grey chert (cat. #392, Hale 1980: Pl. VII). The unifacially retouched distal edge displays wear traces indicating that it had been used to scrape fresh hide, but the limited degree of edge rounding and weak edge polish suggests that the tool had not been used extensively. A retouched flake from Feature 3 (cat. #210) also had been used to scrape fresh hide, but the wear traces on this implement were more developed (Fig. 7.5). An unretouched flake from Feature 3 (cat. #280) had been used to cut and scrape fresh hide or meat. All of these implements seem to have been used as expedient tools in butchering and skinning activities at Hale's House site.

Another retouched flake from the fill of Feature 3 (cat. #326) was used to scrape dry hide, but the wear traces on this implement are quite faint. A unifacially retouched flake from the plowzone above Feature 3 (cat. #11) also had weak dry hide polish on one of its lateral edges, while a notch in the opposite lateral edge seems to have served as a spoke shave used on bone or antler (Fig. 7.5). The evidence indicates that hide, bone, and/or antler were being worked at the Hale's House site with expedient and more formal tools.

Hopewell Bladelets

The single bladelet core and all fifty-one of the bladelets available for study were included in the microwear sample (Table 7.4). Analysis revealed that the core was not used for any task other than bladelet production. Metric analysis of the fourteen complete and thirty-seven fragmentary bladelets (including three refitted fragments) was undertaken. Mean length (41.5 mm), width

Dancey (1991:39) and Pacheco (1988, chapter 2) claim that Middle Woodland remains in Licking County, Ohio, are organized in the manner proposed by Prufer. However, there is little convincing evidence that Hopewell "hamlets" like the Murphy site were occupied year-round or that the Newark "ceremonial center" was vacant. The excavations at the Murphy site exposed food preparation and refuse disposal areas, but neither deep storage features nor substantial structures were found (Dancey 1991; Yerkes 1990). It should be noted that structures and storage pits were not exposed at other Hopewell "hamlets" such as Jennison Guard (Kozarek 1987) and McGraw (Prufer 1965), although the excavated areas at those sites were much more limited. The available evidence from the Murphy site suggests that it was occupied seasonally by small groups over a three-hundred-year period. None of the features, artifacts, floral or faunal material from the site demonstrates that it represents a sedentary "hamlet" (Yerkes 1990).

Limited excavations at the Fort Ancient site by Essenpreis and Connolly (1989) revealed dense concentrations of Hopewell structures and features (Connolly, chapter 10). This suggests that permanent habitation areas existed adjacent to that Hopewell enclosure. This work calls into question the notion that the Hopewell earthworks were vacant ceremonial centers, but how do the data from the Newark expressway sites relate to these opposing models of Hopewell settlement systems?

The Hale's House site (33LI252), located just outside of the major earthen enclosures at Newark, contains domestic refuse and evidence for repeated short-term occupations, although artifacts as well as floral and faunal remains that could serve as precise seasonal indicators are lacking. The presence of specialized features, such as the "hour-glass shaped" basin and exotic lithic and ceramic artifacts, suggests that some activities were related to the performance of rituals and to the exchange of valued items. However, the site is neither a specialized mortuary camp, as Prufer's model would suggest, nor a "factory workshop," as proposed by Hale (1980:52). The likeliest interpretation of the Newark expressway sites is that they represent ordinary domestic loci occupied for part of the year by Hopewell social groups who came to the Newark Earthworks for their periodic "rites of passage" and other special events (cf. Greber, chapter 8; Yerkes 1995). The Hale's House site does not represent a distinct settlement type, it is the functional equivalent of the Murphy site and conceivably could have been occupied, at one time or another, by the same social groups. The low density and scattered nature of the features at sites like Hale's House and Murphy suggest that they were only occupied briefly. There

is no evidence for substantial structures at these Newark localities that are similar to what was found at Fort Ancient. Nor are there any clear indications that the occupation of a "dispersed hamlet," like the Murphy site, was any more sedentary than the occupations more directly associated with the earthworks at Newark. There is markedly less overlap of features at the Murphy site, but the range in radiocarbon dates (Dancey 1991:50) could indicate that there were multiple reoccupations at this locality as well. It is also likely that the locations favored for habitation adjacent to the earthworks were more limited and easier to relocate from year to year. Therefore, a greater degree of feature overlap could be expected at Newark.

The microwear analysis at both the Murphy and Hale's House sites revealed that expedient tools (including bladelets) were used briefly for a variety of tasks and then discarded. This pattern of tool utilization has been documented at temporary camp sites and seasonally occupied settlements (Yerkes 1987, 1989). Tool assemblages from sedentary farmsteads, hamlets, and villages could be expected to include heavily used, curated implements whose entire useful life was spent at these kinds of permanent habitations. These are just the kinds of tools that are missing from the Murphy and LIC-79 assemblages.

The most important conclusion to be drawn from this reconsideration of Hale's investigation of the Newark expressway corridor is that archaeologically discernible traces of the Newark Earthworks and related occupation loci are preserved, even in developed sections of urban Newark. It is tragic that so much of Newark's ancient greatness has been lost, but it is even more unfortunate that the real and potential archaeological data remaining at Newark and similar sites could be ignored or dismissed by those entrusted with their preservation and study.

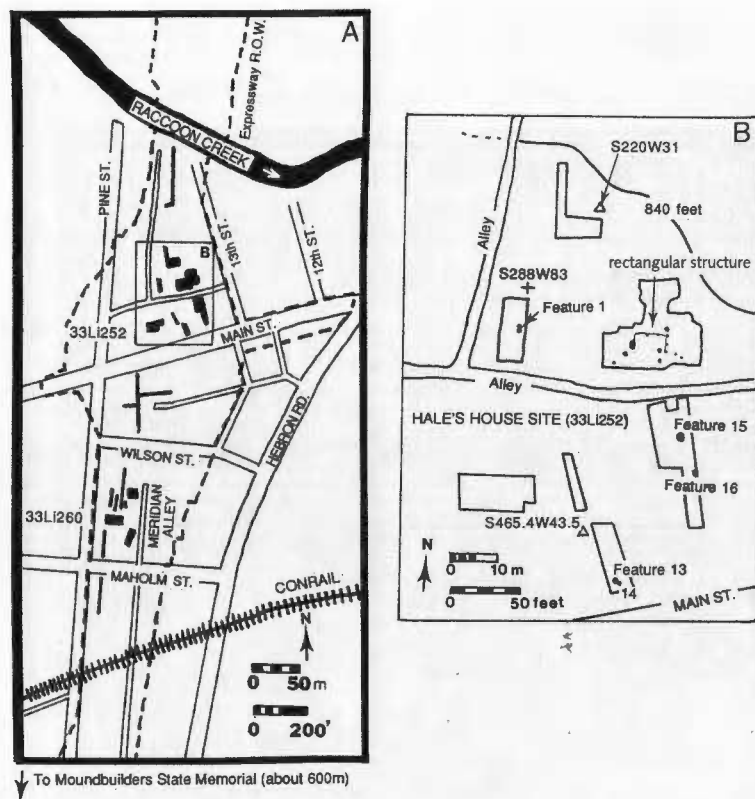
Acknowledgments

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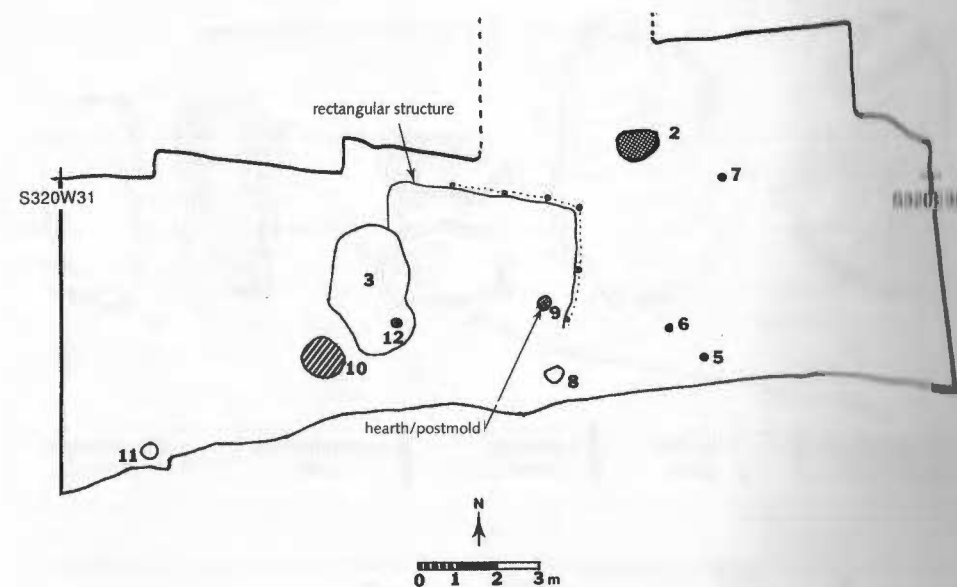


7.1 A portion of the Whittlesey, Squier, and Davis map of the Newark Earthworks with locations of (a) Hale's House (33L1252) and (b) Meridian Alley (33L1250) sites. After Squier and Davis (1848).

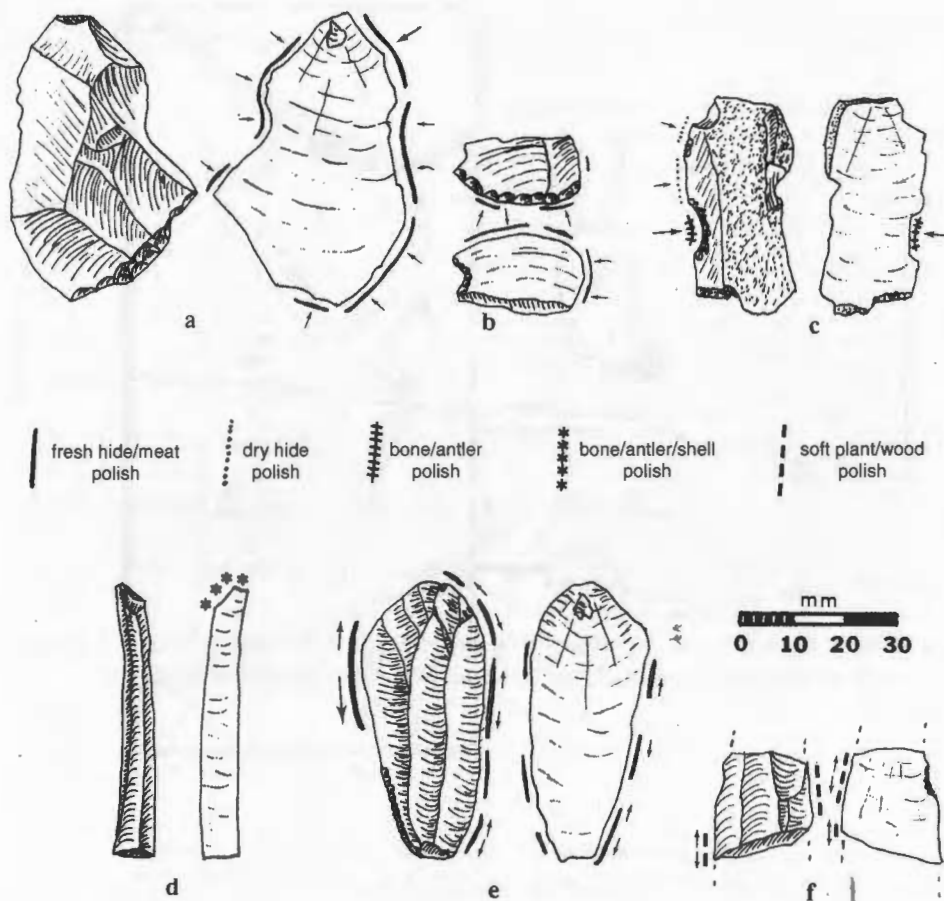




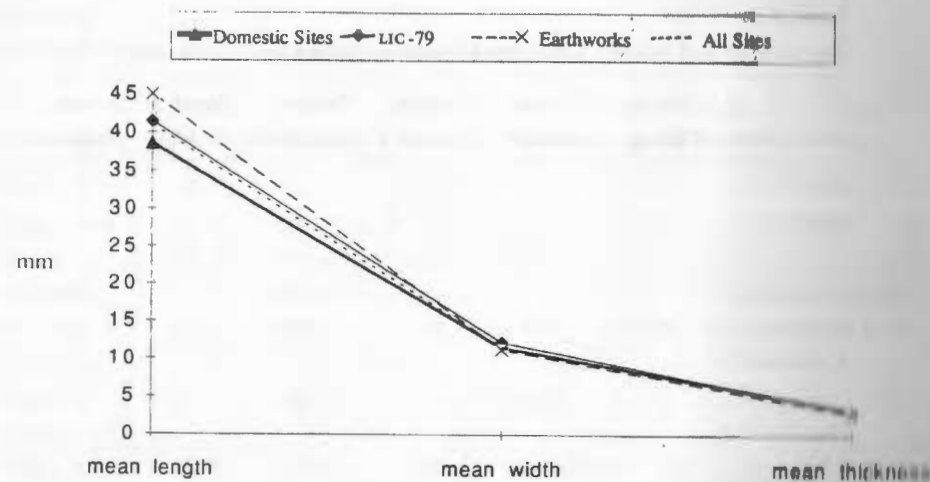
7.3 A: Location of the Hale's House (33LI252) and Meridian Alley (33LI260) sites. Excavated areas shown in black. B: Enlargement of Hale's House site. Adapted from Hale (1980).



7.4 Features associated with rectangular structure at Hale's House site (33LI252): (1) irregular basin; (3) refuse pit; (8 and 11) basins; (10) earth oven. Other features are postmolds.



7.5 Microwear examples of utilized tools from 33L1252. Arrows indicate direction of use. Stippled areas represent cortex. (a) retouched FRF flake from Feature 3; (b) broken FRF or UM end scraper from "ash and trash" layer; (c) retouched UM(?) primary flake from plowzone above Feature 3; (d and e) Wyandotte chert bladelets from Feature 3; (f) FRF bladelet from surface of Parcel 866-7.



7.6 Metrics of Ohio Hopewell bladelets from six domestic and six mound or earthwork sites compared with mean values for LIC-79 sample. Note that the LIC-79 sample measurements are close to mean values for all twelve sites and fall midway between values for bladelets from "ceremonial" and domestic contexts. Data taken from Table 7.5.

Table 7.1

The 33L1252 and 33L1260 Combined Microwear Sample

<i>Artifact Type</i>	<i>Total in Catalog</i>	<i>Number Available^a</i>	<i>Number Examined</i>	<i>Percent Examined^b</i>	<i>Number Utilized</i>	<i>Percent Utilized</i>
Points	9	3	1	33	0	—
Bifaces	7	5	4	80	0	—
Cores	2	1	1	100	0	—
Scrapers	3	1	1	100	1	100
Bladelets	51	51	51	100	6	12
Retouched flakes	59	56	7	13	3	43
Unretouched flakes	1223	1223	13	1	1	8
TOTAL	1354	1339	78	6	11	14

^aA total of six points, two bifaces, one core, and two scrapers had been removed from the artifact collection to be drawn and were not available for study when the microwear analysis was conducted. In addition, three retouched flakes were missing from the collection. Three of the bladelet fragments could be refitted to other bladelet fragments (see Table 7.4).

^bPercent of the available artifacts that were examined.

Table 7.2

The Hale's House Site (33L1252) Microwear Sample

<i>Artifact type</i>	<i>Found in Features</i>	<i>Found in Plowzone</i>	<i>Found in Backdirt</i>	<i>Site Total</i>	<i>Available for Study</i>	<i>Number (%) Examined</i>	<i>Number (%) Utilized</i>
Points	2	3	—	5	3	1(33)	0
Bifaces	4	3	—	7	5	4(80)	0
Cores	—	2	—	2	1	1(100)	0
Scrapers	1	1	1	3	1	1(100)	1(100)
Bladelets	25	18	7	50	50	50(100)	6(12)
Retouched flakes	22	29	5	56	56	7(18)	3(43)
Unretouched flakes	351	307	136	794	794	13(2)	1(8)
TOTAL	405	363	149	917	910	77(8.5)	11(14)

Table 7.3

LIC-79 Microwear, Cores, Bifaces, Flakes

Catalog No.	Length	Width	Thickness	Raw Material	Notes	Microwear	Provenience
<i>Bladelet core</i>							
93	43.1	51.4	27.6	Flint Ridge	multiple platform	not used	PZ, S288-320W 1.0-E20
<i>Bifaces</i>							
84/101	68.9	47.1	10.5	Flint Ridge	refits, broken cache blade	not used	PZ, S288-320W 1.0-E20; S266-240W31-55
269	51.4	28.4	10	Flint Ridge	broken	not used	Fea. 3, Unit 5, Level 1
281	70.3*	28.2	9.3	Flint Ridge	broken	not used	Fea. 3, S320-346, W31-E38
375	48*	27.1*	7.6	Grey Chert	broken corner notch point	not used	Fea. 3, S320-346, W31-E38
474	43.2*	17.5*	9	Upper Mercer	fragment	not used	Parcel 866 Surface
<i>End scrapper</i>							
392	14.6*	24.8	3.2	FRF/UM?	broken, light use	scraping fresh hide	Ash and Trash, 2 feet b.s.
<i>Retouched flakes</i>							
11	43	21.3	7.3	Upper Mercer	notched flake, light use	scraping dry hide, bone/antler	PZ, S320-346, W31-E38-above Fea. 3
210	55.1	37.2	8.6	Flint Ridge	—	scraping fresh hide	Fea. 3, S320-346, W31-E38
261	28	13.6	6	Grey Chert	—	not used	Fea. 3, Level 1, S323-324, W2.4-W18

Table 7.3 Cont'd

279	34	30	—	—	—	abrasion	Fea. 3, S320-346, W31-E38
326	46	35	—	—	light use	scraping dry hide	Fea. 3, S320-346, W31-E38
366	60	24	—	—	—	not used	Fea. 3, S320-346, W31-E38
389	40	34	—	—	—	not used	PZ, S465.5-523.5
<i>Unretouched flakes</i>							
168	30.4	21.1	5	Knife River	cortex	not used	Fea. 3, Level 1&2, S320-346, W31-E38
197	59	30	—	—	cortex, primary flake	not used	Fea. 3, Level 2, S320-346, W31-E38
255	32.4	30.2	11.6	Flint Ridge	—	edge damage	Fea. 3, Level 1, S323-324, W2.4-W18
260	15	13	—	—	cortex, primary flake	not used	Fea. 3, Level 1, S323-324, W2.4-W18
280	50	36	—	—	—	cutting, scrapping fr. hide/meat	Fea. 3, S320-346, W31-E38
301	30	28	—	—	—	not used	Fea. 3, S320-346, W31-E38
302	27	24	—	—	—	not used	Fea. 3, S320-346, W31-E38
364	34.5*	20.3	3.4	Flint Ridge	"blade-like flake"	not used	Fea. 3, S320-346, W31-E38
371	48	26	—	—	—	not used	Fea. 3, S320-346, W31-E38
373	44	24	—	—	—	not used	Fea. 3, S320-346, W31-E38
381	28	25	—	—	—	not used	PZ, S465.5-523.5
386	44	24	—	—	—	not used	PZ, S465.5-523.5
405	19	9	—	—	water rolled?	not used	Fea. 3, S320-346, W31-E38

*broken

Table 7.4

LIC-79 Bladelets

Catalog No.	Platform Scars	Heat Treatment	Raw Materials	Notes	Microwear	Provenience
16/270	—	potlids	Flint Ridge	burned	abrasion edge damage (e.d.)	PZ; Unit 5, Fea. 3, L.1 refit
21	2 short	—	Wyandotte	cortex	—	PZ: S320-346, W31-E38
30	—	—	Wyandotte	—	—	PZ: S320-346, W31-E38
34	—	luster	Flint Ridge	—	abrasion, e.d.	PZ: S320-346, W31-E38
59	—	—	Wyandotte	retouched	edge damage	PZ: S320-346, W31-E38
186	3 short	—	Wyandotte	retouched	abrasion, e.d.	Feature 3, Level 2
188	—	luster	Wyandotte	broken	incising bone/ant./shell	Feature 3, Level 2
190/196	—	—	Wyandotte	retouched	abrasion	Feature 3, Level 2
191	1 short	luster	Wyandotte	—	abrasion, e.d.	Feature 3, Level 2
193	4 short	luster	Wyandotte	—	—	Feature 3, Level 2
194	—	—	Wyandotte	—	—	Feature 3, Level 2
195	—	luster	Knife River	cortex	edge damage	Feature 3, Level 2
237	2 short	luster	Flint Ridge	—	—	Fea. 2, S320-346, W31-E38
249	1 long, 3 short	—	Wyandotte	pointed	—	Fea. 2, S320-346, W31-E38
251	1 long	—	Wyandotte	cortex	—	Fea. 2, S320-346, W31-E38
256	—	luster	Flint Ridge	—	abrasion, e.d.	Unit 5, Fea. 3, Level 1
259	3 long, 1 short	luster	Wyandotte	—	cutting meat, e.d.	Unit 5, Fea. 3, Level 1

Table 7.4 Cont'd

267	—	—	Wyandotte	—	e.d. hide? traces	Unit 5, Fea. 3, Level 1
273	3 short	luster	Wyandotte	—	abrasion, bag damage?	Fea. 3, S328-346, W31-E38
276	—	—	Wyandotte	—	—	Fea. 3, S328-346, W31-E38
277	3 long, 2 short	—	Wyandotte	—	abrasion	Fea. 3, S328-346, W31-E38
303	—	—	?	—	—	Fea. 3, S328-346, W31-E38
312/217	—	—	Wyandotte	—	—	Fea. 3, S328-346, W31-E38
369	—	—	?	—	—	Fea. 3, S328-346, W31-E38
382	—	luster	Flint Ridge	—	abrasion	PZ: S465.5-523.5
399	—	luster	Flint Ridge	—	—	Backdirt: S320-346, W31-E38
421	—	—	Flint Ridge	—	—	Fea. 15 Surface
428	3 short	luster	Flint Ridge	—	red pigment?	Backdirt: S378.5-428, W1.0-E
464	—	luster	Wyandotte	—	abrasion	Surface
471	3 short	luster	Wyandotte	—	edge damage	Surface
477	—	luster	Wyandotte	—	abrasion	Surface
520	—	luster	Flint Ridge	—	cutting meat?	Backdirt: S378.5-428, W1.0-E
565	2 short	—	Flint Ridge	—	—	Backdirt: S378.5-428, W1.0-E
600	—	luster	Flint Ridge	—	edge damage	Backdirt: S378.5-428, W1.0-E
613	—	luster	Flint Ridge	—	—	Backdirt: S378.5-428, W1.0-E
629	—	luster	Flint Ridge	—	—	Backdirt: S378.5-428, W1.0-E
690	1 long, 1 short	—	Flint Ridge	—	abrasion	Fea. 15, S378.5-428, W1.0-E
846	1 long, 2 short	luster	Flint Ridge	polished	—	Fea. 15, S378.5-428, W1.0-E
959	—	luster	Flint Ridge	retouched	cutting soft wood/plants	Parcel 866-867 Surface

Table 7.4 Cont'd.

964	—	—	Wyandotte	light use	cutting meat/fresh hide	Parcel 866-867 Surface
1084	4 short	luster	Flint Ridge	—	edge damage	Parcel 866 Surface
1092	1 long	—	Flint Ridge	—	abrasion	Parcel 866 Surface
1105	3 long, 4 short	luster	Flint Ridge	—	—	Parcel 866 Surface
1121	3 short	luster	Flint Ridge	—	not examined	Parcel 866 Surface
1124	—	—	Flint Ridge	—	—	Parcel 866 Surface
1296	1 long, 2 short	crystals H.T.	Flint Ridge	retouched	abrasion, e.d.	Parcel 866 Surface
1343	—	—	Wyandotte	—	abrasion, e.d.	PZ: S1246.5 W165.5

Table 7.5
Bladelet Measurements

Ohio Hopewell Sites	Number of Cases			Maximum Dimension (Mean Value)		
	Length	Width	Thickness	Length	Width	Thickness
<i>Habitation/domestic sites</i>						
Liberty, domestic areas	213	1340	1335	37.6	11.98	3.32
Jennison Guard	—	112	112	—	10.06	2.53
Murphy (feature contents)	58	131	131	38.92	13.51	3.21
Whitacre	26	26	26	43.79	12.89	3.56
McGraw	60	233	—	39.65	9.66	—
Brown's Bottom	13	153	—	35.15	9.37	—
<i>Subtotal/mean</i>	370	1995	1604	38.5	11.5	3.3
<i>Mounds or earthworks</i>						
Capitoleum (mound fill)	15	60	60	34.78	12.31	3.16
Liberty, Location 30	92	266	271	50.59	10.87	2.89
Russell Brown Mound 2	12	12	—	40.25	11.58	—
Russell Brown Surface	5	213	—	44.5	11.53	—
Turner Mounds #1	43	43	—	45.58	11.37	—
Turner Mounds #4 (mound fill)	64	64	—	39.73	10.33	—
<i>Subtotal/mean</i>	231	658	331	45	11.2	2.9
<i>total/total</i>	601	2653	1935	40.97	11.4	3.2

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