

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29), WASHINGTON COUNTY, PENNSYLVANIA

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ABSTRACT

In 1962, Donald Tanner and others conducted test excavations at the Mathies Mine Mound (36WH29) in Washington County, Pennsylvania. The excavations showed that the mound consisted primarily of an earthen Early Woodland Cresap phase Adena burial mound, with a major tomb, two burials, and a crematory basin. In association with Burial 1 were a number of artifacts including a rare expanded bit stone tubular pipe, with carbonized residue adhered to the interior of the pipe. This residue recently tested positive for nicotine (Rafferty et al. 2012), indicating that a species of tobacco was smoked in the pipe. A deer bone fragment in association with Burial 1 was recently AMS dated to 2190 ± 20 rcy B.P. (ISGS-A1849).

While the primary burial mound was earthen and built in the Early Woodland period, the mound was used again late in the Middle Woodland period when the northeastern portion of the mound was capped with stone slabs. Fragmented humans remains of at least three individuals were recovered beneath the stone cap. Charcoal associated with Burial 5 from under the stone cap was AMS dated to 1630 ± 20 rcy B.P. (ISGS-A2178). This report presents Donald Tanner's discoveries during the 1962-63 investigation, as well as new data from the site.

INTRODUCTION

Site 36WH29 was recorded in 1951 by J. R. Simpson. At that time, this site number was assigned to a "mound cluster" of at least three (and perhaps up to seven) prehistoric Native American burial mounds located at an elevation of ca. 900 ft above sea level along a bench-like hilltop overlooking the Monongahela River and the mouth of Mingo Creek in Washington County, Pennsylvania (Fig. 1). According to documentation on file at Carnegie Museum of Natural History (CMNH), the site was known for over a century by a variety of names including the "Mathies Mine Mounds", the "Mathias Mounds", and the "Riverview Mounds." When the senior author visited the site in the early 1960s, only one mound was clearly visible (herein referred to as the Mathies Mine Mound). A small second mound was noted ca. 200 ft east of main mound, but was not investigated by the senior author. The other mounds on the site had either been covered in mine debris or destroyed by that time, as they were no longer visible in 1962. According to the PASS file at CMNH, the site was destroyed by bulldozers in the 1970s or 80s, although aerial photographs appear to show the area as undeveloped as of this time.

For the purposes of this report, the mound discussed in this report will be referred to as the Mathies Mine Mound (36WH29), as this was the name used by the senior author during excavations. The Mathies Mine Mound (36WH29) is not to be confused with the Mathies Mine Village site (36WH54) (Anonymous 1961); a multi-component site located about 100 feet northwest of the mound which included a Late Prehistoric Monongahela village. Both sites were located on property related to the Mathies coal mine owned by the Consolidated Coal Company.

The Mathies Mine Mound is also not to be confused with the Courtney Mound (36WH31), located on a hilltop one mile northwest of the Mathies Mine Mound. The Courtney Mound is presumed to be destroyed and was never scientifically excavated.

The purpose of this report is to summarize the findings from the excavations at the Mathies Mine Mound and to discuss new data from the site. This report is largely based on the senior author's original field notes, as well as his recollections. Many of the artifacts and some field notes are curated at CMNH. Some of these artifacts were recently reexamined. Closer study of these artifacts and the field notes would no doubt produce more information about the site.

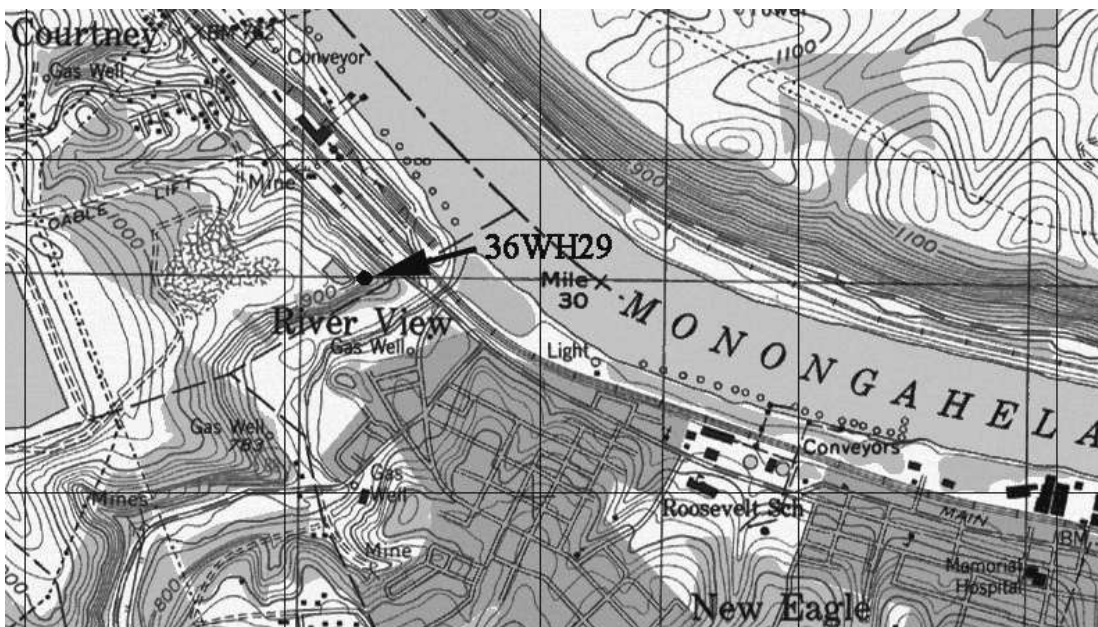


Figure 1. Topographic map showing the location of the Mathies Mine Mound (36WH29).

Some Important Corrections

Before proceeding to the site report, a few mistakes in the literature regarding this site need to be corrected. The first pertains to a unique copper awl; one of the most interesting prehistoric copper artifacts ever discovered in southwestern Pennsylvania. The artifact was excavated at the Mathies Mine Village site (36WH54) (Anonymous 1961:13-14). In 1992, Richard L. George (1992:5, Fig. 2) briefly discussed and illustrated the artifact, however, the provenience of the artifact was incorrectly stated as 36WH29 (under the name the Riverview or Courtney Mound). The senior author was present in 1961 when Mr. Marquis Gates and Lloyd Greene excavated this artifact and can testify that it came from the Mathies Mine Village site (36WH54), not 36WH29. As previously mentioned, 36WH54 was known primarily as a Late Prehistoric Monongahela village; however, there were also Early Woodland and Middle Woodland components at the site (Anonymous 1961:13). George's (1992) contention that the copper awl was a Hopewell artifact may be correct. However, in the future, the provenience of the artifact should be listed as site 36WH54, not 36WH29.

George (1992:Table 1) also listed mica as being recovered at site 36WH29. Three small mica fragments are curated at CMNH under catalog number E-1086 for site 36WH29. However, these mica fragments were collected by Ron Cottrell in 1976 at the low-lying mound ca. 200 feet to the east of the Mathies Mine Mound. Ron Cottrell (1976) requested a separate Pennsylvania Archaeological Site Survey (PASS) number be assigned to this mound, but it never received its own number or name. For the purposes of this report, we will refer to this mound as the "Cottrell Mound." A short report on the Cottrell Mound by Ron Cottrell (1976) is on file at CMNH under the number 36WH29. In this report, Cottrell (1976) noted that this mound included "a re-deposited cremation with two molar caps (adult) and a copper fragment (17 mg) from a copper foil bead." Cottrell (1976) also noted "an extended burial within the mound which was disturbed when a bulldozer cleared the cap." Even with this disturbance, Cottrell noted that the mound likely still contained "the primary burials" in 1976.

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29), WASHINGTON COUNTY, PENNSYLVANIA

3

The only diagnostic artifacts Cottrell recovered were grit-tempered pottery sherds. Cottrell (1976) implied that the mound he excavated was similar in construction to the Mathies Mine Mound. The ultimate fate of the Cottrell Mound is unknown, but it likely was later destroyed by bulldozer activity on the site. The remainder of this report will focus on the Mathies Mine Mound excavation.

HISTORY OF EXCAVATION

When the senior author visited the site in 1962, the Mathies Mine Mound (36WH29) was visible as an oblong mound measuring ca. 40 ft (13.9 m) from North to South and ca. 50 ft (15.2 m) from East to West (Fig. 2). The mound appeared to rise roughly four feet (1.2 m) above the surrounding surface. The area was wooded and several trees were growing on the site. Unfortunately, no photos of the site before excavations are known to exist.

In 1962, it was apparent that the mound had been disturbed by at least one previous excavation. An old excavation trench could still be observed which ran from the southeast to the northwest across a portion of the mound (Fig. 2). The senior author believes that this trench represents the work of amateur archaeologist George S. Fisher, who lived a short distance from the mound in the town of Finleyville. Fisher was well known for his investigations in southwestern Pennsylvania in the 1930s. Transcribed copies of Fisher's field notes indicate that he did excavate a mound on the hog-back terrace of the Mathies Mine Mound site. There is no record of what was recovered. A copy of his hand written notes and site numbers (ca. 1932) was copied in 1957 from a copy in the possession Dr. J.T. Herron, a veterinarian in Canonsburg, Pennsylvania, and later owned by Albert Miller of Avella, Pennsylvania. Miller's copy of Fischer's notes was given to the senior author in the late 1950s.

In August 1962, Donald Tanner (the senior author of this report, and at the time a Field Associate with CMNH), Ed Boss, Marquis Gates, Lloyd Greene, and Rudolph Katrencik (collectively known as Allegheny Chapter Survey Group #1 [ACSG#1]) began test excavations at the Mathies Mine Mound site. All of these individuals, with the exception of the senior author, are now deceased. The excavation began August 24, 1962 and continued sporadically on six Sundays until June 2, 1963. Following the excavations, the artifacts recovered were donated to CMNH.

In late 1963 and/or 1964, Rudolph Katrencik conducted some additional excavations in the northeastern portion of the mound. The results of this effort are largely unknown.

In 1970, a bulldozer cut across the mound during operations on the mine property. Mark Gates (who worked at the Mathies mine) called back the survey group to salvage the area exposed by the bulldozer cut. The artifacts from these excavations were also donated to CMNH.

As previously mentioned, in 1976 Ron Cottrell excavated a small burial mound (the Cottrell Mound) ca. 200 feet to the east of the Mathies Mine Mound, which never received its own site number. Consequently, when Cottrell later donated artifacts from the excavation to CMNH, they were mistakenly assigned to site number 36WH29. Artifacts from both Tanner's and Cottrell's excavations are cataloged at CMNH under the numbers: E1086, E2727, E4090, E4391, E4392, E4630–E4743. A careful examination of the donor records at CMNH would likely clear up the question of which artifacts came from the Mathies Mine Mound or the Cottrell Mound.

The remainder of this report will focus on the excavations conducted in 1962-63, and 1970, at the Mathies Mine Mound site (36WH29), as witnessed by the senior author. The junior authors of this report were not present at the excavation, but assisted in the preparation of this report.

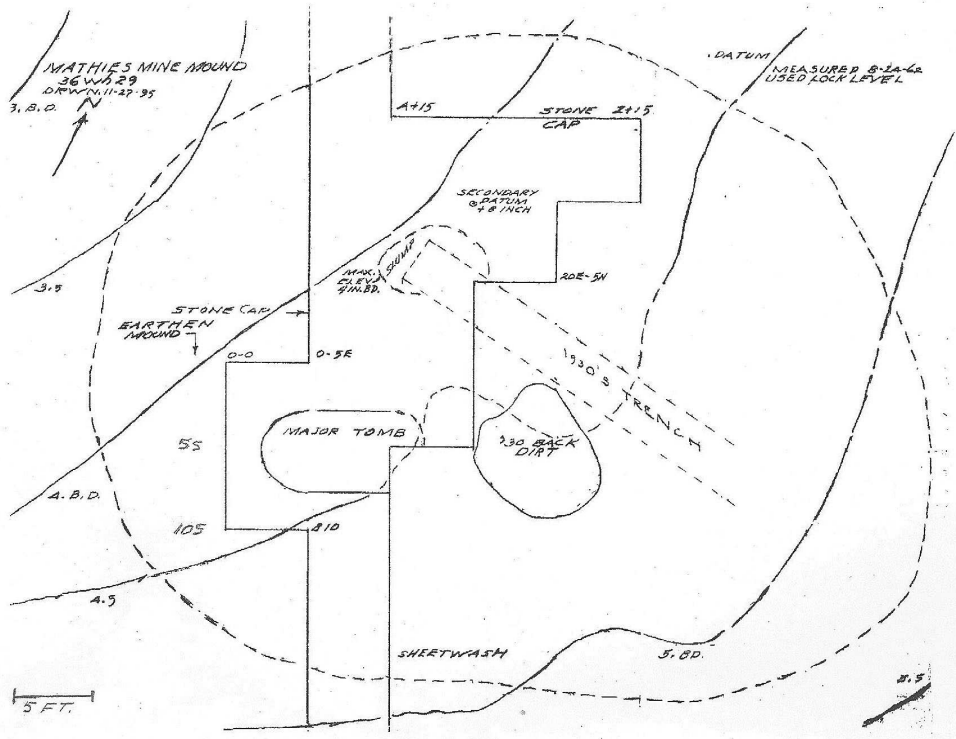


Figure 2. Plan view drawing by Donald Tanner of the Mathies Mine Mound. The oval shaped dashed line denotes the perimeter of the mound before excavations. Solid lines denote the area excavated by Allegheny Chapter Survey Group #1 in 1962-63.

EXCAVATION METHODOLOGY

In 1962, ACSV #1 began excavations at the Mathies Mine Mound by locating a datum on a cherry tree and measuring out a 5 ft (1.5 m) by 50 ft (15.2 m) test trench, divided into 5 ft² (1.5 m²) units (Figs. 2, 3). A lock level and line level was used to take measurements. The trench location was selected to cross cut the mound, while avoiding areas of previous disturbance (namely George Fisher's 1930s excavation trench, Fig. 2). Later, the datum was moved to a tree which was growing on the mound and was accidentally raised 8 inches (20.3 cm); a mistake which was not noted until after excavations were complete. Figures 4 and 5 show the test trench as it appeared in September 1962. Excavations began at the southern end of the trench and proceeded north (Units A30 through A+15). All excavations by ACSV #1 were conducted by hand using shovels and hoes. When features were encountered, excavations continued using small hand tools. All soil was dry screened through ¼ in (0.6 cm) mesh. Great care was taken to document the position of features and artifacts.

During the 1962-63 excavations, the test trench was expanded to include several adjacent 5 ft² (1.5 m²) units (Figs. 2, 3). In total, approximately 500 ft² (152.4 m²) were excavated in 1962-63. Unfortunately, the results of some of these excavations are unknown to the senior author, as other members of AGSG #1 conducted the excavations and the results were never shared. Therefore, most of the information in this report is based on results from the main 5 ft (1.5 m) by 50 ft (15.2 m) trench excavated when the senior author was present. Unit A15 of the original test trench was never excavated. When excavations ceased in 1963, a large portion of the mound remained unexcavated.

In 1970, ACGS #1 returned to the site, as a bulldozer had cut across the mound. At that time ACGS#1 salvaged information from the disturbed area which was ca. 10 x 20 ft (3 x 6.1 m) in size (Units A+10/B+10 to A+25/B+25). Even after this disturbance, undisturbed features likely remained in the mound. However, in subsequent years the site was apparently further impacted by bulldozers.

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29), WASHINGTON COUNTY, PENNSYLVANIA

5

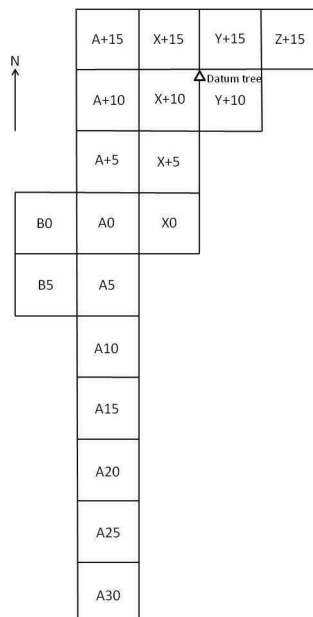


Figure 3. Excavation grid showing unit labels (5 ft² units) and the datum tree on the mound.

Figures 2 and 6 illustrate the mound's plan view and cross section based on excavations at the site. During these excavations, it became clear that the mound was constructed using two different techniques by two separate cultures, as will be described in this report. Although excavations were conducted "from the top down"; in this report the results will be presented "from the bottom up", as this was the way the mound was originally constructed.



Figure 4. The test trench on September 1962, looking north. Donald Tanner is in the background.

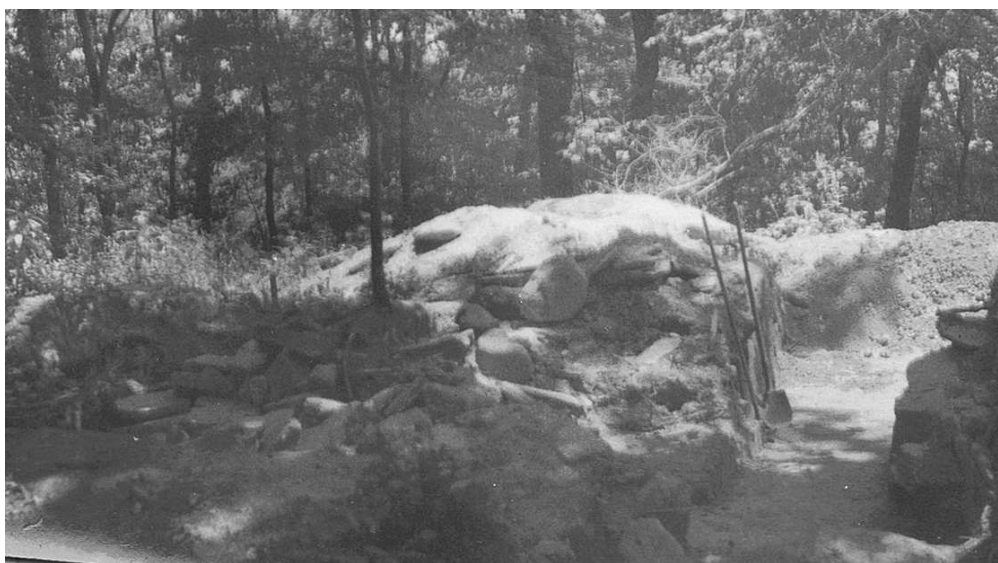


Figure 5. Test trench, looking south. The tree located to the left of the trench was used as the datum.

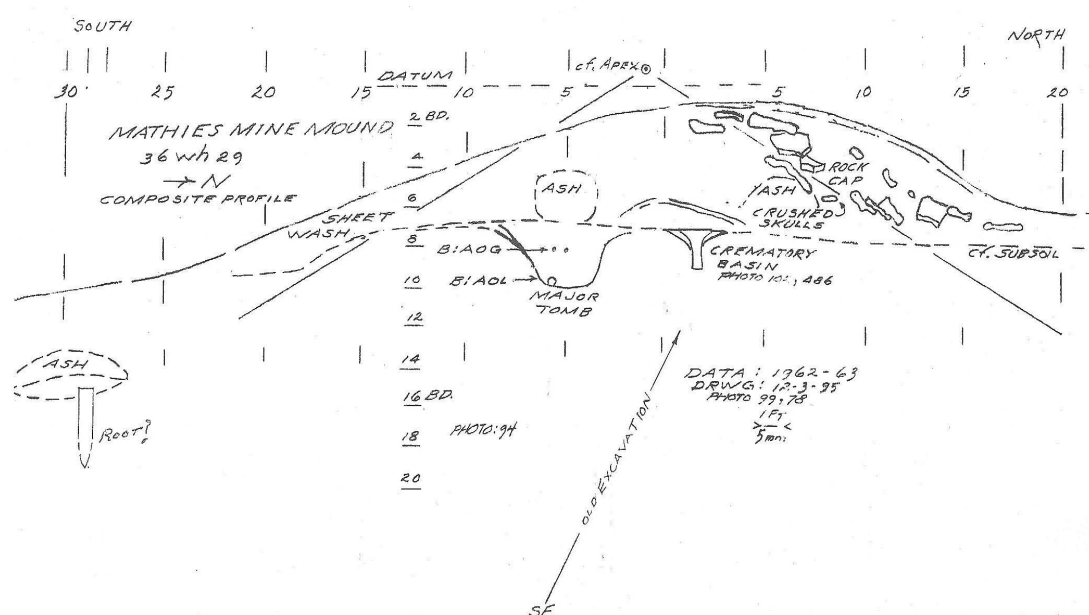


Figure 6. A composite profile draw by Donald Tanner of the Mathies Mine Mound. Measurements are in feet. B:A0L = burial A0L (Burial 1). B:A0G = burial A0G (Burial 2). The “crushed skulls” under the rock cap referred to as Burial 3 and Burial 4 in this report.

THE EARLY WOODLAND EARTHEN MOUND

Based on the results of excavations at the site, the Mathies Mine Mound was first constructed during the Cresap phase of the Early Woodland period (McConaughy 1989, 1990, 2011a, 2011b). Local Cresap phase groups participated in an interaction sphere where exchanges of Adena ideology and materials occurred (McConaughy 1989, 1990, 2011a, 2011b). The 1962-63 excavations discovered one Early Woodland burial with diagnostic artifacts, and evidence of one other Early Woodland interment, as well as a crematory basin.

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29), WASHINGTON COUNTY, PENNSYLVANIA

7

The initial motivation for the mound may have been to enclose what the senior author refers to as “the major tomb” (Figs. 2, 6, 7). However, since excavations only exposed a limited portion of the mound, it is possible that earlier features associated with the mound’s origin existed in unexcavated areas. In addition to the major tomb, excavations also uncovered what is referred to as “the crematory basin” (Fig. 6). Both the major tomb and crematory basin were apparently dug into subsoil at the time the mound was initially constructed or early in its use. They were then covered with soil, including large amounts of clay, from the surrounding area (which included a number of earlier artifacts, as discussed later in this report). In addition to soil, concentrations of ash (some of which likely was produced during human cremations) made up the fill of the earthen mound fill.

The site was utilized again during the late Middle Woodland period when human remains and a stone cap (Fig. 6) were added to the northeastern portion of the mound. The Early Woodland earthen mound and the Middle Woodland stone cap will be discussed separately in this report.

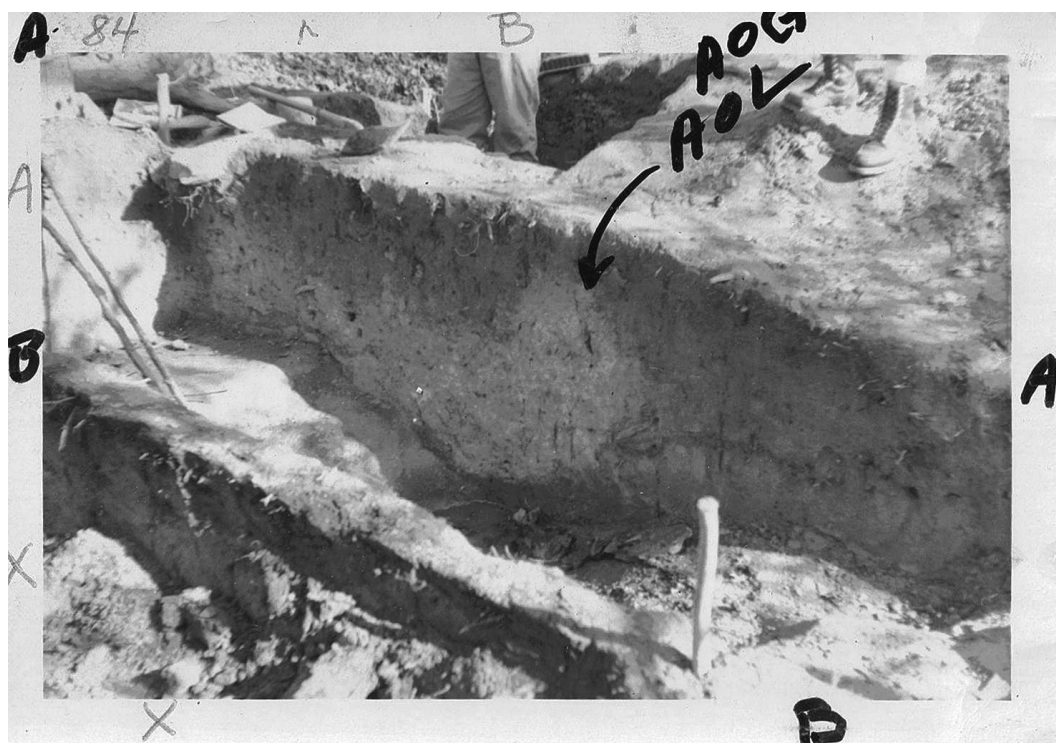


Figure 7. Photo (with notes by the senior author) of the west wall of Units A5-10 of the test trench, looking southwest. The major tomb, including Burial 1 at the bottom of the basin, is located in the center of the photo. Burial 2 was located ca. 11 in above Burial 1, but is not visible in the photo. The arrow points to a lighter colored an “ash dome” which existed above and around the burials.

The Major Tomb

During the 1962 excavations, the test trench came upon a feature that clearly was constructed to inter the remains of at least one important individual. This is referred to as the “major tomb” in the field notes and this report, and was located in Units A0, B0, X0, A5, and B5. Two burials were actually found associated with the major tomb (Figs. 6-9). The main burial inside the major tomb was designated burial “A0L” in the field notes (with the terminology derived from the unit name in which the remains were encountered). For the purposes of this report, this burial will be referred to as “Burial 1”. Two other features were noted in direct association with Burial 1: “A0B”, described as an unknown feature, and “A0M” which was a grouping of artifacts (described later in this report) under the left elbow of Burial 1.

The partial remains of a second individual (Burial 2) were discovered ca. 11 inches directly above Burial 1 (Figs. 6, 9). Burial 2 was referred to as burial "A0G" in the field notes. Each of these burials will be discussed separately, but are considered to be associated with the major tomb. The major tomb was ca. 9 ft (2.7 m) long, 4 ft (1.2 m) wide, and 3 ft (0.9 m) deep when excavated. It was first encountered as a high ash concentration including a layer of red-brown material described in the field notes as probable bark. This is consistent with Drago's (1963:205) description of Early-Middle Adena burial customs, which include: "simple extended inhumations on bark and covered with bark." This dark organic band of soil became a useful marker as it descended into the tomb, was present under Burial 1, and extended well south of the major tomb proper. Ash concentrations (of unknown origin) were evident above and around Burials 1 and 2 (Figs. 6-9).



Figure 8. Photo of the west wall of Units A5-10, looking northwest, November 12, 1962. The major tomb, including Burial 1, is located in the basin at the bottom of the photo.

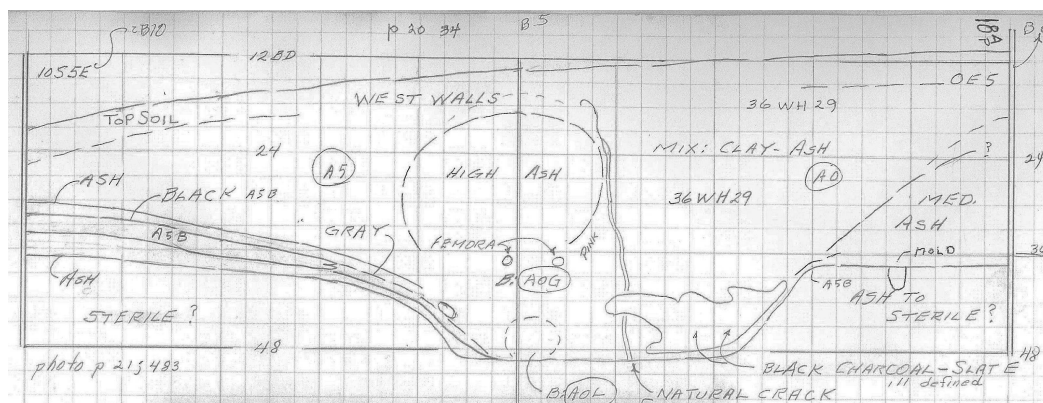


Figure 9. Side wall profile sketch by Donald Tanner showing the east wall of Units A5-10, including the location of burial A0L (Burial 1), burial A0G (Burial 2), and the ash dome.

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29), WASHINGTON COUNTY, PENNSYLVANIA

9

Burial 1

Burial 1 (Burial A0L in the field notes) was the deepest burial within the major tomb. It was discovered in November, 1962 at a depth of at 47-51 in (119.4-127.5 cm) below datum (B.D.) and is likely the oldest burial discovered during excavations. The major tomb which contained Burial 1 also contained Burial 2 (B:A0G) 11 in (27.9 cm) above Burial 1 (Figs. 6-9). During excavations, these two burials were initially not recognized as separate individuals due to poor bone preservation.

In November 1962, 29 human bones were recovered from Burial 1 (CMNH FC# 4391[skull] and FC#4392). Burial 1 was poorly preserved. Before Burial 1 could be completely excavated, weather conditions deteriorated and excavation was suspended until the spring of 1963. When the team returned, it was apparent that unknown persons had removed what remained of Burial 1.

Burial 1 was an extended burial with the head oriented a few degrees south of east and with the face turned south (Fig. 11). If the rising sun was used to determine burial orientation, it suggests a spring/fall burial, as opposed to summer. The elbows were splayed out with the distal radii directed to the hips that collapsed outward. The ischium were noted while the upper femur extended into the wall 48-49 in (121.9-124.5 m) B.D. Data below or west of this point are lacking.

A few vertebrae could be discerned in the lower neck area while the mandible shifted slightly northeast. Two or more rib segments extended over the left elbow/lower humerus. Although a formal analysis of Burial 1 remains was not been conducted, the senior author believes Burial 1 was a middle age adult.

Three or more small red lenses appeared adjacent to the skull of Burial 1, one of which angled down and under the mandible. They appeared to be red ochre concentrations mixed with soil. Similar pockets were noted 10 in (25.4 cm) above Burial 1 in association with Burial 2. One or more of these red pockets was covered with tempered but unfired orange clay.

In 1963, a sample of charcoal from near Burial 1 was submitted to Dr. Don W. Dragoo at Carnegie Museum. This sample was insufficient for a standard 14C date and was apparently later misplaced or lost, as recent efforts to locate the sample were unsuccessful. Fortunately, bone collagen from an unidentified deer bone fragment (CMNH #E4678) recovered in association with Burial 1 was recently AMS dated by Illinois Geologic Survey (ISGS) to 2190 ± 20 rcy B.P. (ISGS-A1849), with a two sigma calibrated range of cal. 360 B.C. – 272 B.C., 63.4%; cal. 263 B.C. – 192 B.C., 36.6% (calibrated by Bernard Means using the Calib Radiocarbon Calibration Program version 6.0.1) (Stuiver and Reimer 1993, 2010). Figure 10 shows a graphical representation of the two sigma calibrated range for this assay. By association, this assay dates Burial 1 and a number of associated artifacts. The diagnostic artifacts in Burial 1 (described below) are characteristic of the Cresap phase in southwestern Pennsylvania (McConaughy 2011a, 2011b), generally equated with what Dragoo (1963:204-207) called the Early-Middle Adena period of the region. The AMS assay falls well within accepted temporal range for this culture.

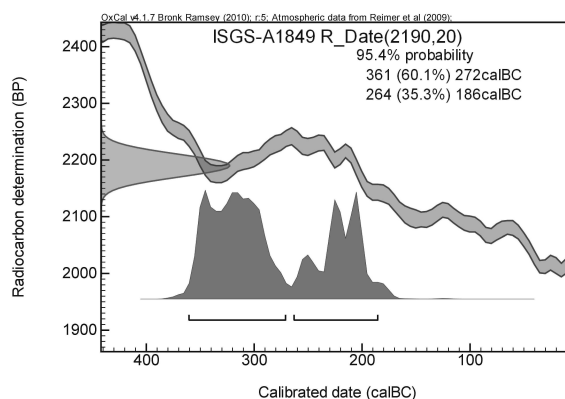


Figure 10. AMS assay associated with Burial 1 (figure produced by Bernard Means using the OxCal Radiocarbon Calibration Program version 4.0.5 (OxCal) (Bronk Ramsey 2007)).

Burial 1 Associated Artifacts

A number of artifacts were associated with Burial 1. A chert spall was recovered within the gapping mouth of Burial 1, but it was uncertain if this was intentionally placed in this position. A sandstone pebble was noted adjacent to orbs of this burial. A group of broken artifacts was positioned under the left elbow of Burial 1 (Fig. 11) (this feature was labeled as "A0M" in the field notes), including: a small quartzite pebble, a decayed mussel shell (possibly *Elliptio crassensis*), a small duck tarsometatarsus, a large mammal long bone fashioned into a well worn bone gouge similar to what Dragoo (1963:124) described as a "bone spatula", a small fragment of an unworked deer bone (AMS dated), two bases of Adena Ovate Base projectile points/knives (Figs. 11, 12), and a fragmented stone tube pipe (Figs. 12, 13).

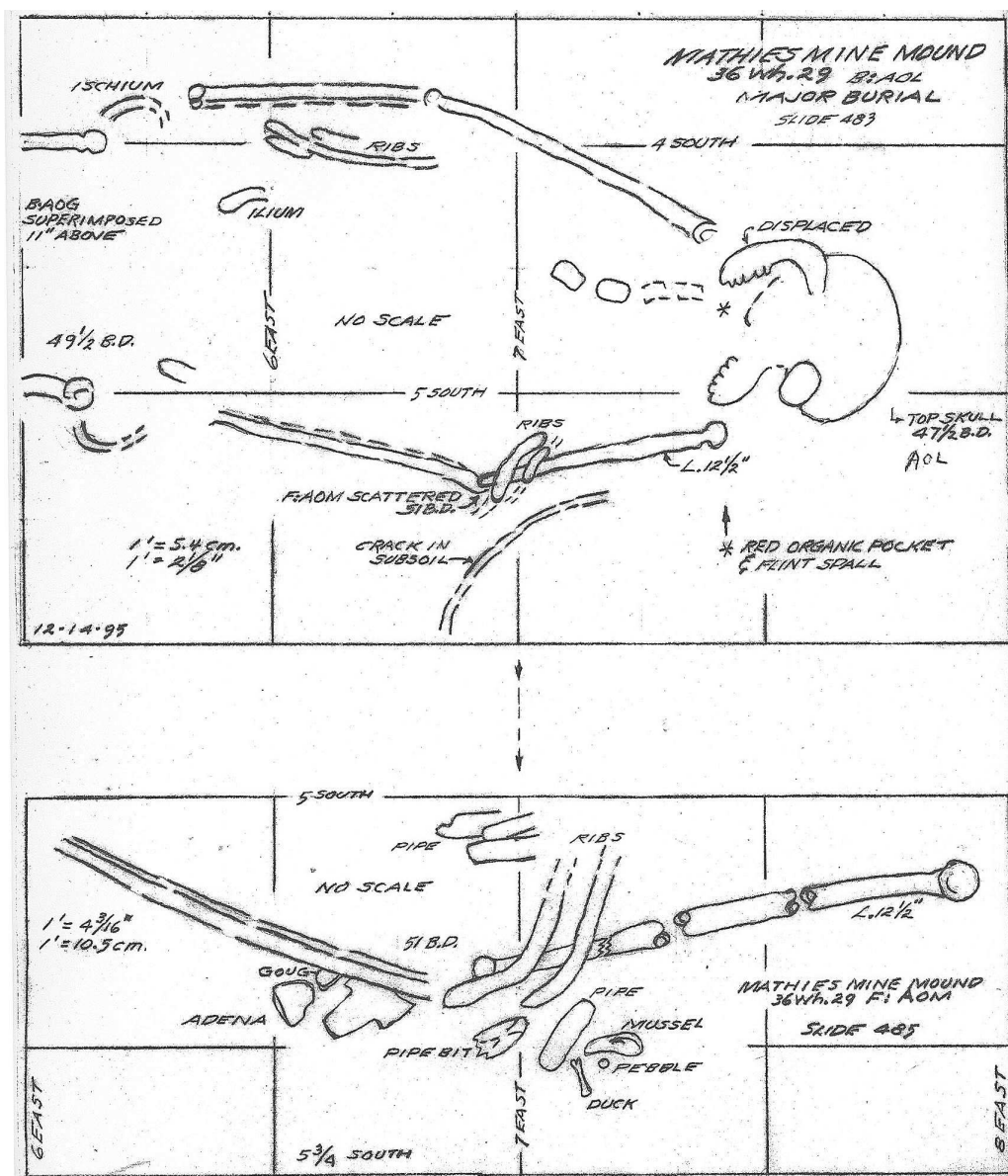


Figure 11. Plan view drawing by the senior author of Burial 1 (A0L). The top portion of the drawing shows an overview of the exposed portion of Burial 1, while the lower drawing is a close up of artifacts found *in situ* under the left elbow (feature A0M).

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29),
WASHINGTON COUNTY, PENNSYLVANIA

11



Of these artifacts, the fragmented stone tube pipe is of greatest interest (CMNH #E4678) (Figs. 12-13). When encountered *in situ*, the pipe was at first misidentified as bone fragments. Over ten larger fragments were recovered and many smaller pieces, some of which were too eroded to be used for reconstruction. Based on the patina on the fractured edges, the pipe was broken when placed with the burial. This patina, as well as the relatively scattered *in situ* position of the pipe fragments, indicates that it likely was “killed” (intentionally broken) during the interment of Burial 1.

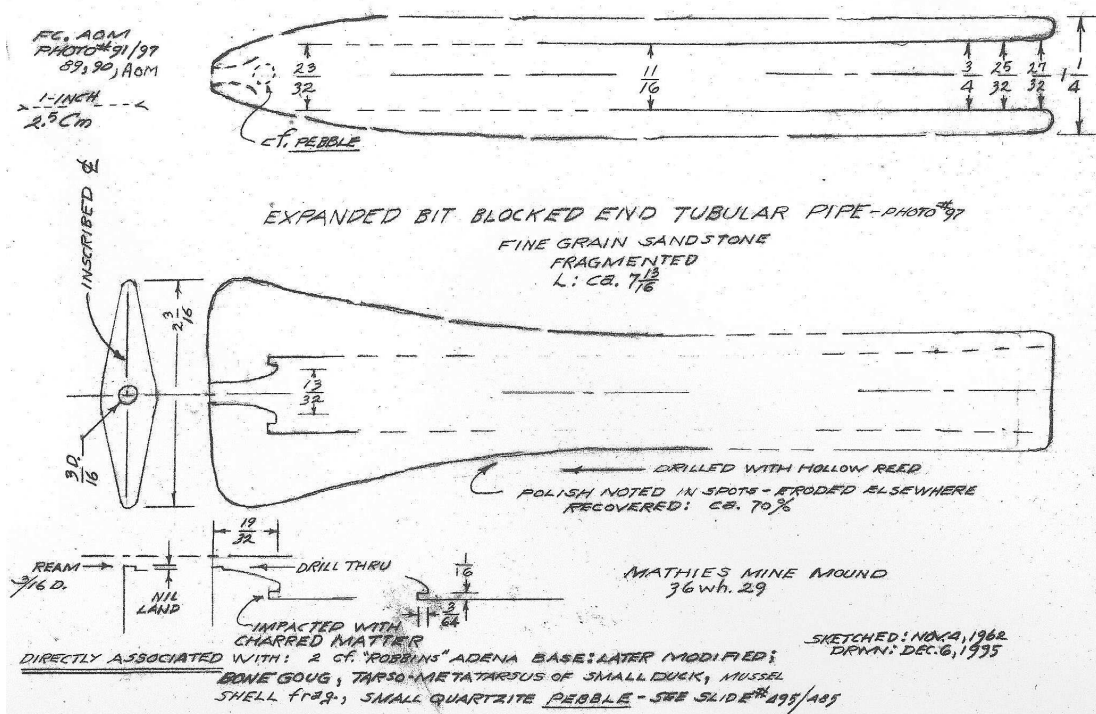


Figure 13. Drawing by Donald Tanner of the reconstructed tubular pipe.

The reconstructed pipe clearly matches Dragoo's (1963:Fig. 11.E, 184) description of a "flared tubular" Adena pipe. Others sometimes describe this type of pipe as a "flared bit" or "expanded bit" blocked end tubular pipe. Dragoo (1963:184) considered flared tubular pipes to be a rare form of Adena pipe; and in fact, based on Dragoo (1963:Table 2), this may be the only excavated example known in the Upper Ohio Valley. The previously cited AMS date on a deer bone in association with the pipe is, to the best of our knowledge, the first time that this type of pipe has been AMS dated. Dragoo (1963:216) considered flared tubular pipes to be a late Adena manifestation, however, both the AMS assay and the two associated Ovate Base Adena points from the Mathies Mine Mound indicate that this type of pipe was in use in prior to Dragoo's (1963) Robbins Complex of late Adena.

Pebbles are often found within such blocked end pipes, and although such a pebble was not found inside this pipe, a small pebble was found in association with the pipe. The Mathies Mine Mound tube pipe is made of fine grained sandstone. Exterior polish remains on some areas. The partially reassembled pipe measured ca. 19.2 cm in length. Other dimensions and features of the reconstructed pipe are shown in Figure 13. Based upon visual examination, the senior author hypothesizes that the major pipe cavity was drilled with a hollow reed. On the expanded bit end of the pipe, an engraved "centerline" is evident which was likely used in drilling the mouthpiece hole (Fig. 13). It suggests a small pilot hole drill first entered the exterior bit end, which was later enlarged with conical chert drill from the interior.

One of the most intriguing aspects of the Mathies Mine pipe was the preservation of a small amount of carbonized residue within the pipe (Fig. 13). This was initially recognized by the senior author shortly after excavation, but the residue remained untouched for nearly 50 years at the Carnegie Museum. In 2008, one of the junior authors rediscovered this residue and it was sent to researcher Sean Rafferty for analysis. Rafferty et al. (2012) reported that the residue from the Mathies Mine Mound pipe tested positive for traces of nicotine, indicating that a species of tobacco was likely smoked in the pipe.

The bases of the two Adena Ovate Base points (Fig. 12) found in association with Burial 1 (Fig. 11) and the other associated artifacts are also worth discussing. Like the pipe, both appear to have been broken prior to interment, as the upper portion of neither blade was recovered. Both bases were made of fine grain black chert, possibly Kanawha chert from West Virginia. The rounded bases on both projectile points/knives are similar to what Dragoo (1963:Plate 39) described as "ovate base, tapered stemmed 'Adena' blades. This form constitutes the dominant early-middle Adena blade type." The smaller of the two bases had been modified before interment by additional pressure flaking along the base. This work appeared "fresh" compared to the patina on the rest of the artifact.

Burial 2

The partial remains of a second individual (denoted as burial "A0G" in the field notes) were documented in the area we referred to as the major tomb, but at a higher elevation; eleven inches directly above Burial 1 (Figs. 6-9) in Unit A0. During the top down excavations, Burial 2 was the first burial encountered. It was first noted as an orange colored ash deposit at 31 in (78.7 cm) B.D.

The partial remains of Burial 2 consisted of two femurs or humeri (at 33-36 in [83.8-91.4 cm] B.D.) in poor condition. In addition, a human mandible, with teeth worn to the gum line, was noted at 40 in (101.6 cm) B.D., 10 in (25.4 cm) above Burial 1. Nestled within the arc of the jaw was an isolated human vertebrae. No other bones definitively associated with Burial 2 were detected. The age and sex of Burial 2 is indeterminate. No artifacts were recovered in association with Burial 2.

Several possible explanations come to mind for the absence of a complete Burial 2 skeleton as follows: 1) They naturally disintegrated; 2) Burial 2 represents a partial cremation, as an ash lens was noted above Burial 2; 3) Burial 2 represents a bundle burial intentionally or accidentally scattered; or 4) Burial 2 represents a mutilated body, with only certain portions placed in the mound. In the senior author's opinion, the first explanation is the most likely. If that was the case, Burial 2 was likely a supine (extended) burial with the head oriented a few degrees south of east. If the rising sun was used to orient Burial 2, it suggests a spring or fall burial.

Based on its stratigraphic position, Burial 2 was clearly interred after Burial 1. The time difference between the two burials remains uncertain; however, it seems likely that Burial 2 was

interred relatively shortly after Burial 1 from an archaeological perspective (i.e., within the Early Woodland period), given its location directly over Burial 1. Although no diagnostic artifacts were found in direct association with Burial 2, we assume it is also of Early Woodland origin.

Crematory Basin

Another interesting feature noted in the Early Woodland portion of the Mathies Mine Mound is referred to in this report (as well as the field notes) as “the crematory basin” (also noted in the field notes as “Fea. A+5B”) in Unit A+5 (Figs. 6, 14, 15). The crematory basin extended into Unit X+5, however this unit had been previously disturbed by the 1930’s excavation trench (Fig. 2). The southern edge of the crematory basin in Unit A+5 was located ca. 4 ft north of the major tomb, at approximately the same level. It is the senior author’s belief the crematory basin was roughly contemporaneous with the major tomb, based on its stratigraphic position. It was first encountered ca. 33 in (83.8 cm) B.D. with the floor of the basin at 39 in (99.1 cm) B.D. The only (presumably human) remains found within the basin were a human tooth crown, small quantities of calcined bone, and large quantities of ash. It cannot be said with certainty that the tooth crown was associated with the crematory basin, as such a small artifact could have originated elsewhere.

The crematory basin was 3 ft (0.9 m) in diameter (Figs. 14, 15), and was first detected as an ash/clay concentration at 30 in (76.2 cm) B.D. A pink area is noted which may represent thermal alteration of the soil or possibly red ochre faded to pink. A central post mold was evident as dark soil mixed with charcoal. This post mold was followed downward through the feature and to a maximum depth at 44 to 46 in (111.8-116.8 cm) B.D. The post mold at the center of the basin had a diameter of ca. 6 in (15.2 cm) and was 10 in (25.4 cm) deep. Two 4 in (10.2 cm) diameter post molds were discovered adjacent to the crematory basin, one of which is described as 4 in (10.2 cm) deep (Fig. 14). The purpose of these posts is unknown. No artifacts were found within the crematory basin other than a small bifurcated drill (Fig. 16) that was recovered at the bottom of the central post mold. The artifact does not match generally accepted point typologies and is therefore not considered diagnostic. An expanded stemmed point was noted within the pink zone near the crematory basin and a classic Adena Ovate Base point of local material was found nine inches south of the basin, but cannot be firmly tied to the basin. Several diagnostic artifacts were found in soils near the crematory basin, but are not considered as definitively associated. Some of these artifacts are associated with time periods before the Early Woodland and were likely incidental inclusions in the mound fill.

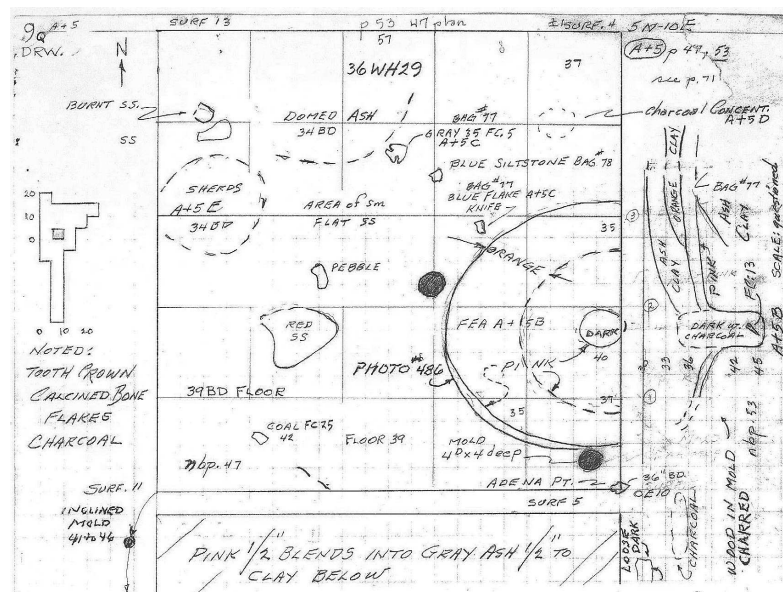


Figure 14. Plan view drawing by Donald Tanner of the unit containing the crematory basin (A + 5B), with profile shown on the right. Post molds are labeled as “dark” or are shown as black circles.

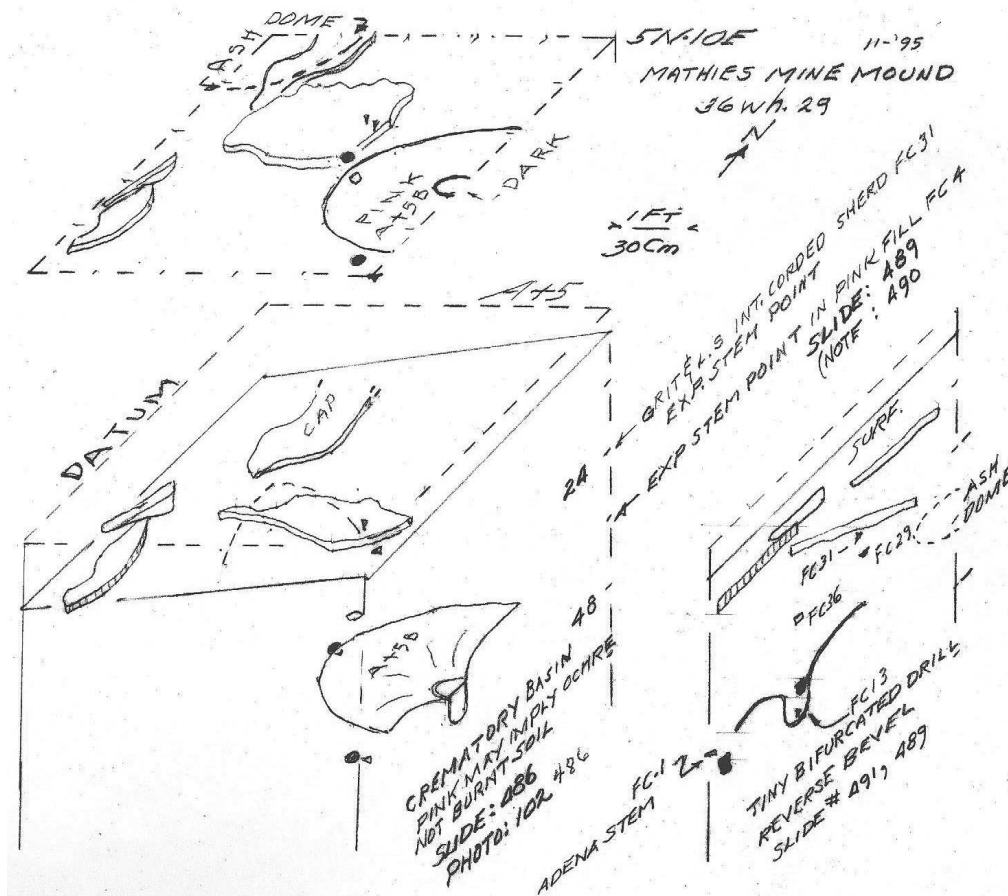


Figure 15. Drawing by Donald Tanner of the crematory basin, Feature A + 5B.

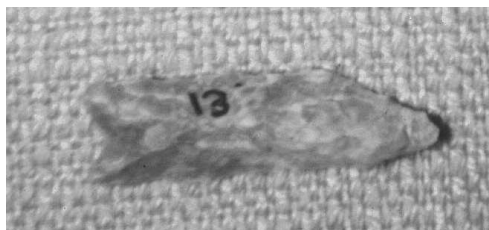


Figure 16. Non-diagnostic mini-drill found at the bottom of the postmold in the crematory basin

A concentration of charcoal fragments, flint chips, and small pieces of burnt sandstone were found within one foot of the crematory basin. In addition, corner notched point FC 5 (Bag #77), a flake knife, and a fragment of a white chert flake were recovered from the area adjacent to the basin.

Three aspects of the crematory basin are particularly interesting: 1) It consisted of a large quantity of pure ash but no intact bones or teeth (just very small quantities of calcined bone assumed to be of human origin), 2) an apparent post mold existed at the center of the feature, and 3) the fire that produced the ash at this location was not intense, as it only penetrated three inches into the underlying soil, turning the area a mild pink. The underlying soil was not vitrified and it is possible that this pink soil was caused by red ochre rather than heat.

Cremations and basins related to cremations are common in Early Woodland burial mounds (Dragoo 1963). With that said, the Mathies Mine Mound crematory basin, with its central post, is unusual. The only other example of such a feature known to the authors is a crematory basin with a

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29), WASHINGTON COUNTY, PENNSYLVANIA

15

central post mold (Features 10 and 12) in Mound A at the Crow Mound (36GR36) (Dragoo and Tanner 1969:11-13). The senior author excavated this basin with Don W. Dragoo and clearly recalls the similarity to the Mathies Mine Mound crematory basin. In a report on Crow Mound, Dragoo and Tanner (1969:13) speculated that, "it seems possible, but not provable, that the individual [whose cremated remains were found in the basin] may have been secured to a post placed in Feature 10. If so, we have an example of an individual being 'burned at the stake' in the burial mound." As was the case in the Mathies Mine Mound crematory basin, the human remains found in the Crow Mound crematory basin were nearly unidentifiable as human and consisted primarily of ash and fragmented bone. Dragoo and Tanner (1969:12) reported that, "among the identifiable pieces were a portion of a tooth root and six phalanges. No artifacts were present." A review of Dragoo's (1963) book *Mounds for the Dead* does not described any other crematory basins with central posts, so this type of feature appears to be unusual.

If a human body had been tied to a post at the Mathies Mine Mound and then cremated, a much more intense fire would be evident and some bones (or teeth) would be expected to survive the process (as well as charcoal). If one or more cremations took place there, the area must have been meticulously cleaned when the process was completed. Charcoal, other than random flakes, was not recovered and calcined human bone was very fragmented. There were no deposits of fused burnt soil above the pink zone. However, there was an abundance of fine "white" ash throughout the basin. The senior author theorizes that cremation must have been a continuous ongoing process where pure white ash was segregated from partially burnt bone. The central post mold remains unexplained.

The so called crematory basin may have served another purpose. As noted previously, an "ash dome" was present in the major tomb, yet no intense burning evidence was found there. Perhaps ash was produced for ceremonial purposes in the crematory basin, and transferred to the major tomb. This is consistent with Dragoo's (1963:205) description of Early-Middle Adena burial customs, which included: "cremated remains redeposited separately or place near an extended inhumation." However, if cremation occurred in the crematory basin, intense burning should be evident there. This was not observed. Therefore, for the time being, the function of the Mathies Mine Mound crematory basin remains a mystery.

Other Early Woodland Features and Artifacts

In addition to the major tomb and crematory basin, several other features, many of which involved ash concentrations, were encountered within the earthen portion of the mound. Most of these features were poorly defined and limited information in the field notes prohibits description here. One feature worth mentioning was Feature A0A encountered 23 in (58.4 cm) B.D. in unit A0. It is described as "a small area" of scattered human bone, a tooth worn to the gum line, an associated stone, charcoal flakes, spotted ash within yellow clay, and tiny flint flakes, many of which appeared to be Flint Ridge/Vanport chert. Given that Burial 2 was located in the same unit at 33-36 in (83.8-91.4 cm) B.D., it is uncertain if the Feature A0A remains are from the same individual.

In the process of constructing a burial mound, large quantities of soil must be collected and dumped at the site; soil which often contains prehistoric artifacts. Given the site's favorable location on a high promontory overlooking a river, it is no surprise that diagnostic artifacts from multiple components were found within the mound. Four projectile point/knives can be categorized as Adena Ovate Base points. Two of these were the bases found in direct association with Burial 1, and the other two were examples were found in or around the major tomb. Most of the other projectile points recovered are from other time periods and were likely included in the mound fill. Two stone celts recovered in the earthen mound fill likely relate to the use of the site during the Cresap phase.

A total of 88 ceramic described pottery sherds from the Donald Tanner collection from the Mathies Mine Mound are curated at CMNH (Table 1). No intact vessels were recovered at the site; all of the sherds were recovered as sporadic finds with no clear feature association. The greatest concentration of sherds occurred in the units which contained or surrounded the major tomb, but pottery does not appear to have been intended as a grave offering. In this regard, the Mathies Mine Mound is similar to other Cresap phase burial mounds where pottery vessels were not included as grave goods (Dragoo 1963:246; McConaughy 2011a, 2011b).

Table 1. Mathies Mine Mound Ceramic Assemblage: Temper and Surface Treatment
(Number of sherds and %, based catalog descriptions on the D. Tanner collection at CMNH).

	Surface Treatment			
Temper:	Smooth	Cordmarked**	Unspecified	Total N (%)
Limestone	4	9	9	22 (25.0%)
Grit	14*	27	22	63 (71.6%)
Chert	1	0	2	3 (3.4%)
Total N (%)	19 (21.6%)	36 (40.9%)	33 (37.5%)	88 (100.0%)

*One smooth grit-tempered smooth sherd displays a lug (Fig. 18). **Whether each sherd was interior and/or exterior cordmarked was not documented in most instances.

Temper and surface treatment of the 88 sherds in the ceramic assemblage (based on descriptions in the CMNH catalog) are shown in Table 1. The senior author noted that some of the sherds in Table 1 had mixed limestone and grit temper, although this is not reflected in Table 1. No shell tempered sherds were recovered. At the present time, the ceramic assemblage has not been analyzed and typed beyond the descriptions in the CMNH catalog. Since the majority of the ceramic sherds were recovered in the earthen portion of the mound in areas near the major tomb, it seems safe to say that they are likely Early Woodland in age; however some of the sherds may pre-date the mound and could have been included in the mound fill. Based simply on the CMNH catalog of the ceramic assemblage, Donald Tanner's personal recollections, and an examination of the artifacts by Mark McConaughy, it appears that both Half-Moon Cordmarked and McKees Rocks Plain pottery are present in the assemblage (Dragoo 1963; McConaughy 2011a, 2011b). Half-Moon Cordmarked sherds are relatively thick, grit tempered specimens that are cordmarked on both their interior and exterior surfaces (Fig. 17). McKees Rocks Plain sherds also are fairly thick, dark grit tempered and plain on both their interior and exterior surfaces. One sherd, tentatively identified as McKees Rocks Plain, had a circular raised boss or lug (Fig. 18). The limestone tempered sherds represent examples of Watson Ware made during the Middle to Late Woodland Watson Farm phase (Dragoo 1956; McConaughy 2002).

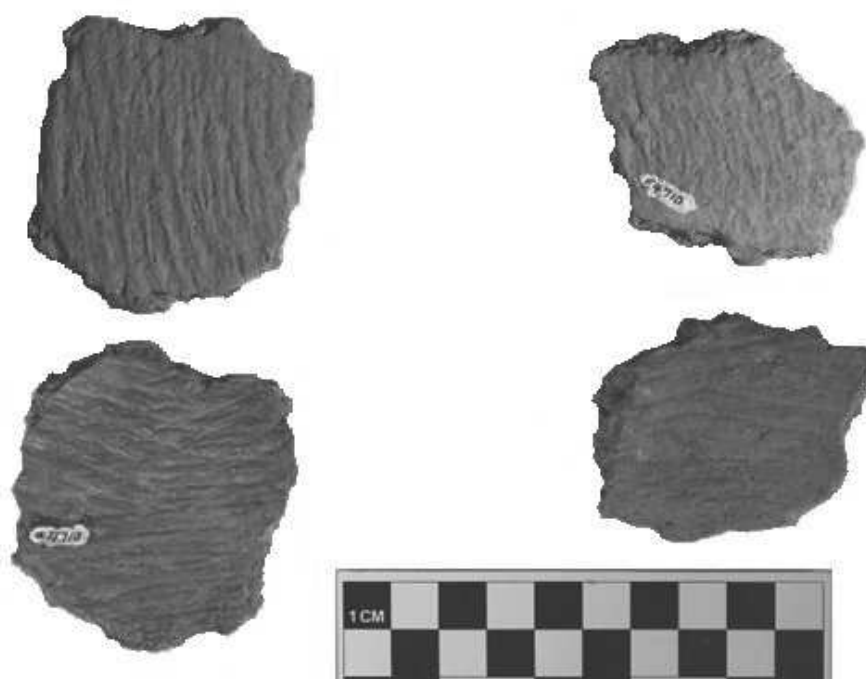


Figure 17. Examples of Half-Moon Cordmarked sherds from 36WH29 (photo by McConaughy).

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29),
WASHINGTON COUNTY, PENNSYLVANIA

17



Figure 18. Smooth grit-tempered sherd with lug.

THE STONE CAP

When the Mathies Mine Mound was initially built in the Early Woodland period, it was constructed mostly of earth collected from the surrounding area. However, excavations showed that at a later time, during the late Middle Woodland period, the mound was utilized again for burials using a different construction method. Specifically, excavations revealed that human remains were placed on the top of the earthen mound surface and then covered with stone slabs and earth. These flagstones are described in the field notes as a “stone cap” on the mound (Figs. 6, 19, 20). They only existed in the northern and eastern portion of the mound. The stone cap, or stone veneer, as it might be called, started at 6 in (15.2 cm) below the 1963 mound surface and continued downward and additional nine to 15 in (38.1 cm). In addition to flagstones, a few water worn boulders and pebbles (erratics) were occasionally encountered (Fig. 19).



Figure 19. The exposed “stone cap” at the Mathies Mine Mound as it appeared on June 2, 1963.



Figure 20. A view in 1963, looking West, of the excavation trench after some cap stones were removed. This shows the veneer-like nature of the cap over the older portion of the mound.

As the stone cap was removed during excavations in 1963, fragmented and scattered human remains were discovered directly under the stones. In some cases, bone fragments were adhered to the bottom of the stones, indicating that the burials were covered with stone when interred. As discussed later in this report, an AMS assay on charcoal associated with one of these burials dated to the late Middle Woodland period.

The extensive stone capping of the Mathies Mine Mound was a surprise to the excavation crew when it was first encountered in 1963, as previously excavated portions of the mound did not have a stone cap. Most stones were irregular flat sandstone flags covered by a thin layer of loam with leaf mold above. A few sandstone, limestone, and conglomerate pebbles were included within the cap area. The capped area is estimated to be 16 ft (4.9m) from north to south, and extended northeast to an unknown distance. It is estimated that the stones capped the northeastern one third of the Cresap phase earthen mound.

There is evidence that the five foot wide 1930s excavation (most likely by George Fischer) encountered the stone cap, as many stones had been returned systematically (i.e., stacked) back into this old excavation trench. The senior author's field notes showed that the undisturbed cap surrounded the 1930s excavation on three sides.

During excavation of the stone cap, no intact features were encountered, however, at least two burials were noted. Human remains were fragmented and scattered, and some bones were mingled, making it difficult to separate the burials. One was found in Unit A+10 and was labeled "A+10C" in the field notes; in this report it will be referred to as Burial 3 (Figs. 21, 22). Based on an erupted and partially worn M³ and lack of open sutures in the skull fragments, Burial 3 was likely an adult in its 30s or 40s (Mark McConaughy, pers. comm. 2012). Two smooth surface limestone-tempered ceramic sherds (catalog # E4699) were found in association with Burial 3 that can be assigned to the Watson Plain pottery type.

The second stone cap burial was found in Unit X+10 and was labeled "X+10A" in the field notes; it will be referred to as Burial 4 in this report (Figs. 22, 23). It appears that the sutures of Burial 4's skull were still open suggesting it was an adult between the ages of 18 and 30 (Mark McConaughy,

pers. comm. 2012). Four feet separated the skulls of Burials 3 and 4 and interment may have been simultaneous. Both burials occurred at 30 in (76.2 cm) B.D. directly under an extensive stone cap placed upon the burials (Figs. 21-23). Burials 3 and 4 did not appear to be dug into the earthen portion of the mound and there was little evidence of prepared graves. The context implies that bodies (or bone remains) were placed on the Cresap phase earthen mound surface and then covered with stones.

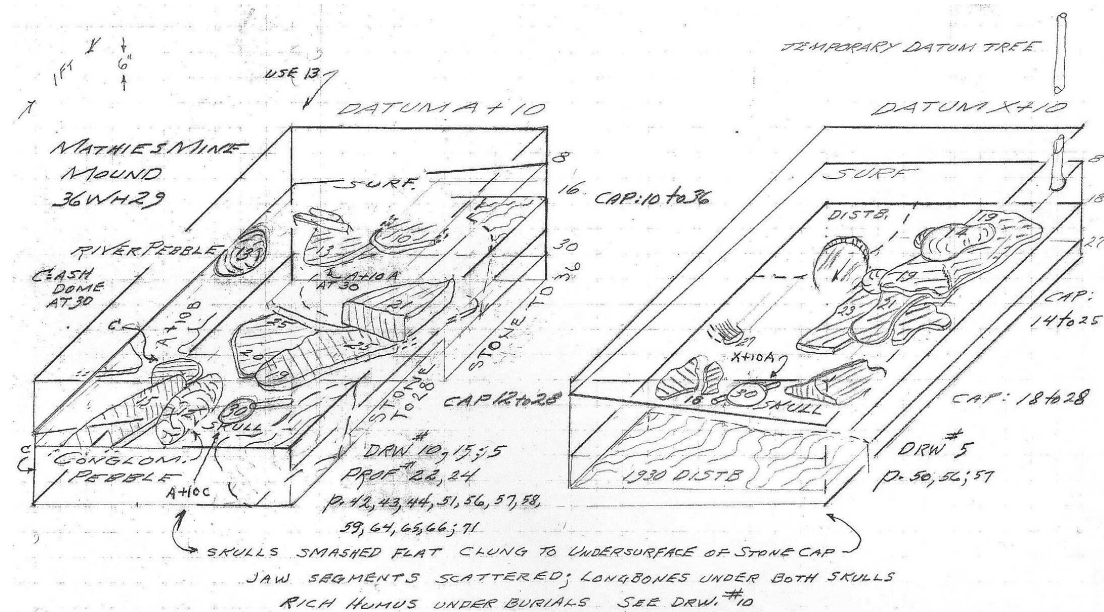


Figure 21. Drawing by Donald Tanner illustrating the location of human remains found in Unit A+10 (Burial 3, left) and Unit X+10 (Burial 4, right), found directly under flagstones.

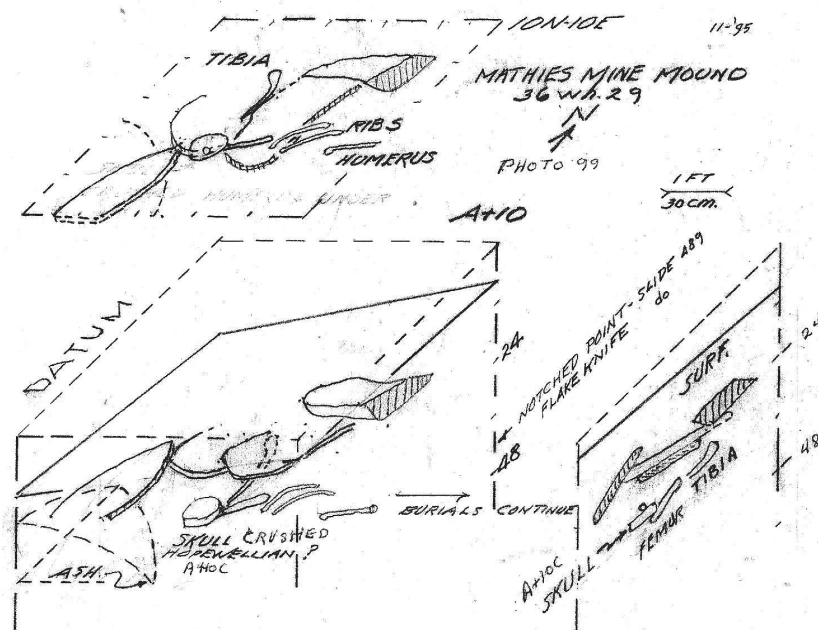


Figure 22. Drawing by Donald Tanner of Burial 3 beneath flagstones in Unit A+10.

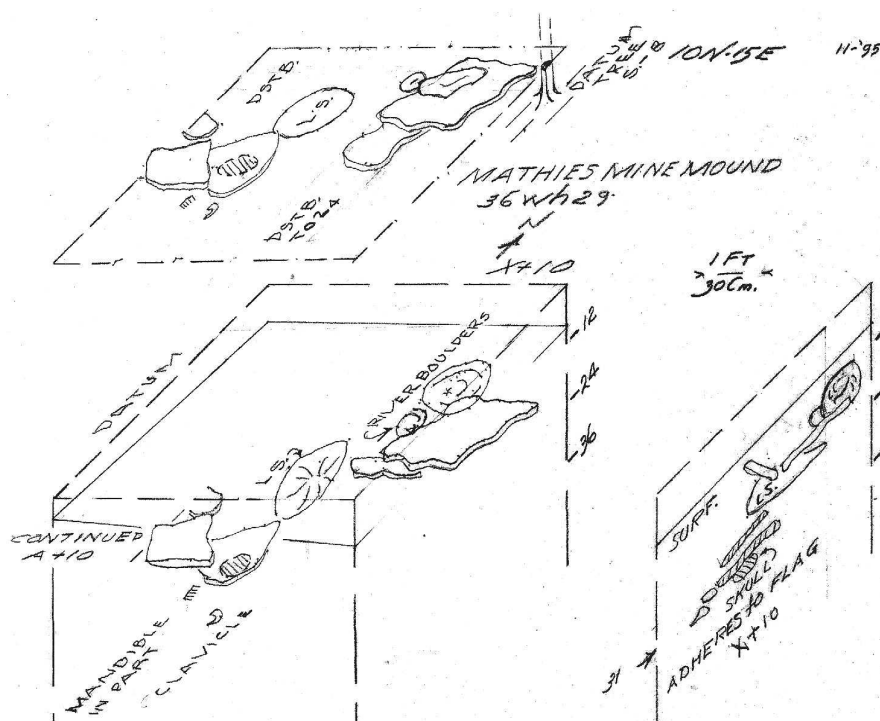


Figure 23. Drawing by Donald Tanner of Burial 4 beneath flagstones in Unit X+10. Note the presence of a river boulders and a limestone slab in addition to the flagstones.

Although artifacts were recovered in this portion of the mound, no artifacts other than two Watson ware sherds were directly associated with Burials 3 and 4. Diagnostic artifacts from this level included a few limestone and grit tempered pottery sherds with external cord marks. According to Mark McConaughy (pers. comm. 2012), the limestone-tempered sherds can be assigned to the Watson Cordmarked type while the grit tempered sherds are likely Mahoning Cordmarked from the Middle to Late Woodland Watson Farm phase (Dragoo 1956; McConaughy 2002, 2011b). The lack of grave goods placed with Burials 3 and 4 under the stone cap is a characteristic of late Middle to Late Woodland Watson Farm phase burial mounds (Cowin 2003; McConaughy 2011b).

A small corner-notched point (Fig. 24) (E4701) was recovered *in situ* “within the rock cap” in Unit A+15 and is made of heat treated Vanport (Flint Ridge) chert. It is tentatively typed as a Bennington Corner Notched point (Lantz 1989:53-55), and is generally considered a Late Woodland period marker.

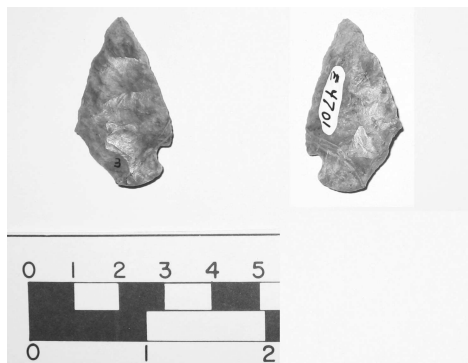


Figure 24. Both sides of a Bennington Corner Notched projectile point (with damaged base) made of Vanport chert found within the “rock cap” in Unit A+15 at the Mathies Mine Mound.

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29), WASHINGTON COUNTY, PENNSYLVANIA

21

During a recent visit to CMNH, a small grouping of additional human remains and associated artifacts were discovered under the catalog number E4735. Tanner's original package label describes them as being recovered in unit "Y+15A, 28-30" B.D. within rock cap". On the packing label, Tanner theorized that these remains could be considered as an additional burial. We therefore have labeled this as Burial 5. No diagnostic artifacts were associated with Burial 5, however, a small amount of charcoal was recovered. This charcoal was recently AMS dated as follows: 1630 ± 20 rcy B.P. (ISGS-A2178), with a two sigma calibrated range of cal. A.D. 357-363, 0.8%; cal. A.D. 383-465, 78.5%; and cal. A.D. 481-532, 20.6% (calibrated by Bernard Means using the Calib Radiocarbon Calibration Program version 6.0.1) (Stuiver and Reimer 1993, 2010). Figure 25 shows a graphical representation of the two sigma calibrated range for this assay. The implications of this assay are discussed later in the report.

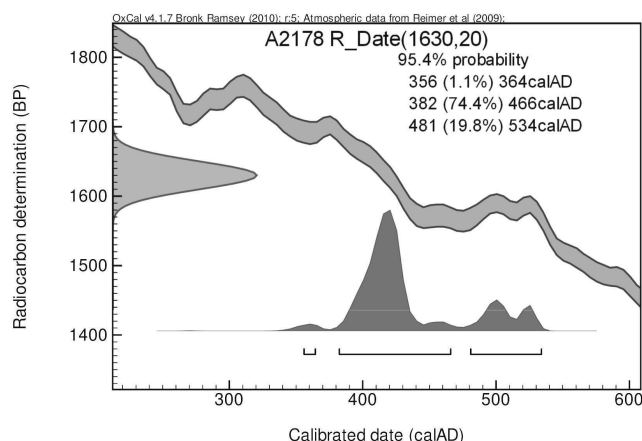


Figure 25. AMS assay associated with Burial 5 (figure produced by Bernard Means using the OxCal Radiocarbon Calibration Program version 4.0.5 (OxCal) (Bronk Ramsey 2007)).

As previously mentioned, Rudolph Katrencik excavated additional units in the stone-capped portion of the mound in late 1963 and/or 1964. These excavations may have been in unit Z+15 as a small grouping of artifacts from "R. Katrencik" for this unit exists at CMNH under the catalog number E4734. A label indicates that additional burial (Burial 6?) was recovered in this unit, but no human remains are in the CMNH collection from this unit. No other records exist regarding what Rudolph Katrencik found.

OTHER PREHISTORIC COMPONENTS

Although excavations at the site ceased when sub-soil beneath the mound was reached, it was clear from artifacts recovered in the mound fill that the area was visited by prehistoric people prior to the Early Woodland period. Due to space constraints in this report, individual artifacts will not be described, however, some of the artifacts recovered are shown in Figure 26. Many of these artifacts are from the Archaic period, prior to the mound's construction.

DISCUSSION

The Mathies Mine Mound was built in two stages separated by a long period of time. The earth covered bark-lined major tomb, two Adena Ovate Point bases and a tubular pipe recovered from the major tomb are features diagnostic of the Cresap phase in southwestern Pennsylvania and the northern panhandle of West Virginia (McConaughy 1989, 1990, 2011a, 2011b). Similarly, Half-Moon Cordmarked and McKees Rocks Plain sherds recovered from the earthen fill of Mathies Mine Mound are typical Cresap phase pottery types (McConaughy 2011b). The radiocarbon date from the early stage of Mathies Mine Mound also falls well within the Cresap phase (McConaughy 2011b). Dragoo (1963:139-174) describes several nearby Cresap phase sites with extended burials placed in central

bark or log lined or covered tombs with secondary crematory basin burials. McKees Rocks and Pitt Gas Mounds from southwestern Pennsylvania and Grave Creek, Natrium, and Cresap Mounds from the northern panhandle of West Virginia are all examples of Cresap phase mounds with some of these features (Dragoo 1963:139-174; McConaughy 2011a, 2011b). The Cresap phase is the equivalent of both Dragoo's (1963:204-207) Early-Middle Adena and Late Adena periods from the region. Thus, there can be little doubt that the earthen portion of Mathies Mine Mound was built by Cresap phase people.

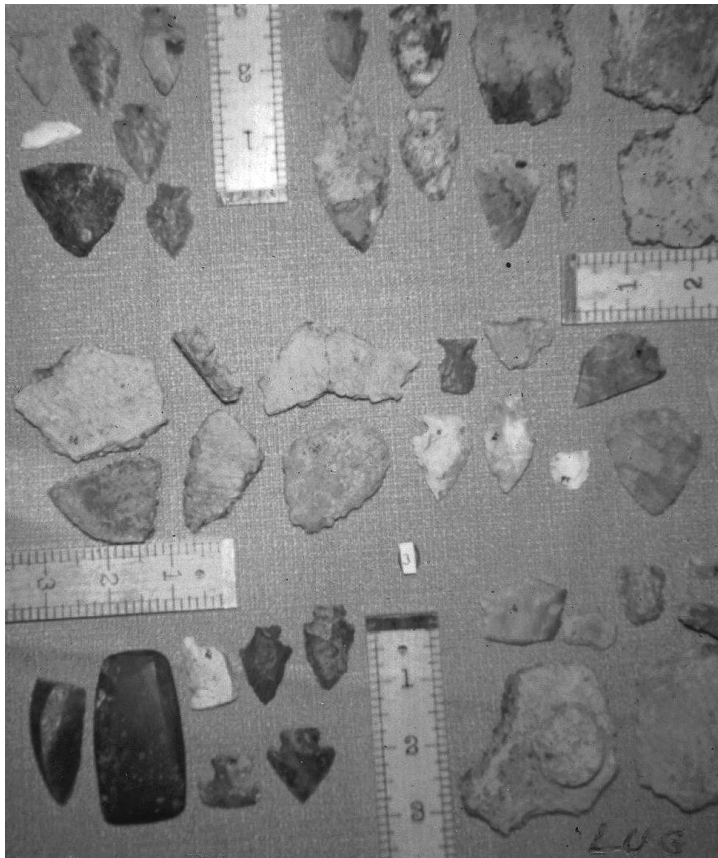


Figure 26. Various artifacts from the Mathies Mine Mound.

Conversely, the stone capped section of the Mathies Mine Mound represents a later reuse of the mound. At that time at least three more burials were placed on top of the earthen mound and then covered with an extensive stone cap. Charcoal associated with Burial 5 dated to the late Middle Woodland period, indicating that the stone cap was constructed during that period. Cowin (2003:89, 94) noted the similarity of the "stone heap with a central cobble [stone]" in the Mathies Mine Mound (36WH29) to a similar construction at the Avella Mound (36WH415), which she described as "Avella Type 5...a burial paved over without uprights and containing a central cobble [stone]." Radiocarbon dates from the Avella Mound date it to between 1420 ± 115 rcy B.P. (cal. 2σ range A.D. 402-880, 100%; McConaughy 2011b:Table 8) and 1100 ± 90 rcy B.P. (cal. 2σ range A.D. 691-750, 5.2%; A.D. 762-1052, 88.8%; A.D. 1080-1128, 4.3%; A.D. 1133-1152, 1.6%; McConaughy 2011b:Table 8). The rock and earth Watson Farm Mound (Dragoo 1956) also is similar to the rock cap at Mathies Mine Mound. A radiocarbon date from the Watson Farm Mound is 1450 ± 100 rcy B.P. (cal. 2σ range A.D. 386-778, 100%; McConaughy 2011b:Table 8). McConaughy (2011b) believes most, if not all, stone structures found in mounds from southwestern Pennsylvania should be assigned to the Middle to Late Woodland periods. Limestone tempered pottery recovered from Mathies Mine Mound are examples

EXCAVATIONS AT THE MATHIES MINE MOUND (36WH29), WASHINGTON COUNTY, PENNSYLVANIA

23

of Watson Ware from the Middle to Late Woodland periods (McConaughy 2002, 2011b). Kiski Notched and Bennington Corner Notched points recovered from the stone cap fill also indicate a late Middle Woodland to Late Woodland use of Mathies Mine Mound (Lantz 1989; McConaughy 2011b). Therefore, the stone structure and associated burials from Mathies Mine Mound should be assigned to the Middle to Late Woodland Watson Farm phase (McConaughy 2011b).

The Mathies Mine Mound is an important site. It is the only mound identified to date that has stratigraphically separated remains representing burials made during both the Cresap and Watson Farm phases. It demonstrates that the two phases are temporally separated.

Thanks to the efforts of Allegheny Chapter Survey Group #1, important information on the Mathies Mine Mound was gathered and saved. With that said, it is important to realize that this was only a partial excavation of the mound. There were likely many more interments than just the five burials documented in this report.

CONCLUSION

The Mathies Mine Mound excavations were commenced in 1962 with the intention of bringing new data to light regarding the construction and use of burial mounds in southwestern Pennsylvania. As is often the case, the analysis of the artifacts and field notes stalled after the initial investigation. Fortunately, the artifacts were donated by Donald Tanner to the Carnegie Museum of Natural History and he retained the original field notes. This permitted the authors to publish a report on the site 50 years after excavations began. During this interval, new technologies, such as AMS dating and nicotine residue analysis, were developed that enhanced our understanding of activities at the site.

The Mathies Mine Mound has provided valuable new data on burial mound use during the Cresap phase of the Adena Interaction Sphere and the Middle to Late Woodland Watson Farm phase. Some of this information conforms to typical patterns during these periods. However, some discoveries, such as the flaired-bit tubular pipe (with preserved tobacco residue) and the discovery of a crematory basin with a central post, are quite rare. It is fortunate that data was collected and preserved before bulldozers pushed aside this important part of western Pennsylvania's prehistory.

ACKNOWLEDGEMENTS

The junior authors would like to acknowledge Donald Tanner for his hard work and perseverance that ultimately led to the publication of this report 50 years after work began. The team in the Anthropology Department at Carnegie Museum of Natural History, including Dr. Sandra Olsen, Dr. Verna Cowin, Dr. David Watters, and the late Richard George, are thanked for allowing access to the Mathies Mine Mound collection and for managing the AMS dating of samples. Dr. Sean Rafferty is acknowledged for sharing the results of his residue analysis. Dr. Bernard Means is thanked for recalibrating the AMS assays. Judy Aurin and Jason Espino are thanked for their assistance on this report.

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