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# Anne Arundell County HISTORY NOTES

Quarterly Publication of the Ann Arrundell County Historical Society  
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P.O. Box 385 Linthicum, Maryland 21090-0385

Vol. XXXIV No. 1

October 2002

## American Indian Site Discovered

### The History and Preservation of the Magothy Quartzite Quarry

by Wayne E. Clark and Al Luckenbach

#### Introduction

Some of the most important archaeological sites known to science were not discovered by archaeologists, but rather by informed citizens with a willingness to share their knowledge. Such individuals can often make significant contributions to reconstructing our past.

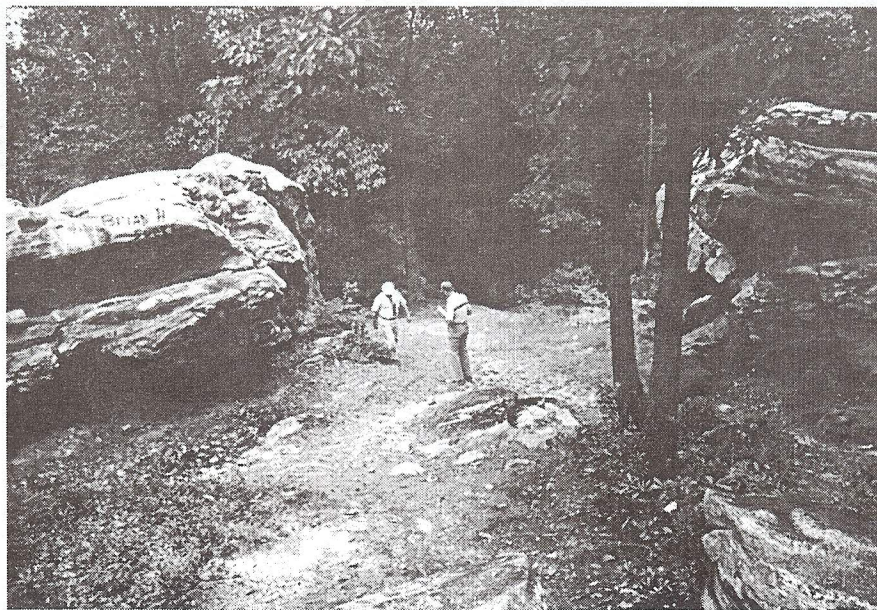
Jack Kelbaugh was one such individual. His interest in researching and publishing on topics concerning the history of Anne Arundell County is legendary. His passion for history, for sharing his knowledge with others, and for teaching younger generations made him an invaluable historian and friend. In the summer of 1989, Jack called each of us with a remarkable story of

giant quartzite boulders located on a hill in the Magothy drainage of northern Anne Arundell County. He talked about geological reports and historical references to these large boulders. His descriptions sounded like a site from the mountains of Maryland, not the sandy sediments of the Coastal Plain province. Neither of us had heard of such sites reported by archaeologists in the past. A check of the county and state archaeological site files failed to reveal such a site in the location reported by Jack.

Jack arranged to meet both of us at a parking lot in Parole. He popped open his car trunk and revealed several high quality quartzite flakes that

were of a material and size suggestive of being produced from large blocks of quartzite. The impossible was suddenly very probable. He directed us to the site location (which is kept confidential today to protect the

site). While he waited at the bottom of the hill, we hiked up the incline to the top. As we searched the path, we noted six-foot boulders on the hill slope and increasing flaking debris from Indian quarry activities. At the top of the hill, were amazing 12 foot high quartzite boulders. Evidence of flake production was scattered all around the base of the boulders (see Figure 1 on page 2). Flakes had been struck from

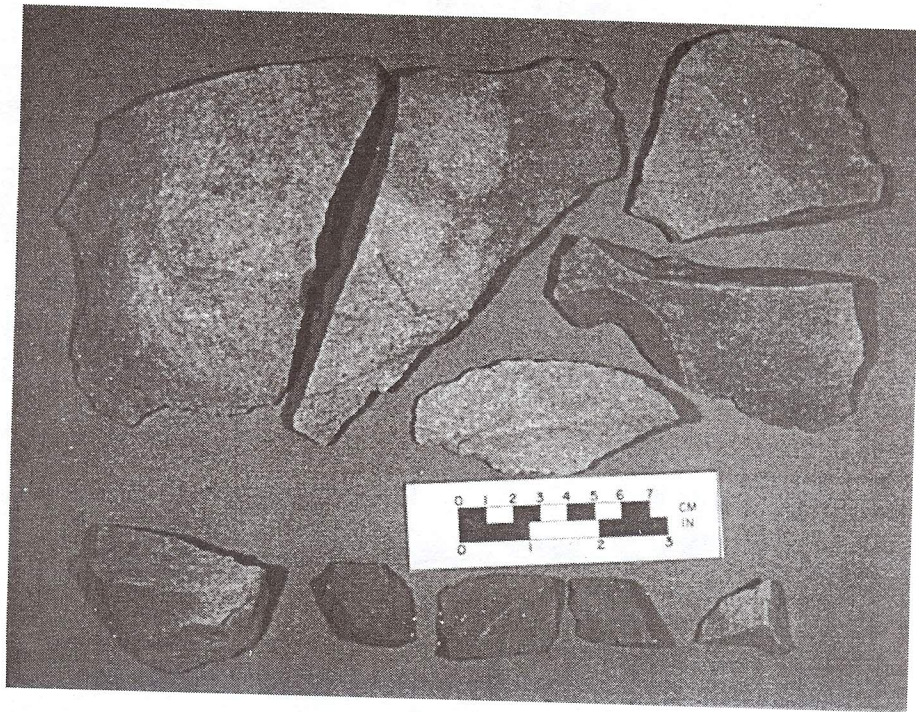


*Photo showing the massive dimensions of the boulders at the Magothy Quartzite Quarry. Photo from the archives of the Ann Arrundell County Historical Society.*

the boulders as evidenced by negative flake scars on the face of the boulders. After noting the artifacts resulting from Indian quarry workshop activity, we returned to the base of the hill and congratulated Jack for reporting a significant archaeological discovery.

After the visit, Al Luckenbach learned that the landowner planned to level the hill in the near future, destroying this important site. Through Luckenbach's efforts and that of Anne Arundell County Executive, Jim Lighthizer, an historic easement on the site was purchased by Anne Arundell County. The site will be preserved for future research in perpetuity. This report is dedicated to the memory of Jack Kelbaugh for his willingness to share data with others.

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*American Indian Site (cont. from page 1)**Figure 1: Quartzite Flakes**Geology and History of the Site*

Jack Kelbaugh was always searching for references involving the history of northern Anne Arundel County, Maryland. One day he was reading the Maryland Geological Survey publication on Anne Arundel County geology<sup>1</sup>. He noted a brief passage discussing large siliceous cemented boulders of hard sandstone located near Elvaton in the Coastal Plain province of northern Anne Arundel County.<sup>2</sup> The 1917 report stated, "Little use is made of this, although quarrying to a small extent has been carried on in the past".<sup>3</sup> Further research revealed a colonial reference to this same formation in the Maryland General Assembly Proceedings of 1698.<sup>4</sup> This description of the boundary of Anne Arundel County mentions the line coming to "a Mountain of White Stone rocks still Continuing West to the main road to Patapsco ferry." Jack surmised that the name for "Mountain Road" derived from this mountain of white rocks. It was based on this research that Jack rediscovered the site and reported his findings to the authors.

Geologists for the Maryland Geological Survey had known about this unique formation since the 1907 report by Edward B. Mathews,<sup>5</sup> if not before. The U.S. Geological Survey also reported on this site's unique geology in 1980.<sup>6</sup> Their report indicates that the outcrop occurs in the larger Potomac Group of coastal sediments which is 300 to 350 meters thick, based on well drilling data. Rocks like those from the

Magothy Quartzite Quarry are found at two locations in the uplands of Anne Arundel County. According to Manard's report:

"The Potomac contains large blocks of cemented sand and fine gravel. Many of the blocks, particularly in the upper part, are opaline cemented quartz sands. Glaser (1976) favors considering these as relict blocks of the Magothy (formation),<sup>7</sup>

The Magothy formation is younger in age than the Potomac Group that it covers. The Magothy formation is six to 12 meters of gray sand and clay soils. The opaline cemented quartz sand boulders of the Magothy Quartzite quarry site are gray in color on the edge of the boulder-field. The boulders in the center of the site are of white, tan and pink-colored quartzite. Neither geologists nor archaeologists are certain how these boulders would have formed. The Magothy formation sands and clays were formed in shallow lagoons. As these sediments eroded, the large blocks of rocks offered more resistance to erosion than did the soft sands of the Potomac Group. As the surrounding white sands of the Potomac Group eroded away, the boulders in the Magothy formation formed the hill upon which the rocks now rest. Today these boulders are found at the top of the hill at 128-foot elevation and down the sides of the hill to an elevation of 80 feet

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on the southern part of the site. This formation is within the Magothy River upland drainage.

To the north of this site, in the Patapsco River drainage, is a similar formation of opaline demented quartzite, called the "White Rocks" of the Patapsco. This formation also falls within the Potomac group and may also have been derived from the Magothy formation.<sup>8</sup> This formation has 12-foot high boulders, the base of which are now covered by tidal waters as a result of Holocene sea level rise. During the Paleo-Indian and Archaic period, the White Rocks formation would have been on dry land and available as a lithic tool source for the Indians. Archaeologists have not yet examined the exposed part of these boulders for evidence of negative flake scars, or dove underwater to see if flakes lie near the boulders on the bottom of the Patapsco River. It is expected, however, that such a study would reveal that these boulders were utilized for stone tool production.

A local resident, Mr. Kanch, grew up in the area of the Magothy quartzite quarry. He reported that construction of a rolling skating rink building at the southern base of the hill did very little damage to the site in the 1960's. But subsequent sand mining behind the building did result in the loss of several large boulders that were spanned by a cap rock on the crest of the hill. The cap rock formed a rock shelter that eight people could stand under. This rock shelter was a popular place for campfires for local children and adults who frequented the site (Kanch per comm. 2002). This is the only rock shelter reported to have existed in the Coastal Plain sediments of Anne Arundel County. It would have provided a wonderful shelter for the Indians working the lithic quarry on the top of the hill.

In the 1980's the building owner let a friend mine sand from the southern face of the hill for sale. Over time this mining operation resulted in the loss of the area of the two large boulders and cap rock behind the building. The county stopped this mining operation when it learned of it because a mining permit had not been obtained for the work. The resultant exposed, eroding cut of the hill was the reason the owner of the site wanted to bulldoze the hill in 1989 to avoid correcting the erosion issue. In the 1990's the site was acquired by a new owner who has been cooperative with the County in the preservation and protection of the site. The site has been formally listed on the National Register of Historic Places and, as mentioned, is protected by an historic easement purchased by Anne Arundel County from the previous owner.

*American Indian Use of the Site*

Quartzite was used by American Indians for

lithic tool manufacture throughout prehistory. The stone of choice for the Pre-Paleo and Paleo Indian periods (13,000-7500 B.C.) Cactus Hill site in Virginia was quartzite.<sup>9</sup> In the upper Chesapeake, quartzite was a very popular stone for use throughout the Archaic period (7500 - 1200 B.C.). Quartzite cobbles redeposited in coastal sediments was the normal source for quartzite tool manufacture.<sup>10</sup> Carol Ebright<sup>11</sup> has noted two different manufacturing techniques used by the Indians, one from river cobbles resulting in biface tool reduction, and the other from angular bedrock resulting in large flakes from which tools were made.

The Magothy Quartzite Quarry site's boulders are six to twelve foot tall massive bedrock boulders that were prime sources for opalized quartzite of high quality rock for making tools. Close examination of the sides of the boulders reveals multiple negative flake scars produced when large flake cores were struck from the boulders by the Indians. At the base of the boulders and between the boulders on the top of the hill are thousands of quartzite quarry flakes and flake fragments. These represent various stages in the production of stone tools. Most of the flakes collected to date by the Anne Arundel County program are reject flakes struck from the boulders with flat striking platforms. Very few flakes from the surface of the site show evidence of bifacial retouch striking platforms. Bifacial striking platforms indicate they are the result of the manufacture of bifacial tools such as knives and projectile points. Only two bifaces rejected early in the reduction process have been reported from the site. Systematic control surface collection of the site has not yet been undertaken, so the surface sample examined is not representative. It does reflect that this was a quarry site where primary flake production from bedrock boulders was the focus of activity.

This observation is further supported by the recording in 2002 of the south eroding cliff face at the site, the area destroyed by the late 20th century sand quarry activity. A large tan quartzite boulder over 10 feet high is exposed in the cliff face. To the west of the boulder, in situ flakes were noted eroding out of the profile two and a half feet below the current surface of the forest floor. To the east of this boulder, flakes at this buried level continued for 40 feet to the east of the large boulder. This heavy quarry activity layer was in an orange tan sand layer that extended 50 inches below the surface of the ground and rested on a white sand layer. The orange sand layer was confined to the top of the hill, with the hill slope evidencing white sand directly below the forest soils. The profile reveals that the hilltop and slopes had never been plowed, aiding in the preservation of the site.

Artifacts mapped in Strata Cut Number 1

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*American Indian Site (cont. from page 7)*

were photographed and removed from study (Figure 2). They are preserved at the Anne Arundel County Archaeology program lab. The flakes found to the west of the boulder were derived from the adjacent boulder. They are light to dark tan in color. A total of 31 flakes were collected. They range in size from 127 mm in length to 8 mm. A series of large primary flakes were struck from the bedrock boulders with a flat striking platform. Other flakes were struck from multifaceted flaked cores with 3 to 5 flake scars on the ventral surface. Translated, this means that the Indians were striking large flakes directly from the boulders, as well as using the large flakes to strike multiple flakes for making tools. One large primary flake had a concave, unifacially flaked edge of possible use as a spoke shave for working wooden shafts. Another flake had three retouch flakes on a convex edge. The rest were unmodified with no evidence of wear pattern from use. A number of flakes had multi-

production of flakes from the boulders from which tools were manufactured. It is predicted that the site was utilized throughout all periods of prehistory with the greatest use dating to the Pre-Paleo to the Late Archaic periods. Large flake size allowed for the manufacture of large bifacial tools such as knives and atlatl spear points. The research potential of this site is fantastic due to its unique quartzite boulders, rock shelter, buried deposits, and great potential to document changing methods of quartzite use over time.

*Historic Quarry Operations*

Jack Kelbaugh noted that the 1917 Maryland Geological Survey report<sup>12</sup> stated that "quarrying to a small extent has been carried out in the past." The historic quarry pits are still present while others were probably destroyed by construction of the ice skating rink building and sand quarry. Fourteen quarry pits are still evident around the base of the hill. Some are a large hole surrounded by mounds of earth excavated to fully expose the boulder. The boulder in these was



Figure 2: Quartzite Boulder at top of site 18 AN 760

ple negative flake scars on the ventral side of the flake. This is evidence that the large flakes were sometime selected for the manufacture of smaller flakes. Biface reduction flakes were absent from this cluster of in situ flake debris.

Until systematic surface collection and excavations of the site are completed, one cannot say what time periods are represented by the Indian use of the site. It is evident that the focus of such use was the

completely mined and removed. Others have similar quarry pits around the boulder, with part of the boulder still in the center of the pit excavation. The boulders in these quarry pits show evidence of the manufacture methods used by the historic miners.

The miners selected isolated boulders at the base of the hill primarily made out of a gray-colored quartzite that had larger grain size and a softer

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*American Indian Site (cont. from page 8)*

matrix than the quartzite on top of the hill. They drilled 3 to 5 inch deep holes every 5 to 6 inches along a straight line (Figure 3). This series of holes ran a distance of 8 feet along the top of the boulder. They did the same 2 to 3 feet down the side of the boulder. Somehow, and the method is not evident, they applied pressure to both lines of drill holes, causing a rectangular block of quartzite to break off the boulder. One such successful block left on site was 8 feet by 2 feet by 2.8 feet. The boulders may have produced on average four size rectangular blocks. Two other partial blocks that did not fracture properly (diagonal not square) were also 8 feet long. A number of quarry pits were devoid of in situ boulders, so it is assumed that the boulder was reduced to cut rectangular blocks and removed from the site. We could not determine when this quarry activity occurred, other than it was before 1917. Nor are we aware of building or bridge stones that fit this dimension used in extend building or bridges in Anne Arundel County. The finer grain, harder density quartzite boulders on the top of the hill mined by the Indians were not mined during the historic period.

*Conclusion*

The Magothy Quartzite Quarry site (18 AN 760) demonstrates the value of listening to local informants even though logic says that the information conveyed does not fit archaeological models of what should be present. Jack Kelbaugh's historic discovery led to the archaeological confirmation and listing of

the site on the National Register of Historic Places. The Anne Arundel County archaeology program helped secure an easement on the site as a result of County Executive Jim Lighthizer's interest and the landowner's cooperation. Thanks to Jack, this highly significant site is now protected, and available for future scientific research.

- 1 1917, *Anne Arundel County, Maryland Geological Survey*. The Johns Hopkins Press, Baltimore.
- 2 *Ibid*, page 69.
- 3 *Ibid*, page 125.
- 4 1902, *Archives of Maryland, Proceedings and Acts of the General Assembly of Maryland, March, 1697/8-July, 1699*, Volume XXII, page 147.
- 5 Edward B. Mathews, 1907, *The Counties of Maryland, Their Origin, Boundaries and Election Districts*. Maryland Geological Survey, John Hopkins University Press, Baltimore, page 437.
- 6 James P. Minard, 1980, *Geology of the Round Bay Quadrangle, Anne Arundel County, Maryland*. Geological Survey and Professional Papers 1109. United States Government Printing Office, Washington.
- 7 *Ibid*, page 5.
- 8 John D. Glaser, Editor, 1976, *County Atlas No. 1: Anne Arundel County: Geology, Mineral Resources, Land Modification, and Shoreline Conditions*. Maryland Geological Survey, John Hopkins University, Baltimore.
- 9 Joseph M. and Lynn D. McAvory, 1997, *Archaeological Investigations of Site 44 SX202, Cactus Hill, Sussex County, Virginia. Virginia Department of Historic Resources, Research Report Series No. 8*, Richmond.
- 10 Carol A. Ebright, 1987, *Quartzite Petrography and Its Implications for Prehistoric Use and Archaeological Analysis*. *Archaeology of Eastern North America*, Volume 15, pages 29-46, Buffalo.
- 11 William Henry Holmes, 1897, *Stone Implements of the Potomac-Chesapeake Tidewater Province. 15th Annual Report of the United States Bureau of Ethnology*, Washington, D.C.
- 12 Ebright, *Op.cite*, page 43.
- 13 1917, *Maryland Geological Survey Report, Anne Arundel County*. John Hopkins University Press, Baltimore, page 125.

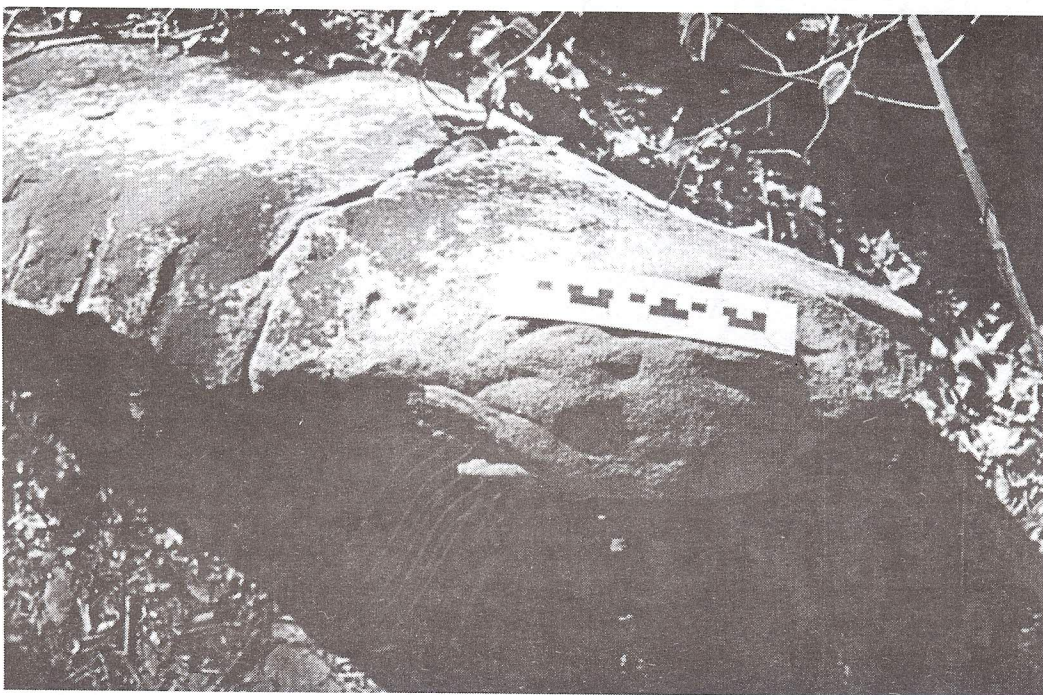


Figure 3: Historic Quarry drill holes in block

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