FHR-8-300 (11-78)

United States Department of the Interior
Heritage Conservation and Recreation Service

National Register of Historic Places Inventory—Nomination Form

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date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic ~~Prehistoric Quarries of the~~ Delaware Chalcedony Complex TR

and/or common Prehistoric Quarries of the Delaware Chalcedony Complex

2. Location 6 + 10oE

street & number Northeast Cecil County (see enclosed maps) (X) not for publication

city, town Elkton ___X___ vicinity of congressional district First

state Maryland code 24 county Cecil code 015

3. Classification

Category	Ownership	Status	Present Use	
___ district	___ public	___ occupied	_X_ agriculture	___ museum
___ building(s)	_X_ private	_X_ unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	___ private residence
_X_ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	_X_ yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
	_X_ not applicable	___ no	___ military	___ other:

4. Owner of Property

name Multiple ownership (see individual nominations)

street & number

city, town Elkton ___X___ vicinity of state Maryland 21921

5. Location of Legal Description

courthouse, registry of deeds, etc. Cecil County Courthouse

street & number Main Street

city, town Elkton state Maryland 21921

6. Representation in Existing Surveys

title Maryland Geological Survey, Division of Archaeology Site Survey Files has this property been determined elegible? ___ yes _X_ no

date 1982 ___ federal _X_ state ___ county ___ local

depository for survey records Maryland Geological Survey, Division of Archaeology
The Rotunda, Suite 440, 411 West 40th Street

city, town Baltimore state Maryland 21211

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	_X_ original site
___ good	___ ruins	_X_ altered	___ moved date _____
_X_ fair	___ unexposed		

Describe the present and original (if known) physical appearance

DESCRIPTION SUMMARY

The Delaware Chalcedony Complex Thematic Group takes its name from the geological term for the extensive outcrops of jaspers and cherts which were the focus of the prehistoric stone tool manufacturing activities. The seven sites included in the thematic group share the common theme of representing the various activities involved in the procurement of high quality lithic materials for stone tool manufacturer and the actual production of the stone tools. [redacted] The outcrops are spotty and each of the highest quality outcrops identified is associated with a quarry site where prehistoric poeples procured the raw materials for the manufacturing of tools. Sites where these materials were processed into tools are located in adjacent settings with fresh water and level ground. Final tool production was accomplished at other locations on the larger streams which were optimal for long term habitation. The seven sites included in the group represent all of these varied tool production activities and range in age from ca. 8000 B.C. to 1000 A. D.. In some cases the sites have had part of their archaeological remains disturbed by plowing, but in other cases the deposits are undisturbed.

The specific time periods of utilization for each of the sites and their salient characteristic are noted in the accompanying property inventory descriptions.

GENERAL DESCRIPTION

The Delaware Chalcedony Complex Thematic Group is named for the geologic outcrops in the area that form the focus of prehistoric quarrying and tool production activities (Custer and Galasso 1980; Wilkins 1976). [redacted] number of sites that are adjacent to outcrops of high quality lithic materials suitable for the manufacture of stone tools. These high quality materials include a variety of cherts and jaspers ranging in color from dark greys to blacks to chocolate browns and brownish yellows. [redacted] In these locations the necessary geochemical reactions take place for the formation of jaspers and cherts (Lovering 1972). Generally these locations are not large (less than 2 acres) and are fairly widely dispersed. Nevertheless, the lithic materials within the outcrops are of a sufficiently high quality to have attracted prehistoric peoples for more than 15,000 years.

SEE CONTINUATION SHEET #1

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GENERAL DESCRIPTION (Continued)

Prehistoric activities at the outcrops included procurement of blocks and naturally produced spalls of the cryptocrystalline materials and initial chipping of the materials to determine their workability. These activities produce a series of blocky cores and large broken flakes in addition to very large quantities of amorphous flakes that commonly lack well-defined flake morphology. Initial shaping of the cores and spalls took place at quarry reduction sites slightly removed from the quarry sites in locations that had fresh water and level ground. Large flakes were subjected to initial edging and primary reduction (Callahan 1979). These activities produced a series of rejected tools broken by manufacturing errors or rejected due to raw material flaws and imperfections. Accumulations of smaller, well-defined flakes are also present. Final production of tools took place at a series of habitation sites, or base camps, and these sites include a wide array of tool types, rejected tools in late stages of manufacture, and debitage indicative of finished tool production. In a few cases, discarded tools which had been culled from the tool kit are also present.

SITE DESCRIPTIONS

Iron Hill Cut Jasper Quarry 18 CE 65

Lithic materials at the Iron Hill Jasper Quarry were exposed by a combination of stream cutting and slope wash erosion. Cryptocrystalline materials are exposed along a 70 meter section of the southeastern side of a linear knoll. The cryptocrystalline material in the quarry exhibits the full color range of jasper and chert. The veins of the jasper grade from yellow to red. Although this is sometimes considered evidence of purposeful thermal alteration, the absence of changes in surface texture, coupled with the massive size of the colored outcroppings suggest this condition results from weathering.

Two activity areas were identified at the site; the quarry and a primary lithic reduction station. The uneven quality of the lithic material obscured evidence of flaking on the quarry face. Two large, primary flakes, however, were found among the jasper nodules at the foot of the outcropping suggesting quarry utilization. Artifacts were discovered along the bank of a deeply cut stream, approximately 30 meters from the quarry. Sub-surface testing identified an extensive primary reduction locus extending 44 meters along the bank and approximately 10 meters from the edge of the bank. The artifacts recovered in this locus include blocky fragments and thick primary flakes of jasper and chert containing a high proportion of crystalline inclusions. Two jasper cores, a jasper flake tool, and a fragment of a possible hammerstone were also found. The artifacts recovered closely match the color and quality of lithic material observed in the quarry.

SEE CONTINUATION SHEET #2

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GENERAL DESCRIPTION (Continued)

Portable blocks of the cryptocrystalline material were removed from the quarry area and carried to the primary reduction locus where poor quality material and manufacturing rejects were discarded. Cores of substantial size and consistent quality lithic material were produced. There is no evidence for the secondary reduction of preforms at the site.

Four secondary reduction sites were discovered during the field reconnaissances in the Delaware Chalcedony Complex. [redacted] The sites are presently in cultivation and dense scatters of lithics are visible on the site surfaces. Functional interpretations for the sites have been made on the basis of the lithic analyses of the artifact samples obtained from the sites. Jasper and chert debitage predominates, with lesser amounts of quartz and quartzite debitage. Large, generally thin flakes exhibiting multiple flake scars on the planar surface are the most common class of debitage, however, significant quantities of smaller flakes are present. The thick, primary flakes and shatter found in abundance at the quarry-related primary reduction station (18 CE 65) are uncommon. In addition, fragments of bifaces representing late stage biface reduction were prevalent. Each site produced notched and stemmed projectile points dating to the Middle Archaic (6000-3000 B. C.) and Early and Middle Woodland (3000 B.C.-A.D. 1000) Periods.

Hitchens Site 18 CE 37

This lithic reduction site [redacted] The site yielded ten primary biface rejects and two secondary biface rejects. Utilized and worked tools were also present. The majority of the debitage consists of yellow jasper, black chert and red jasper, while quartz and ironstone flakes are present in low frequencies. The jasper and chert debitage is similar in properties to the quarry material at 18 CE 65. Eight temporally diagnostic projectile points were recovered, although only two points were manufactured from jasper or chert.

[redacted] It appears that 18 CE 37 represents a lithic reduction and short-term habitation/processing site associated with 18 CE 65. The proximity of the site to the quarry, as well as the presence of high frequencies of jasper and chert debitage matching the quarry material offers support for considering the site as part of the quarry utilization system.

SEE CONTINUATION SHEET #3

GENERAL DESCRIPTION (Continued)

Bumpstead Site 18 CE 162

[redacted] The surface of the site produced two primary and two secondary biface rejects and five flake tools. Eight temporally diagnostic projectile points were also recovered and five of these were manufactured from local chert and jasper. The color of the debitage was different from debitage at 18 CE 37, with little yellow jasper found. The predominant material at the site is a black chert containing numerous inclusions. One projectile point, an Archaic side-notched form (6500-3000 B.C.), was manufactured from this material. The remaining cryptocrystalline points, however were made from a glossy red jasper with a texture indicating thermal alteration. One primary biface reject and a small amount of debitage of this red jasper were also recovered.

The site represents a different use than that of 18 CE 37. In addition to the secondary reduction activities, the site bears more extensive evidence of hunting and processing activities associated with transient occupation.

McCandless Site 18 CE 163

The site [redacted] Although very similar to 18 CE 162, the site contained higher frequencies of black chert, only one primary biface reject of yellow jasper, and no jasper debitage. Seven black chert primary biface rejects in a wide range of sizes were recovered. In addition, one late stage projectile point, rejected due to minor damage during the finishing process, was recovered. Also present was a carefully worked unifacial scraper with a pressure flaked graver, suggesting that hunting/processing activities took place. The site represents a reduction component similar to that at 18 CE 162. It is another secondary reduction site associated with an unidentified black chert quarry.

Messina Site 18 Ce 164

[redacted] It differs from the other sites in the northern complex because it exhibits a wider range of jaspers and cherts, although black chert is most common. The three primary biface rejects recovered at the site were made of yellow jasper. Three black chert projectile points were also found. One of the chert points was discarded into a fire, with the resulting pot-lidding and surface crazing. Another point appears to have been rejected during the process of final edging. The site also yielded a grooved axe. The evidence of the burned point provides the only evidence of a hearth at any of the sites in the group. The axe may reflect an emphasis on wood processing, an activity not indicated at the other sites.

SEE CONTINUATION SHEET #4

GENERAL DESCRIPTION (Continued)

Heath Farm Jasper Quarry 18 CE 8

[redacted] Associated with the quarry is quarry debris which extends [redacted] The primary reduction locus lies to [redacted] and collections from the site contain primary stage jasper bifaces. 18 CE 8 is associated with a secondary reduction site, 18 CE 66, [redacted]

Heath Farm Camp II 18 CE 66

The Heath Farm Camp II site [redacted] It consists of a surface scatter of artifacts across the stream terrace. The lithic material at the site includes secondary biface rejects and discards, finished bifaces, flake tools, and a large amount of jasper debitage. The properties of this material are similar to those of the quarry at 18 CE 8, suggesting a secondary base camp associated with this quarry. Limited sub-surface testing indicates the possibility of intact buried materials below the plow zone, dating to earlier periods.

SURVEY METHODOLOGY: Site Location, Testing, and Analysis

The areas tested in this group were selected from previously reported sites and reports from informants in which outcroppings of local jaspers had been recorded. In addition, certain topographic features with higher relief than the surrounding area (that is, ridges and knolls) were inspected in an attempt to locate additional outcroppings and associated sites. The known outcroppings have high relief because they are resistant to weathering process.

Archaeological field testing consisted of surface collection and limited sub-surface excavation. The areas to be field tested were located on topographic maps and later examined by the survey crew. Previously recorded sites were designated by their assigned trinomial number and newly located sites were assigned a trinomial number.

SEE CONTINUATION SHEET #5

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GENERAL DESCRIPTION (Continued

Since a large portion of the survey area is presently cultivated, surface visibility was often good (fields were recently plowed and rainwashed). In cultivated areas fields were walked in parallel lines, usually following the rows of cultivation. When surface visibility was obscured, test holes were made with a post hole digger. Sub-surface tests were made at regular intervals following a compass direction. Sub-surface testing was discontinued when two or more tests in a series produced no cultural material. Test holes were excavated to sterile subsoil.

All temporally diagnostic artifacts, as well as bifaces, utilized flakes, groundstone tools, and debitage were collected and bagged separately by site, or when appropriate, by activity area. All artifacts recovered were washed, labelled, and catalogued in the laboratory. All previously reported information for individual sites was also recorded on site forms.

The analysis of the spatial distribution and morphological attributes of the Delaware Chalcedony Complex artifacts was directed towards three goals: 1) to delineate site boundaries; 2) to document temporal periods when possible; and 3) to determine site function based on the analysis of site assemblages, emphasizing the association between procurement and reduction of local lithic materials. The functional categories employed in cataloguing were: 1) projectile points (discarded, rejected, reworked); 2) primary or secondary bifaces (discarded, rejected); 3) utilized or reworked flakes; and 4) debitage (primary, secondary, tertiary flakes, shatter). Artifacts collected from each site were tallied by artifact class and lithic material. Lithic procurement choices and lithic reduction stages for each site were determined by considering the presence or absence of raw material, and relative frequencies of early or late stage bifaces and debitage. These patterns were evaluated in terms of existing models of lithic procurement and reduction (Gardner 1974, 1977; Callahan 1979). Temporal affiliation of the sites was determined on the basis of projectile point morphology and was then related to cultural periods defined by Custer (1983a, 1983b). Site boundaries were determined by the spatial distribution of cultural material and existing topographic features.

8. Significance

Period	Areas of Significance—Check and justify below				
X prehistoric	X archeology-prehistoric	___ community planning	___ landscape architecture	___ religion	
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science	
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture	
___ 1600–1699	___ architecture	___ education	___ military	___ social/ humanitarian	
___ 1700–1799	___ art	___ engineering	___ music	___ theater	
___ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ transportation	
___ 1900–	___ communications	___ industry	___ politics/government	___ other (specify)	
		___ invention			

Specific dates 8000 B.C. - A.D. 1000 **Builder/Architect** n/a

Statement of Significance (in one paragraph) Applicable Criterion: D

SIGNIFICANCE SUMMPARY

The sites included in the Delaware Chalcedony Complex Thematic Group contain artifacts indicative of the entire series of tool production activities for the prehistoric inhabitants of the Upper Delmarva Peninsula region. For most prehistoric groups of this region stone tools were the basis of their food procurement and processing activities and the manufacture of these tools was a critical activity in their lives. Therefore, the sites in this group provide an opportunity to study an important activity of prehistoric groups that should shed considerable light on their adaptations and lifeways. The significance of the sites in the group is underscored by the fact that the cryptocrystalline outcrops of the Delaware Chalcedony Complex are unique to the Upper Delmarva Peninsula. Each site represents one or more spatially separated stages in the sequence of lithic procurement and utilization. Therefore, the sites must be considered collectively, within the context of the group, in order to illustrate the entire process.

HISTORY AND SUPPORT

Three quarry systems of sites are present in the group: the jasper and chert quarry and primary reduction site 18 CE 65 which is related to the secondary reduction site, 18 CE 37; the quarry and primary reduction site at 18 CE 8 relates to the secondary reduction site at 18 CE 66; and the as yet unidentified chert quarry in the northern section of the group associated with the secondary reduction sites 18 CE 162, 18 CE 163 and 18 CE 164. Each system shows the various activities that were part of the process of lithic resource procurement and stone tool production. Also, in each case the varied activities were separated in space based on the local topographic situation. The differential distribution of stone tool production activities at the sets of sites within the group allows the testing of various models of stone tool production activities and their relation to other components of prehistoric adaptations.

Although no diagnostic artifacts of the Paleo-Indian/Early Archaic time period (ca. 15,000 B.C. - 6500 B.C.) were discovered in the course of the survey of the sites in the district, the general region of the group is the focus of a concentration of Paleo-Indian sites (Custer, Cavallo, and Steward 1983). Research by Gardner (1974, 1977; Gardner and Carbone n.d.) in the Middle Atlantic has suggested that Paleo-Indian sites should be associated with cryptocrystalline lithic outcrops and the sites in the group may indeed be a part of a Paleo-Indian system. The spatial separation of the activities at the sites in the group allows the testing of some of Garner's models. Paleo-Indian sites that may be discovered at a later date may also be related to the quarry sites included in the group.

SEE CONTINUATION SHEET #6

9. Major Bibliographical References

See Continuation Sheet #6

10. Geographical Data

Acreage of nominated property See individual nomination forms

Quadrangle name Newark West (Maryland/Delaware) **Quadrangle scale** 1:24,000

UMT References

	Zone	Easting	Northing		Zone	Easting	Northing
A				B			
C				D			
E				F			
G				H			

Verbal boundary description and justification

See individual nomination forms.

List all states and counties for properties overlapping state or county boundaries

state	n/a	code	county	code
state		code	county	code

11. Form Prepared By

name/title	Dr. J. F. Custer - Professor of Anthropology		
organization	University of Delaware	date	July 6, 1983
street & number	Department of Anthropology	telephone	(302) 738-2821
city or town	Newark	state	Delaware 19711

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state X local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature [signature] 10-26-83

title STATE HISTORIC PRESERVATION OFFICER date

For HCRS use only

I hereby certify that this property is included in the National Register

[signature] date 12/16/83

for Keeper of the National Register

Attest: [signature] date

Chief of Registration

GPO 938 835

HISTORY AND SUPPORT (Continued)

The later Archaic and Woodland occupations at the secondary reduction sites are also significant because locally developed models of stone tool technology and settlement patterns suggest that the later groups had a different organization of their technologies compared to the earlier groups (Custer 1983a, 1983b). Further study at the secondary reduction sites and the quarries included in the thematic group will allow the further testing and refinement of these hypotheses.

For all time periods, the quarry and reduction sites of the thematic group are unique in that the presence of several quarry site complexes allows the comparative study of this important aspect of prehistoric technology.

MAJOR BIBLIOGRAPHICAL REFERENCES

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1979 The basics of biface knapping in the eastern fluted point tradition. Archaeology of Eastern North America 7:1-180.

Custer, J. F.
1983a A Management Plan for the Upper Delmarva Region of Maryland. Maryland Historical Trust, Annapolis.

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Custer, J. F., J. Cavallo, and R. M. Stewart
1983 Paleo-Indian adaptations on the Coastal Plain of Delaware and New Jersey. North American Archaeologist (IN PRESS).

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SEE CONTINUATION SHEET #7

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Multiple Resource Area
Thematic Group

dnr-11

Name Delaware Chalcedony Complex Thematic Resources
State Cecil County, MARYLAND

Cover 12/16/83

Nomination/Type of Review		Date/Signature
1. Heath Farm Jasper Quarry Archeological Site	Substantive Review	Keeper Y. D. Stewart 12/16/83
		Attest
2. Heath Farm Camp Archeological Site	Substantive Review	for Keeper Y. D. Stewart 12/16/83
		Attest
3. Hitchens Archeological Site		Keeper
		Attest
4. Bumpstead Archeological Site		for Keeper Y. D. Stewart 12/16/83
		Attest
5. McCandless Archeological Site		for Keeper Y. D. Stewart 12/16/83
		Attest
6. Iron Hill Cut Jasper Quarry Archeological Site		for Keeper Y. D. Stewart 12/16/83
		Attest
7. Messina Archeological Site		for Keeper Y. D. Stewart 12/16/83
DOE/OWNER OBJECTION	Substantive Review	Attest
8.		Keeper
		Attest
9.		Keeper
		Attest
10.		Keeper
		Attest