

**BULLETIN OF THE  
ARCHAEOLOGICAL SOCIETY OF CONNECTICUT  
NUMBER 55 1992**

Edited by LUCIANNE LAVIN

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THE ARCHAEOLOGICAL SOCIETY OF CONNECTICUT, P.O. BOX 386, BETHLEHEM, CT 06751

ISSN: 0739-5612

## EDITOR'S CORNER

The articles comprising this volume of *The Bulletin* all deal with Connecticut Archaeology. In addition to their common geographic research area, another major theme is the illustration of various ways in which archaeologists extract information from archaeological, documentary, and other contexts to attain the three major goals of anthropological archaeology. These are: (1) Formulation of a regional cultural chronology or historical framework; (2) reconstruction of the human behaviors that occurred within a site and ultimately, within the entire settlement system; and (3) discovery of the underlying processes or "laws" that explain various cultural phenomena.

The articles by Strazdins and Lavin and Miroff demonstrate that important cultural information may be retrieved from older avocational collections with little or no provenience data. Through the analyses of artifact styles and functional types, Strazdins shows the utility of the old Cyrus Sherwood Bradley collection for providing a regional perspective of prehistory in a part of southwestern Connecticut where many of the archaeological sites were long since destroyed by urban development. Lavin and Miroff's study of potsherd from the John and Matthew Dorso collection from the Indian Ridge site in New Milford generates similar ideas about age, cultural tradition and settlement pattern at the site level. Gudrian's analysis of artifacts from Southington rockshelters indicates that similar kinds of cultural information can be elicited from presently extant, but highly disturbed archaeological contexts.

Cruson and Hoag's paper shows the importance of local informants' input toward a better understanding of a site's cultural components as well as in the actual planning of further excavations at that site. Pagoulatos' replicative experiments with quartzite biface manufacture illustrate how the subfield of experimental archaeology can provide more insight into prehistoric tool manufacturing technologies and help us to identify specific techniques through the kinds of patterning they leave behind on artifacts.

This volume also contains Poirier and Gradie's lengthy bibliography of articles on historical archaeology in Connecticut. The bibliography should prove invaluable to archaeologists working in the region -- and outside of it as well, since many listings are unpublished CRM reports.

Parkos' strange artifact from eastern Connecticut is part of an ongoing series on unidentified artifacts from Connecticut sites. What is it, folks? Your editor welcomes comments as to the use and cultural affiliation of this particular object. Anyone having a strange or unidentified artifact in his or her collection is encouraged to send in a photo or sketch with pertinent information. Let's see if our membership can identify it for you.

THE CYRUS SHERWOOD BRADLEY COLLECTION:  
A PRELIMINARY STUDY OF THE PREHISTORIC NATIVE AMERICAN PRESENCE  
IN FAIRFIELD, CONNECTICUT

SALLY STRAZDINS  
ARCHAEOLOGY CLUB OF NORWALK COMMUNITY COLLEGE

ABSTRACT

The town of Fairfield, Connecticut and the adjacent towns of Westport, Weston, and Easton lie within a territory whose cultural prehistory has been described in a model for southern New England (Lavin 1984). The model will be used to describe Fairfield's prehistory as interpreted through a study of a large collection of North American Indian artifacts. A study of artifacts found in Darien (Angstadt et al. 1980) and the excavation of a site in New Haven (Lavin and Russell 1985) have shown the same cultural sequence as represented by artifacts in the collection assembled by Cyrus Sherwood Bradley of Fairfield.

INTRODUCTION

The town of Fairfield is located along the Coastal Slope of Connecticut where the land plunges into Long Island Sound (Bell 1985:75). Brooks and rivers flow through the land and into tidal rivers and estuaries. The gentle topography and rich soil of the area brought settlers to Fairfield within 10 years of the founding of Connecticut's first town (Bell 1985:76). Many Indian artifacts were gathered along two of the rivers, the Sasqua (Sasco Creek today) and the Uncweay (Mill River today), in the late 1800's by residents of Fairfield (Bradley 1880).

Cyrus Sherwood Bradley (1863-1946) assembled a large collection of artifacts by surface collection, trade, purchase, and gift. He carefully documented much of the collection, including descriptions and maps in his documentation. Study of the Bradley collection and the accompanying documents has provided the evidence for defining the prehistoric record of Fairfield and environs. Although maps and descriptions of sites allow us to know where the sites are located, residential development has overtaken most sites, especially those of greatest artifact concentration. The Cyrus Sherwood Bradley collection was made available for study by the Fairfield Historical Society.

HISTORICAL BACKGROUND

When Adrian Block, the Dutch sea captain, sailed up the Connecticut River in 1614, the Uncawa Indians were among those who occupied the southerly part of Fairfield County (Whipple 1972:33-34). In 1639 Roger Ludlow, a veteran of the swamp fight with the Pequots, let 8-10 families from Windsor and, settling on land which they purchased from the resident Indians, called their new home by its Indian name, Unquowa (DeForest 1851:167). Although the original records of this land sale were destroyed by fire (Wojciechowski 1985:15), the early town records of Stratford, Fairfield, and Norwalk have copies of subsequent transactions between these towns and the local Indians (Wojciechowski 1985:5).

In the coastal areas west of the Housatonic, the Indians who signed deeds were called "Pequannock" or "Sasqui", the Sasqua Indians being a band of the Pequannock, and these deeds covered an area westward to the Saugatuck River. Beyond the river to the west was the territory of the "Norwalke Indians" (Wojciechowski 1985:5).

On March 20, 1656, the deed of Pequannock and Uncoway was signed by appointees of the Town of Fairfield and the Poquanuck Indians. In signing, the Indians recognized that the Town of Fairfield had purchased and now owned the land upon which the Town of Fairfield was built "from ye Creeke yt ye Tide-mill of Fairfield, South Westward is called Sasqua which they owne, have been purchased from ye Indians, & is now ye Englishe's Land". Also the Indians granted to the Town "yt all that tract of land which they call Unceway (which is from the above sd. Creek Eastward unto ye bounds between Fairfield & Stratford) from ye sea, to run into ye Country seven or eight Miles" (Wojciechowski 1985:87).

On March 20, 1660 the Deed of Sasqua, signed by the Sasqua Indians did "assigne over unto ye Inhabitants of Fairefield, all that tract of land commonly called Sasqua, bounded on ye north-east with ye land called Unceway, on ye south-west with ye land at Maximus ye line on southwest runs close to ye Englishe farmes at Maximus, & this tract of land is for run from ye sea strait up into the country six miles at ye least (Wojciechowski 1985:95). Finally, on April 11, 1661 a third deed, signed by Norwalk and Sasqua Indians agreed that "they doe by these presents acknowle yt all sd land as far as ye Muddy Creeke shall for ye future partaine to ye inhabitants of Fairfield & to their heirs for ever" (Wojciechowski 1985:96). A comparison of the land which was transferred in these deeds with a map upon which Bradley noted 33 of his sites (see Figure 1) shows that all of present day Fairfield and Southport (plus parts of Westport and Bridgeport) were included in these agreements and that the English of Fairfield has acquired full ownership of the town by 1661.

Cornelius Hull was granted a deed in 1686 for land upon which he founded Hull's Farms. The house which he built for himself was later owned by Captain Cyrus Sherwood, the grandfather of Cyrus Sherwood Bradley (Bradley 1891). Bradley obviously began collecting from this location, for he titled his first finds the "Sasqua Collection", noting that they were "Collected 1880-1885" and "All...were found in Hull's Farms (Bradley 1885). Over the years Bradley's collection grew through his own effort and that of others. On July 23, 1895, "Implements of the Indians of Poquanock, Unceway, Sasqua, and Aspetuc", which had been collected by Simon Couch Sherwood, E. Cornelius Sherwood, Robert Paul Wakeman, Jonathan Bradley, and Cyrus Sherwood Bradley were presented to the Pequot Library in Southport (Bradley 1895). The "implements" are listed in the *Descriptive Catalogue* prepared by Bradley, and 57 of them are with the Bradley collection and are a part of this study.

## SITES

Cyrus Sherwood Bradley prepared two maps to document the localities (or sites) where artifacts were found. Figure 1 shows the western part of Fairfield, the eastern edge of Westport, and adjacent parts of Weston and Easton in which 33 sites are located. A descriptive list of 36 sites aids further in pinpointing the 33 sites and in locating sites 34, 35, and 36. All sites are on or close to the Mill River, the Sasco Creek estuary, brooks, or Long Island Sound.

The nine sites along the Mill River yielded the bulk of the artifacts to which Bradley attributed a numbered locality. Adjacent sites 8 and 9, located on Brown's Brook, represent the greatest concentration of artifacts. The originals of Bradley's maps are on file at the Fairfield Historical Society.

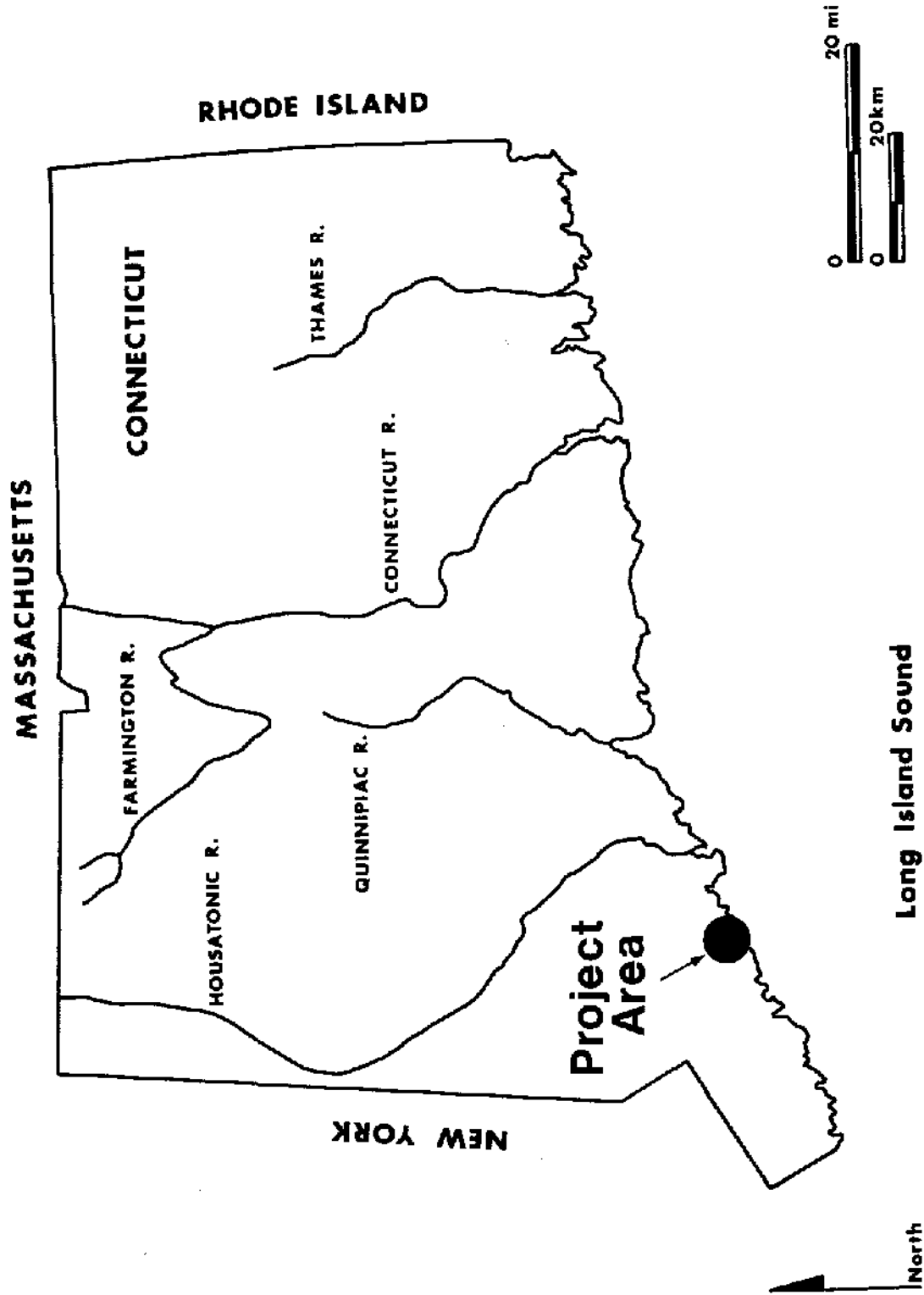


Figure 1. Map of Connecticut showing area in which Bradley's sites are located.

## THE BRADLEY COLLECTION

My introduction to the Cyrus Sherwood Bradley collection began with a visit to the basement of the Fairfield Historical Society where the Indian artifacts were stored in an old wooden chest of very narrow drawers. The artifacts, which had been analyzed 10 years previously by Norwalk Community College students, had been later inventoried for the Historical Society by an individual who had sealed them in numbered brown envelopes. As I pondered the task of gaining some information from the contents of the envelopes, old documents and catalogues from the Historical Society's files were provided for my use in coordinating written information with the "hidden treasures".

The documents included two catalogues; the two maps denoting sites; lists entitled "Unceway", "Sasqua Collection", and Lists of Specimens received from the Bridgeport Scientific Society"; loose notebook pages of artifacts listed by number and with description; and scraps of paper with a number for an artifact and a locality written on them. I copied all the old documents so as to preserve the fragile originals, and began to study these copies in order to familiarize myself with the various listings. I also began to look at the artifacts which required opening the brown envelopes of the Historical Society's inventory system. There was no correlation between the collection's documentation and the numbers noted on the envelopes.

Within the envelopes were many individually numbered artifacts. Cyrus Sherwood Bradley has pasted little numbers on some artifacts; on others he had tied little tags on which he had written numbers; some artifacts had both sets of numbers. The Norwalk Community College students had further numbered the artifact in ink, using a system denoting provenience. My task now became a juggling act of maintaining the integrity of all these systems while analyzing the artifacts and drawing information from them using the Bradley documentation.

Although the Bradley collection contains an uncounted number of artifacts, including boxes of surface-collected quartz pieces, a number of pestles, a mortar, gouges, celts, and axes, my analysis included mostly artifacts for which a site number or name could be found, plus some of the more interesting unprovenienced items. The provenience for each artifact was determined by studying the Bradley documents and coordinating numbers on stickers and tags with Bradley's various lists. At the same time I was double-checking the accuracy of the numbering system (based on provenience) devised by the Norwalk Community College students. Occasionally I changed their site designation as I found additional notes for use in coordinating artifacts with provenience.

The artifacts which were studied have been written up in a notebook. They have been drawn (outline only), weighed, measured, identified, analyzed, and photographed. All information from Bradley's notes pertaining to an artifact has been provided along with the analysis. Bradley identified many of his collected artifacts using reference material available to him. He credits Shepard's (1893) "Stone Age of Connecticut", Dr. C.C. Abbott's (1876) "Primitive Industry" and "Stone Age in New Jersey", "Smithsonian Contribution of Knowledge" (Anonymous n.d.), and Hilborne T. Cresson (personal communication) of Philadelphia as sources of information.

In the discussion of the archaeological significance of the collection which follows, 256 artifacts which have been attributed to numbered sites on a map are used for interpretation. Most, though not all, sites are represented by at least one artifact in the collection. In the photographic plates (Figures 2-11), artifacts have been grouped by their locality number on Bradley's map rather than according to typology. Photographs of only the most representative sampling of artifacts have been included here. Ninety-five artifacts ascribed to more

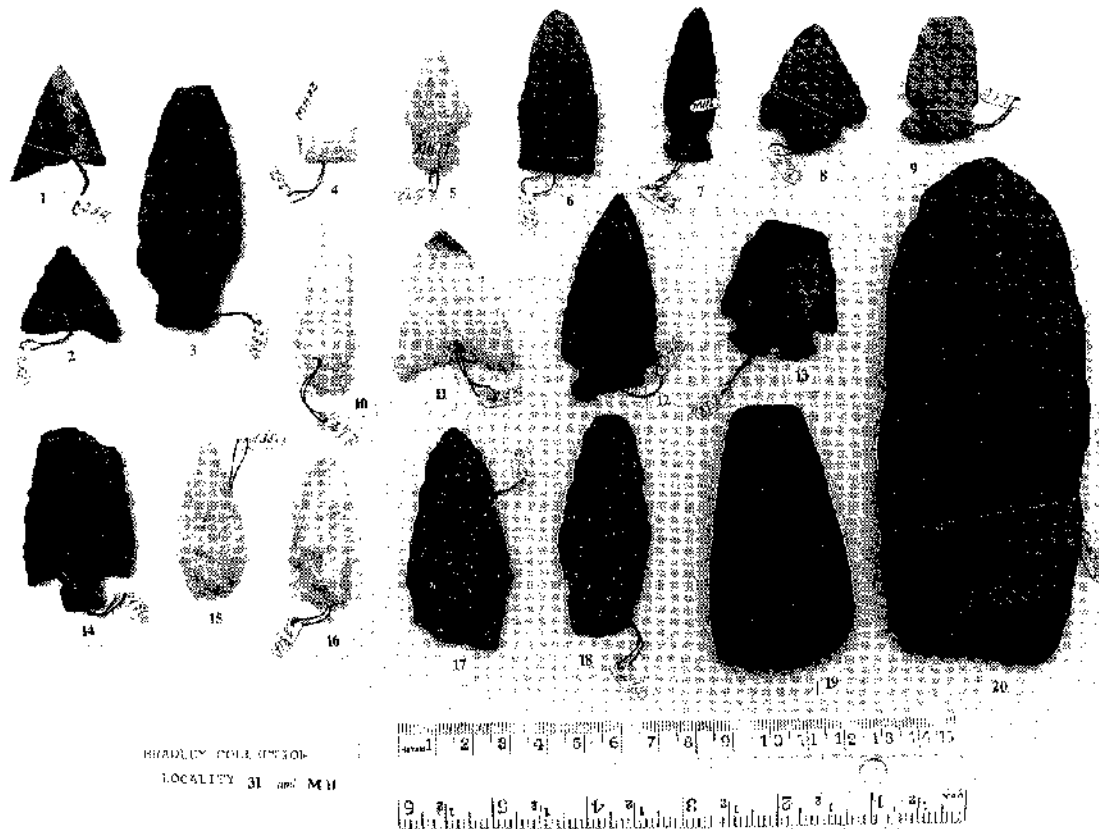


Figure 2. Artifacts: Bradley Collection, Locality 31. 14, untyped stemmed point; 15, Orient-like blade. Locality MH (Mill Hill). 1, 2, 11, Levanna points; 3, untyped stemmed point; 4, untyped side-notched, expanded base point; 5, Wading River point; 6, 17, Fox Creek points; 7, 16, untyped side-notched, narrow-bladed points; 8, Snook Kill-like point; 9, Sylvan Side-Notched point; 10, Lackawaxen point; 12, Greene point; 19, adze blade; 20, biface. Material: 1, 3, 12-14, chert; 2, 6, 7, 17, 18, 20, argillite; 4, 5, 9-11, 15, 16, quartz; 7, brown jasper; 8, mudstone; 19, unidentified. Most of the artifacts pictured here were found, as indicated in Bradley's notes, "on the hill" (assumed to be Mill Hill). Although not discussed in the text of this article, these artifacts show the extensiveness of the Bradley Collection beyond those examples attributed to a numbered site.

generalized locations in Fairfield were also analyzed. Bradley's notes mention and identify artifacts from Southport, Mill Hill, Merwin's Lane, Hull's Farms, and Round Hill. Artifacts collected by Isaac Gray were found "on the hill". (Bradley 1880-1895); projectile points were found by Herbert Banks "on his father's land on the hill" (Bradley 1880-1885). The hill mentioned is assumed to be Mill Hill.

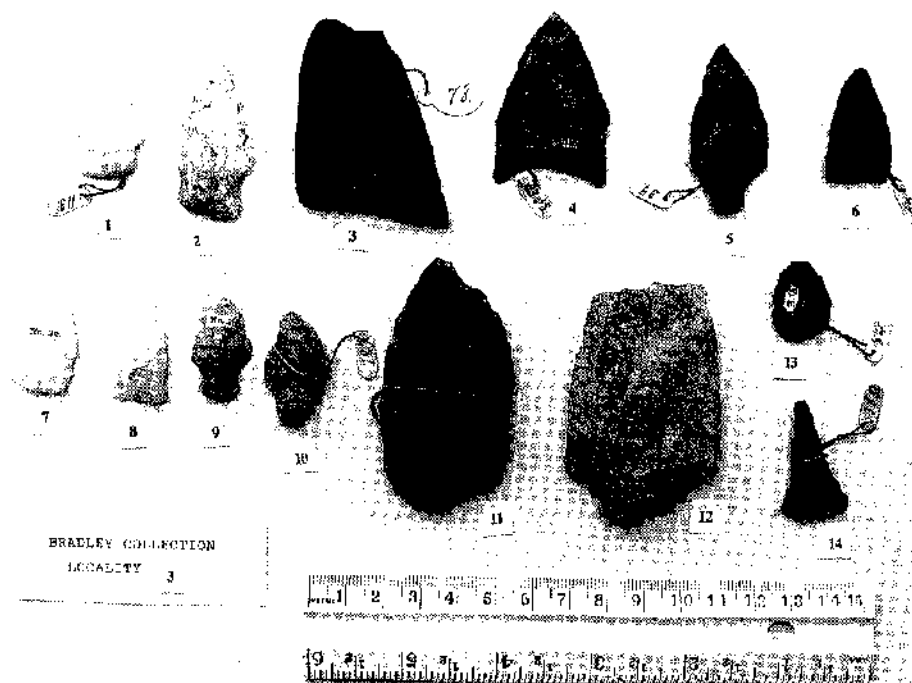


Figure 3. Artifacts: Bradley Collection, Locality 3. 1, 7, 8, untyped points; 2, Sylvan Side-Notched point; 3, paintstone; 4, Fox Creek point; 5, Rossville point; 6, Beekman Triangle point; 9, 10, Wading River points; 11, biface; 12, Snook Kill point; 13, scraper; 14, expanded base drill.  
Material: 1, 2, 7-10, 12, quartz; 3, hematite; 4, 11 quartzite; 5-6, mudstone; 13, 14 chert.

In addition, 46 unprovenienced artifacts, most of which were projectile points, were analyzed. As a collector and trader, Bradley evidently endeavored to bring variety to his collection. Artifacts from general locations in other towns add the following items of interest to the collection: 17 artifacts from Stratford include two Brewerton points which have been used as scrapers; seven artifacts from Weston include a saw, a stemmed scraper, and a Fox Creek point or what appears to be Cocksackie chert; two artifacts from Westport include a large (98 mm long) untyped point of (possibly) Cocksackie chert.

#### ARTIFACTS - THE ANALYSIS

The archaeological interpretation of the area of Fairfield, Westport, Weston, and Easton delineated by Bradley's maps and lists is based on the typology of the diagnostic projectile points (Ritchie 1971; Fogelman 1988) in the collection and on the association of these projectile points and the accompanying tool-types with time periods as defined in models for southern New England (Lavin and Russell 1985) and Connecticut prehistory (Lavin 1984). Table 1 shows the distribution of the projectile points by site. Table 2 associates the various tool types of the collection with the site where found.



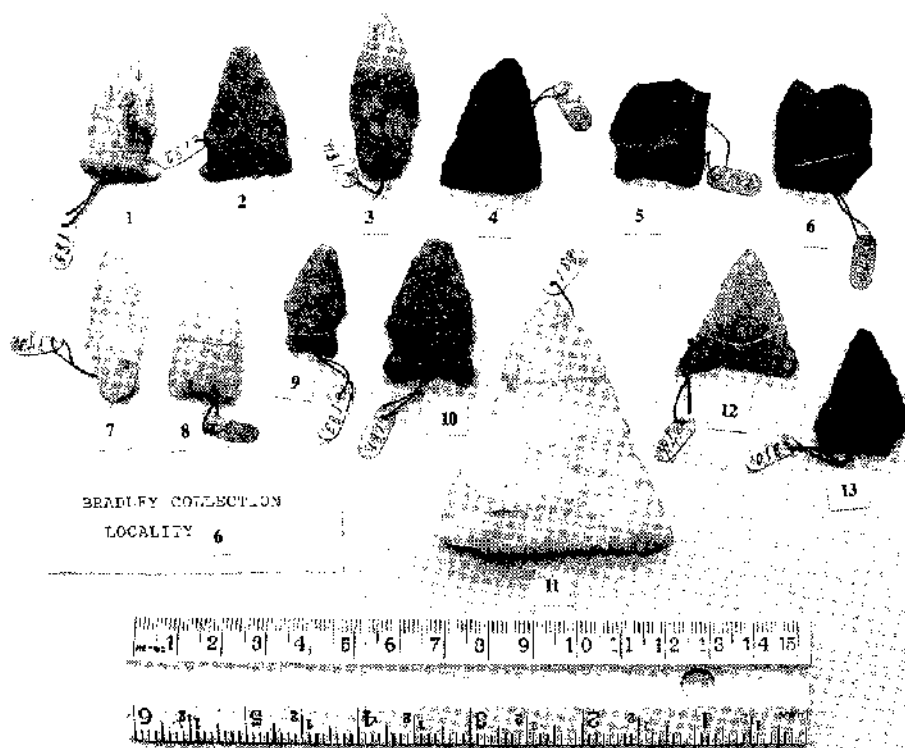


Figure 4. Artifacts: Bradley Collection, Locality 6. 1, untyped point; 2, 10 Brewerton Eared points; 3, Wading River point; 4, biface tip; 5, preform; 6, flake; 7, Squibnocket Stemmed point; 8, Beekman Triangle point; 9, miniature Orient Fishtail point; 11-13, Levanna points.  
Material: 1-3, 7-12, quartz; 4, 5, jasper; 6, 13, chert.

The earliest occupation of the 36 sites described by Bradley is represented by three bifurcate-base projectile points which are associated with the Early Archaic period dating to 7000 - 6000 B.C. (Lavin 1984:9). One of the points is unusually large, measuring 58 mm in length even though the tip is broken off, and 41 mm in width, and is made of what looks like Onondaga chert (Figure 7:12). The two smaller points are also of chert (Figure 5:1).

Attributed to the Middle Archaic period (6000 - 4000 B.C) are two Stark points, one each of chert (Figure 10:3) and of quartz (Figure 11:12). In addition, a Neville point of brown chert which has been used as a strike-a-light (Figure 5:8) is associated with the period (Dincauze 1971:198).

Occupation during the Late Archaic period (4000 - 2000 B.C.) is recognized by the following diagnostic representation among the projectile points: five Beekman Triangle points: one quartz (Figure 4:8), two quartzite (Figure 6:14), one mudstone (Figure 3:6), and one shale point (Figure 11:13); two quartz Brewerton Ear-Notched points (Figure 4:2,10); five Brewerton Side-Notched points: two quartz (Figure 9:3), one chert, one argillite, and one chalcedony point; two Genesee: one of quartz (Figure 6:17) and one of chert (Figure 5:22); two Lackawaxen points: one of quartz and one of siltstone; four Normanskill-like points: two of quartz (Figure 6:7), one of chert, and one of quartzite (Figure 6:8); and seven Vosburg points: one quartz (Figure 8:8), four chert (Figure 5:7,12), one jasper (Figure 5:11), and one argillite point (Figure 10:9).

TABLE 1. CYRUS SHERWOOD BRADLEY COLLECTION PROJECTILE POINT DISTRIBUTION BY LOCALITY.

	LOCALITY													
	3	4	5	6	7	8	9	11	12	13	14	16	17	19
Bifurcate						1	1					1		
Bare Island														
Beekman Triangle	1			1		1								
Brewerton Series				2		1								2
Genesee						2								
Lackawaxan														1
Normanskill						2	1							1
Squibnocket Stemmed	1			1		1								
Stark														
Sylvan	1					1					1			
Vosburg						3	2							1
Wading River	2			1		7	5							
Mansion Inn							1							
Orient Fishtail				1		3								2
Snook Kill	1					1								1
Susquehanna Broad														
Fox Creek	1					2								1
Greene							1				1			
Jack's Reef							1							
Meadowood						1								
Rossville	1													3
Levanna		1		3		2	1	1						
Untyped	3	1		1		6	5		1	1	3			4
TOTAL	11	2		10		34	18	1	1	1	5	1		16

TABLE 1. CYRUS SHERWOOD BRADLEY COLLECTION PROJECTILE POINT DISTRIBUTION BY LOCALITY (continued).

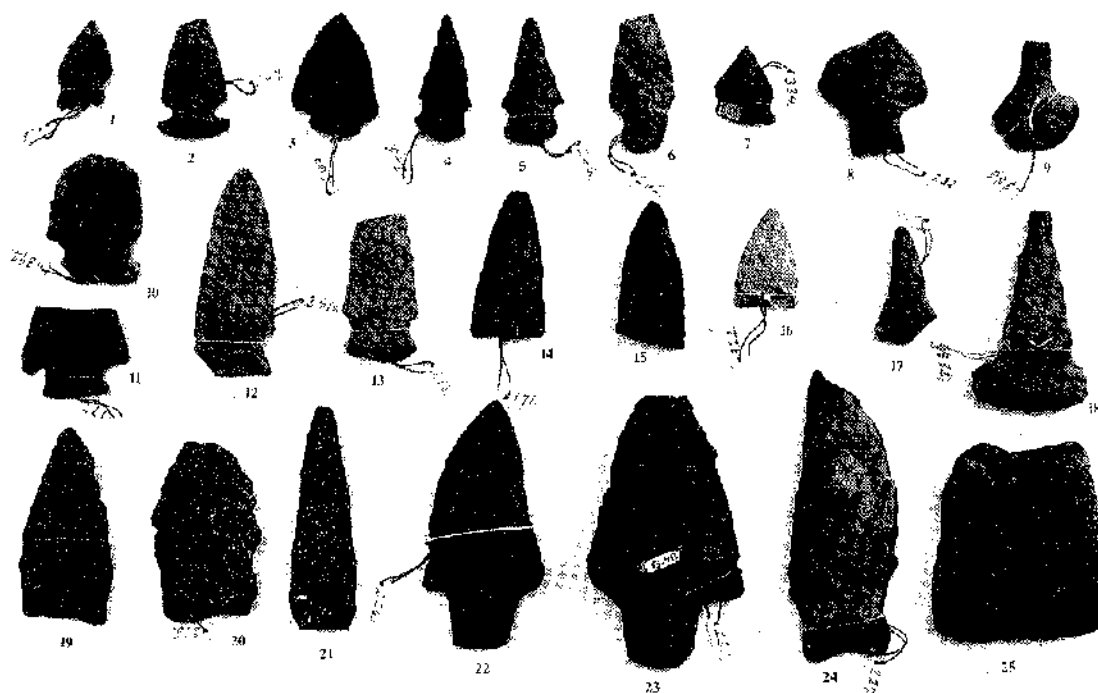
	LOCALITY													
	20	21	23	25	26	27	28	29	30	31	32	33	34	36
<u>Bifurcate</u>														
<u>Bare Island</u>		1		1										
<u>Beekman Triangle</u>														2
<u>Brewerton Series</u>						1		2						
<u>Genesee</u>														
<u>Lackawaxan</u>									1					
<u>Normanskill</u>														
<u>Squibnocket</u>														
<u>Stemmed</u>				1										
<u>Stark</u>													1	1
<u>Sylvan</u>														
<u>Vosburg</u>													1	
<u>Wading River</u>														
<u>Mansion Inn</u>														
<u>Orient Fishtail</u>														2
<u>Snook Kill</u>						1								
<u>Susquehanna</u>														
<u>Broad</u>														1
<u>Fox Creek</u>														1
<u>Greene</u>						1								
<u>Jack's Reef</u>														
<u>Meadowood</u>														
<u>Rossville</u>														
<u>Levanna</u>			1			1						1		1
<u>Untyped</u>					2			1					2	2
<u>TOTAL</u>		1	1	2	2	4		3	1			1	4	10

TABLE 2. CYRUS SHERWOOD BRADLEY COLLECTION ARTIFACT DISTRIBUTION BY LOCALITY.

ARTIFACT	LOCALITY													
	3	4	5	6	7	8	9	11	12	13	14	16	17	19
Projectile Point	11	2		10		34	18	1	1	1	5	1		16
Preform/Blank	1	2		1		3	2							
Biface	5	1	1	1		2	3						1	
Drill/Perforator	1	2				3	3							
Scraper	1	1				3								
Knife/Blade/Saw														1
Strike-a-Light						1								
Spoke Shave Tool						1								
Core/Cobble/ Worked Pebble		2				2	1							
Hammerstone														
Utilized/ Worked Flake		2				12	1		1	1				
Flake/Debitage/ Block	2	3		1	1	1					2			
Ax/Adze/ Celt/Gouge						1								
Ulu														
Gorget Fragment						1								
Soapstone Fragment														
Bannerstone														
Paintstone/ Hematite	1						2							
Potsherd							1							
Bullet Mold														
Natural/Unknown														
TOTAL	22	15	1	13	1	64	31	1	2	2	7	1	1	17

TABLE 2. CYRUS SHERWOOD BRADLEY COLLECTION ARTIFACT DISTRIBUTION BY LOCALITY  
(continued).

ARTIFACT	LOCALITY													
	20	21	23	25	26	27	28	29	30	31	32	33	34	36
Projectile Point		1	1	2	2	4		2	1	1		1	4	10
Preform/Blank		2			1					1	1			2
Biface	1	1		1	1	1	1		1					
Drill/Perforator						1						1		1
Scraper														
Knife/Blade/Saw										1				
Strike-a-Light														
Spoke Shave Tool														
Core/Cobble/ Worked Pebble		1			3	1								1
Hammerstone						1								
Utilized/ Worked Flake					1	3							1	
Flake/Debitage/ Block		1	2		4	3								1
Ax/Adze/ Celt/Gouge														
Ulu						1								
Gorget Fragment													2	
Soapstone Fragment													1	
Bannerstone														
Paintstone/ Hematite					1									
Potsherd														
Bullet Mold														1
Natural/Unknown					1	1								
TOTAL	1	6	3	3	14	16	1	2	2	3	1	2	8	16



BRADLEY COLLECTION  
LOCALITY 8

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

19 20 21 22 23 24 25

Figure 5. Artifacts: Bradley Collection, Locality 8. 1, bifurcated point; 2, Meadowood point; 3, untyped corner-notched point; 4, 5, 13, untyped narrow-bladed, side-notched points; 6, Wading River point; 7, 12 Vosburg points; 8, base of Neville point, strike-a-light; 9, expanded base drill; 10, point reworked to scraper; 11, Vosburg point base; 14, Beekman Triangle point; 15, biface tip; 16, Brewerton Eared-type point; 17, drill bit; 18, t-shaped drill; 19, 20, Fox Creek points; 21, Orient point tip; 22, Genesee point; 23, Snook Kill point; 24, Orient Fishtail point; 25, axehead, bit end. Material: 1, 2, 4, 5, 7-10, 12, 15, 18, 22-24, chert; 3, red slate; 6, shale; 11, brown jasper; 13, 14 quartzite; 19-21, argillite; 15, 17, 25, unidentified.

The Bradley collection is no exception among typical regional collections in which the small stemmed projectile point is the most numerous of diagnostic artifacts (Dincauze 1974:47). However, although the small stemmed point of the Narrow Point tradition is associated with the Late Archaic period, data from various sites in New England have given evidence that this tradition continued through the Terminal Archaic and Woodland periods (Lavin 1984; Lavin and Russell 1985:56). Within this collection are the following small stemmed points of the Narrow Point tradition: 15 Wading River points: 13 of quartz (Figure 3:9,10; Figure 4:3; Figure 6:2-5,9,14; Figure 8:2,5,10,12), one of chert (Figure 7:22), and one of shale (Figure 5:6); three Sylvan Side-Notched points of quartz (Figure 3:2; Figure 6:12); four Squibnocket Stemmed points of quartz (Figure 4:7; Figure 6:10); and two Bare Island points: one of rhyolite and one of argillite. Also among the

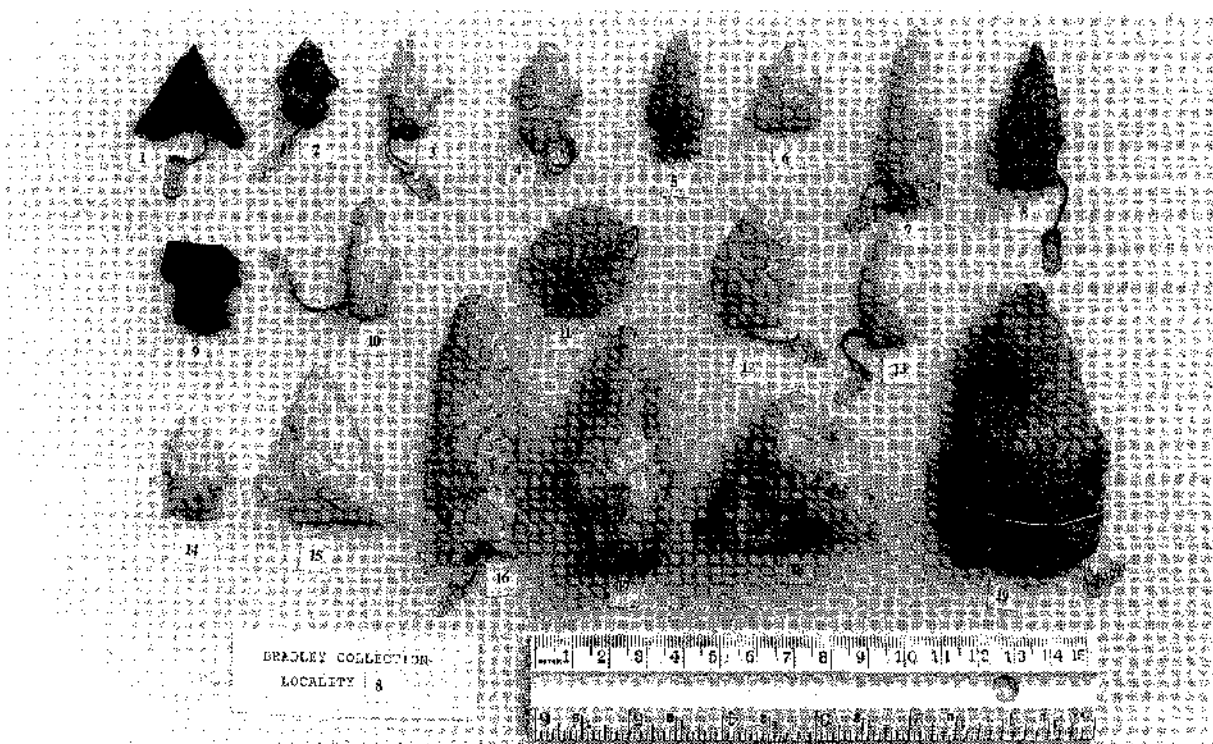


Figure 6. Artifacts: Bradley Collection, Locality 8. 1, 15, Levanna points; 2-5, 9, 14, Wading River points; 6, 13, untyped points; 7, 8, Normanskill-like points; 10, Squibnocket Stemmed point; 11, scraper; 12, Sylvan Side-Notched point; 16, Orient Fishtail point; 17, Genesee-like point; 18, preform; 19, blank. Material: all, quartz except: 8, 9, quartzite.

artifacts found at Localities 8 and 9 are six untyped points of the Narrow Point tradition (Figure 5:4,5,13; Figure 6:13; Figure 9:3,7). These artifacts are typically accompanied by adzes, gouges, ulus, and other simple tools (Dincauze 1974:47). Associated with Bradley's mapped sites are an ax (Figure 5:25) and an ulu (Figure 9:10).

Occupational continuity of the sites is evidenced further by representation from the Terminal Archaic period (2000 - 1000 B.C.). A Mansion Inn blade of argillite is 125 mm long (Figure 7:27). There are also eight Orient Fishtail points, three each of quartz (Figure 4:9; Figure 6:16; Figure 11:5) and of chert (Figure 5:24; Figure 11:10), one each of argillite (Figure 5:21) and of mudstone; four Snook Kill points of which two appear to be Cossackie chert (Figure 5:23) and one each of quartz (Figure 3:12) and of mudstone (Figure 9:12); and finally, a Susquehanna Broad point of slate (Figure 11:1).

Tools which are typically associated with Orient complexes of the Terminal Archaic (Lavin 1984:15) are among the artifacts from the mapped sites. They include a knife, four scrapers (Figure 3:13; Figure 5:10; Figure 6:11), nine drills (Figure 3:14; Figure 5:9,17,18; Figure 7:20,26; Figure 8:6; Figure 9:8), two perforators (Figure 10:6; Figure 11:9), and two paintstones (Figure 3:3).

Projectile points of the Narrow Point form continued in use throughout the Terminal Archaic and Woodland periods. Other projectile points give evidence of an Early Woodland (1000 B.C. - A.D. 1) occupation. They include a Meadowood point of what looks like Onondaga chert (Figure 5:2) and four Rossville points, three of quartz and one of mudstone (Figure 3:5).

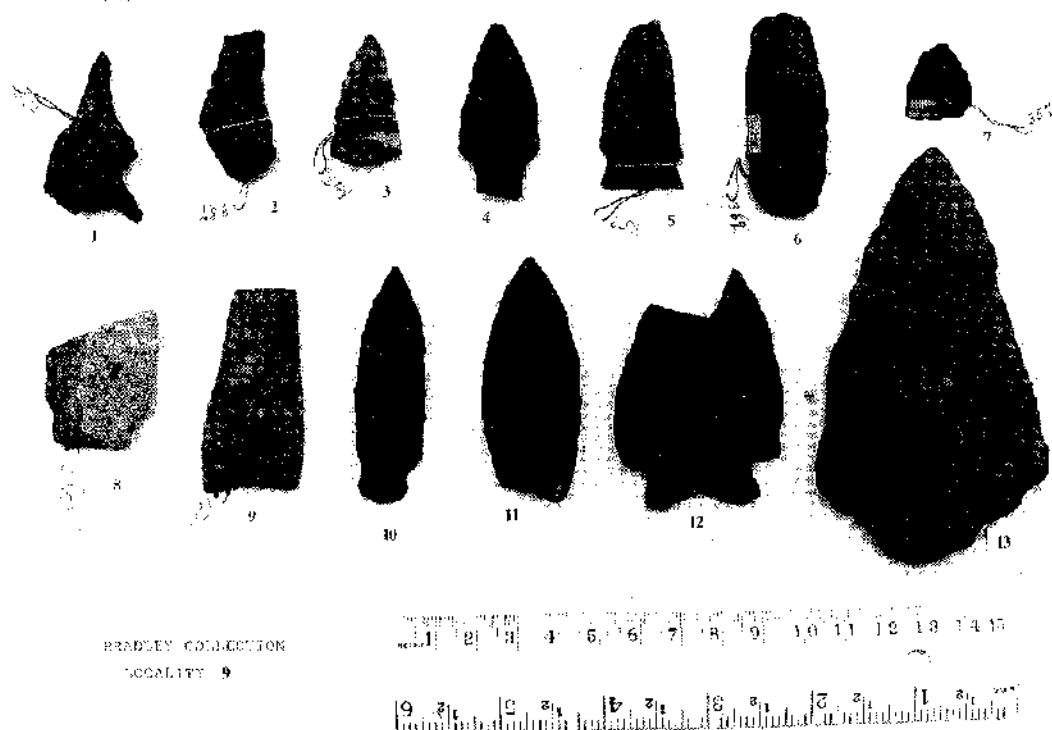


Figure 7. Artifacts: Bradley Collection, Locality 9. 1, expanded base drill; 2, part of drill; 3, point tip; 4, Wading River point; 5, Vosburg point; 6, 9, biface; 7, utilized flake; 8, potsherd; 10, Lackawaxen-type point; 11, Greene point; 12, untyped bifurcate; 13, Mansion Inn blade.  
Material: 1-5, 10-12, chert; 6, hematite; 7, red jasper; 9, yellow jasper; 13, argillite.

Point styles of the Middle Woodland (A.D. 1 - 1000) continue to resemble those of the Late Archaic and Early Woodland (Lavin 1984:19), but diagnostic representatives of the Middle Woodland period in the collection are: five Fox Creek points, two of argillite (Figure 6:19, 20) and one each of quartzite (Figure 3:4), of what looks like Cossackie chert (Figure 11:3), and of rhyolite; three Greene points, two of chert (Figure 7:17) and one of quartz (Figure 9:4); and a Jack's Reef Corner-Notched point of clear quartz (Figure 8:31).

The Late Woodland is well represented by 12 Levanna points. Eight of them are made of quartz (Figure 4:11, 12; Figure 6:1, 15; Figure 8:4; Figure 10:7; Figure 11:2), two are of chert (Figure 14:3; Figure 9:1), and one each are of quartzite and jasper. An especially large example of the Levanna point is 58 mm long and 53 mm wide (Figure 4:11).

Finally, a bullet mold (Figure 11:15) is an indicator of the impact of the Contact period (ca. A.D. 1650) on the native occupants of the area defined by Bradley's 36 sites.



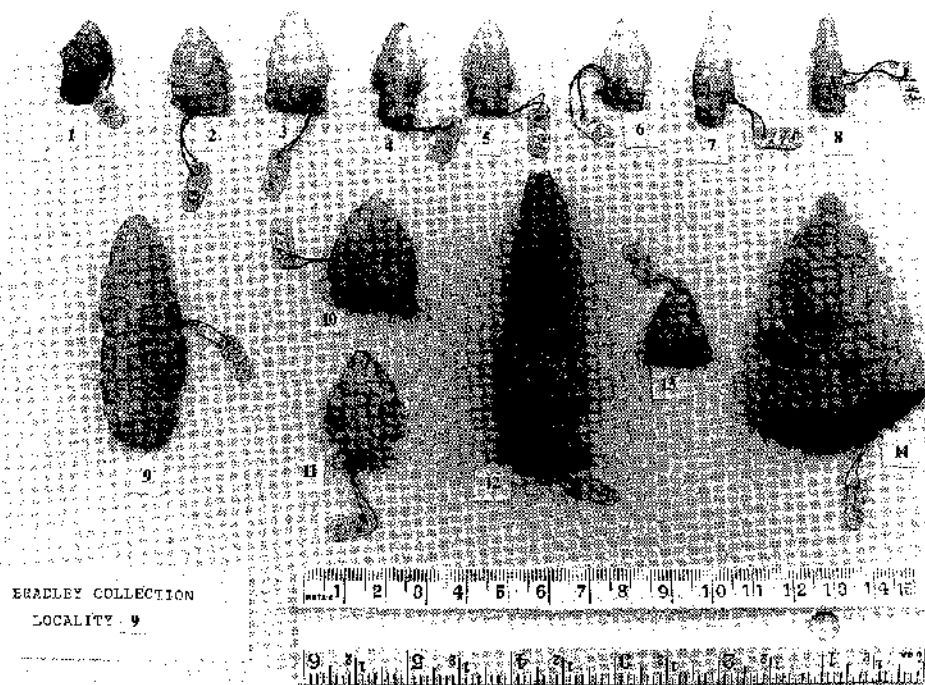


Figure 8. Artifacts: Bradley Collection, Locality 9. 1, 4-7, Wading River points; 2, 3 untyped small stemmed points; 8, drill tip; 9, 14, preform; 10, Vosburg point; 11, Jack's Reef point; 12, Normanskill point; 13, Levanna point. Material: all, quartz.

#### CONCLUSION

The Cyrus Sherwood Bradley collection, assembled from 1888 to approximately 1895 (Bradley 1880-1895) is notable for its many fine examples of projectile points and tool types, which was probably Bradley's intention. Fortunately, Bradley documented a typologically representative sampling of projectile points so that the conclusion can be made that sites in Fairfield, Westport, and Weston along the Sasco Creek estuary, the Mill River, and the brooks flowing into them were occupied from the Early Archaic period through the Late Woodland period.

Environmental reconstruction indicates that the southern New England coastal region featured inhospitable conditions for human habitation before 6000 B.C. With the development by 5900 B.C. of a woodland environment as we know it today (Lavin 1984:101), the people of the Early and Middle Archaic periods focused on the resources offered by the woodlands inland from the coast. The occupied area of Fairfield and Westport as represented by Bradley's maps would at that time have been farther inland from the coast than today. The woods and brooks near the sites would have provided deer, nuts, and freshwater fish (Lavin 1984: 103). The use of these foods as principal resources would have continued into the Late

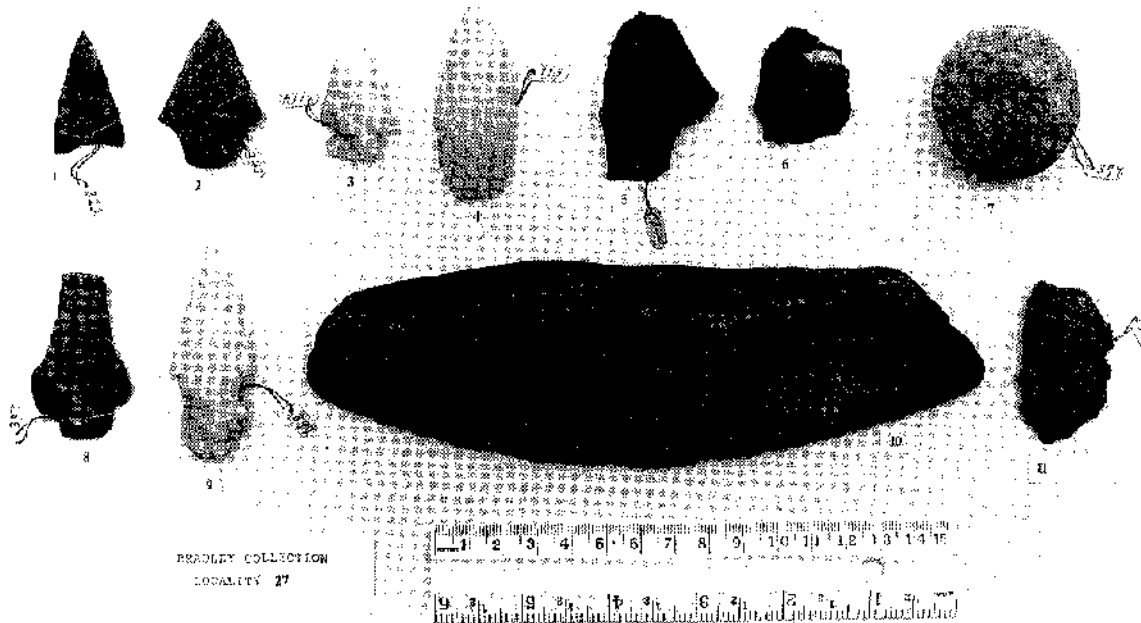


Figure 9. Artifacts: Bradley Collection, Locality 27. 1, Levanna point; 2, Snook Kill point; 3, Brewerton Side-Notched point; 4, Greene point; 5, 6, 11, utilized flakes; 7, hammerstone, 8, cruciform drill; 9, biface; 10, ulu.  
Material: 1, 5, 6, 8, chert; 2, mudstone; 3, 4, 7, 9, quartz; 10, green slate; 11, quartzite.

Archaic period until such time as rising sea levels contributed to the development of salt water marshes, beginning between 2000 and 1000 B.C. With this change the coastal region of Fairfield and Westport would have provided many species of animal and plant foods from the tidal marsh, the shore of Long Island Sound, and the tidal rivers (Lavin 1984:104-106). It is evident that the sites documented by Bradley were located so as to provide subsistence for Native Americans from the Early Archaic through the Late Woodland periods.

Cyrus Sherwood Bradley indicated conclusions of his own. His "List of Localities in the Ancient Town of Fairfield" compiled in June 1888 (revised in 1894) designates eight of nine sites along the Mill River as "habitation" sites. Artifacts collected from these sites total 147, among them 75 projectile points, 22 bifaces, 9 drills, 5 scrapers, a strike-a-light, and a spoke-shave scraping tool. Since these tools are of use in hunting, hide preparation (Thomas et al. 1975:69), and woodworking (Lavin, personal communication 1991), the conclusion is that these sites were used for such purposes during their occupation. Although six other sites on Bradley's list of 36 sites are also noted as "habitation" sites, the sites are scattered and the artifacts from them few, suggesting that they may be special purpose encampments of short duration (Lavin personal communication 1991).

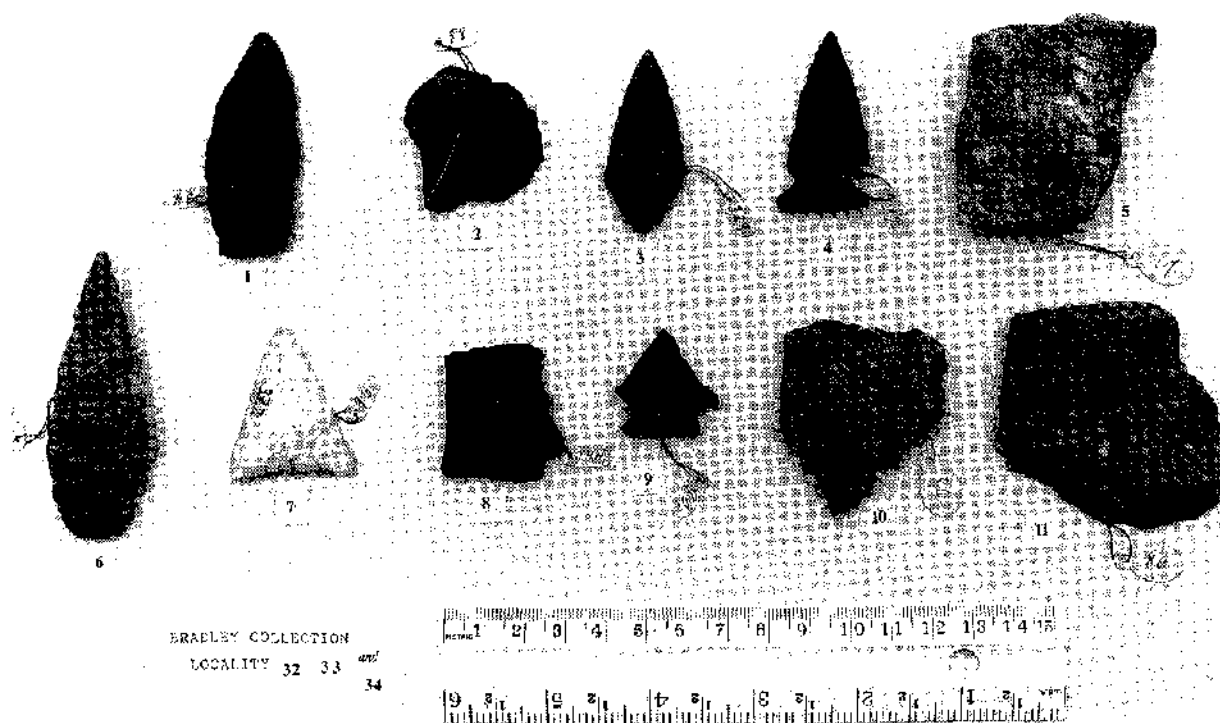


Figure 10. Artifacts: Bradley Collection, Locality 32. 1, preform.  
 Locality 33. 6, perforator; 7, Levanna point.  
 Locality 34. 2, utilized flake; 3, Stark point; 4, untyped point; 5, soapstone vessel fragment; 8, mid-section of point; 9, Vosburg point; 10, 11, gorget fragments.  
 Material: 1, 2, 8, jasper; 3, chert; 4, basalt; 5, soapstone; 6, quartzite; 7, quartz; 9, argillite; 10, 11, slate.

A comparison of the Bradley collection with the artifacts discussed in other studies of southern New England give opportunity for a further conclusion. The Bradley collection, as noted, has diagnostic points dating from the Early Archaic to the Late Woodland periods. The Lynch collection from Darien contained artifacts from which the conclusion was made that the Tokeneke section of Darien was inhabited from the Early Archaic through the Late Woodland periods (Angstadt et al. 1980:41). From the excavation at the Burwell-Karako site in New Haven, a cultural framework was established from Paleo-Indian time to European contact (Lavin and Russell 1985:62). Therefore it seems reasonable to conclude that Native Americans occupied sites along what is now the coast and the immediate interior extending from Darien to New Haven during a time span dating from the Early Archaic through the Late Woodland periods, approximately 6000 B.C. - A.D. 1650.

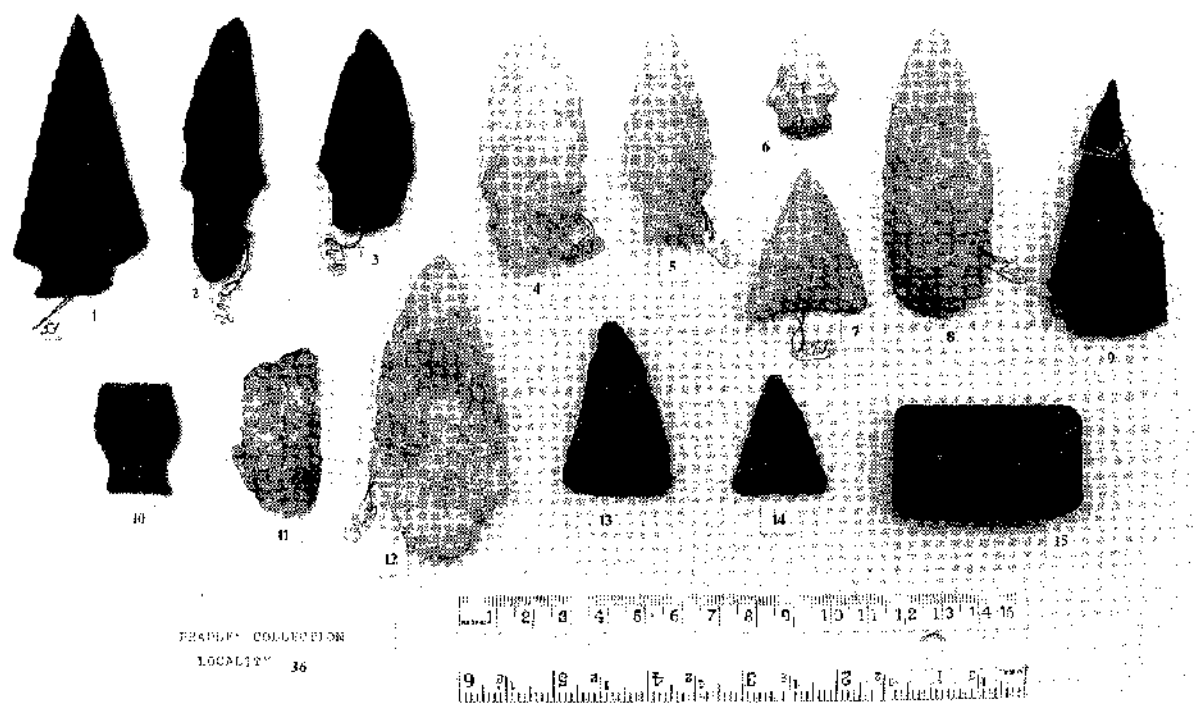


Figure 11. Artifacts: Bradley Collection, Locality 36. 1, Susquehanna Broad point; 2, 6, untyped stemmed points; 3, Fox Creek point; 4, blank; 5, Orient Fishtail point; 7, Levanna point; 8, preform; 9, perforator; 10, Orient Fishtail base; 11, flake; 12, Stark point; 13, 14, Beekman Triangle points; 15, bullet mold. Material: 1, slate; 2, 3, 9, 10, chert; 4-8, 11, 12, quartz; 13, shale; 14, quartzite; 15, unidentified.

The Bradley collection may be the sole source of information on the prehistory of coastal and interior Fairfield (and Southport) because most of the sites which yielded the greatest concentration of artifacts, sites along the Mill River, have been destroyed by construction. Although Locality 3 is still undeveloped, it is within a public park on the east bank of the river. The area surrounding the park is densely populated, and surface collecting has no doubt taken place over the years.

#### ACKNOWLEDGMENTS

Corwin Smith and Chris Nevins of the Fairfield Historical Society are responsible for my obtaining permission to study the Cyrus Sherwood Bradley collection of Native American artifacts. The entire staff of the Historical Society has been most cooperative in providing unlimited access to the artifacts and the documents prepared by Bradley.

The identification of the artifacts has been accomplished for the most part with the assistance of Ernest Wiegand of Norwalk Community College, who has been most generous with his time and expertise.

The photographs were taken and processed by Edward Strazdina. Lucianne Lavin has been of great help in editing this report.  
Thank you all very much.

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## SOUTHINGTON ROCK SHELTERS

FRED W. GUDRIAN  
ALBERT MORGAN ARCHAEOLOGICAL SOCIETY

### ABSTRACT

Located in Southington, Connecticut are a large group of rock shelters that had a series of occupations from Late Archaic to the Final Woodland period. The shelters have been dug by bottle and pot hunters over the last twenty years.

### DISCOVERY

It was a warm and sunny November day in 1972 when I first came upon a group of rock shelters while hiking in Southington, Connecticut (Map 1). The shelters are located along the side of a ridge that runs the length of Southington's western border. Some of the shelters are located on the foothills near the ridge, while others are on the ridge itself (Map 2).

Leaving my car next to a sand bank that had been left by a glacier passing through Southington many thousands of years ago, I entered a small woodland and hiked down into a marshy area. A brook running through the marsh was fortunately not very deep and could be crossed easily. I then hiked through the surrounding woods until I reached the ridge.

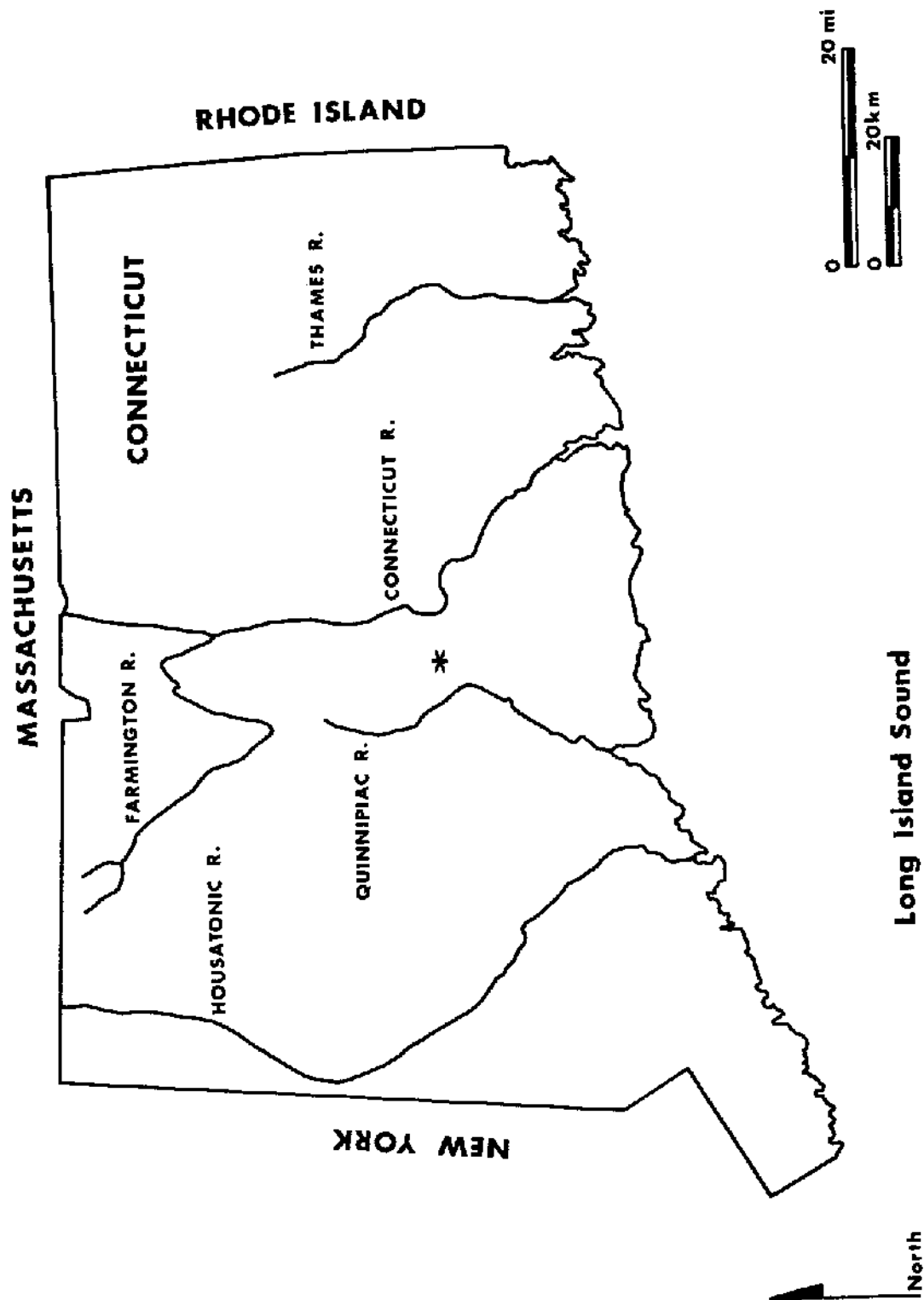
Along the ridge, at this point, are a large number of boulders that have fallen down the slopes. Numerous overhangs can be found among the boulders, and many have dirt covered floors. There are also several very good examples of glacier-polished rocks in this area. In the surrounding woods, many boulders were deposited when the ice melted during the last glaciation. Some of the caves in the area show signs of erosion from being under water for extended periods of time. There are several areas where finely graded sand can be found; again, they are leftovers from the glacial period.

It should be noted here that the measurements of the shelters and distances are estimates based on my memory of hiking through the area some time ago and not on actual measuring. The general layout to the location of the shelters can be found on Map 2. The map is not laid out to exact scale for distances.

Walking north, next to the ridge, I approached a large terrace that rises up about 10 m (ca. 33 ft). On the top of the terrace I saw a large glacier-deposited boulder shaped like an inverted "L" which is called "WAVE". Beyond this boulder, among the trees, there appeared a giant boulder.

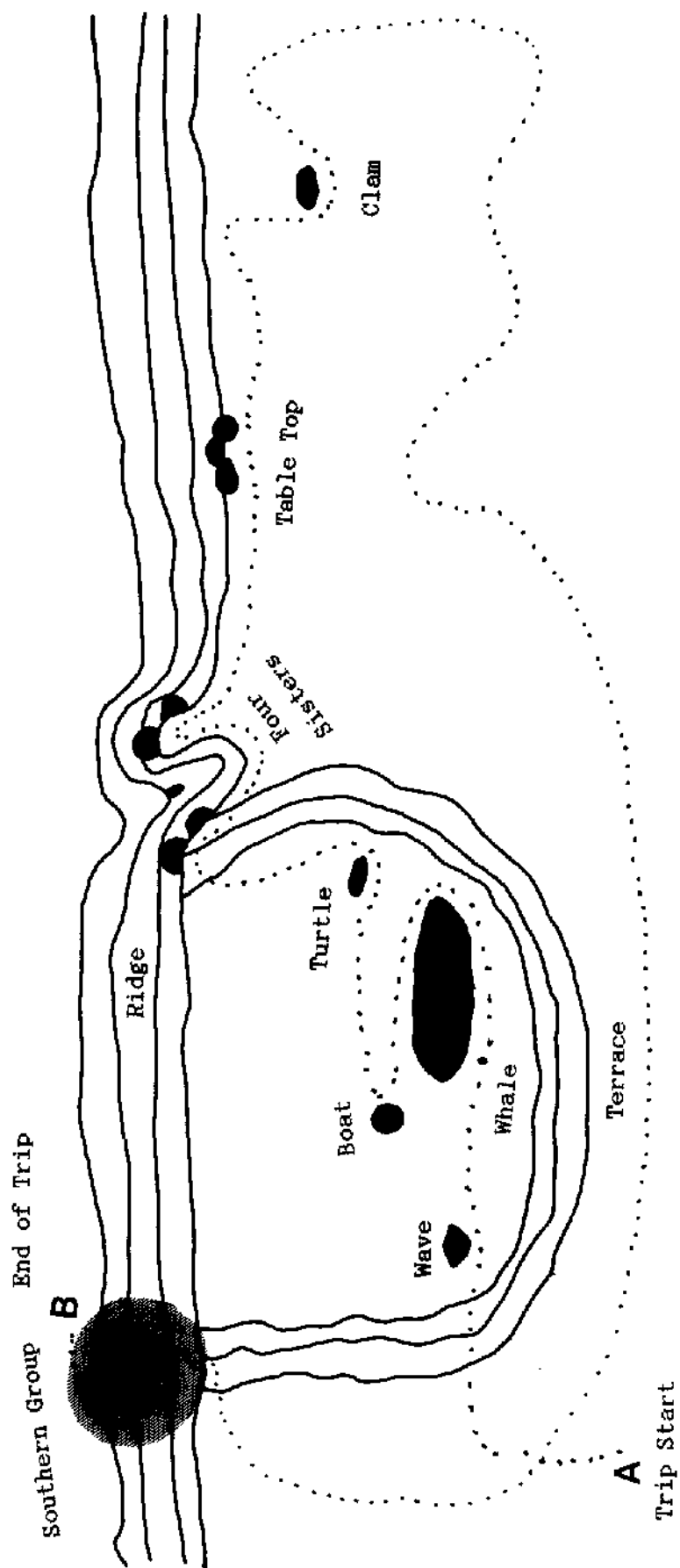
I walked the distance, about 30 m (ca. 100 ft) quickly and saw that the stone boulder was nearly 19 m (ca. 63 ft) long. This stone, called the "WHALE", has a large niche on its northern edge and was an important pre-contact shelter site. Behind and slightly southwest is a smaller rock with another overhang shelter, called the "BOAT". Slightly to the north of the WHALE is another small shelter, the TURTLE.

After examining these shelters I continued northward about 115 m (ca. 380 ft), crossing a small dried river bed along the way. Off to the left, toward the ridge, I noticed two shallow canyons separated by a large rock wall. At the far end of each canyon the land rises up and contains a large cave with a smaller



Map 1. Map of Connecticut with location of Southington rock shelters marked with (\*).





Map 2. General layout of shelters mentioned in the text.

niche-like cave to the north. These shelters are called the "FOUR SISTERS".

After climbing around that group of four caves, I then continued my hike to the north and came across another group of shelters called "TABLE TOP" that contained three medium sized caves. Another 30 m (ca. 100 ft) north, I found another shelter overhang called the "CLAM".

Circling back through the woods by a different route, I re-examined the large boulders on the ridge that I had encountered when I first started my hike. At almost the very top of the ridge there is another large overhang that has a wonderful view across the valley to Meriden. The shelters in this area are called the "SOUTHERN GROUP".

During this first day of many visits to the area, I met at the WHALE several bottle hunters digging under the overhang. They found several complete glass bottles dating from the late 1890's. They did not save any pre-contact items except some bone tools that, I heard later, they discarded. They would place aside any stones they came across for me to go through later. Over the several weeks they dug here I recovered several points, pottery and stone tools. I was able to watch these early digs and recover most of the items found in the upper soil levels.

In the spring of 1973 I returned to the area and examined the rock shelters more closely. I also ran into several people re-digging the WHALE. They were your typical pot hunters ripping through the shelter with shovels. They were very open about what they were looking for and showed me several "ARROWHEADS" they had found. This was the 10th shelter they had dug in the area.

I ran into other diggers from time to time and I got to see what they found. On several occasions, after a good rain, I found a number of points, tools and pottery sherds on the piles of dirt that they left behind. The diggers were not very concerned with sifting or using a trowel. Over the years of hiking through this area I have observed a number of people digging in many of the shelters. Today there is probably not a single major shelter in the area that has escaped damage. Some shelters had been dug out four or more times.

#### DETAILED DESCRIPTIONS OF SHELTERS

See Map 2 for locations

##### The WAVE:

This shelter is about 2.5 m (ca. eight ft) high, 4.5 m (15 ft) long, and 15 m (five ft) deep. The area beneath the overhang had been dug. About two meters (six ft) north is a large stone block that has not been dug around.

I had been told by an old man, who was about 80 years old, that weddings took place under this shelter overhang at the turn of the century. Horse drawn carriages would come up to this spot and the bride and groom would stand under the overhang for the ceremony.

I remember seeing some small stem quartz points found by a pot hunter here. I saw oyster shells and many pieces of glass nearby. Some blackened soil occurs near the back wall of the shelter. The back wall is very straight and somewhat smooth. I have never found any artifacts washed out from the small dirt piles here.

##### The WHALE:

This rock is about 30 m (ca. 100 ft) north of the WAVE and is approximately

19 m (63 ft) long, 12 m (40 ft) wide, and 7.5 m (25 ft) high. The shelter is on the north side and appears as a large niche, about 5.5 m (18 ft) wide, three meters (10 ft) deep and two meters (six ft) high.

The complete area under the overhang has been dug numerous times. The area beyond the overhang has also been disturbed several times. A great deal of blackened soil was found here and very large mounds of dirt from trenching can be seen.

Most of the trenches seemed to be close to 0.6 m (two ft) deep. A few pit-like features could also be seen that required the digger to go down almost a meter (ca. three ft) deep.

The shelter had received the most attention from pot hunters but it was still possible after a good rain to find broken and even complete points on the surface of these piles. Some tools and pottery could also be found.

Some oyster shells could be seen on the dirt piles but whether they were old or not I couldn't tell. Several large stone slabs, a meter (three ft) or more in length were uncovered during digs that I happened to see. Since the pot hunters did not use a sifter it is not surprising that they missed as much as they did. Very few flakes have appeared on the rain washed piles over the years. The lack of flakes may mean that the prehistoric tool manufacturing areas were located beyond the area dug by the pot hunters, or that this particular work activity occurred on another site.

When the first subsurface "potting" at the WHALE was done, it was to find old bottles and not prehistoric artifacts. Most of the objects that I found were from this time period. This early digging went down about .6 m (two ft) and extended from the back of the shelter to about two meters (seven ft) out beyond the overhang. Nothing was found in the first .2 meters (2/3 ft) except glass and very thick ceramic jug pieces dating to the early to mid 1800's.

The first pre-contact objects found here were eight bone tools found in a feature that was located in the back of the shelter. Pottery was found only at a lower level. Most of the later digging that occurred here extended outward from the shelter and then some went deeper. Few of these early diggers found a lot but over the years they kept digging the same area over and over.

Table 1 contains a list of artifacts my father and I recovered from the area surrounding this shelter. Table 2 is a list and measurements of the projectile points recovered. Figures A-G, I-O, R and S are pictures of the major items recovered.

#### The BOAT:

About seven meters (23 ft) southwest of the WHALE is a large stone about 11 m (36 ft) long that has a small shelter under its northern edge. The shelter is about 2.4 m (eight ft) long, 1.5 m (five ft) high and 1.8 m (six ft) deep.

I did not see anyone actually dig this shelter, but I did find three pieces of black pottery sherds on a dirt pile near the entrance. No blackened soil suggestive of hearths or pit features was visible around the shelter piles. Not very much as dug here as compared to the amount of digging at the WHALE so I would conclude that not much had been found in this shelter.

#### The TURTLE:

This is a very small stone block that has a niche on its northern side. The digging around this stone was probably done by the same person who dug the WAVE rockshelter, as the digging styles are similar. I have not seen or found

any artifacts from this area.

The shelter is located about eight meters (26 ft) northwest of the WHALE. This shelter is about two meters (six ft) wide, three meters (10 ft) high but only .6 meters (two ft) deep.

TABLE 1. Artifacts found near the WHALE

Pottery found near the WHALE

Total of 42 sherds, 1 unclassifiable

3 sherds - Smoothed exterior and interior, leached temper, coil breaks on two sherds, one sherd has a repair hole, undecorated.

2 sherds - Smooth exterior, eroded interior, fine to medium grit, undecorated.

1 sherd - Smooth exterior, brushed interior, fine to medium grit, undecorated.

3 sherds - Smooth exterior, brushed interior, medium grit, dentate decoration.

7 sherds - Smooth exterior and interior, medium to coarse grit, dentate decoration.

6 sherds - Smooth exterior and interior, fine to medium grit, undecorated.

5 sherds - Smoothed over cord marked exterior and cord marked interior, fine to medium grit, modified Vinette style decoration.

7 sherds - Smoothed cord marked exterior, smooth interior, medium grit, undecorated.

7 rim sherds:

A) 2 sherds with extruded lips, smooth exterior and interior, deep wiping on both surfaces (almost brushed), medium grit, undecorated.

B) 1 sherd with extruded lip, smooth exterior and interior, medium grit, undecorated.

C) 1 smooth exterior with wipes, smooth interior, leached temper.

D) 1 incised or brushed decoration over a smooth exterior, smooth interior, medium grit.

E) 1 sherd with light brushing exterior, rough with light brushing interior, coarse grit, undecorated.

F) 1 sherd with smooth exterior, brushed interior, medium grit, undecorated.

Minimum vessel count = 5

Stone objects found near the WHALE

40 - Projectile points, see Table 2

2 - Pitted stones

8 - Worked flint

14 - Worked quartz objects

1 - Worked rose quartz tool

1 - Quartz crystal object

6 - Worked shale-like stone objects

3 - Quartz flake scrapers

1 - Quartz scraper

2 - Quartzite scrapers

2 - Flint flake scrapers

2 - Quartzite biface tools

4 - Quartz biface tools

3 - Pieces of bone awls

1 - Flint tip

1 - Midsection of shale-like point

1 - Slate ornament

1 - Animal tooth

1 - Drill tip

1 - Polished stone

5 - Flint scrapers

1 - Curved stone object with scratches on both sides

TABLE 2. Detailed listing of projectile points from the WHALE shelter. Note: All the dimensions are in inches to correspond to Ritchie's (1971) typology handbook. \* indicates a broken specimen.

FIGURE	STYLE TYPE	LENGTH	WIDTH	THICKNESS	MATERIAL
D	Poplar Island	2 6/32	1 7/32	5/32	Slate
	Snook Kill	2 17/32	1 31/32	12/32	Chert
E row 1	Brewerton Eared Triangle	1 3/32	21/32	10/32	Quartz
	Brewerton Eared Triangle	1 10/32	24/32	8/32	Quartz
	Otter Creek	1 6/32	29/32	13/32	Quartz *
	Brewerton Eared Triangle	1 10/32	24/32	7/32	Quartz
	Untyped	1	23/32	7/32	Quartz
E row 2	Brewerton Eared Triangle	1 5/32	24/32	7/32	Shale *
	Normanskill	1 7/32	1	9/32	Untyped *
	Untyped	1 24/32	23/32	6/32	Chert
	Untyped	1 11/32	26/32	11/32	Basalt *
	Meadowood	1 2/32	28/32	6/32	Chert *
F row 1	Lamoka	1 3/32	23/32	9/32	Quartz *
	Lamoka	1 10/32	14/32	7/32	Quartz
	Lamoka	1 9/32	17/32	9/32	Quartz
	Lamoka	1 14/32	27/32	12/32	Quartz
	Lamoka	1 6/32	19/32	10/32	Quartzite
F row 2	Lamoka	1 2/32	20/32	9/32	Quartz *
	Lamoka	1 6/32	20/32	10/32	Quartzite
	Lamoka	1 6/32	21/32	7/32	Quartz
	Lamoka	1 11/32	19/32	10/32	Quartz
	Lamoka	30/32	23/32	8/32	Quartz
F row 3	Lamoka	1 15/32	1 5/32	13/32	Quartzite *
	Lamoka	1 1/32	1 4/32	11/32	Chert *
	Lamoka	1 16/32	29/32	7/32	Quartzite *
G row 1	Orient	1 22/32	31/32	12/32	Quartz *
	Orient	1 20/32	25/32	8/32	Quartz
	Orient	1 10/32	22/32	12/32	Quartz *
	Orient	1 3/32	18/32	7/32	Quartz
	Orient	1 7/32	23/32	8/32	Quartz
G row 2	Orient	1 27/32	28/32	7/32	Chert
	Susquehanna	1 22/32	26/32	9/32	Chert
	Susquehanna	1 21/32	24/32	11/32	Chert
	Untyped	1 5/32	1 3/32	10/32	Chert *
H row 1	Triangle	1 5/32	30/32	6/32	Quartz
	Triangle	1 4/32	26/32	5/32	Quartz
	Triangle	1 8/32	27/32	7/32	Quartz
H row 2	Triangle	1 4/32	24/32	5/32	Quartz
	Triangle	1 4/32	1	9/32	Chert
	Triangle	27/32	29/32	10/32	Chert

Table 3 lists the pottery found at the BOAT. Figure R is a picture of the sherds found here.

TABLE 3. Pottery found near the BOAT

3 sherds - Smooth exterior, brushed interior, medium grit, dentate stamp design.

Minimum vessel count = 1

**The FOUR SISTERS:**

Located about 115 m (380 ft) northwest of the WHALE is a group of four caves. They are grouped as follows: LARGE CAVE #1, NICHE CAVE #1, LARGER CAVE #2, NICHE CAVE #2. Between NICHE CAVE #1 and the LARGER CAVE #2 is a wall of large stone blocks.

All four caves have been dug but not very extensively. No signs of artifacts have appeared on the dirt piles over the years. I have not seen any signs of blackened soil in any of the piles of dirt nor any flakes of any kind. There are signs that a lot of washed-in dirt has entered the caves which may have built up the floor and, since the digging done was shallow, there may be undisturbed layers.

The CAVE #1 is about two meters (six ft) high, seven meters (23 ft) wide and 4.5 m (15 ft) deep. The inside of the cave separates into three small chambers. The walls show evidence of a good deal of water erosion from thousands of years.

About three meters (10 ft) to the north is the NICHE CAVE #1 about 1.2 m (four ft) high, three meters (10 ft) wide and 1.8 m (six ft) deep.

The CAVE #2 is "Y" shaped. A center wall of stone separates this shelter into three areas. The entrance plus the longest side chamber is about four meters (13 ft) wide, 12 meters (40 ft) deep and two meters (six ft) high. The center chamber, located just beyond the entrance, contains most of the living space, while the left wing is very narrow and the right has large boulders on the floor and side walls.

The NICHE CAVE #2 is less than two meters (six ft) deep and is about 1.5 m (five ft) wide and one meter (three ft) high.

**TABLE TOP GROUP:**

This is a group of three caves that are about 30 m (100 ft) north of the FOUR SISTERS. The center cave has a large stone slab laying above the cave itself, thus resembling a table top. The caves on either side are full of washed-in dirt. The left cave is about five meters (16.5 ft) long, 3.5 m (11.5 ft) wide and 1.5 m (five ft) high. The other caves were not checked out because of animal occupation.

Some evidence of shallow digging can be seen in all three caves but the amount of washed-in dirt may be covering earlier digs. I have never found any artifacts or flakes in this area nor any signs of darkened soil.

**The CLAM:**

This is the northernmost shelter I saw. It's an overhang on a large stone block. The height is about two meters (six ft), width about 2.4 m (eight ft) and depth of 1.3 m (four ft). This shelter appears to be on a slight rise that might be accumulated debris. Some digging appears to have been done, but very little appears to be disturbed in the terrace area.

**The SOUTHERN GROUP:**

This area, about 100 m (330 ft) south of the WAVE, stretches up the entire slope of the ridge. There are 30 or more possible shelters in this area. Those I have investigated seem rather small. There are some signs of digging and in

one midway up the ridge some pottery sherds were found on the dirt piles.

The shelter where the pottery was found is only two meters (six ft) deep, about two meters (six ft) wide and about 1.5 m (five ft) high. On the dirt piles near the shelter the pottery listed in Table 4 were found. The decorative stamp on the pottery shows a unique sequencing of shapes not found anywhere else at the site.

There is one large overhang at the top of the ridge that could possibly have been occupied. This shelter had some digging done to it. The floor of this shelter is mostly bare rock and shows no sign of chips, etc.

A lot of washed-in dirt appears in all the possible shelters in this grouping. Table 4 lists the sherds found near this shelter and Figures P, Q, T and U are pictures showing some of the pottery found.

TABLE 4. Pottery found near the SOUTHERN SHELTERS

Total sherds: 41

14 sherds with four shapes stamped decoration, cord marked and smoothed over cord marked exterior, brushed interior, medium to coarse grit.

20 sherds with smoothed over cord marked exterior, brushed interior, undecorated, medium to coarse grit.

5 rim sherds with cord marked exterior with some smoothing, cord marked stick stamped decoration on both surfaces of the lip, cord marked with some smoothing on interior, modified Vinette interior, medium to coarse grit. Note: on two rims there are stamped decoration below the lip area.

2 sherds with cord marked stick stamping over smoothed cord mark exterior, brushed interior, medium grit.

Minimum vessel count = 2

## CONCLUSIONS

The number and style of the artifacts found in the rock shelters indicate a series of occupations by a small family unit starting with the Late Archaic period and ending with the Late Woodland period. There may be a Final Woodland and/or Contact period presence but not as a primary living area.

The center of this site is the area around the shelter called the "WHALE". The smaller shelters in the surrounding area could not have held more than several individuals at best. The small number of artifacts recovered near the smaller shelters indicates that they were occupied for very limited time periods or were used for some purpose that has not been identified yet.

The Late Archaic period is indicated by the Lamoka-style points, Normanskill style point, and Bare Island and Brewerton Eared Triangle points. The Terminal Archaic period is represented by the Susquehanna and Orient point styles. Meadowood style points show an Early Woodland occupation and a Late Woodland presence is indicated by the triangle points (Ritchie 1971).

The pottery sherds with interior cordmarking indicate an Early Woodland to early Middle Woodland period presence and the dentate stamped sherds, typical of the Clearview Stage of the Windsor pottery tradition, also show an early Middle Woodland period presence. The brushed interior sherds are typical of Middle Woodland to Late Woodland Windsor tradition vessels. The smooth exterior/interior rim sherds are similar to the Windsor Plain type and point to a Late or Final Woodland period occupation (Smith 1950; Lavin 1980, 1984, 1986, 1987).

The abandonment of the shelters as a main living area seems to have occurred by the early Final Woodland period. The lack of collared pottery and worked stone artifacts typical of the Final Woodland and Contact periods indicates to me that these shelters had only a very limited use during this period of time. Only the presence of the bone tools found in the WHALE indicates any occupation within the last 350 years. Uncarbonized bone I do not believe could survive any longer period of time in this soil.

The WHALE could have served as a shelter from the winter weather and then with the coming of spring the residents would have moved out to more open areas. This might explain the lack of artifacts for the Final Woodland and Contact periods. Colonial records indicate a native population in this area of Southington as late as 1750.

I do not believe that the shelter in the SOUTHERN GROUP where I found the pottery sherds was occupied as a living area for several reasons, such as small size and wetness. This shelter is open in the rear and water and debris accumulate easily. The floor of this shelter slopes upward at a steep angle, thus making any occupation uncomfortable at best.

The pottery found in the SOUTHERN GROUP represents a single vessel and may have had some special meaning. The stamp used consists of a group of four shapes: a triangle, a circle, a half circle and finally a square. I believe that the tool used contained only one of each shape and was repeatedly stamped across the vessel. The spacing between each group of four shapes indicates that this was the tool shape used rather than four separate stamps each with a single shape stamp. Also, supporting this is that the arrangement of each stamp remains constant within each group of four.

The large amount of damage done to the shelters prevents a scientifically excavated dig from preserving the complete record of this entire site area. I do believe that there can still be meaningful recovery of information from the undisturbed areas. It may also be useful to sift the dirt from earlier digs and carry the search to lower levels that were untouched by pot hunters.

The whole area now is posted with "NO TRESPASSING" signs, and this may keep some pot hunters out. Additionally the number of copperheads currently in the area may challenge pot hunters that do enter the site.

In writing this article I came across a problem faced by everyone that tries to classify pottery and projectile points, the problem being, how to identify artifacts as to proper typology. A good example of this is the typing of rim sherds with smooth surfaces. In comparing descriptions of Windsor Plain and Hollister Plain sherds I decided that the sherds were closer to the Windsor Plain description but that there really was not much difference in the descriptions. Another possibility being that these sherds were an unknown type was examined and rejected.

To me there exists a serious lack of specific definitions and descriptions that can be used in classifications of artifacts. It seems that all other areas in science have a clear cut set of definitions whereby an object can be described by one person and not be different from anyone else's description, ie: plants, animals. I found that on sherd description what one person would call deep brushing another would call shallow incising. To me, there should not be this much difference but there exists no clear definitions to separate these two descriptions.

In preparing this article, I asked many individuals for their classification for a specific projectile point or sherd and got widely varied answers. Referring to published information for help in typology didn't help. A set of clearly defined definitions and characteristics seems to me to be a good starting point to help standardize the classification procedure. Groups of these characteristics can then be formed into TYPE descriptions. The problem of whether or not the



sherd, etc. represents a new TYPE can be debated but at least there will be agreement on the technical descriptions.

#### ACKNOWLEDGMENTS

I would like to thank Cindy McWeeney and Lucianne Lavin for the help I received from them. I also would like to thank my father, Atte G. Gudrian, for access to the artifacts he found in the area of the WHALE. Map 1 was drawn by Marina Mozzi, Archaeological Research Specialists.

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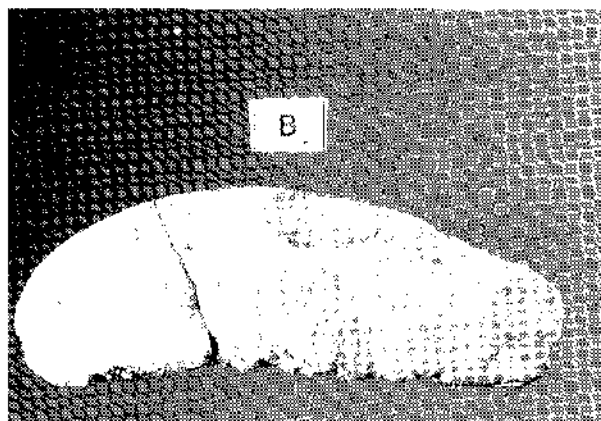
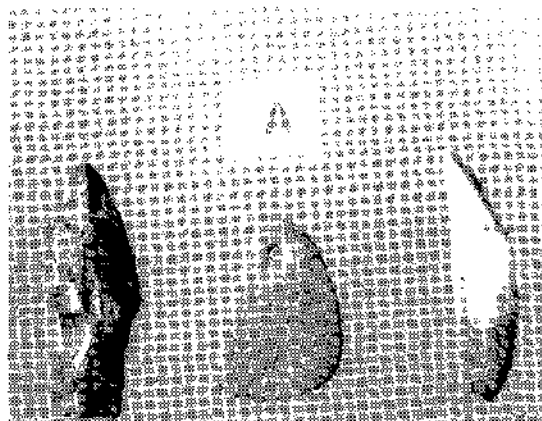


Figure A.  
Miscellaneous objects from WHALE:  
drill, ornament, tooth. 120%

Figure B.  
Stone with carved lines from  
WHALE, closeup. 90%

Figure C.  
Stone with carved lines from  
WHALE, closeup reverse side. 140%

Figure D.  
Contracting stem points from  
WHALE. 90%

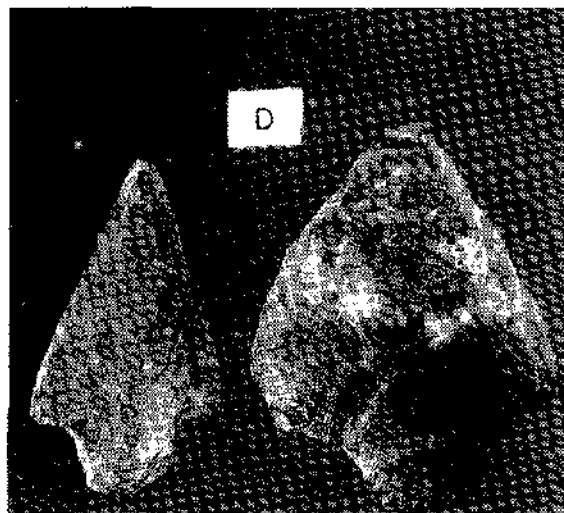


Figure E. Side notched point  
from WHALE. 70%

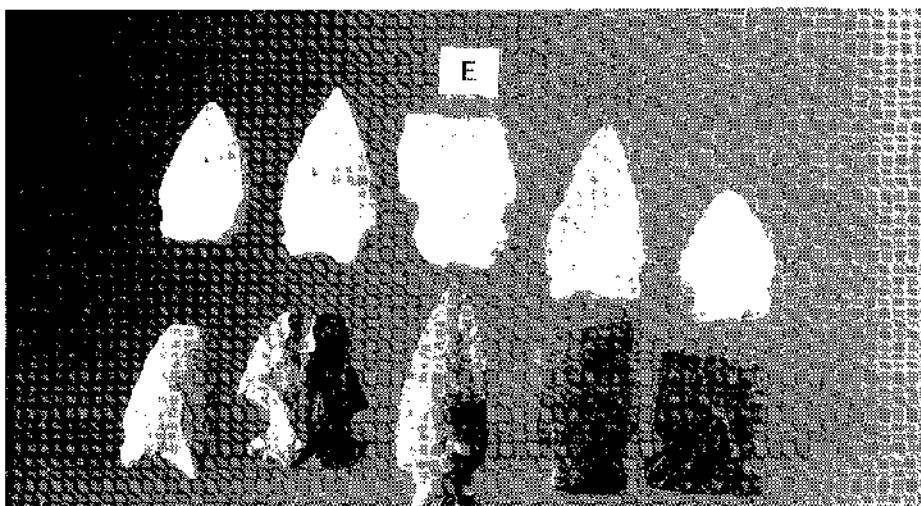


Figure F. Stemmed straight  
points from  
WHALE. 70%

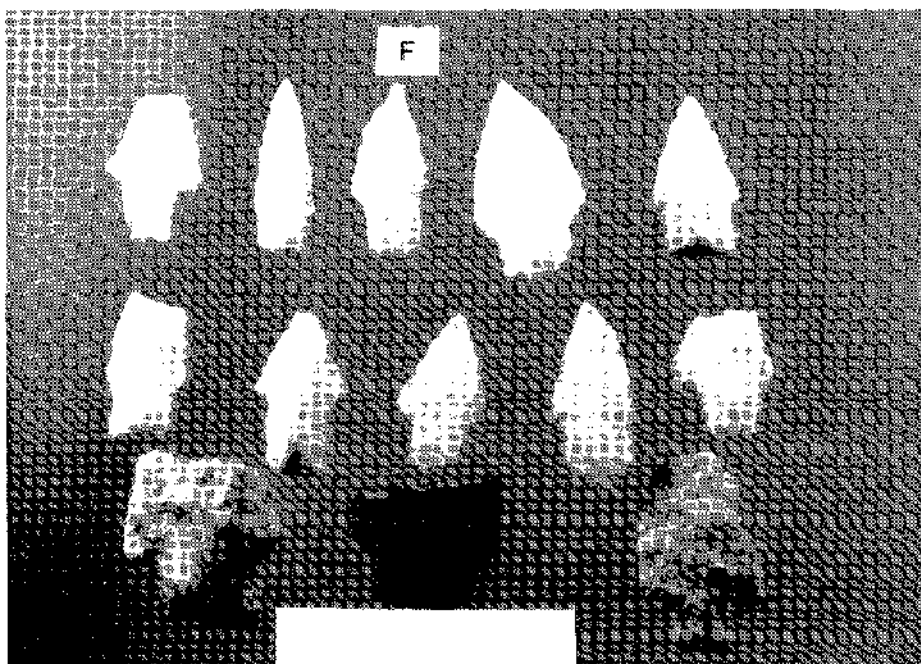
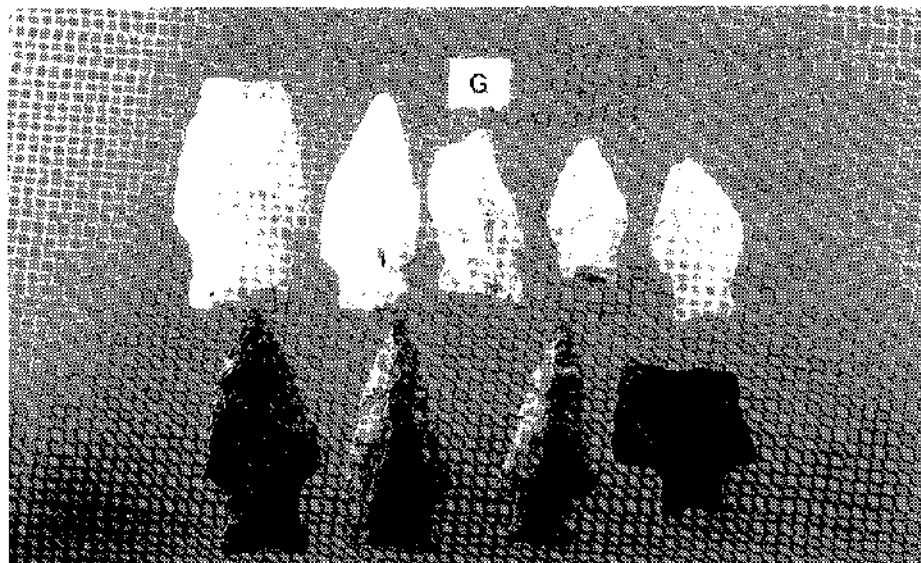


Figure G. Expanded stem  
points from  
WHALE. 70%



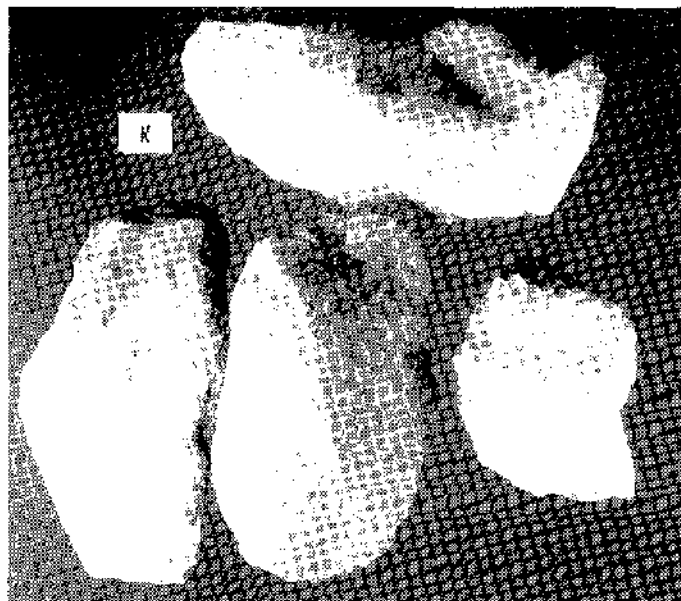
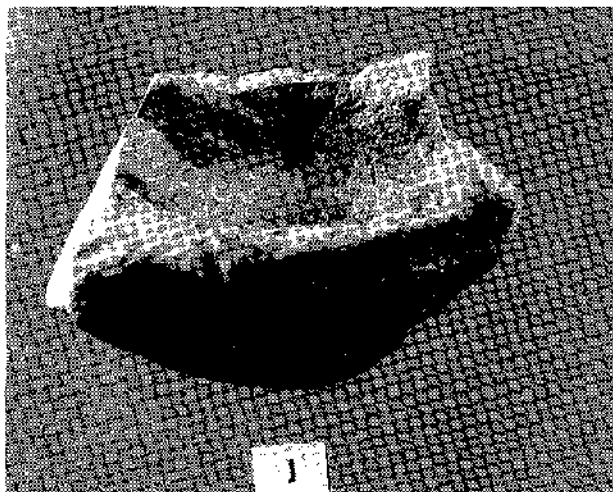
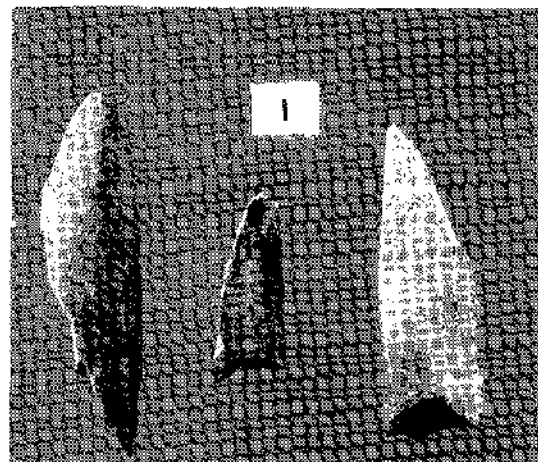


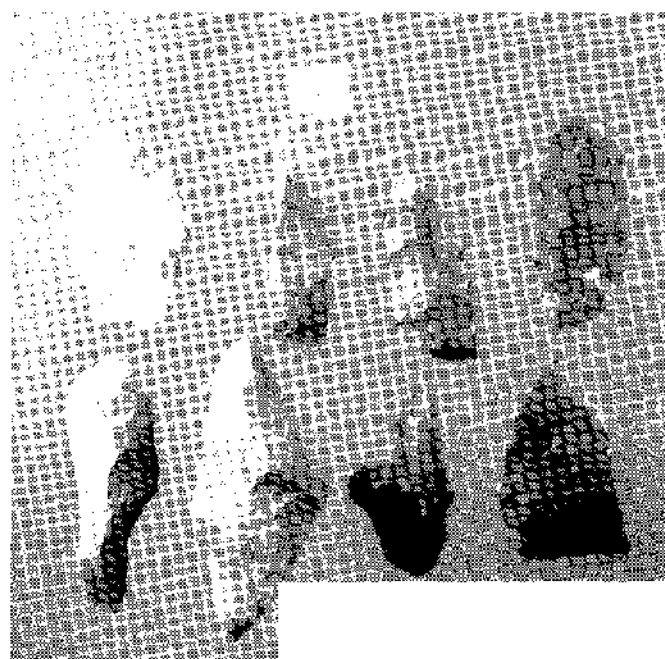
Figure H. Pottery with dentate stamping from BOAT. 115%

Figure I. Bone awl tools from WHALE. 90%

Figure J. Miscellaneous stone with polished areas from WHALE. 90%

Figure K. Large quartz tools from WHALE. 60%

Figure L. Worked chert flakes, scrapers from WHALE. 70%



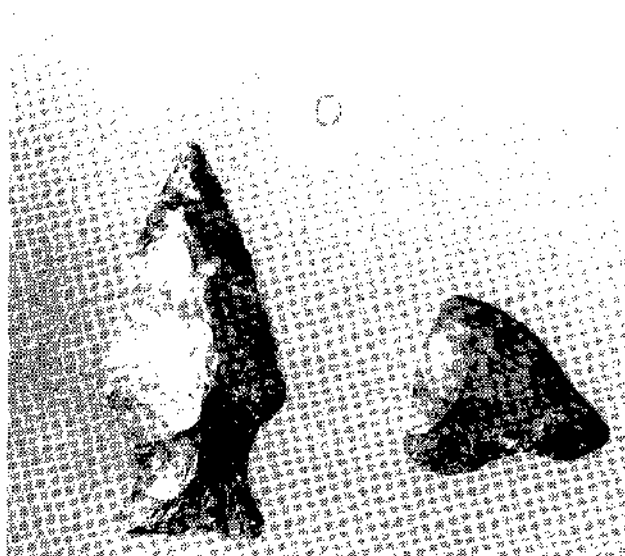
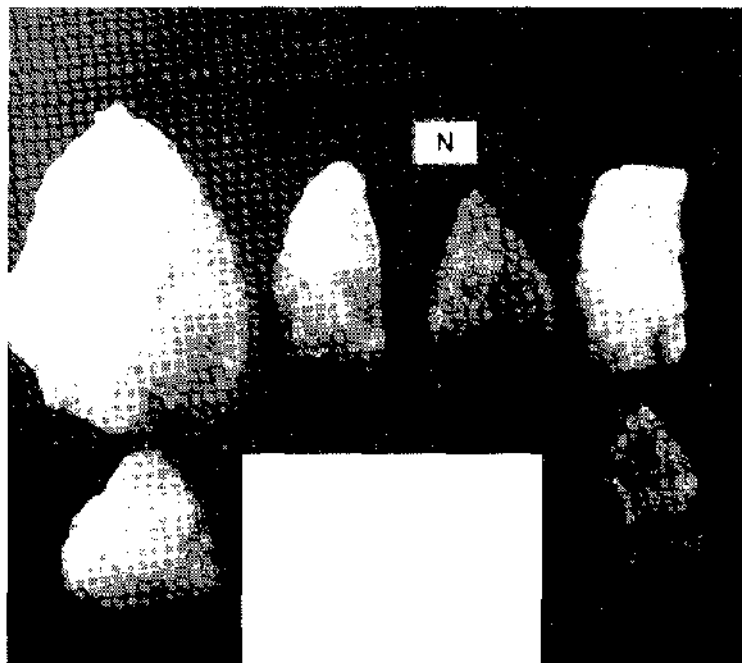
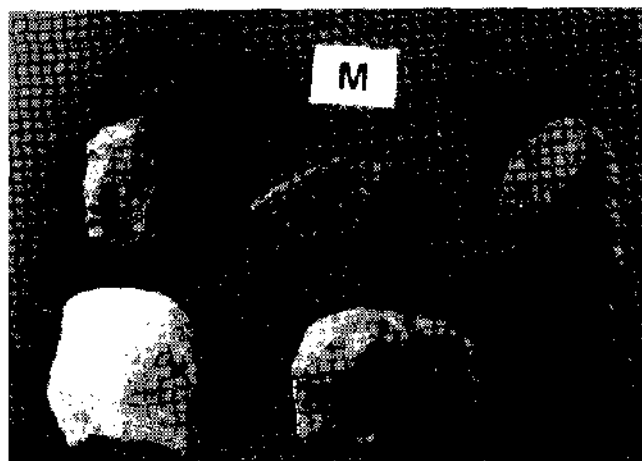


Figure M. Scrapers from WHALE. 100%

Figure N. Quartz tools from WHALE. 70%

Figure O. Detail of two chert points from WHALE.  
110%

Figure P. Pottery rim sherds from SOUTHERN GROUP.

Figure Q.

Pottery with dentate stamping from WHALE (2), Stamped pottery from SOUTHERN GROUP. 100%

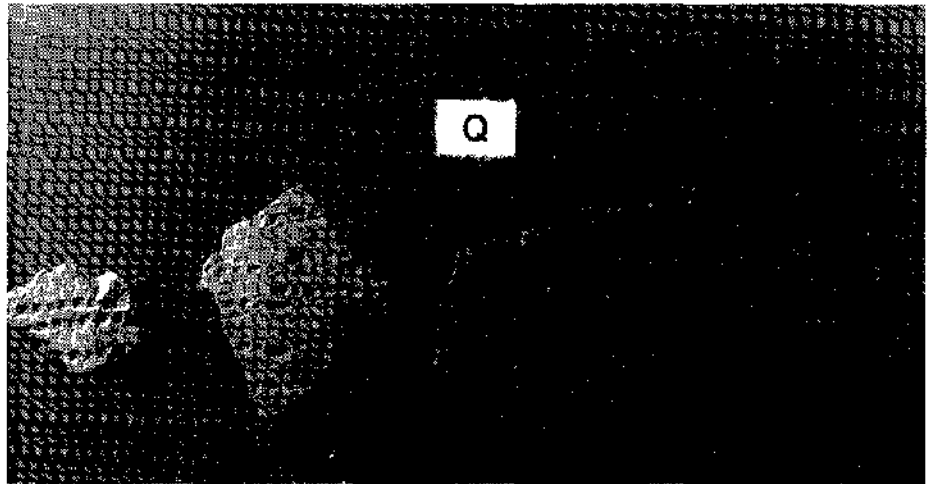


Figure R.

Smoothed pottery rim sherds from the WHALE. 80%

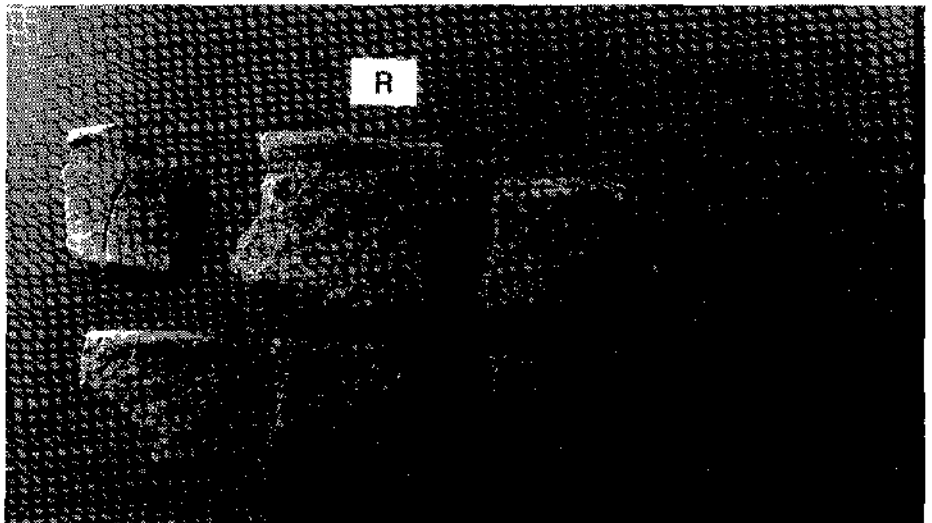
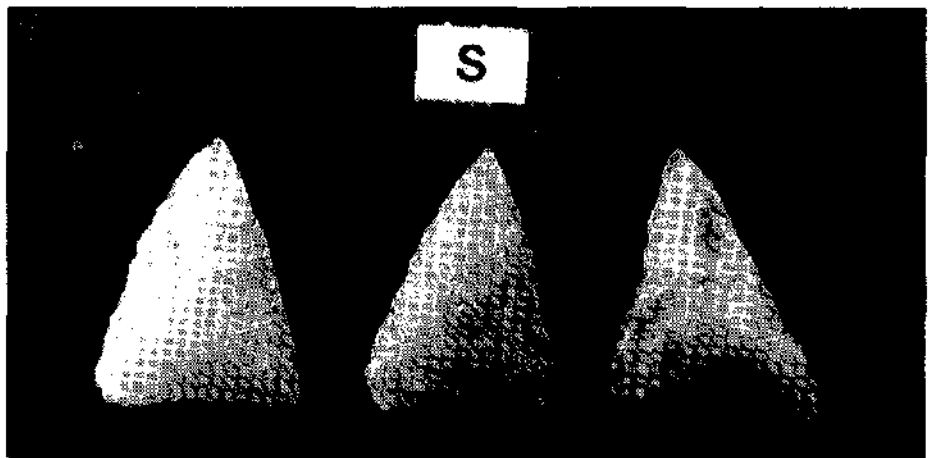


Figure S.

Detail of three quartz points from the WHALE.





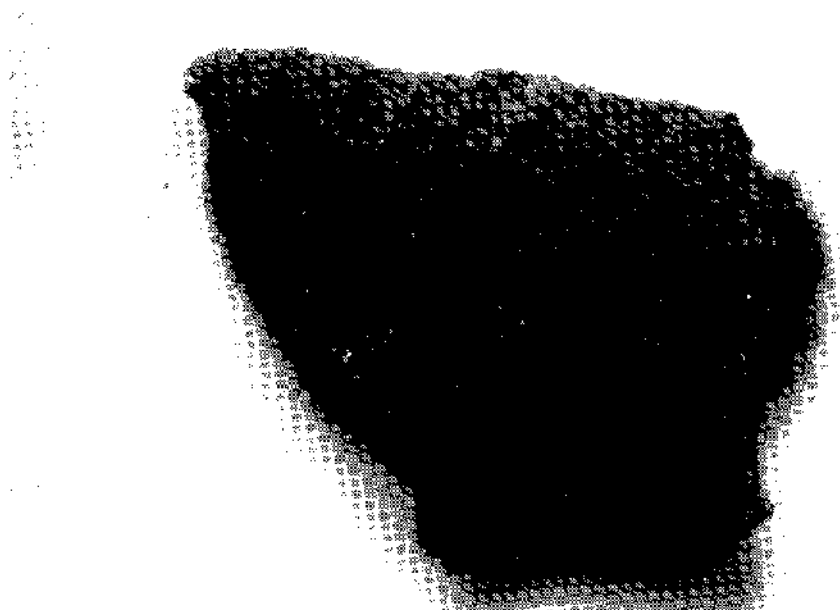


Figure T. Detail of interior rim sherd from SOUTHERN GROUP.

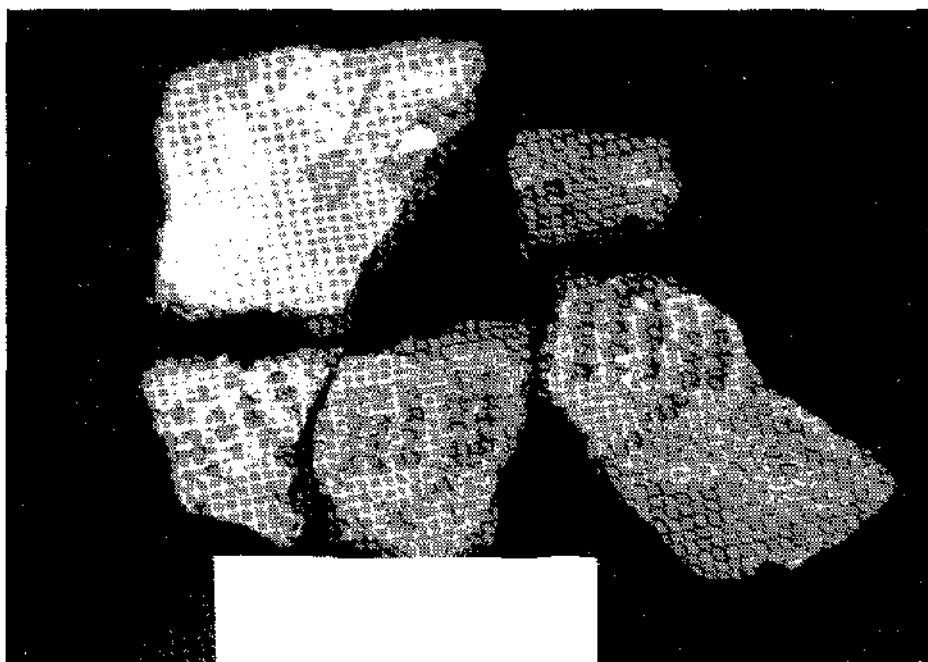


Figure U. Stamped sherds from SOUTHERN GROUP. 85%

UNIDENTIFIED ARTIFACT FROM THE SALMON RIVER IN EASTERN CONNECTICUT

JOSEPH PARKOS  
ARCHAEOLOGICAL SOCIETY OF SOUTHEASTERN CONNECTICUT

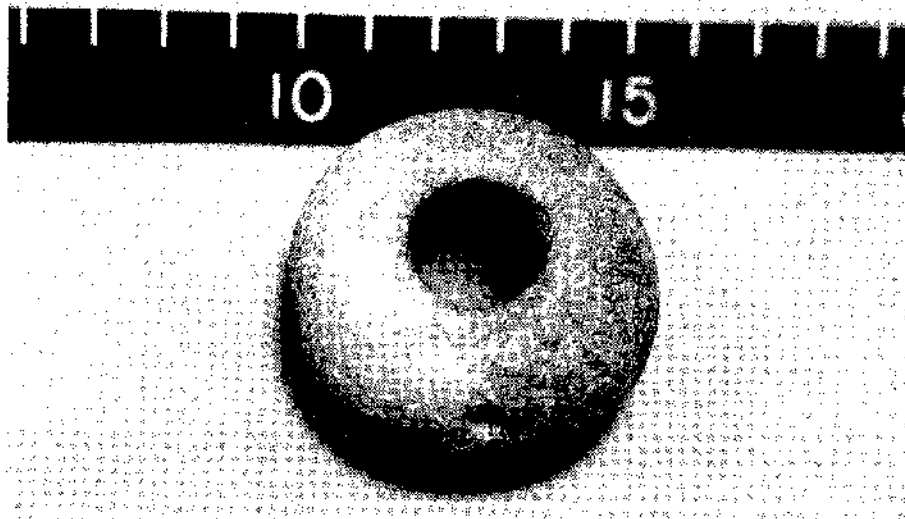


Figure 1. Unknown artifact from the Salmon River

The identification of this artifact (Figure 1) has puzzled everyone who has seen it. Archaeologists have identified it as anything from a doorknob to a pipe bowl. The material is probably ceramic or a very porous, light stone. It was found in the Salmon River during a fisheries survey.

Editor's note: Anyone having a strange or unidentified artifact in his or her collection is encouraged to send in a photo or sketch with pertinent information. Let's see if our membership can identify it for you.

ERRATA: On page 6 of Bulletin #54, line 20, the equivalent of 3000 square meters should be 32,315 square feet, and not 9,000 square feet. We regret the editorial miscalculation, and thank member Donald Armistead for his vigilance.



# ABORIGINAL POTTERY FROM THE INDIAN RIDGE SITE, NEW MILFORD, CONNECTICUT

LUCIANNE LAVIN  
ALBERT MORGAN/GREATER NEW HAVEN  
LAURIE MIROFF  
ALBERT MORGAN

## ABSTRACT

The Indian Ridge site, adjacent to and possibly part of the Lover's Leap site complex, is located in western Connecticut in the town of New Milford, on a terrace overlooking the Housatonic River. The site is multi-component and dates from Early Archaic to Late Woodland times. Analysis of the pottery from the Dorso collection indicates the presence of extensive earlier Woodland components, which appear to belong to the Point Peninsula ceramic tradition that is centered in interior New York state. Coastal Windsor tradition ceramics are a minor presence during this time period. A small, temporary Windsor occupation occurs during the Late Woodland period. The ceramic information suggests that during earlier Woodland times, at least, west-central Connecticut was populated by Indian groups whose cultural affiliations -- possibly even roots -- lie to the west in the Hudson Valley societies.

## INTRODUCTION

The Indian Ridge site is part of the Lover's Leap site complex, which overlooks the confluence of the Still and Housatonic rivers in New Milford, Connecticut (Figure 1). We interpret the area as a prehistoric and historic site complex because artifacts recovered from Lover's Leap by amateur archaeologists and by pothunters strongly indicate repeated (if not continuous) occupation of the entire multi-acre property by Native American and European groups, beginning with the Paleo-Indian period and extending into the modern era. Occupations seem to overlap and intrude on each other. To date, individual site boundaries and their temporal natures have yet to be determined.

Diagnostic projectile point and pottery types indicate that Indian Ridge was occupied from Early Archaic to Late Woodland times. The area is tremendously disturbed; shovel holes and assorted small craters are ubiquitous across many acres. It is presently owned by Northeast Utilities. No "digging" signs are posted at several locations on the property, and violators can be prosecuted. Perusal of the local and regional archaeological literature indicates that an in-depth analysis of the site's contents has never been published. There is, however, a report in progress on field investigations by the Institute for American Indian Studies (Russell Handsman, personal communication August 7, 1992).

The potsherds analyzed in this paper are from the collection of John Dorso and his son, Matthew. John is a well-known amateur archaeologist and a long-time member of the ASC. The collection totals 1,115 sherds. One hundred eighty-two sherds (16.3%) were unclassifiable. They were either too small or too eroded for identification. The remaining 933 sherds (83.7%) were analyzed according to the attributes of paste, surface treatment, decorative technique and motif, and vessel form. In this way, we were able to place all but the most eroded sherds in a specific class, or *sherd lot*.

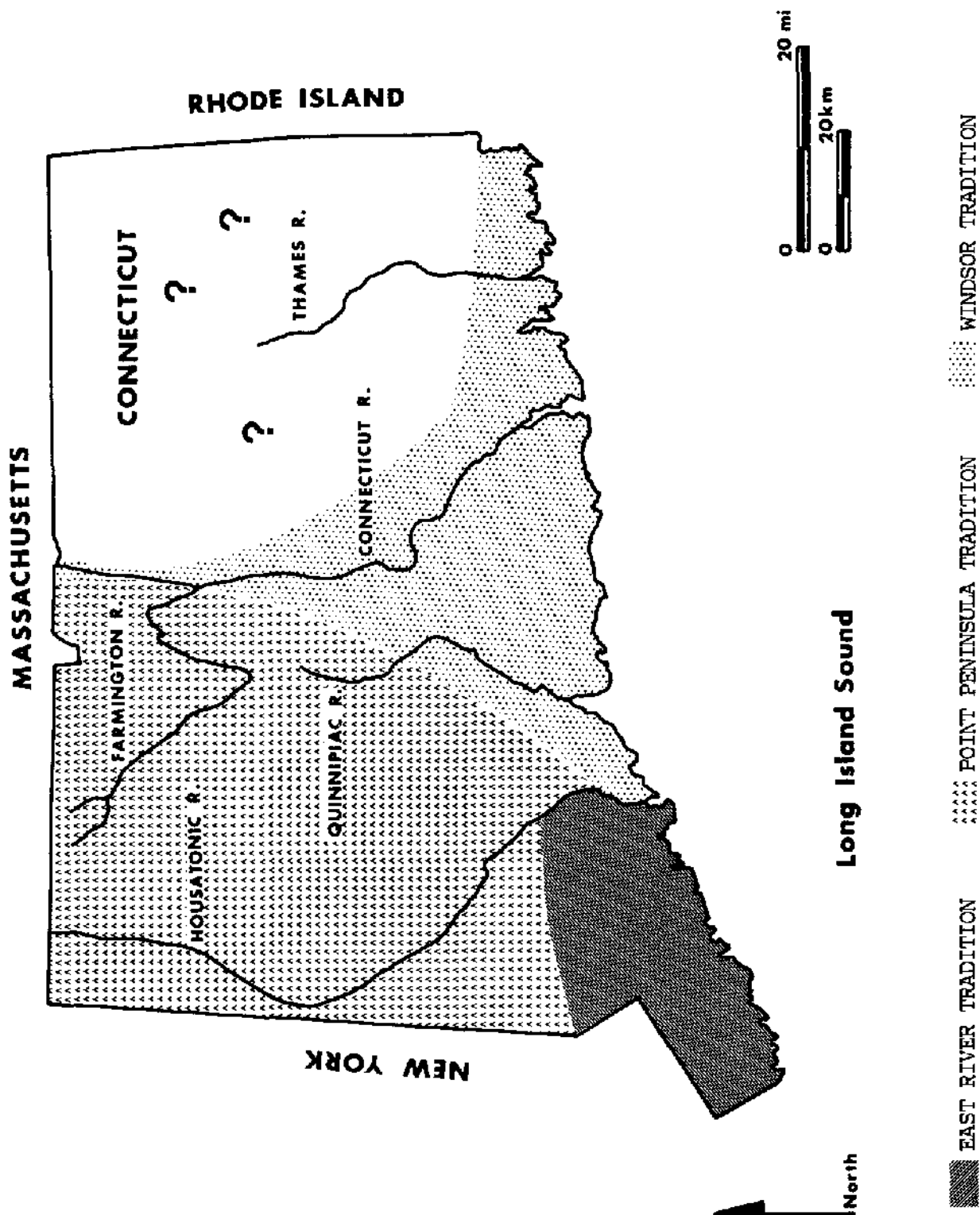


Figure 1. Approximate boundaries of known ceramic traditions in Connecticut based on present archaeological data.



Figure 2. Plain (Smoothed exterior/Smoothed interior) rim sherds from the Indian Ridge site, New Milford, Connecticut (Dorso collection).



Figure 3. Interior cordmarked pottery from the Indian Ridge site, New Milford, Connecticut (Dorso collection).



Figure 4. Jack's Reef Corded pottery from the Indian Ridge site, New Milford, Connecticut (Dorso collection).



Figure 5. Ford Netmarked/North Beach Netmarked pottery from the Indian Ridge site, New Milford, Connecticut (Dorso collection).

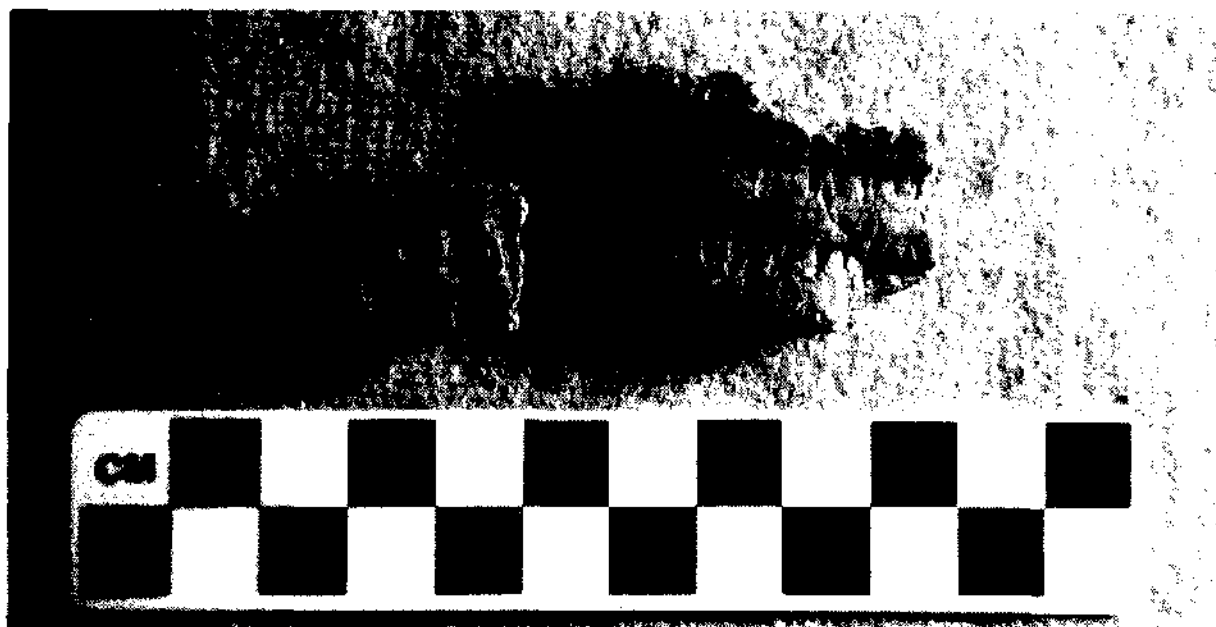


Figure 6. Point Peninsula Corded sherds from the Indian Ridge site, New Milford, Connecticut (Dorso collection).



Figure 7. Dentate Stamped pottery from the Indian Ridge site, New Milford, Connecticut (Dorso collection).



Figure 8. Top row: sherd decorated with an unknown stamp; Black Rock Trailed sherd. Bottom row: stab and drag decorated sherd; Black Rock Trailed sherd; punctated sherd. Indian Ridge site, New Milford, Connecticut (Dorso collection).

Analysis took the form of three semi-independent sortings -- undecorated sherds (Figure 2 - 5), decorated sherds (Figures 6 - 8), and vessels. Minimum vessel counts were calculated in order to mitigate the biases of differential artifact preservation and sampling strategies that occur when we use individual sherd counts (e.g., see comments by Mason 1966, Finlayson 1977, and Petersen 1980). To put this into layman's terms, several hundred sherds in a collection may be the fragments of a single vessel representing pottery type A, while ten sherds in the collection may represent ten separate vessels of pottery type B. Analysis of the collection by sherd lots alone would erroneously indicate that type A is the major type at the site, and that the Indians who once lived at the site belonged to the archaeological tradition represented by type A. Sorting the pottery collection into vessels, however, would correctly demonstrate that the major type at the site was type B, represented by ten vessels (most of whose fragments were not preserved), in contrast to the single vessel representing type A (the fragments of which just happened to be better able to withstand the processes of sherd disintegration than those of type B).

The sherds were classified into 64 sherd lots, which consisted of 41 sherd groups and 23 types. Following Lavin (1986:5), we define a sherd group as a "category whose members share a combination of traits distinct from those of other sherds in the assemblage." It should not be confused with a type, however, as a sherd group "may represent the undecorated lower walls and base of a previously typed decorated sherd lot, or it may represent an idiosyncrasy rather than a cultural entity." A pottery type is a category whose members share a combination of traits consistently chosen by the potters of a society and, as such, reflects spatial, temporal and cultural patterning. For a detailed description of each sherd lot, see Appendix I.

## UNDECORATED POTTERY

Seven hundred forty-eight (80% of the total identifiable count) of the sherds are undecorated. They were separated into nine types and 29 sherd groups (Table 1). The types represented are: Vinette Interior Cordmarked, Vinette Fabricmarked, Modified Interior Cordmarked, Ford or North Beach Netmarked, Jack's Reef Corded, Point Peninsula Plain, Windsor Brushed (undecorated), and Windsor Fabricmarked. The first three types indicate an Early Woodland and/or early Middle Woodland component at Indian Ridge. The next three types demonstrate a Middle Woodland component, while the latter two types -- Windsor Brushed and Windsor Fabricmarked, date to both the Middle Woodland and Late Woodland periods. The majority of the sherds represent Point Peninsula tradition ceramics. Sherds from the Windsor tradition of coastal Connecticut and Long Island are in the minority.

## DECORATED SHERDS

One hundred eighty-five (20% of the total identifiable count) sherds are decorated. They were separated into 14 types and 12 sherd groups (Table 1). The following types are represented: Decorated Modified Interior Cordmarked, Matinecock Point Incised, Matinecock Point Stamped, Vinette Dentate, Point Peninsula Rocker-Stamped, Clearview Stamped, Kipp Island Criss Cross, Point Peninsula Corded, Black Rock Trilled, and Niantic Stamped. The first type may indicate an Early Woodland occupation, but more likely it is part of an early Middle Woodland component represented by the next five types. A late Middle Woodland component is represented by the Kipp Island Criss Cross, Point Peninsula Corded, and Black Rock Trilled. The Niantic Stamped sherds represent a smaller Late Woodland occupation.

As in the undecorated sherd analysis, Point Peninsula tradition ceramics in the form of Vinette Dentate, Point Peninsula Rocker-Stamped, Point Peninsula Corded, Kipp Island Criss Cross, Black Rock Trilled, and the untyped cord-wrapped-stick stamped sherds are in the majority. Windsor tradition ceramics represented by the Matinecock Point Incised, Matinecock Point Stamped, Clearview Stamped, Niantic Stamped, and untyped scallop shell stamped sherds are in the minority.

## VESSELS

A minimum of 191 vessels are represented by the identifiable undecorated and decorated sherds (Table 2). This rather conservative count is based on the number of distinctively decorated sherds, and the number of undecorated rim sherds. As Table 2 shows, Point Peninsula vessels are in the majority while those of the Windsor tradition are in the minority. That such a large amount of vessels was collected from only one part of this extensive site complex indicates either (1) an intensive, long-term settlement, or (2) numerous, short term settlements. The extensive use of clay pots argues against their being overnight hunting or gathering camps because the former are bulky, breakable and less practical than those containers made of leather or fabric for such overnight ventures.

TABLE 1a. INDIVIDUAL SHERD COUNTS, INDIAN RIDGE SITE, NEW MILFORD, CT  
(DORSO COLLECTION)

<u>SHERD LOTS</u>	<u>UNDECORATED SHERD COUNTS</u>
<u>TYPES</u>	
Point Peninsula Plain	2
Vinette Interior Cordmarked	13
Modified Interior Cordmarked	10
Jack's Reef Corded	32
Windsor Brushed, grit	20
Windsor Brushed, shell	19
Ford or North Beach Netmarked, grit	59
Ford or North Beach Netmarked, shell	1
Vinette Fabric-marked	2
Windsor Fabric-marked	1
<u>GROUPS</u>	
Smoothed/Smoothed, grit	160
Smoothed/Smoothed, shell	26
Smoothed/Brushed, grit	12
Smoothed/Brushed, shell	12
Smoothed over Cordmarked/Smoothed, grit	41
Smoothed over Cordmarked/Smoothed, shell	1
Smoothed over Cordmarked/Cordmarked, grit	44
Smoothed over Cordmarked/Brushed	4
Cordmarked/Cordmarked, grit	24
Cordmarked/Smoothed, grit	63
Cordmarked/Cordmarked, shell	20
Cordmarked/Brushed, grit	39
Cordmarked/Brushed, shell	6
Cordmarked, Brushed/Smoothed over Cordmarked	4
Brushed/Brushed	60
Netmarked/Netmarked	13
Netmarked and Brushed/Netmarked and Brushed	2
Smoothed over Netmarked/Corded	1
Fabric-marked/Smoothed	17
Fabric-marked/Cordmarked	2
Fabric-marked/Brushed	4
Brushed over Fabric-marked/Brushed	6
Impressed/Brushed, grit	1
Impressed/Brushed, shell	1
Smoothed over Impressed/Smoothed	16
Smoothed over Impressed/Brushed	6
Impressed with Knotted Cord	1
Cord-Wrapped Cord/Brushed or Smoothed	3
TOTAL NUMBER OF UNDECORATED SHERDS	748



TABLE 1b. INDIVIDUAL SHERD COUNTS, INDIAN RIDGE SITE, NEW MILFORD, CT  
(DORSO COLLECTION)

<u>SHERD LOTS</u>	<u>DECORATED SHERD COUNTS</u>
<u>TYPES</u>	
Modified Interior Cordmarked	3
Point Peninsula Corded, grit	27
Point Peninsula Corded, shell	6
Niantic Stamped, grit	1
Niantic Stamped, shell	23
Black Rock Trailed, grit	3
Black Rock Trailed, shell	1
Matinecock Point Incised	2
Matinecock Point Stamped	2
Clearview Stamped	3
Vinette Dentate	52
Kipp Island Criss-Cross	5
Vinette Complex Dentate	2
Point Peninsula Rocker-Stamped	12
<u>GROUPS</u>	
Cord-Wrapped Stick Stamped/Netmarked	1
Cord-Wrapped Stick Stamped/Fabric-marked	1
Brushed/Brushed	8
Scallop Shell Stamped, grit	1
Scallop Shell Stamped, shell	1
Incised/Smoothed	6
Dentate or Cord-Wrapped Stick/Roughened	1
Notched/Smoothed	3
Punctated	4
Unknown Stamp/Smoothed, grit	15
Unknown Stamp/Smoothed, shell	1
Unknown Stamp/Brushed	1
TOTAL NUMBER OF DECORATED SHERDS	185

## CONCLUSIONS

Analyses of the pottery from the Dorso collection indicate that Indian Ridge was occupied by Native American groups during the early Woodland (i.e., the early Middle Woodland and possibly Early Woodland periods), later Middle Woodland and Late Woodland periods, but not necessarily continuously. All three sortings of the pottery support these findings.

The following pottery types identified in the Indian Ridge assemblage traditionally have been assigned to the Early Woodland period, circa 1000 B.C. - A.D. 1: Vinette Interior Cordmarked, Decorated Interior Cordmarked, Modified Interior Cordmarked, and Vinette Interior Fabricmarked (Ritchie and MacNeish 1949; Smith 1950; Ritchie 1969; Lopez 1957; Lavin 1987; Wiegand 1987). More recently, the former two types have also been radiocarbon-dated to the early Middle Woodland period, circa A.D. 1 - 500 (Wiegand 1987; Parkos 1991; Garrow and Associates, Inc. 1992). Since we have no spatio-stratigraphic data for the assemblage, however,

TABLE 2. MINIMUM VESSEL COUNTS, INDIAN RIDGE SITE, NEW MILFORD, CT  
(DORSO COLLECTION)

<u>CERAMIC</u> <u>TRADITION</u>	<u>TYPE/SHERD</u> <u>GROUP</u>	<u>NO. OF</u> <u>VESSELS</u>
Point Peninsula	Point Peninsula Plain	1
	Vinette Interior CM	9
	Modified Interior CM	4
	Decorated Modified Int. CM	1
	Vinette Fabric-Marked	2
	Jack's Reef Corded	24
	Point Peninsula Corded	21
	Black Rock Trailed	4
	Vinette Dentate	30
	Vinette Complex Dentate	1
	Point Peninsula Rocker Stamped	5
	Kipp Island Criss Cross	1
	Cord-Wrapped Stick/Netmarked	1
	Cord-Wrapped Stick/Fabric-marked	1
	TOTAL	105
Windsor	Windsor Brushed Undecorated	7
	Windsor Fabricmarked	1
	Brushed/Brushed	3
	Niantic Stamped	4
	Scallop Shell Stamped	2
	Matinecock Point Incised	1
	Matinecock Point Stamped	2
	Clearview Stamped	2
	TOTAL	22
Unknown	Smoothed/Smoothed	17
	Smoothed/Brushed	2
	Ford or North Beach Netmarked	15
	Netmarked/Netmarked	2
	Smoothed Impressed/Smoothed	2
	Cord-wrapped Cord/Brushed Smoothed	2
	Incised/Smoothed	5
	Dentate or Cord-wrapped Stick/Rough	1
	Punctated	3
	Unknown Stamp	15
	TOTAL	64
TOTAL VESSEL COUNT		191

the most we can say is that at Indian Ridge, these sherds represent either (1) one or more Early Woodland occupations, (2) one or more early Middle Woodland occupations, or (3) one or more Early Woodland and early Middle Woodland

occupations.

Early Middle Woodland occupation(s) of the site is confirmed by the presence of the following pottery types: Point Peninsula Rocker-Stamped, Vinette Dentate, Vinette Complex Dentate, Clearview Stamped, Matinecock Point Stamped, and Matinecock Point Incised (Ritchie and MacNeish 1949; Smith 1950; Lopez 1957; Kaeser 1963; Lavin 1987). Garrow and Associates, Inc. (1992) recently reported radiocarbon dates of A.D. 90 and A.D. 130 for a large Middle Woodland component in the Milford area. The feature associated with these dates contained sherds of Vinette Interior Cordmarked, Decorated Modified Interior Cordmarked, Matinecock Point Stamped, and cordwrapped-stick stamped pottery.

A later Middle Woodland component is represented at Indian Ridge by the pottery types Point Peninsula Corded, Point Peninsula Plain, Jack's Reef Corded, Black Rock Trilled and Ford or North Beach Netmarked. In eastern New York, Ford Netmarked has been radiocarbon-dated to A.D. 360 and A.D. 450 (Funk 1976). See Ritchie and MacNeish (1949) and Funk (1976) for the relative dating of the remaining pottery types to this and a later time frame.

The following sherd lots from Indian Ridge have been associated with both late Middle Woodland and Late Woodland components by previous researchers (i.e., Ritchie and MacNeish 1949; Smith 1950; Lavin 1987): Windsor Brushed, Brushed/Smoothed, Brushed/Brushed, Smoothed/Smoothed, Windsor Fabricmarked, Cord on Cord/Brushed, Cord on Cord/Smoothed, and Incised. Consequently, the lots may represent either one or both of these time periods.

The ceramic attributes and typology of the earlier Woodland components at Indian Ridge demonstrate a strong Point Peninsula influence. They include traits such as interior cord decoration, dentate decoration, rocker stamping, cordwrapped-stick stamping, trailing, crenellated rims, and the types Vinette Dentate, Vinette Complex Dentate, Kipp Island Criss Cross, Point Peninsula Rocker-Stamped, Point Peninsula Corded, Point Peninsula Plain, Jack's Reef Corded, Black Rock Trilled, Ford Netmarked, and the interior cordmarked types. Characteristics of the coastal Windsor tradition are also present, however, in the form of exterior surface brushing, brushed decoration, exterior fabric impression and the types Matinecock Point Stamped, Matinecock Point Incised, North Beach Netmarked, Clearview Stamped, Windsor Fabricmarked, Windsor Brushed, and Niantic Stamped.

Nevertheless, the 105 Point Peninsula vessels far outweigh the 22 vessels representing the coastal zone (see Table 2), indicating strong western influences within the Housatonic drainage of west-central Connecticut during this time period. Recent research by Garrow Associates, Inc. (1991, 1992) in this region supports this hypothesis. Lavin's analysis of prehistoric pottery from sites in Newtown, Brookfield and New Milford during phase 2 and 3 testing of the Iroquois Pipeline indicate that the interior New York-based Point Peninsula and Owasco ceramic traditions were a major presence.

A Late Woodland component is confirmed by the presence of a few Niantic Stamped and untyped scallop shell stamped sherds (Smith 1950; Lavin 1980, 1987). They indicate occupation by a small group of coastal Windsor people.

Both sherd and vessel counts indicate that the Middle Woodland components are by far the most extensive, while that of the Late Woodland is the least so. If our ceramic sample is representative of the site in general -- and other collections from the area suggest this to be the case (i.e., sample collection of rim sherds from the Shepaug Valley Archaeological Society excavations, presently housed at the Institute for American Indian Studies in Washington, Connecticut; Fred Gudrian, personal communication 1992 on the Gudrian and Tucker collections from the area) -- the data indicate intensive exploitation of the area by earlier Woodland Point Peninsula pottery-using groups prior to A.D. 1000. After that time, occupation is relatively minor, consisting of a small, temporary camp or two of Windsor people during the Late Woodland period.

The ceramic information suggest the hypothesis that during the earlier Woodland periods, at least, west-central Connecticut was populated by Point Peninsula-Owasco tradition cultural groups flowing out of the Hudson Valley to the west. Windsor tradition influence is present but secondary. Further research in the form of comparative analyses of ceramic attributes, settlement patterning and economy are needed to test this hypothesis. The virtual absence of ceramics representative of the East River tradition, centered in southwestern Connecticut and Westchester County, New York (Smith 1950) suggest that the cultural boundaries of that ceramic tradition lay south of the New Milford area (see Figure 1 for hypothesized tradition boundaries).

#### ACKNOWLEDGMENTS

Our sincere thanks to John and Matthew Dorso for graciously allowing us to analyze their pottery assemblage from the Indian Ridge site. We also thank Fred Gudrian of the Albert Morgan Archaeological Society, and Dr. Russell Handsman and the Institute for American Indian Studies, for allowing us to peruse their ceramic collections from the area. Marina Mozzi of Archaeological Research Specialists and the Newington Historical Society generously provided the figures and tables.

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## Appendix 1: DESCRIPTION OF SHERD LOTS

The attributes of surface treatment and decoration are based upon the definitions by Smith (1950: 188-189). Lavin (1980: 5) has defined the techniques of wiping and stamp and drag. Three categories, based upon size, were utilized to separate tempering material: fine (less than 1.0 mm in length), medium (1.0 to 3.0 mm in length), and coarse (over 3.0 mm in length).

## A. UNDECORATED SHERD LOTS

## 1. POINT PENINSULA PLAIN (2 sherds; 1 vessel)

Temper: Grit (medium).

Surface Treatment: Smoothed exterior and interior.

Form: The thickness is 8 mm. Coil breaks are present. The lips are rolled and flattened on the top, unlike the rounded lips described by Ritchie and MacNeish (1949:103) for this sherd lot. Both rims are everted.

Decoration: Both lips are decorated with oblique incised lines.

Comments: These sherds fit the type Point Peninsula Plain as described by Ritchie and MacNeish (1949: 103).

## 2. SMOOTHED EXTERIOR/SMOOTHED INTERIOR (160 sherds, including 19 rims; 17 vessels are represented)

Temper: Grit (coarse to fine).

Surface Treatment: Smoothed exterior and interior. Several sherds exhibit wipe marks on the exterior or the interior.

Form: Thickness ranges from 6 to 14 mm. Several sherds exhibit coil breaks. Lip forms include flat, rounded, slightly rounded, pointed, slightly pointed or extruded (on three of these vessels the lips are almost rolled). Rim forms include straight and slightly flaring.

Decoration: Undecorated except for several vessels with decorated lips. Decoration includes notching along the top of the lip or on the exterior edge. This sometimes gives it a "pie crust" or crimped effect. One lip exhibits cord-wrapped paddle edge or cord-wrapped stick impressions perpendicular to the rim.

Comments: These sherds fall into three basic categories: 1. Decorated lips (5 rims representing 5 vessels). Decoration consists of notches and crimping along the lip forming a "pie crust" effect or cord-wrapped stick stamps. 2. Straight-sided rims with rounded, pointed, or flat, non-extruded lips (8 rims representing 8 vessels). Four of these rims exhibit a slight constriction just below the lip. 3. Extruded

lips, some of which are almost rolled (6 rims representing 4 vessels). These categories may represent types or subtypes that are not as yet identified in the published literature. Several straight-sided vessels may fit the type Hollister Plain, a lower Connecticut Valley type (Lavin 1980: 9-10). Those with everted rims could fit the type Windsor Plain (Lavin 1980:10). Traditionally, plain vessels from western Connecticut and southeastern New York were not typed and, therefore, there are no local pottery types to which these undecorated vessels can be compared. The "pie crust" or crimped lips of several vessels appears to be a "western" trait (see, for example, Ritchie and MacNeish 1949 and Funk 1976).

## 3. SMOOTHED EXTERIOR/SMOOTHED INTERIOR (26 sherds)

Temper: Shell (fine particles or leached out). A small amount of quartz temper is also visible in several sherds.

Surface Treatment: Smoothed exterior and interior.

Form: Thickness ranges from 5 to 10 mm.

## 4. SMOOTHED EXTERIOR/BRUSHED INTERIOR (12 sherds, including 3 rims; 2 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: Smoothed exterior. The interior is brushed.

Form: Thickness ranges from 7 to 12 mm. Coil breaks are present on several sherds. Two rims have rounded lips and one has a flat lip with cordmarks (cord-wrapped paddle impressions). The rims are straight except for the rim with the cord-marked lip which has a slight constriction just below the lip.

Comments: These vessels fit no known undecorated pottery type for the region.

## 5. SMOOTHED/BRUSHED (12 sherds)

Temper: Shell (fine particles or leached out).

Surface Treatment: Smoothed exterior. The interior is brushed.

Form: Thickness ranges from 7 to 11 mm. Coil breaks are present.

6. VINETTE INTERIOR CORDMARKED (13 rim sherds; 9 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: Cord-wrapped paddle impressions on the exterior and the interior. The cordmarks on the exterior are mainly vertical; a few sherds exhibit oblique cordmarking. Interior cordmarks are horizontal; one sherd displays oblique interior cordmarks. Wiping is visible on the exterior or interior surfaces of several sherds.

Form: Thickness ranges from 6 to 10 mm. Coil breaks are present on several sherds. The majority of the lips are flat with cordmarked impressions. One lip is slightly rounded and smoothed and one is rolled. Five lips are extruded and one is partially extruded because it had been flattened. Most of the rims are straight. Several are straight with a constriction, often slight, just below the rim. One rim expands (into a shoulder) approximately two inches below the lip. One rim is everted. The majority of necks, when present, are short.

Decoration: None, except two lips (one vessel) are decorated with deep, oblique impressions on the interior made by a cord-wrapped paddle edge. One sherd has at least four cord-wrapped paddle edge impressions on the interior of the rim.

7. MODIFIED INTERIOR CORDMARKED (10 sherds, including 4 rims; 4 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: The exterior of one sherd has smoothed over cord-wrapped paddle impressions. The interior is cordmarked; the cordmarkings are in parallel rows. Two sherds have smoothed over cordmarked exteriors and interiors. Three sherds have smoothed over cordmarked exteriors, with cord-wrapped paddle edge impressions on the interiors. Four sherds have cordmarked exteriors and smoothed over cordmarked interiors.

Form: Thickness ranges from 6 to 11 mm. Coil breaks are present on several sherds. Two lips are slightly rounded to slightly flattened and outslipping. One is flat with smoothed over cordmarked impressions. One lip is slightly rounded. Two rims are straight, one is everted, and one is slightly everted.

Decoration: None, except one rim sherd has three notches on the interior of the rim. The notches were probably made with the paddle edge.

Comments: These sherds fit the type Modified Interior Cordmarked (Lopez 1957).

8. SMOOTHED OVER CORDMARKED EXTERIOR/SMOOTHED INTERIOR (41 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: Smoothed over cord-wrapped

paddle impressions on the exterior. The interior is smoothed.

Form: Thickness ranges from 7 to 15 mm. Coil breaks are present.

Comments: One sherd has a drilled mend hole, which measures 9 mm in diameter on the exterior and 4 mm in diameter at the interior.

9. SMOOTHED OVER CORDMARKED EXTERIOR/SMOOTHED INTERIOR (1 sherd)

Temper: Shell (fine particles or leached out).

Surface Treatment: Smoothed over cord-wrapped paddle impressions on the exterior. The interior is smoothed.

Form: The thickness of this sherd is 8 mm. Coil breaks are present.

10. SMOOTHED OVER CORDMARKED EXTERIOR/CORDMARKED INTERIOR (44 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: Smoothed over cord-wrapped paddle impressions on the exterior. The interior has cord-wrapped paddle impressions. Some of the cordmarks appear to have been made with the edge of a cord-wrapped paddle.

Form: Thickness ranges from 7 to 12 mm. Coil breaks are present on several sherds.

Comments: These sherds may represent the body sherds of Modified Interior Cordmarked vessels, described above, or Matinecock Point Stamped vessels, described below.

11. SMOOTHED OVER CORDMARKED EXTERIOR/BRUSHED INTERIOR (4 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: Smoothed over cord-wrapped paddle impressions on the exterior. The interior is brushed.

Form: Thickness ranges from 11 to 13 mm. One sherd has a coil break.

12. JACK'S REEF CORDED (32 rim sherds; 24 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: Sherd exteriors exhibit cord-wrapped paddle impressions. Most of the cordmarks are vertical. Some sherds display cross-paddled cordmarks. Several exhibit smoothed over cordmarkings. Eleven vessels have smoothed interiors and thirteen vessels have brushed interiors. A number of cord sizes were used, varying from coarse to fine. The spacing between impressions occurred either close together or more widely spaced.

Form: Thickness ranges from 4 to 9 mm. Coil breaks are present. Fourteen vessels have flat lips; nine vessels have rounded lips (some only slightly rounded,

one slightly curled); the form of one vessel's lip is difficult to determine due to decoration. The majority of the vessels have flaring rims (some only slightly), but straight rims are also common. Two rims are constricted. They represent vessels with either short, straight rims and a shoulder or flaring rims. One sherd has a very slight constriction just below the lip.

Decoration: The sherds are undecorated, except for several sherds with decoration on the tops of their lips and the interiors of their rims. Several sherds have cordmarks extending over their lips. Lip decoration includes notching, heart-shaped punctations, and cord-wrapped paddle edge impressions.

Comments: One sherd has a drilled mend hole which is approximately 5 mm in diameter. These sherds fit the type description of Jack's Reef Corded, a Point Peninsula type (Hitchie and MacNeish 1949:106).

13. CORDMARKED EXTERIOR/CORDMARKED INTERIOR (24 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: Cord-wrapped paddle impressions on both the exterior and the interior surfaces. On several sherds, the interior impressions appear to have been made with the edge or end of the cord-wrapped paddle. Fine to coarse cordage was utilized and the impressions are either close together or farther apart.

Form: Thickness ranges from 8 to 15 mm. Coil breaks are present.

Comments: These sherds probably represent the body sherds for the Vinette Interior Cordmarked and Matinecock Stamped vessels described above and below, respectively.

14. CORDMARKED EXTERIOR/SMOOTHED INTERIOR (63 sherds)

Temper: Grit (coarse to medium).

Surface Treatment: Cord-wrapped paddle impressions on the exterior. The interior is smoothed. Several cord sizes (coarse to fine) were used. The impressions are either close together or far apart.

Form: Thickness ranges from 5 to 13 mm. Coil breaks are present on several sherds.

Comments: Some or all of these body sherds may be from the Jack's Reef Corded vessels described previously.

15. CORDMARKED EXTERIOR/SMOOTHED INTERIOR (20 sherds)

Temper: Shell (fine particles or leached out).

Surface Treatment: Cord-wrapped paddle impressions on the exterior. The interior is smoothed. Various cord sizes (coarse to fine) were utilized. The impressions are either close together or far apart.

Form: Thickness ranges from 3 to 7 mm. Coil

breaks are present on several sherds.

Comments: Some or all of these body sherds may be from the Jack's Reef Corded vessels described previously.

16. CORDMARKED EXTERIOR/BRUSHED INTERIOR (39 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: Cord-wrapped paddle impressions on the exterior. The interior is brushed. Cordage varying from fine to coarse was utilized. The impressions are either far apart or more closely spaced.

Form: Thickness ranges from 7 to 13 mm. Coil breaks are present.

Comments: These body sherds may be from the Jack's Reef Corded vessels described above.

17. CORDMARKED EXTERIOR/BRUSHED INTERIOR (6 sherds)

Temper: Shell (fine particles or leached out).

Surface Treatment: Cord-wrapped paddle impressions on the exterior. The interior is brushed.

Form: Thickness ranges from 4 to 9 mm. Coil breaks are present.

18. CORDMARKED AND BRUSHED EXTERIOR/SMOOTHED OVER CORDMARKED INTERIOR (4 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: Cord-wrapped paddle impressions and brushing on the exterior surfaces. The interior surfaces have smoothed over cord-wrapped paddle impressions. One sherd also exhibits brushing on the interior. One interior surface was impressed with the edge of a cord-wrapped paddle.

Form: Thickness ranges from 10 to 11 mm. Coil breaks are present.

19. BRUSHED EXTERIOR/BRUSHED INTERIOR (60 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: Brushed exterior and interior.

Form: Thickness ranges from 6 to 12 mm. Coil breaks are present.

Comments: These sherds could represent the body sherds of any of several Windsor Tradition pottery types (see Smith 1950 and Lavin 1987).

20. WINDSOR BRUSHED (UNDECORATED) GRIT TEMPERED (20 sherds, including 2 rims; 2 vessels)

Temper: Grit (coarse to medium).

Surface Treatment: Brushed exterior. The interior is smoothed.

Form: Thickness ranges from 5 to 15 mm. Coil breaks are present on several sherds. One rim sherd has a flat and outslipping lip with smoothed over cord-marked impressions. The second rim has a slightly flattened lip and is not impressed. Both rims are straight.



Comments: These sherds fit the type description for Windsor Brushed (Smith 1950: 193, Lavin 1980: 21).

21. WINDSOR BRUSHED (UNDECORATED) SHELL TEMPERED (19 sherds, including 6 rims; 1 vessel with a brushed interior, 4 vessels with smoothed interiors)

Temper: shell (fine particles or leached out). Several sherds were also tempered with a small amount of quartz.

Surface Treatment: Brushed exterior. One vessel has a brushed interior; four have smoothed interiors.

Form: Thickness ranges from 6 to 9 mm. Coil breaks are present on several sherds. The rims are probably from one vessel. The lips are flat except for one rim with a slightly rounded lip. The rims are straight.

Comments: These sherds fit the type Windsor Brushed, as described by Smith (1950: 193 and Lavin 1980: 21).

22. FORD NETMARKED/NORTH BEACH NETMARKED, GRIT-TEMPERED (59 sherds, including 19 rims; 14 vessels)

Temper: Grit (coarse to fine); two have very compact paste.

Surface Treatment: Most have a netmarked exterior and a smoothed interior. Thirteen sherds have brushed interiors. Different types of net were utilized (fine to coarse). Seven sherds exhibit exterior smoothing over the netmarking. Three sherds exhibit exterior smoothing over the netmarks and are brushed. Four sherds (4 vessels) have interior brushing (this technique is also called channeling by some researchers). Several sherds have wiped interiors. One sherd has interior paddle edge impressions and one has net-wrapped paddle impressions. Several lips are net impressed. Two sherds (2 vessels) have numerous shallow, vertical and oblique, very narrow "scratch marks" on the interior, approximately one inch below the lip. Four interior rims are stamped, possibly by the edge of a net-wrapped paddle. The stamps are parallel and oblique.

Form: Thickness ranges from 6 to 12 mm. Several sherds exhibit coil breaks. Ten vessels have flat lips, sometimes due to net impressions. Other lip forms utilized are pointed and rounded or slightly rounded. Several lips are extruded (one sherd has an almost curled lip). Eight vessels have straight rims and eight have outflaring rims. Several necks are constricted, some only slightly.

Decoration: Undecorated except for lip decoration, which includes stamping with the edge of a paddle, perpendicular to the rim; paddle edge impressions bisecting the lip; and deep impressions perpendicular to the rim producing a "pie crust" or

crimped effect or a series of raised bosses.

Comments: There are two known netmarked pottery types in the Northeast, Ford Netmarked, from the Hudson Valley area (Funk 1976) and North Beach Netmarked, from the Long Island Sound region (Smith 1950; Salwen 1968). The only distinction between the two is in rim form. Ford Netmarked vessels have "usually out-flared" rims with "generally constricted" necks. In contrast, North Beach Netmarked exhibits straight rims (Salwen 1968). The description of North Beach Netmarked, however, is based on analysis of body sherds and the rim of only one vessel and, therefore, is a tentative description. We've assigned the vessels from the Indian Ridge site to the category Ford Netmarked/North Beach Netmarked because we are of the opinion that the latter two classifications constitute a single type. The sherds from Indian Ridge show a wider variation in lip form, however, and some interior surfaces are brushed.

23. FORD NETMARKED/NORTH BEACH NETMARKED, SHELL-TEMPERED (1 sherd representing 1 vessel)

Temper: Shell (fine particles or leached out).

Surface Treatment: Netmarked exterior. The interior is brushed.

Form: The thickness of this sherd is 7 mm.

24. NETMARKED EXTERIOR/NETMARKED INTERIOR (13 sherds; at least 2 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: Both the exterior and the interior are netmarked. Various types of net were utilized.

Form: Thickness ranges from 8 to 11 mm.

Comments: These sherds fit no known regional pottery type.

25. NETMARKED AND BRUSHED EXTERIOR/NETMARKED AND BRUSHED INTERIOR (2 sherds)

Temper: Grit (medium to fine).

Surface Treatment: Both the exterior and the interior surfaces are netmarked and brushed.

Form: Thickness ranges from 9 to 10 mm. Coil breaks are present.

26. SMOOTHED OVER NETMARKED EXTERIOR/CORDMARKED INTERIOR (Cord-wrapped paddle edge) (1 sherd)

Temper: Grit (medium).

Surface Treatment: Smoothed over netmarked exterior. The interior is impressed with a cord-wrapped paddle.

Form: The thickness of this sherd is 12 mm. A coil break is present.

Comments: These sherds do not fit into any known regional type.

27. VINETTE FABRIC-MARKED (2 rim sherds; 2 vessels)  
Temper: Grit (coarse to fine); a great deal of temper is present.

Surface Treatment: Fabric-marked exterior. Cord-wrapped paddle impressions on the interior.

Form: The thickness ranges from 9 to 10 mm. One lip is outslipping, one is slightly flattened due to impressions. The lips are fabric-marked. One rim is outflaring and one is straight. The neck is constricted.

Comments: Both Ritchie and Smith (see Smith 1950: 195) mention finding sherds of Vinette I with interior fabricmarking.

28. FABRIC-MARKED EXTERIOR/SMOOTHED INTERIOR (17 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: Fabric-marked exterior. The interior is smoothed. Several different fabrics were utilized.

Form: Thickness ranges from 7 to 13 mm. Coil breaks are present.

29. WINDSOR FABRIC-MARKED (1 rim sherd; 1 vessel)

Temper: Shell (fine particles or leached out).

Surface Treatment: Fabric-marked exterior. The interior is smoothed.

Form: The lip is flat and slightly extruded. The rim is straight.

Comments: The sherd fits the type Windsor Fabric-marked as described by Smith (1950) and by Lavin (1986: 9).

30. FABRIC-MARKED EXTERIOR/CORDMARKED INTERIOR (2 sherds)

Temper: Grit (coarse to medium).

Surface Treatment: Fabric-marked exterior. The interior is impressed with a cord-wrapped paddle.

Form: Thickness ranges from 10 to 11 mm. A coil break is present on both sherds.

31. FABRIC-MARKED EXTERIOR/BRUSHED INTERIOR (4 sherds)

Temper: Grit (medium to fine).

Surface Treatment: Fabric-marked exterior. The interior is brushed. Several different fabrics were utilized.

Form: Thickness ranges from 7 to 10 mm. Coil breaks are present.

32. BRUSHED OVER FABRIC-MARKED EXTERIOR/BRUSHED INTERIOR (6 sherds)

Temper: Grit (coarse to fine).

Surface Treatment: The exterior has brushing over fabric-marked impressions. Brushed interior.

Form: Thickness ranges from 7 to 10 mm. Coil

breaks are present.

33. IMPRESSED EXTERIOR/BRUSHED INTERIOR (1 sherd)

Temper: Grit (medium).

Surface Treatment: The exterior is impressed with cord, fabric, or net. Identification is equivocal. The interior is brushed.

Form: The thickness of this sherd is 9 mm.

34. IMPRESSED EXTERIOR/BRUSHED INTERIOR (1 sherd)

Temper: Shell (fine particles or leached out).

Surface Treatment: The exterior is impressed with cord, fabric, or net. Identification is equivocal. The interior is brushed.

Form: The thickness of this sherd is 6 mm.

35. SMOOTHED OVER IMPRESSED EXTERIOR/SMOOTHED INTERIOR (16 sherds, including 2 rims; 2 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: Smoothed over cord, fabric, or net impressions. Identification is equivocal. Smoothed interior.

Form: Thickness ranges from 7 to 10 mm. Coil breaks are present on several sherds.

36. SMOOTHED OVER IMPRESSED EXTERIOR/BRUSHED INTERIOR (6 sherds)

Temper: Grit (coarse to medium).

Surface Treatment: Smoothed over cord, fabric, or net impressions. Identification is equivocal. Brushed interior.

Form: Thickness ranges from 7 to 10 mm. Coil breaks are present on several sherds.

37. EXTERIOR AND INTERIOR IMPRESSED WITH KNOTTED CORD (1 sherd)

Temper: No discernible temper, with the possible exception of grog.

Surface Treatment: Exterior is impressed with a knotted cord and is partially smoothed over, leaving only the knot marks visible. The interior has knot and cord impressions in horizontal rows.

Form: The thickness of this sherd is 9 mm. Coil breaks are present.

38. CORD-WRAPPED CORD EXTERIOR/BRUSHED OR SMOOTHED INTERIOR (3 sherds, including 1 rim; possibly 2 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: Exterior was impressed with a cord wrapped with another cord. The rim has parallel, oblique cord-on-cord impressions on the interior and exterior of the rim. The impressions are thin. A second sherd has similar impressions which are parallel and horizontal. The third sherd has oblique

and vertical cord-on-cord impressions which are thicker than those on the other two sherds. Two sherds have brushed interiors and one has a smoothed interior.

Form: Thickness ranges from 8 to 11 mm. Coil breaks are present. The rim sherd has a slightly flattened lip. The rim is straight.

Comments: One sherd appears to have broken vertically at adjoining coils.

## B. DECORATED SHERD LOTS

### 1. DECORATED MODIFIED INTERIOR CORDMARKED (3 sherds including 1 rim sherd; 1 vessel)

Temper: Grit (coarse to medium).

Surface Treatment: The rim sherd has vertical cordmarks on the exterior. The interior is smoothed. The lip is cordmarked. Two body sherds have cordmarks on the exterior and smoothed over cordmarked interiors. In addition, one has wipe marks on the interior and the other has brushing.

Form: Thickness ranges from 7 to 10 mm. Coil breaks are present. The rim sherd has a flat and slightly extruded lip.

Decoration: The interior of the rim sherd has several oblique imprints of a cord-wrapped paddle edge which resemble cord-wrapped stick stamps. The exterior of the rim has oblique cord-wrapped cord impressions forming either a herringbone or chevron motif. The lip has oblique dentate stamps over cordmarkings. One body sherd has two parallel rows of shallow, circular impressions, too shallow to be punctations. The method of application is unknown. Another has one horizontal stamp, made by an unknown tool.

Comments: These sherds fit Lopez's (1957) description of decorated interior cordmarked ware.

### 2. POINT PENINSULA CORDED, GRIT-TEMPERED (27 sherds, including 12 rims; 19 vessels)

Temper: Grit (coarse to medium).

Surface Treatment: The exterior is smoothed prior to decoration. Fourteen sherds (10 vessels) have smoothed interiors. Thirteen sherds (9 vessels) have brushed interiors.

Form: Thickness ranges from 5 to 12.5 mm. One sherd has a diameter of 19 cm. Five rim sherds (5 vessels) have flat lips; three rims (3 vessels) have rounded lips; two rims (2 vessels) originally had rounded lips, but are now crenellated due to impressed decoration on the top of one lip and on the interior rim of the second, also causing the lip to be extruded. Two rim sherds (2 vessels) are missing the very top of the lip. Three sherds (3 vessels) have slightly flaring rims; nine sherds (9 vessels) have straight rims (some have a constriction from just below the lip to 12 mm below the lip). One rim-neck sherd suggests a possible collar.

Decoration: Cord-wrapped stick stamps. The

majority of the vessels have parallel rows of stamps as the major motif extending down the rim from just below the lip. At least one of these has a series of oblique stamps below a single horizontal row. Several of the body sherds exhibit a motif of horizontal rows with oblique rows below, suggesting that the small rim sherds that only exhibit horizontal rows may have had a more complicated motif including both horizontal and oblique rows of cord-wrapped stick stamps. Minor motifs are parallel vertical rows of stamping around the rim. One rim sherd exhibits a more complicated motif consisting of a band of opposed oblique stamps on the rim. Eight of the vessels have decorated lips. Five vessels have a row of cordmarkings on the lip that are oblique or vertical to the rim. Two vessels, including one crenellated vessel described above, have a row of vertical cord-wrapped stick stamps deeply applied to their interior rim. One vessel, the second with a crenellated lip, has a row of oblique cord-wrapped stick stamps on the interior rim and deeply impressed cord-wrapped stick stamps on the lip to form the crenellation.

Comments: These sherds fit the type Point Peninsula Corded as described by Ritchie and MacNeish (1949: 102).

### 3. POINT PENINSULA CORDED, SHELL-TEMPERED (6 sherds, including 1 rim; 2 vessels)

Temper: Shell (fine particles or leached out).

Surface Treatment: The exterior is smoothed prior to decoration. The interior is brushed.

Form: Thickness ranges from 7 to 9 mm. The rim sherd has a flat lip and a straight rim.

Decoration: Cord-wrapped stick stamps. The rim sherd has at least one row of oblique stamps. The body sherds are too small to identify decorative motif.

Comments: These sherds fit the type Point Peninsula Corded as described by Ritchie and MacNeish (1949: 102).

### 4. CORD-WRAPPED STICK STAMPED EXTERIOR/NETMARKED INTERIOR (1 sherd representing 1 vessel)

Temper: Grit (fine).

Surface Treatment: The exterior is smoothed over netmarked prior to decoration. The interior is net-marked.

**Form:** The thickness of this sherd is 9 mm. Coil breaks are present.

**Decoration:** Two parallel, horizontal cord-wrapped stick stamps, above and below which are oblique cord-wrapped stick stamps. Filled in chevrons or triangles are suggested.

**Comments:** This sherd fits none of the known regional pottery types, and since it represents only one vessel, it may be only an idiosyncrasy rather than a real cultural type.

5. CORD-WRAPPED STICK STAMPED EXTERIOR/FABRIC-MARKED INTERIOR (1 sherd representing 1 vessel)

**Temper:** Brit (medium to fine).

**Surface Treatment:** The exterior is smoothed prior to decoration. The interior is fabric-marked.

**Decoration:** Cord-wrapped stick stamps or stamps made with the edge of a cord-wrapped paddle. There are at least two horizontal rows of stamps and one small oblique row.

**Comments:** This sherd does not fit into any of the known regional pottery types. Like the sherd lot above, it may represent an anomaly, rather than a true cultural type.

6. BRUSHED EXTERIOR/BRUSHED INTERIOR (8 sherds; 3 vessels)

**Temper:** Shell (fine particles or leached out).

**Surface Treatment:** Smoothed exterior prior to decoration. One sherd (1 vessel) has a smoothed over cordmarked exterior prior to decoration. The interior surfaces are brushed.

**Form:** Thickness ranges from 5 to 8 mm. Coil breaks are present. One sherd is a near rim. The rim is everted.

**Decoration:** Horizontal and/or oblique brushing.

**Comments:** The brushed decoration of these sherds indicates that they represent Windsor Tradition vessels. The absence of rim sherds precludes their assignment to the type Windsor Brushed, since several other vessel types exhibit brushed neck decoration and it is possible that these body sherds may represent such neck fragments.

7. NIAHTIC STAMPED, GRIT TEMPERED (1 rim sherd representing 1 vessel)

**Temper:** Grit (fine).

**Surface Treatment:** The exterior is smoothed prior to decoration. The interior is smoothed.

**Form:** The thickness of this sherd is 6 mm. It is a collar sherd with a flattened lip and a slight rim point.

**Decoration:** Shallow notching on the rim just below the lip which may have been made by a scallop shell. The interior rim also has shallow notching. The

stamping is on the exterior rim in the shape of a filled-in triangle.

**Comments:** Carbon residue is present on the interior rim. This sherd fits the Windsor type Niantic Stamped, as described by Smith (1950: 193) and by Lavin (1980: 24-28).

8. NIAHTIC STAMPED, SHELL TEMPERED (23 sherds, including 3 rims; 3 vessels)

**Temper:** Shell (fine particles or leached out).

**Surface Treatment:** The exterior is smoothed prior to decoration. The interior is brushed. The necks are horizontally brushed. Lower body walls are unknown.

**Form:** Thickness ranges from 6 to 8 mm. Coil breaks are present. The sherds are collared with flat lips (one of which is 6 mm wide). Necks are present. One vessel has a rim point.

**Decoration:** Scallop shell stamping. One vessel has parallel, horizontal rows of stamping on the collar. Another vessel has notching just below the lip. Below this is a band of opposed diagonal and vertical scallop shell stamps. The stamps are impressed at an angle. The third vessel has notching below the lip on the exterior rim, below which is a band of alternate rows of horizontal and oblique scallop shell stamps. Below the rim point are several parallel, vertical scallop shell stamps. One lip is bisected by a row of scallop shell stamps.

**Comments:** These sherds fit the Windsor type Niantic Stamped (Smith 1950: 193; Lavin 1980: 24-28).

9. SCALLOP SHELL STAMPED, GRIT-TEMPERED (1 sherd; 1 vessel)

**Temper:** Grit (medium).

**Surface Treatment:** The exterior is smoothed prior to decoration. The interior is smoothed.

**Form:** The thickness of this sherd is 7 mm. A coil break is present.

**Decoration:** At least three parallel rows of scallop shell stamps.

**Comments:** This body sherd could belong to one of several Windsor Tradition types: Niantic Stamped, Sebonac Stamped, or possibly even Phillips Incised.

10. SCALLOP SHELL STAMPED, SHELL-TEMPERED (1 sherd; 1 vessel)

**Temper:** Shell (fine particles or leached out).

**Surface Treatment:** The exterior is smoothed prior to decoration. The interior is smoothed.

**Form:** The thickness of this sherd is 8 mm.

**Decoration:** Two parallel rows of scallop shell stamps.

**Comments:** This body sherd could belong to one of several Windsor Tradition types: Niantic Stamped, Sebonac Stamped, or possibly even Phillips Incised.

11. BLACK ROCK TRAILED, GRIT-TEMPERED (3 rim sherds; 3 vessels)

Temper: Grit (medium to fine).

Surface Treatment: Smoothed exterior. The interior is smoothed, some with wipe marks.

Form: Thickness ranges from 5 to 9 mm. One sherd has a coil break. One sherd has a wedge-shaped lip, one is pointed, and one is rounded. Two rims are straight and one is outflaring.

Decoration: Parallel, vertical combed lines on the rim, either immediately below the lip or 1/4 to 1/2 inch below the lip.

Comments: These sherds fit the type description of Black Rock Trailed (Funk 1976: 315).

12. BLACK ROCK TRAILED, SHELL-TEMPERED (1 rim sherd; 1 vessel)

Temper: Shell (fine particles or leached out).

Surface Treatment: The exterior is smoothed prior to decoration. The interior is smoothed.

Form: The thickness of this sherd is 5 mm. The lip is flat with cord-wrapped paddle impressions. The rim is straight.

Decoration: Parallel, vertical combed lines on the rim.

Comments: These sherds fit the description of type Black Rock Trailed (Funk 1976: 315).

13. INCISED EXTERIOR/SMOOTHED INTERIOR (6 sherds; 5 vessels)

Temper: Grit (medium to fine).

Surface Treatment: The exterior is smoothed prior to decoration. The interior is smoothed.

Form: Thickness ranges from 5 to 9 mm. Coil breaks are present.

Decoration: Incised lines. One vessel has five parallel, horizontal incised lines, between which is oblique ticking. One has five roughly parallel, thick and deep incised, horizontal lines. A third vessel has many thin, incised, parallel, horizontal lines. A fourth has several incised lines with cordmarks parallel to the incising. It is impossible to discern whether the cordmarks are surface treatment or decoration due to the small size of the sherd. The fifth vessel (2 sherds) has thin criss-crossed incised lines.

Comments: Since these are body sherds, they may represent any one or more of the several incised vessel types from the East River, Point Peninsula, Owasco, Iroquois or Windsor Traditions and, therefore, cannot be typed.

14. MATINECOCK POINT INCISED (2 sherds; 1 vessel)

Temper: Grit (medium to fine).

Surface Treatment: The exterior is smoothed prior to decoration. The interior is brushed.

Form: Thickness ranges from 6 to 7 mm. Coil breaks are present.

Decoration: Dentate stamp and drag stamps simulating shallow incision. The design element appears to be concentric curvilinear lines.

Comments: These sherds fit the type Matinecock Point Incised described by Smith (1950: 196-197), but instead, the "incision" is actually dentate stamp and drag. This may also be true of sherds from the type site since dentate stamped sherds were found there with Matinecock Point Incised sherds and Smith himself describes the latter as decorated by stabbing and dragging. Also, the interior of these sherds are brushed, while Smith (1950: 196) describes his as "usually plain"

15. MATINECOCK POINT STAMPED (2 rim sherds; 2 vessels)

Temper: Grit (medium to fine).

Surface Treatment: The exterior is smoothed over cordmarking with wiping. The interior is smoothed over cordmarking.

Form: The thickness is 8 mm. One lip is flat and one is rounded but crenellated. The rims are straight. One sherd suggests a slight shoulder.

Decoration: Dentate stamping in horizontal rows. One sherd has a stamp and drag design of square dentates. The other sherd has rectangular to ovoid stamps.

Comments: These sherds represent the Windsor type Matinecock Point Stamped, as described by Smith (1950: 196).

16. CLEARVIEW STAMPED (3 sherds; 2 vessels)

Temper: Grit (coarse to medium).

Surface Treatment: The exterior is brushed prior to decoration. The interior of one vessel is brushed and covered with crude ovoid to square dentate stamps. The interior of the second vessel is covered with dentate stamps.

Form: The thickness of one vessel is 9 mm. The second is 13 mm in thickness. Coil breaks are present.

Decoration: The exterior surface of one vessel exhibits rectangular to ovoid dentate stamps in parallel rows. The motif is not discernible. The exterior surface of the second vessel has randomly placed ovoid to square dentate stamping.

Comments: The presence of exterior and interior dentate stamping fits Smith's (1950: 195) original description of the type Clearview Stamped.

17. VINETTE DENTATE (52 sherds, including 17 rims; 30 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: Three vessels have smoothed over cordmarked impressions prior to decoration. Cordmarking is vertical. Twenty-seven vessels have smoothed exteriors prior to decoration. Nine vessels have brushed interiors and eighteen vessels have smoothed interiors. Three vessels have eroded interiors.

Form: Thickness ranges from 5 to 14 mm. The diameters of two vessels were calculated as 14 cm and 17 cm. Coil breaks are present. Fifteen rims (11 vessels) have flat lips; three rims (2 vessels) have crenellated lips. Thirteen rims (8 vessels) have slightly to very flaring rims; five rims (5 vessels) have straight rims (at least one of which indicates that it has a straight neck with a shoulder). Rim sherds that are long enough indicate a shoulder, albeit slight in some cases. Bases are unknown.

Decoration: Stamping with a dentated tool. The dentate stamps differ in size and shape. The range of widths for the individual dentates is 1 to 2 mm and the range of lengths is 1 to 4 mm. One stamp is 16 mm in length. The dentates are square to ovoid in shape. A major design element is parallel rows of horizontal dentate stamping on the rim of the vessel. The latter rows are sometimes undulating. On several sherds, the horizontal rows are flanked above and below by a row of oblique stamping. Other motifs include only oblique or vertical stamping, several of which are small sherds and, therefore, a more complex decorative motif could have been present at one time and the motif of horizontal rows flanked below and sometimes above may in actuality be the major motif for this type. Sometimes the stamping begins immediately below the lip; other times it is separated from the lip by a plain zone approximately 12-25 mm wide. The stamping is sometimes a stamp and drag. Lips are usually obliquely dentate stamped. In one case, a single horizontal row of dentate stamping bisects the lip. Two lips (2 vessels) are undecorated. Three rims (2 vessels) have a dentate stamp and drag design on the interior of the rim. Two rims (1 vessel) have a row of oblique dentate stamping on the interior rim immediately below the lip. One rim also has several horizontal rows of stamping below a row of oblique stamping on the interior surface.

Comments: Carbon residue is present on several sherds. These sherds fit the type Vinette Dentate, described by Ritchie and MacNeish (1949: 100).

18. KIPP ISLAND CRISS-CROSS (5 sherds, including 1 rim; 1 vessel)

Temper: Grit (coarse to fine).

Surface Treatment: Smoothed prior to decoration on exterior. The interior is brushed.

Form: Thickness ranges from 7 to 10 mm. The rim sherd has a flat lip which is thickened (13 to 14 mm in width) and is cordmarked. The rim is slightly flaring. The neck is slightly constricted.

Decoration: Dentate stamping and dentate rocker stamping. Body sherds have one to several rows of dentate stamps. The interior rim has vertical dentate rocker stamps. Oblique rows of dentate stamping cross over each other on the rim. The stamps are medium sized (14 mm) and deep. Below, oblique rows of dentate stamps cross over more shallow stamps which are placed more closely together.

19. VINETTE COMPLEX DENTATE (2 sherds, including 2 rims; 1 vessel)

Temper: Grit (medium to fine).

Surface Treatment: The exterior is smoothed prior to decoration. The interior is brushed.

Form: Thickness ranges from 8 to 9 mm. The lip is flat. The neck is straight going out to a shoulder.

Decoration: Dentate stamping. The stamping is in vertical to oblique rows on the rim below the lip. Below this are horizontal bands of complicated dentate stamping. The lip has haphazard dentate stamping.

Comments: These sherds fit the Point Peninsula type Vinette Complex Dentate, described by Ritchie and MacNeish (1949: 102).

20. POINT PENINSULA ROCKER-STAMPED (12 sherds, including 2 rims; 5 vessels)

Temper: Grit (coarse to medium quartz).

Surface Treatment: The exterior is smoothed prior to decoration. The interiors of three vessels are brushed; two vessels have smoothed interiors.

Form: Thickness ranges from 6 to 10 mm. Coil breaks are present. One rim sherd has a flat lip and the rim is either short and straight with a shoulder or flaring. The second rim sherd has a slightly flattened lip and an everted rim.

Decoration: Dentate rocker-stamping over the entire surface. Two vessels have horizontal bands of vertical rocker-stamping. Two vessels have horizontal rocker-stamping. The lips have oblique dentate stamping. Vertical rocker-stamping is present on the interior lip. One vessel has vertical dentate rocker-stamping with oblique dentate stamping on the lip.

Comments: These sherds fit the description of Point Peninsula Rocker Stamped (Ritchie and MacNeish 1949: 102-103).

21. DENTATE OR CORD-WRAPPED STICK STAMPED EXTERIOR/ROUGHENED INTERIOR (1 rim sherd; 1 vessel)

Temper: Grit (medium).

Surface Treatment: The exterior is smoothed over cord or fabric impressions. Identification is equivocal. The interior is roughened.

Form: The thickness of this sherd is 6 mm. A coil break is present. The lip is slightly flattened. The rim is straight.

Decoration: There is an impressed design at the bottom edge of the sherd. The design is either dentate stamping or cording. The sherd is too small for identification.

22. NOTCHED EXTERIOR/SMOOTHED INTERIOR (3 rim sherds)

Temper: Grit (medium to fine).

Surface Treatment: Smoothed exterior and interior.

Form: Thickness ranges from 6 to 8 mm. The sherds are lips only. There is nothing else present. Two lips are flat and one is slightly flattened.

Decoration: Notching. One sherd has notching on the top of the lip and just below the lip on the exterior rim. The second has notching on the interior and exterior edges of the lip. The third sherd has notching on the exterior of the lip.

Comments: The sherds are too small to type because the rims are virtually nonexistent.

23. PUNCTATED (4 sherds, including 2 rims; 3 vessels)

Temper: Grit (coarse to fine).

Surface Treatment: Two sherds have a smoothed exterior prior to decoration. Two have a smoothed over cordmarked exterior. Two sherds have smoothed interiors and two have brushed interiors. One sherd has interior wipe marks.

Form: Thickness ranges from 4 to 8 mm. One lip is flat and one is slightly flattened. The rims are slightly flaring. One sherd is only a lip and attaches to a body sherd.

Decoration: Circular, squarish or ovoid punctations, some of which are more shallow than others. The punctations are approximately 1 to 1.5 mm in diameter. One sherd has two parallel, horizontal rows of punctations. The other two sherds each have a single, horizontal row of punctations. Both lips are bisected by a row of punctations. One rim has two circular punctations on its interior rim.

Comments: These sherds fit none of the regional pottery types.

24. UNKNOWN STAMP ON EXTERIOR/SMOOTHED INTERIOR, GRIT TEMPERED (15 sherds, including 1 rim; 13 vessels)

Temper: Grit (coarse to medium).

Surface Treatment: The exterior is smoothed prior to decoration. The interior is smoothed.

Form: Thickness ranges from 5 to 11 mm. Coil breaks are present. One sherd is a neck sherd, slightly flaring. The lip is flat and outslipping. The rim is straight.

Decoration: Decorated by impressions with an unknown tool. Impressions include oval or circular stamps (shallow or deep), wavy lines produced by an unknown stamp, impressions which appear to have been made with the corner of an object, triangular-shaped stamps, crescent-shaped stamps, rectangular stamps, and a stamp which makes a double curve, as if the tool were bisected or two-pronged. The design element is one to four parallel rows of stamping.

25. UNKNOWN STAMP ON EXTERIOR/SMOOTHED INTERIOR, SHELL TEMPERED (1 sherd; 1 vessel)

Temper: Shell (fine particles or leached out).

Surface Treatment: Smoothed exterior and interior.

Form: The thickness of this sherd is 11 mm. A coil break is present.

Decoration: Faint, shallow, scratchy, rectangular stamps on the exterior.

26. UNKNOWN STAMP ON EXTERIOR/BRUSHED INTERIOR (1 sherd; 1 vessel)

Temper: Shell (fine particles or leached out).

Surface Treatment: Smoothed exterior. The interior is brushed.

Form: The thickness of this sherd is 10 mm.

Decoration: Three oblong stamps in parallel, vertical rows. The method and tool are unknown. Comments: There is not enough of the stamp present for identification.

## HEATING DURATION AND THERMALLY ALTERED STONE

PETER PAGOULATOS  
CULTURAL RESOURCE CONSULTING GROUP

### ABSTRACT

This paper presents an experimental study concerning the uses of thermally altered stone, commonly referred to as fire-cracked rock. A series of experiments were conducted, as granitic cobbles contained within hearth areas were heated for differing episodes of duration. These cobble assemblages were then stone-boiled and subsequently analyzed for thermal alteration characteristics such as reddening, cracking, and spalling, for comparative purposes. Quantitative analyses were then applied to the data in order to establish whether differential patterns of thermal alteration exist, dependent upon heating duration.

### INTRODUCTION

The primary purpose of this paper is to present the results of a series of experiments using thermally altered stone to infer characteristics of heating duration. In this study, the characteristics of thermal alteration (i.e., reddening, cracking, spalling) were assessed through five controlled experiments, in relation to heating duration. Episodes of heating duration consisted of 30 minute, one, two, three and four hour firings. All thermally altered artifacts were then stone-boiled. Each assemblage was then examined under a 10-30x low-power microscope, for comparative purposes. Testable hypotheses were then developed, pertaining to differential patterns of thermal alteration in relation to specific periods of heating duration.

Studies in ethnoarchaeology and experimental archaeology have contributed significantly to archaeological method and theory (Ingersoll, Yellen, and Macdonald 1977; Binford 1978; Hayden 1979; Gould 1980; Keeley 1977, 1980). However, the resulting characteristics of thermally altered stone when subjected to differing episodes of heating duration are still poorly understood (Cavallo 1984; Louis Berger and Associates, Inc. 1987). Until recently, the interpretation of cooking-related features such as hearths from prehistoric sites has been based largely upon the recording of spatial dimensions and attributes, soil analysis, recovered organic remains, associated tools, and sometimes ethnographic analogy. The vast majority of recovered thermally altered artifactual material from hearth areas is frequently recorded, counted, and discarded.

A recent study by Cavallo (1984; Louis Berger and Associates, Inc 1987) at the Abbott Farm National Landmark, Trenton, New Jersey, has provided valuable information on late prehistoric uses of thermally altered stone in the Middle Delaware Valley. Cavallo noted a variety of feature forms and thermally altered stone concentrations which presented a series of perplexing questions on possible feature functions. He performed a series of controlled experiments testing the effects of heat on cobbles used for stone-boiling.

As part of this study, two samples of quartz cobbles were independently heated for 3.5 and 4 hours respectively. Both samples were then stone-boiled and inspected for evidence of thermal alteration. Cobbles heated for 3.5 hours produced less evidence for reddening (73%) and spalling (27%) when compared to



the 4 hour firing, which resulted in 100% reddening and 52% spalling of heated quartz cobbles (Louis Berger and Associates Inc. 1987: VII-9 to VII-10). While these preliminary tests experiments showed a general patterning of increased thermal characteristics, dependent upon duration of heating, additional firings were necessary to compare against the thermal alteration of stone.

With this study in mind, additional experiments were conducted to assess whether different episodes of heating would produce differential patterns of thermal alteration on stones within hearth areas. It was hoped that specific thermal alteration characteristics of reddening, cracking, and spalling would be observable on stones heated for different intervals of time. In turn, the producing of specific thermal alteration patterns on stones under experimentally controlled conditions would aid in archaeological interpretation, and allow for the development of hypotheses that can be tested against the archaeological record.

### METHODS

Thermal alteration of stone was confined to five different heating duration experiments: 30 minutes, one, two, three, and four hours. Subsequently, all heated cobbles were analyzed for thermal alteration characteristics or attributes, including reddening, cracking and spalling.

Thermal alteration refers to the heat treatment of stone artifacts. Thermal alteration types consist of reddening, cracking and spalling (Figure 1). Reddening usually results from controlled heating, and is frequently caused by



Figure 1. Reddening, cracking, and spalling.

impurities within the heat-treated material. Cracks, in the form of thin crack lines within stone result from either long-term exposure to heat or sudden exposure to water. Spalling refers to the fragmenting of stone, either from long-term exposure to heat or the sudden exposure to water. Spalls were not

encountered in this study.

Granitic cobbles were initially collected from Morris County, New Jersey (Figure 2). Cobbles were weighed, Munsell recorded for color (yellow-brown 7.5 YR 7/6 to strong brown 7.5 5/6), and examined for any observable anomalies (e.g., thermal reddening, cracking). Twenty-five cobbles were then selected for each experiment. A total of 125 granite cobbles were used for the subsequent experiments.

Cobbles were placed within brick cooking platforms. Dried oak leaves were first placed below the stones. Stones were then placed in a single layer over the leaves. The another layer of leaves was placed over the cobbles, followed by a layer of wood, and ignited (A total of 908 g (2 lbs.) of oak leaves and 13620 g (30 lbs.) of oak wood was used for each experiment). Each independent experiment was heated for a designated period of time, ranging from 30 minutes to four hours. The stones were then placed in a 2.5 gallon (9.5 liters) container of water, and stone-boiled. Subsequently, water temperature was recorded (after two minutes of stone-boiling) with the completion of each experiment, as an indirect measure of temperature change (see Table 1). All cobbles were examined using a low-power 10-30x stereoscopic microscope for recording reddening and cracks. Reddening was recorded using a Munsell soil book; color change typically ranged from 2.5 YR 5/8 to 7.5 YR 6/6). Cracks were measured in millimeters, using a metric ruler and caliper.

Attributes were measured and recorded using a polar coordinate system, similar to an approach used by Tringham et al. (1974) and Odell and Odell-Vereecken (1980) for stone usewear analysis. This is an eight-part polar coordinate methodology which consists of placing an artifact on a central point from which radiate a number of lines equally spaced apart. Each cobble was placed within this polar coordinate scheme and measured for specific attributes. Attribute data were then recorded and placed on standardized code sheets.



Figure 2. Unaltered granitic stones

## ANALYSIS

Once the experiments were completed, artifacts were photographed and analyzed. Subsequently the data was compared using simple quantitative measures such as frequencies and percentages (see Figures 3 and 4), to assess whether patterns existed between assemblages. The experiments were separated into five major groupings; assemblages were subjected to differing intervals of heating, including 30 minute, one, two, three, and four hour episodes. The results from each experiment are presented in Table 1.

TABLE 1. HEATING DURATION AND THERMALLY ALTERED STONE

Variable	<u>30M</u>	<u>1HR</u>	<u>2HR</u>	<u>3HR</u>	<u>4HR</u>
Temperature change Water (F°)	25	40	60	120	135
Cobble Weight	5470g	5883g	6878g	9233g	7155g
No. reddened	7	16	17	22	25
No. with cracks	5	11	17	18	19

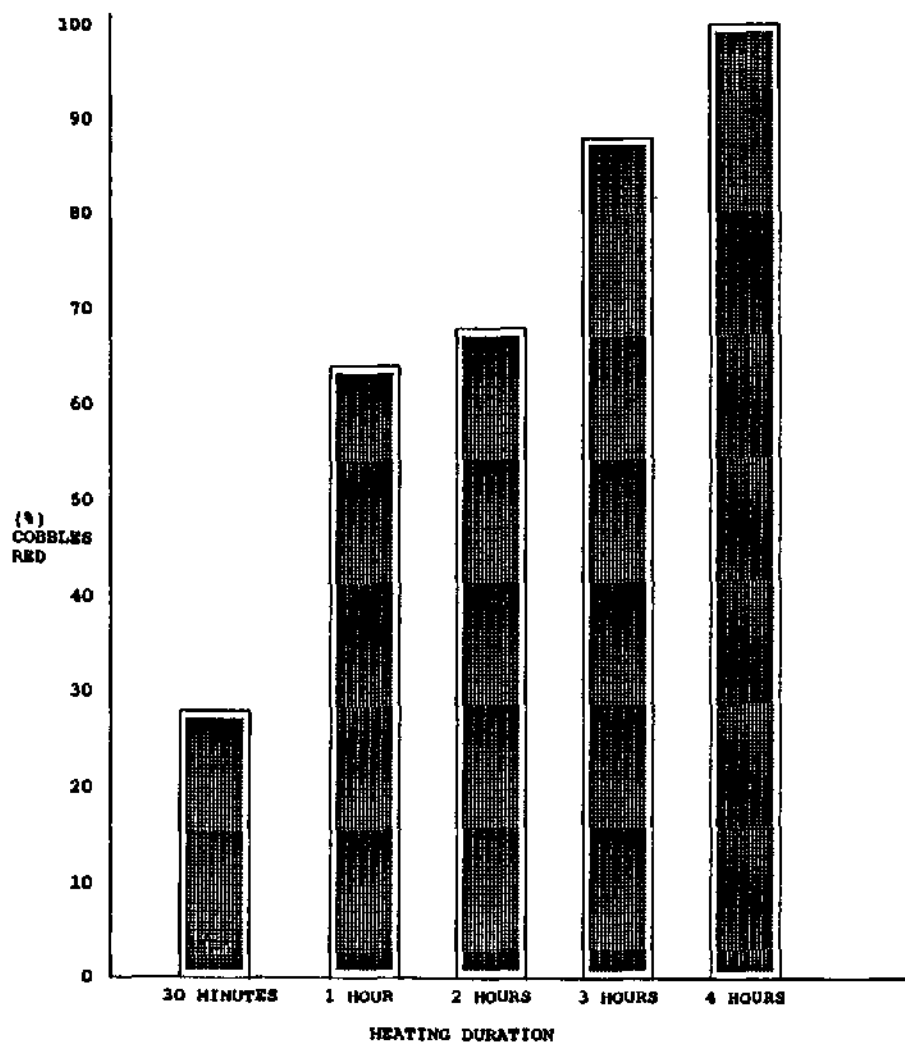


Figure 3. Percentage of reddened cobbles and heating duration.

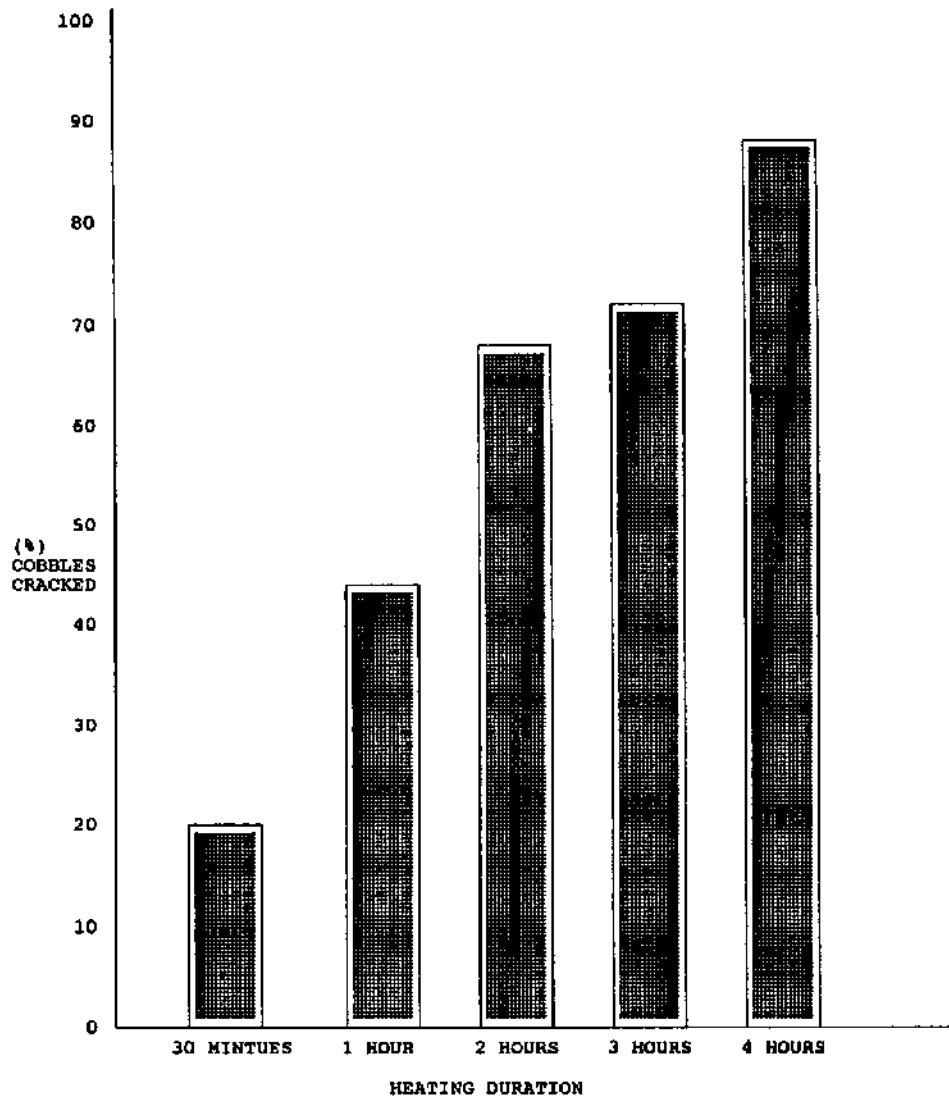


Figure 4. Percentage of cracked cobbles and heating duration.

The heating of stones from short episodes of time (30 minutes to one hour) generally resulted in lower degrees of thermal alteration. Of those stones heated between 30 minutes and one hour, only 24-64% of the cobbles were reddened (Figure 3), few cracked cobbles (20-44%) were identified (Figure 4). By contrast, stones heated between two to four hours resulted in higher degrees of reddening and cracking. The majority of cobbles were reddened, ranging from 68-100% (Figure 3). A greater number of cracked stones were also identified (68-76%), when compared to cobbles heated for shorter episodes of time (Figure 4).

#### CONCLUSION

The results from this study have provided valuable information on the uses of thermally altered stone. The data appear to indicate that there may be a relationship between thermal alteration characteristics found on stones with that of heating duration. The heating of thermally altered stone for longer durations (two to four hours) generally produced higher incidences of thermal reddening

and cracking. Conversely, the heating of stones for shorter durations (30 minutes to one hour) tended to produce less evidence of thermal alteration.

These data may ultimately complement other forms of information (e.g., absolute dating, stratigraphy, tool types, feature and artifact density) used to interpret prehistoric land-uses. Sites with hearths containing stones that exhibit high incidences of reddening and cracking could reflect locations which were used for longer term occupancy. By contrast, sites yielding stones with minimal amounts of thermal alteration could indicate more specialized activity loci of short-term duration.

However, as a cautionary note, the selection of granite produced specific attributes of thermal alteration in response to independent firings. Other types of stone (e.g., quartz, quartzite, sandstone) subjected to heating could produce different patterns of reddening, cracking, and spalling, dependant upon their individual mineral compositions. Therefore, future experiments should consist of similar firings on these other rock types, which were also used by prehistoric populations in the Northeast.

The experimental analysis of thermally altered stone should allow for the development of testable hypotheses that will contribute to the interpretation of the archaeological record. This methodology will archaeologists to evaluate prehistoric assemblages of thermally altered stone concentrations, in relation to heating techniques and duration of use, in a variety of geographic and temporal settings.

#### ACKNOWLEDGMENTS

I wish to thank Peter Primavera of the Cultural Resource Consulting Group for making this project possible, as well as Charles Bello and Kristian Eshelman for their assistance. Any inaccuracies in this paper are the sole responsibility of the author.

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# THE MAINTENANCE OF EASTERN CONNECTICUT QUARTZITE TOOLS: AN EXPERIMENTAL STUDY

PETER PAGOULATOS  
CULTURAL RESOURCE CONSULTING GROUP

## ABSTRACT

This paper presents an experimental study concerning the maintenance of bifacially-worked stone tools. An artifact made of locally derived eastern Connecticut quartzite was resharpened using percussion flaking techniques employing a hammerstone. The biface and associated flake debris were subsequently analyzed for observable edge alteration characteristics resulting from the resharpening.

## INTRODUCTION

The primary purpose of this paper is to present the results of an experiment in which a quartzite tool made of local eastern Connecticut quartzite was resharpened to infer the relationship between specific sequences of biface maintenance and associated forms of edge damage. In this study, a biface tool was resharpened under experimentally controlled conditions. Subsequently, this biface, as well as the by-products of manufacture (i.e., resharpening flakes) were examined under a 10-30x low-power microscope. Testable hypotheses were then developed, pertaining to patterns of retouch and edge alteration.

Studies in ethnoarchaeology and experimental archaeology have contributed significantly to archaeological method and theory (Ingersoll, Yellen, and Macdonald 1977; Binford 1978; Hayden 1979; Gould 1980; Keeley 1980). However, the nature of biface maintenance of artifacts made of locally derived quartzite is still poorly understood (Pagoulatos 1986). Until recently, the interpretation of prehistoric curation strategies was largely based upon studies outside of the Northeast (Crabtree 1969; Shafer 1970; Speth 1972, 1975; Sheets 1973; Collins 1975; Binford 1978, 1979, 1980; Torrence 1983; Bamforth 1986).

With these studies in mind, a controlled experiment was conducted to assess whether the resharpening of quartzite would produce patterns of retouch and associated damage. It was hoped that specific stone alteration characteristics resulting from tool maintenance and resharpening would be observable. In turn, the production of specific tool maintenance characteristics under experimentally controlled conditions would aid in archaeological interpretation, and allow for the development of hypotheses which then could be tested against the archaeological record.

## METHOD

Quartzite, used in this study, is a light-gray (Munsell code 7.5 YR 7/0), coarse-grained metamorphic rock, which was collected by the author from a source area of the Plainfield formation in eastern Connecticut (Dixon 1965). The Plainfield formation was intensively quarried by prehistoric Native American populations in eastern Connecticut (McBride and Soulsby 1988).

The raw material was initially reduced, using percussion flaking techniques

with a quartz hammerstone (320 grams). The biface (unresharpened) had a 30 degree edge angle. The biface was worked on fresh wood (oak) in a bidirectional manner; the completed motion, or stroke, consisted of a cutting movement both away from and back toward the user. Amount of use was 500 strokes for the biface. After the completion of each step in the manufacturing and use processes, the artifact was examined for observable edge damage. Edge alteration attributed to manufacture and use was primarily in the form of crushing similar to that reported by Odell (Odell 1977; Odell and Odell-Vereecken 1980).

Subsequently, the biface was resharpened to rejuvenate its edge, employing the same hammerstone. Once the biface was resharpened, it was again examined for observable edge damage. Ten flakes (by-products) were then randomly selected from the resharpening experiment; flakes generally ranged from five to fifteen millimeters (0.2 - 0.6 inch) in size (biface fragments which snapped off during the resharpening process were not included in this analysis). Each flake by-product was then examined for any observable anomalies (e.g., retouch and edge alterations).

All artifacts were examined using a low-power (10-30x) stereoscopic microscope. Observable attributes such as retouch and edge damage were recorded at each junction of the study. Attributes were recorded using a polar coordinate system, similar to an approach used by Tringham et al. (1974) and Odell and Odell-Vereecken (1980). Attribute data was then recorded and placed on standardized code sheets. Artifacts were subsequently photographed using a 10x magnified 35 mm camera attachment.

#### ANALYSIS

Once the experiment was completed, artifacts were photographed and analyzed. Subsequently, the data were compared using a simple quantitative measure such as frequencies and percentages. Each artifact was analyzed in terms of edge damage and retouch in relation to biface resharpening. The results from the experiment are presented in Table 1.

TABLE 1. RESHARPENED BIFACE TOOL AND FLAKE BY-PRODUCTS

<u>Variable</u>	<u>Quartzite</u>
Unresharpened biface weight	24 g
Resharpened biface weight	22 g
Flake by-product mean weight	0.10 g
No. flakes with wear	3

Quartzite biface resharpening produced flake scars and crushed edge damage (Figure 1). Flake scars from resharpening generally extended about 5 mm (0.2 inch) from the edge of the tool; observable crushing edge damage from resharpening extended 2 - 3 mm (0.08 - 0.12 inch) from the edge. A total of the three flakes (30%) had observable damage from biface sharpening, in the form of crushing (Table 1, Figure 2).

#### CONCLUSIONS

Quartzite was one of the raw materials most widely used by prehistoric Native American populations in eastern Connecticut (Basto 1938, 1939; Wadleigh



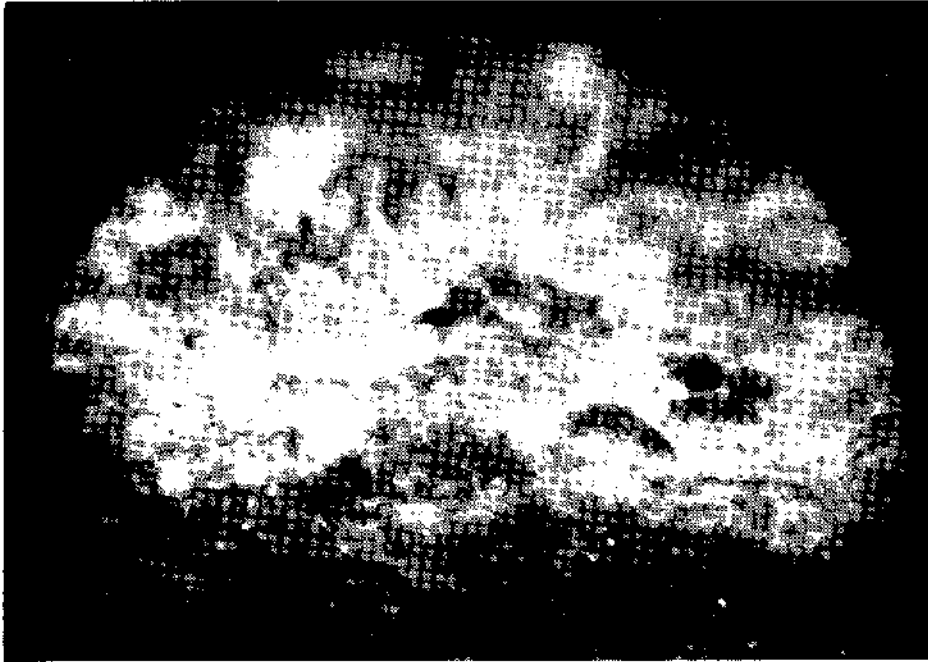


Figure 1. Resharpended quartzite biface tool with magnified crushed edge damage, 10x

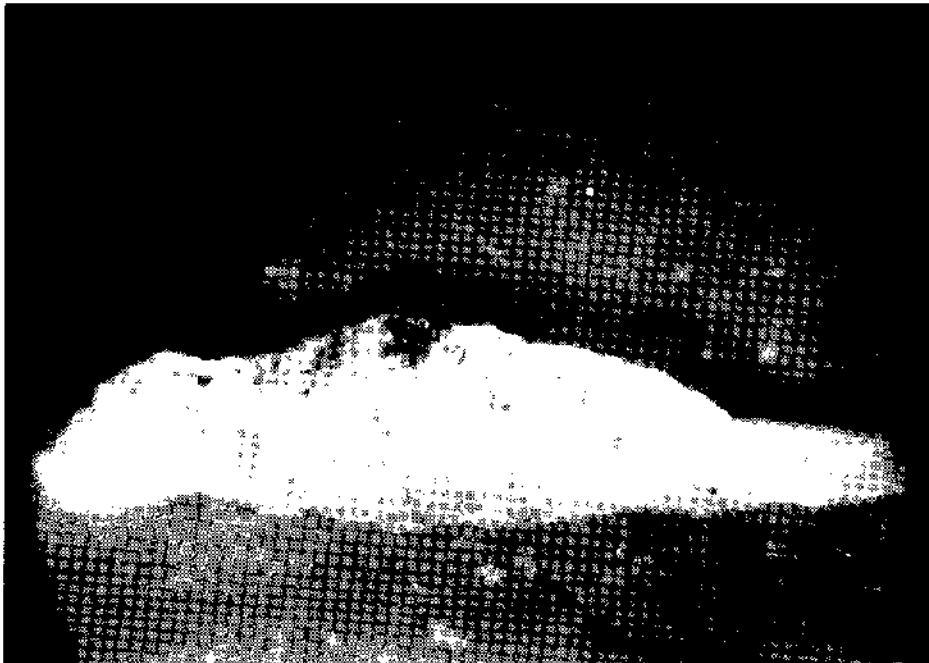


Figure 2. Quartzite resharpener flake with magnified crushed edge damage, 10x.

*et al.* 1979; McBride *et al.* 1980a, 1980b; McBride 1984; Pagoulatos 1986; McBride and Pagoulatos 1988; McBride and Soulsby 1988). However, until this study, little was known concerning the maintenance of quartzite tools. These current data suggest that observable edge alteration does result from biface resharpening of eastern Connecticut quartzite. Tool resharpening produced observable crushed edge damage on both the biface and associated flake debris.

As a cautionary note, it was almost impossible to distinguish between crushing edge wear from biface manufacture and resharpening; also, the damage produced by these processes is very similar to that produced by working hard items such as bone and wood for extended periods of time (Odell and Odell-Vereecken (1980). Therefore, workshop areas yielding edge-altered formed tools and associated flake debris in archaeological contexts could be misidentified as possible tool manufacturing, woodworking, butchering, or tool maintenance work areas.

Further research should include an evaluation of different stone tool resharpening techniques. Carefully controlled studies should be initiated using pressure-flaking techniques, to see whether different retouch and edge alteration characteristics will result on quartzite. In addition, using different percussion instruments (e.g., wood, stone) of different hardnesses on these raw materials could result in very different retouch and edge damage manifestations (see Crabtree 1969).

Other avenues of investigation should include an in-depth comparison of edge damage attributed to resource processing and stone tool manufacturing, as well as tool maintenance. Carefully controlled experiments should be initiated with the researcher working and resharpening quartzite with contact items of different hardnesses. These data should then be compared, in an attempt to differentiate edge damage resulting from these very different behavioral processes.

#### ACKNOWLEDGMENTS

I wish to thank The Cultural Resource Consulting Group for making this project possible. I would also like to thank Kevin McBride for his previous assistance in the development of this lithic analysis methodology. Any inaccuracies in this paper are the sole responsibility of the author.

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ROBERT R. GRADIE III  
UNIVERSITY OF CONNECTICUT  
DAVID A. POIRIER  
CONNECTICUT HISTORIC COMMISSION

### ABSTRACT

Connecticut's historic and industrial archaeological heritage has been increasingly investigated over the last two decades. A comprehensive bibliography of archaeological studies reflects the diversity of sites studied and research strategies employed. These reports and the resulting archaeological collections are a critical data base for understanding the state's complex historical development.

### INTRODUCTION

The following bibliography of Connecticut Historical and Industrial Archaeology is current as of 1991. That in no way implies that it is comprehensive. Readers will probably note the lack of favorite, if not significant, articles of local or regional significance. ASC members can probably list important sites which are not included. There are several reasons for this. First, Connecticut archaeologists are infamous for their ability to seek out obscure publications in which to print their work (witness Poirier, Bellantoni, and Gradie 1983). Secondly, many don't publish at all. It is this second reason which is the most disconcerting. If the number of newsletter announcements, delivered papers and in-house site reports had been included (not to mention an offhand list of known but unreported excavations) this list would have been increased by half. For examples of the latter we will mention only our failings: Gay City (Meek and Gradie 1973), Prudence Crandall House (Poirier and Gradie 1981), and invite the reader to invent his or her own list.

The bibliography which we have presented includes only those publications which deal substantively with Connecticut's historic or industrial archaeology and are accessible to the public. Even this accessibility is somewhat theoretical as many of the cultural resource management reports are to be found in the Special Collections Library at the Homer Babidge Library, University of Connecticut, Storrs, an institution which, as many of you have learned, has hours which make access difficult for those outside the university community. The Office of State Archaeology is attempting to rectify this by establishing a state archaeological library for use by ASC members and others working within the state, but it is slow going. Office space the size of a phone booth and a budget to match have made it difficult. However, close to 2000 items, mostly copies of state and federal site reports have been acquired. But the unwillingness of the professional and avocational community in this state to publish in a timely fashion does not help.

When we do publish, our standards are less than uniform and complete. Even a casual perusal of the articles and reports listed here would convince the most disinterested reader that we are more interested in publishing conclusions than

data. Vern Baker's excavation report of the Grosvenor Homestead is an example of the exception (Baker 1978). In fairness, it should be noted that no standard format for publication has been established or enforced. As archaeology is in large part a comparative science, this leaves the historical archaeologist in Connecticut in a position similar to that of a chemist without a periodic table. We hope, therefore, beyond providing a list of works published, that this bibliography rattles a few local skeletons in the collective closet of our discipline, resulting in a much longer list of more comprehensive writings in the not to distant future.

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## POT HUNTING, LOOTING, AND THE INDIAN LEDGE SITE

DANIEL CRUSON  
ELIZABETH HOAG  
ITHACA COLLEGE

The Indian Ledge site, named for the state/town park in which it is located, sits on a glacial terrace overlooking a tributary of the Pequonnock River in Trumbull (Figure 1). We were first introduced to the site in the fall of 1991 when, under the guidance of Nick Bellantoni and the senior author, 25 Senior Honors Anthropology students from Joel Barlow High School spent two days at the site conducting a subsurface survey. Previous to our introduction to the site, it had been extensively pot hunted.

At least 40% of the terrace had been trenched in an attempt to recover Indian relics. Most of the spoil piles were devoid of waste flakes, suggesting that the pot hunters had carefully screened their back dirt and saved all of the cultural material. Beyond that, and the obvious fact that a great deal of work had gone into digging out the site, there was not much else to indicate who had dug there or how the site destruction had proceeded. Before we were finished, that would all change.

By the end of February, 1992, the survey report was submitted to the State Archaeologist's office and copies were sent to the Pequonnock River Valley Management Committee, who were entrusted to manage the park for the state. That report concluded that although large and important sections of the site had been irrevocably destroyed, there was enough site integrity to merit further work. In addition, a sequence of diagnostic cultural material had been recovered that spanned from the Late Archaic through the Susquehanna phase of the Terminal Archaic. The distribution of this material was so uniform as to suggest continuous occupation of the site over at least a 1500 year period. Since the site contained the potential for answering important questions concerning the relations between the Late and Terminal Archaic periods, a strong recommendation was made that further excavation should be conducted at the site.

Accordingly, plans were made to conduct a series of weekend excavations in the month of May using Anthropology students who wanted more field experience. In addition, anyone else from the community who wanted to help and gain some archaeological experience at the same time, was invited to join us. Along with the May, weekend excavations, a course was set up through the Joel Barlow High School Summer Program that would devote a continuous two week period in early July to the intensive excavation of the more promising area indicated by the survey. In all of these excavations, Beth Hoag, a former Anthropology student at Joel Barlow and presently an Anthropology major at Ithaca College, would act as assistant.

A few days before beginning the weekend digs, a student doing some survey work of the historic remains in the valley discovered that someone had dug a pit approximately one by a half meter in size and to a depth of half a meter, right next to one of our test pits. Further survey work done a week later by Marina Mozzi, who was going to test some other sections of the site with her adult education students from Mattatuck Community College, found another larger pit which had been dug to the south of survey area. The site had obviously been looted.

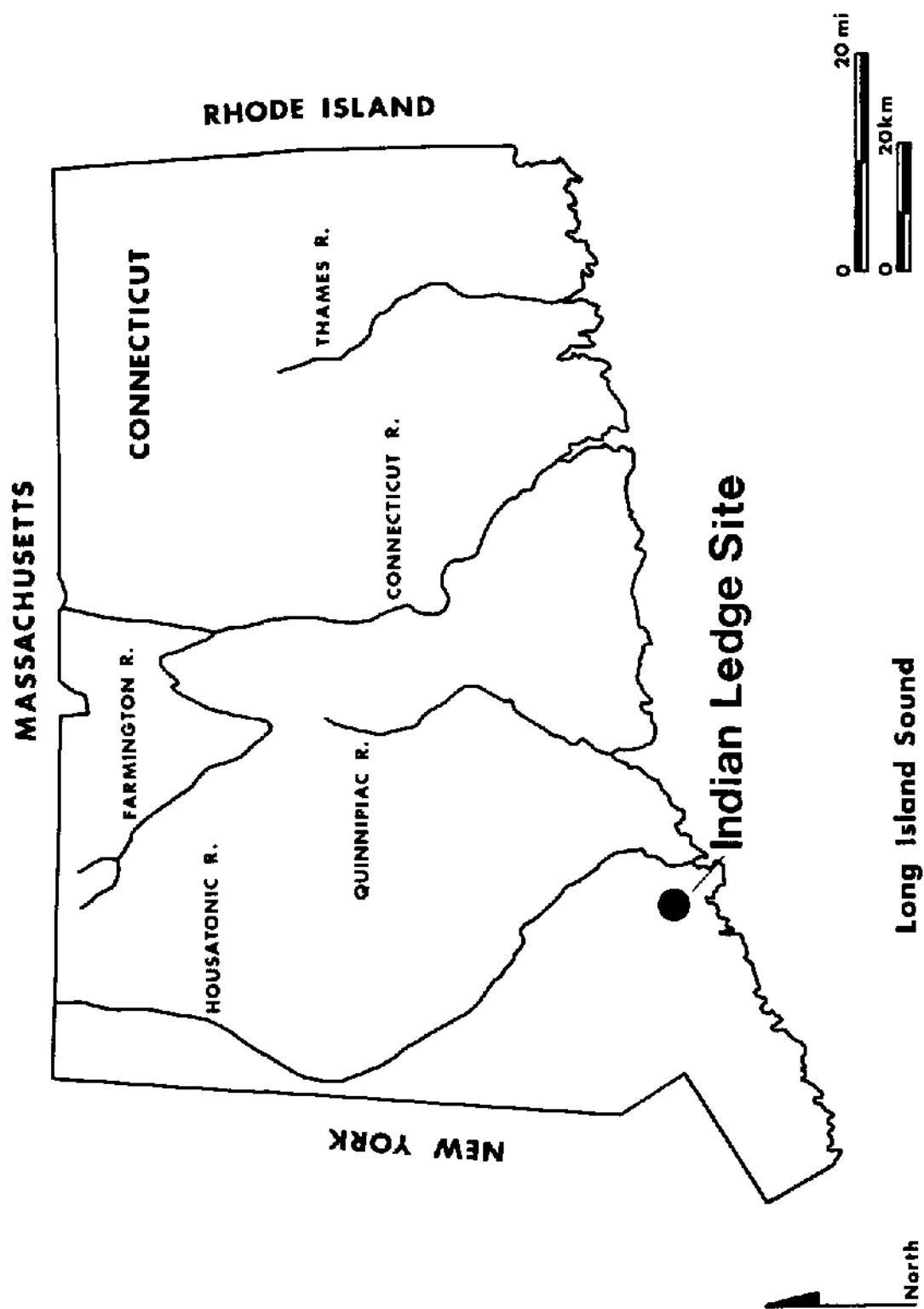


Figure 1. Location of the Indian Ledge site, Trumbull, Connecticut.



A statement regarding the destruction of prehistoric remains was issued to the local papers by the State Archaeologist's office and a fact sheet was faxed to these same papers by us. The story was picked up by the *Bridgeport Post* and placed conspicuously on the front page. It was also picked up by at least one other local paper, *The News Times* of Danbury, although it was less prominently placed.

The biggest surprise of the excavation came on our second weekend at the site. A man with a walking stick and cigar approached us from the river and after introducing ourselves, challenged our right to dig there. After explaining that this was an officially sanctioned excavation and that the proper permits for digging on state land had been drawn up, he turned to the pot hunting trenches and, with a wave of his arm, explained that he had done all of that. We had met our pot hunter.

For the remainder of our term at the site we only knew him as Gene. The day he arrived we engaged him in conversation about what he had found and how he had dug out the site. Because of the extensive system of trenches we had assumed that several men or women had been at work here. There had been one or two others who had seen Gene's work and had poked fun about on their own, but the majority of the digging had been done by him. He had a job from which he suffered summer layoffs. Therefore, about two years before the site had been purchased from the Bridgeport Hydraulic Company by the state, he had come to the site daily during those out of work periods, and dug out the vast trench system which we found when we began our survey. This he had done for two years, stopping when the site became state land.

Gene had been attracted to our work by the publicity which the recent site looting had generated, and had come to assure us that although he had dug at the site, we was not the one who had looted it. He deplored the destruction of the area that we were digging in a controlled fashion. Gene had dug with the understanding that the material he recovered would be eventually turned over to an institution within the town which would be responsible for its preservation. His intention was not to destroy the site with reckless and secret abandon, but rather to be the temporary custodian of the cultural material that the site had to offer.

He was a pot hunter but not a looter. To those of us involved in Archaeology as a scientific pursuit, there may seem to be no distinction between the two, but it is important to realize that, in fact, there is. The difference is one of intent. The looter knows that his actions are the immoral or, as in our case, the illegal destruction of a site, often while it is being studied by a legitimate archaeologist. The pot hunter, on the other hand, is honestly interested in Indians and their life style and derives a true pleasure from the possession of their artifacts. The looter secretly destroys the site, leaving no hope of even recovering any of the information that he uncovered. The pot hunter is usually willing to share what he has found and, more importantly, he is often willing to learn how to work in a more controlled fashion and record his findings systematically. A pot hunter can be saved. A looter will always be a scourge to the archaeological community.

Gene was a true pot hunter. He was interested in what we were finding and what conclusions we were reaching regarding the people who had lived there. During his first visit, we spent an hour and a half exchanging information. That which he gave us expanded our understanding of the site immensely and was greater than the information which we could give him at that point. When he left that morning, he said that he would be back the next day to show us some of the material he had recovered. We were hopeful, but prepared to be disappointed.

Sunday morning he was at the site before us. With him was a large card-

board carton with eight cases of the type that are conveniently hung on the wall and which contained at least 200 projectile points, drill, and other stone tools of both flint and quartz. These we photographed in slide format as well as color prints. We also gained further information regarding where these things had been found. Our biggest surprise came as he was leaving. He showed us two large styrofoam boxes which were filled with over 500 "broken pieces" where were even more valuable than the artifacts in his cases, since most of the diagnostic material which he had recovered was there. These he gave to us. Our ongoing analysis of this material has revealed a great deal about the site beyond that which we learned from our limited excavations. He had destroyed a good deal of the site in that the material could no longer be understood in context, but we did have the material itself and its analysis has proved fruitful, (as will be demonstrated in a future issue of the Bulletin).

Gene has visited us again. On these subsequent visits he has given us more information, not only on the site we are working but also on other, possibly related sites in the valley. He has also turned over to us another collection of broken pieces that he had recovered from a site located just across the river and he is presently working on an admittedly crude sketch map of our site showing us where the artifact concentrations occurred with respect to the trees which he used as landmarks.

We have every expectation that his association with us will continue, and we have carefully cultivated his trust and latent interest in the subject of Connecticut prehistory. That trust is important since his first approach to us was done with misgiving. He knew that digging on state property was illegal and that excavation on Bridgeport Hydraulic property without permission might be as well. Our job had been to assure him that his information was more valuable to us than prosecuting him for site destruction. The site destruction could not be reversed. The loss of the cultural material from the site could.

All of our experience with our pot hunter has taught us several important lessons. First, pot hunters can be saved. The information which they possess is valuable and every effort must be made to gain their trust, even though one's first instinct is to censure them for site destruction. Second, the press can be an important ally in calling attention to site looting, to how much of our prehistoric cultural heritage is destroyed by site looting, and the steps which must be taken for site preservation. Third, the office of the State Archaeologist is an important asset especially when dealing with the press. And, last but not most important, education of the public regarding Connecticut's prehistory and the archaeological process for its recovery is vital for its preservation.

## THE CONTRIBUTORS

DANIEL CRUSON teaches anthropology and local history at Joel Barlow High School, which serves the districts of Easton and Redding. He is president of the Newtown Historical Society and is presently developing local history programs for cable television.

ROBERT R. GRADIE, III received his M.A. in anthropology/historic archaeology from the University of Connecticut. He is an instructor in anthropology in the University's division of anthropology.

FRED GUDRIAN is a member of the Albert Morgan Archaeological Society and the Archaeological Society of Connecticut. He is a past member of the American Indian Archaeological Institute.

ELIZABETH HOAG is pursuing her undergraduate studies in anthropology at Ithaca College.

LUCIANNE LAVIN has her Ph.D. in anthropology from New York University. She is co-director of the archaeological consulting firm, Archaeological Research Specialists and is editor of the *ASC Bulletin*. She is a member of the Albert Morgan Archaeological Society and the Greater New Haven Archaeological Society.

LAURIE MIROFF has her B.A. in anthropology from the University of Connecticut and is in the graduate program of anthropology at SUNY Binghamton. She is a member of the Albert Morgan Archaeological Society and the Archaeological Society of Connecticut.

PETER PAGOULATOS received his Ph.D. in anthropology from the University of Connecticut. He is Director of Archaeology at the Cultural Resource Consulting Group.

JOSEPH PARKOS is a member of the Archaeological Society of Southeastern Connecticut and Treasurer of the Archaeological Society of Connecticut.

DAVID POIRIER received his Ph.D. in anthropology/historic archaeology from the University of Connecticut. He is Staff Archaeologist for the State Historical Commission.

SALLY STRAZDINS is a member of the Archaeology Club of Norwalk Community College and the Institute for American Indian Studies.