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Archaeological Investigations at the Goat Island Rockshelter: New Light from Old Legacies

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> We are the archaeologists
> And we want you to know
> We only sink our mattocks
> Where the poison ivies grow.

[first verse of the Hudson Valley Archaeological Survey song written by Larry Flewlling, 1939 in Butler (n.d.)]

Although much is known about the prehistory of the Hudson Valley in New York State from the prolific work of notable scholars (e.g. Eisenberg 1974, 1978, 1984, 1989, n.d.; Funk 1965, 1976, 1978a, 1989; Ritchie 1958), archaeological research in the region is, indeed, "still in its infancy" (Funk 1976:1). This is due to the scarcity of adequate archaeological data for the region as compared to central and western New York. This paucity may be due to post-contact settlement and development, careless amateur digging (Funk 1976:1) or simply

"the prevailing small size and meager content of the Indian sites" (Ritchie 1958:7). Ritchie's comment might appropriately be examined with an eye towards understanding the archaeological implications of prehistoric cultural differences between central and western New York on the one hand, and eastern New York on the other (i.e., Iroquois versus Algonquian settlement pattern and site densities).

Gaps in our knowledge of prehistory may also be explained by the fact that much of the rich archaeological remains of New York's Hudson Valley lie unstudied in cigar boxes, closets, and on dusty museum shelves. An example of just such an untapped resource are the 45 sites investigated by Dr. Mary Butler as part of her Hudson Valley Archaeological Survey conducted from Vassar College in 1939-1940. The project was cut short by the inception of World War II. Hence, these sites have never been thoroughly analyzed, nor have the results been published.

In my Masters Thesis (Chilton 1991), from which this article stems, I analyzed the archaeological remains recovered in 1939 by Dr. Butler's crew from the Goat Island Rockshelter in Dutchess County, New York. I "discovered" the materials from the site in 1988 at the New York State Museum, while working on an inventory of the archaeological collections, under Dr. Lynne Sullivan. The collection was loaned to me for the purpose of this study and was stored at the University of Massachusetts, Amherst, for the duration of this project. From my initial interest in the site two preliminary goals were developed: (1) to determine the sequence of occupation of the site, and (2) to determine how "old" (not previously utilized) collections might contribute to archaeological knowledge in the present.

The Goat Island Rockshelter is a multicomponent site containing both prehistoric and historic remains. Examination of this collection shows that analyses of Butler's collections can indeed contribute to our knowledge of cultural history. The evidence suggests the presence of a prehistoric rarely found in the Hudson Valley (cf. Vargo and Vargo 1986): Early to Middle Woodland Bushkill (2400-2100 years before present [BP]; Kinsey 1972; see Table 1). Identification of this complex in the Hudson Valley is important for two reasons: (1) it fills in a gap in our understanding of the culture history of the Hudson Valley (Funk [1989] identifies a "hiatus" in the region for this part of the chronology), and (2) it demonstrates the rich potential for old legacies of previously excavated collections to light the way for new understandings of the prehistoric past.

Site Description and Location

The Goat Island rockshelter is located in northern Dutchess County, New York, about three miles from the Columbia County border, between the Hudson River and Tickling North Bay (Figure 1). Recent maps refer to it as Magdalen Island. Since the larger island just to the south, today called Cruger Island, was originally called Magdalen Island, I will refer to the island as Goat Island throughout this article, to avoid confusion.

Hudson Valley Archaeological Survey

The Goat Island rockshelter site was first investigated by professional archaeologists in the summer of 1939 by Dr. Mary Butler as part of her Hudson Valley Archaeological Survey. The survey was funded by a five-year grant to the Division of Anthropology at Vassar College, Poughkeepsie, New York, from the Carnegie Corporation in Pennsylvania. Dr. Henry

MacCracken, president of Vassar College at the time, had a serious interest in local history and promoted the project as an outlet for community activity and interest.

Dr. Butler, one of the first six women to receive a Ph.D. in American Archaeology (Levine 1987:14), already had an established reputation as a Mesoamerican and northeastern archaeologist (Keur 1971:255). But because the Hudson Valley was not a familiar area, she relied heavily on local collectors in locating sites (Williams 1989:7).

Between 1939 and 1940 the field crew located and tested forty-five sites in Dutchess, Westchester, Orange, Columbia, Greene and Albany Counties. When in 1941, America entered World War II, funding for the project ended and Dr. Butler was never able to fully analyze or publish her findings (cf. Butler 1940, n.d.).

In 1950, a year after Ritchie became the State Archaeologist, the collections and documentation from the Hudson Valley Archaeological Survey were transferred from Vassar College to the New York State Museum in Albany. Some of these collections have been loaned to various researchers over the years, which may explain the large number of missing artifacts (Williams [1989] contains a complete inventory).

Excavation of the Goat Island Rockshelter

Goat Island lies approximately 2,500 feet (762 meters) off the east shore of the Hudson River in the township of Redhook. The island is about 1/4 mile (425 meters) long and 328 feet (100 meters) wide. Three archaeological sites were investigated on the island in the summer of 1939: Goat Island Rockshelter, Goat Island Shell Heap and Goat Island Campsite (Figure 1).

The rockshelter runs north-south along the west side of the island. It is about 45 feet (13.7 m) in length and 5-10 feet (1.5-3 m) wide. It provides adequate shelter from heavy wind and rain (which I was able to experience personally) and can accommodate six to ten adults.

The site was excavated completely by the Hudson Valley Archaeological Survey crew in three days, from August 17 to 19, 1939. Shovel and mattock were the principal excavation tools, with the soil being screened through 1/4" mesh, judging from the size of the small fish bones recovered (the field notes indicate only that the soil was "sieved"). Provenience of artifacts was recorded within five-foot excavation squares (Figure 2). Artifacts were given field catalog numbers in the field and selected stone artifacts were drawn. Four pages of very general, hand written field notes were taken; they were not much help in reconstructing the excavation of the site. The detailed catalog and field drawings proved to be the most valuable for this purpose.

The excavators noted extensive looting of the nearby Goat Island campsite. The field notes indicate that pot-hunters were likely looking for "Captain Kidd's treasure," a pastime that has plagued the Northeast for three centuries. Today, the entire island continues to be ravenously looted, causing extreme soil erosion, damaging both the archaeological record and the environment.

Analysis and Results

All of the archaeological remains from the rockshelter, as well as the other sites from the

Survey, were cataloged either in the field or soon after, in 1939 and 1940. Artifacts were excavated and often cataloged by "level." According to the field notes, the soil "levels" or zones were as follows: (1) Level 1 -- very dark brown-black topsoil, surface to 6-9 inches below the surface, containing ash, charcoal, and numerous artifacts, and (2) Level 2 -- a sandy, yellow subsoil with rockfall, from below Level 1 to 30 inches below surface. These levels do not represent culturally deposited strata, nor do they correspond to the depositional history of the rockshelter; instead the levels refer only to color zonation in the soil. This placed certain constraints on my ability to interpret the cultural chronology at the site.

Unfortunately, the field notes are too general to permit total reconstruction of the provenience of artifacts. The most valuable information was gleaned from the plan view and profile drawings (Figure 2). and the artifact catalog. Four cultural features were recorded: (1) Feature 1 -- an ash pit, (2) Feature 2 -- a refuse area along the back wall of the shelter, (3) Feature 3 -- an area of burned soil at the drip line of the shelter, which contained a postmold, and (4) a human burial located along the back wall of the shelter (Figure 11); these features will be discussed below). As recorded by J. Hennesey, a local collector, on the Site Survey form used for the Hudson Valley Archaeological Survey, there was "some testing by collectors" of the rockshelter before the Butler excavation. The extent of this testing is unknown.

Stone Artifacts

A lithic (stone artifact) analysis was undertaken in order to discern patterns of stone tool reduction and use through time. Each lithic artifact was coded for certain defined variables. The results of the lithic analysis follow.

Debitage (Waste Flakes from Stone Tool Making)

At some point within the last 50 years since the excavation of the rockshelter, a box or bag of flakes from the site was misplaced. The missing flakes number over one thousand. However, since the provenience of these flakes was "miscellaneous topsoil", little could have been said about their relationship to cultural features or to site stratigraphy.

Of all the flakes analyzed (168), 79% were unmodified, and 9.55% were utilized. I identified utilized flakes using a ten power binocular scope. However, determining utilized flakes is somewhat problematic in an environment such as a rockshelter, where accidental modification of flakes by trampling and rock movement can take place (Beth Wellman, personal communication 1990). A few retouched flakes (flakes further worked to produce a working edge) were also present (3.6%).

Most of the flakes (73%) were completely lacking in cortex (the exterior rock surface at a quarry), and, in fact 86% of the flakes had 10% cortex or less. Also, eighty-two percent of the total measured were 34 millimeters or less. This indicates a secondary stage of lithic reduction; that is, lithic material was being brought to the rockshelter in a pre-worked or preform state. However, since some of the flakes were large (nearly 10% of the total were greater than 45 millimeters) and since one chert core was identified, there was obviously some primary lithic reduction taking place at the site, also.

About ten percent of the flakes were "pot-lid" (heat-spalling), and most of these were in

Feature 2, which is where most of the flakes from the sample were located.

The raw materials of the flakes were mostly locally available cherts (97.6%). Two flakes were of quartzite (which is only locally available as cobbles), and one flake was of argillite which is non-local. The raw materials available for stone tool making to the prehistoric occupants of the rockshelter were myriad; lithic raw materials are more diverse in northeastern North America than anywhere on the continent (Dincauze 1976a:31). Goat Island lies between the geological area of crypto-crystalline silicates (chert, jasper, chalcedony) in the Paleozoic sediments to the west, and the older, folded igneous and metamorphic rocks of the eastern half of the Northeastern United States (Dincauze 1976a:31). The cherts of New York fall into two basic categories: those occurring in limestones and dolomites, and those occurring in shales (Hammer 1976:47). The former include the parallel formations of Helderberg, Oriskany-Glen Erie, and Onondaga. The latter includes the Normanskill formation. Generally, all of these cherts are dark in color - brown, grey, blue, green, black, deep red or any combination (Hammer 1976:41).

Color and grain-size (fine vs. coarse-grained) were recorded for each flake. The red, green and green/grey ecorded for each flake. The red, green and green/grey cherts are most likely Normanskill. In fact there are several outcrops of Normanskill chert within a few miles radius of the site (samples at the New York State Museum, Albany). It is typically green, bluish green, dark olive green, red, grayish green and dark green (Hammer 1976:52).

Projectile Points

Projectile points are, by far, the most numerous stone tool category found in the rockshelter, the total number being twenty-three. These may have been used as spear points, knives, or, in a few cases, arrow heads. Since the stratification in the rockshelter was poor and the field notes did not include exact provenience, the only way to date the projectile points was through the use of existing point typologies. Nineteen of the projectile points could be typed, at least tentatively. I primarily relied on Ritchie's Typology and Nomenclature for New York Projectile Points (1971), supplemented by more recent information, where possible, for certain projectile points types (e.g., Dincauze 1972, 1976b; Funk 1976; Ritchie and Funk 1973). I also benefited greatly from the first-hand opinions of Dr. Dena Dincauze and Dr. Robert Funk.

Archaic Period Projectile Points. Seven projectile points date to the Archaic Period (see Figure 3.) A side-notched Otter Creek point -- diagnostic of the Vergennes Phase -- was found in "miscellaneous topsoil" (Figure 3; a).

From the Late Archaic Period are one Lamoka/Sylvan-Stemmed and two Normanskill-like points (Figure 3; b-d). These may represent two separate components: 1) Sylvan Lake Phase (ca. 4,200-3,500 B.P.), and 2) River Phase (ca. 3,900-3,700 B.P.). The Sylvan Stemmed point was found in miscellaneous topsoil. One Normanskill-like point was found in the yellow subsoil in the same five-foot unit (5A) that contained the burial. The other was in the topsoil of unit 2A.

Two other projectile points found in the rockshelter may be of Archaic age, but are problematic (Figure 3; e,f). They are both lobate-stemmed, or contracting-based projectile points (Figure 3; e,f).

At the rockshelter, both points were found under the burial. The point illustrated in Figure 3; f is a Middle Archaic Stark point (Dena F. Dincauze, personal communication 1991; see Dincauze 1976b) and was found in the dark soil of the burial feature fill, below the human remains. This point may not necessarily have been brought to the rockshelter in the Middle Archaic Period; since it is in close proximity to other lobate-stemmed Rossville points, it may have been curated and deposited at the same time. The point illustrated in (Figure 3; e) is Bare-Island-like and was located in the yellow subsoil of stratum 2 (although the field notes indicate that it was still in "disturbed" soil).

Two very Late Archaic-Transitional projectile points were present: a possible Snook Kill or Atlantic point fragment (cf. Dincauze 1972:42) and an Orient Fishtail Figure 3; g,h). The Snook Kill point was found in Feature 2. The Orient Fishtail was found in unit 5A, the unit containing the burial. The excavators were not sure if this point was in the burial; it was located 8 inches from other points (Middle Woodland Greene points) that they did consider to be in the burial.

Woodland Period Projectile Points. Representative of a Early-Middle Woodland occupation are four Rossville type projectile points (Figure 4; a-d). These points are roughly rhomboidal or lozenge-shaped (Ritchie 1971:46), and are all made from locally available cherts. According to Ritchie (1971:46) their age is very Late Archaic, Transitional and Early Woodland. However, they are also diagnostic of the Bushkill complex identified by Kinsey (1972) for the Delaware Valley.

Three Rossville points were within the burial, and a fourth was found on the surface nearby. Rossville points are not well defined for the Hudson Valley (there is a total of 61 for the Hudson Valley as indicated by Funk [1976:195]). All of the Rossvilles were apparently in association with ceramics. Therefore, the burial may date to the poorly defined Bushkill complex of the Early-Middle Woodland.

Projectile points from the Middle Woodland include two Greene points, and one Fox Creek Stemmed point (Figure 4; e-g). These two Greene points were found lying parallel to one another in the context of the burial; the field notes indicate that the points were "in the humus above, but lying 6 [inches] apart as if placed intentionally". Greene points are considered by Funk (1976) to belong to the earlier part of the Middle Woodland.

A Fox Creek Stemmed point was found on the surface in the vicinity of the burial; it may have been originally in association with the Greene points, which are considered to be contemporaneous (see Funk 1976; Ritchie and Funk 1973).

One Jack's Reef Pentagonal Point was found at the site in unit 6A (Figure 4; k). Funk believes Jack's Reef points to be from the latter part of the Middle Woodland, but partly contemporaneous with Fox Creek and Greene points (Funk 1976:294).

From either the latter part of the Middle Woodland or the Late Woodland are three triangular points (Figure 4; h-j). These points are believed to have been the tips of arrows, and likely represent a change in hunting and warfare technology (bow and arrow as opposed to spears). One is likely a Levanna point (Figure 4; h), and was found on the surface. Two triangular points (Figure 4; i,j) are both excessively re-sharpened and, thus not typeable. One was found

6" below the surface in unit 5B. The other was found below Feature 1 -- the ash pit in unit 4A.

Other Stone Tools

Twenty bifaces and biface fragments were recovered, some of which are shown in (Figure 5), including bifacial knives, drills, and scrapers -- all made of locally available cherts.

Two triangular ground slate "points" were found in the rockshelter (Figure 6; b). Since slate is fairly brittle, I am unsure of the function of these items. Also, a ground slate ulu or semi-lunar knife fragment was found in Feature 2 (Figure 6; a).

Several rough stone tools were recovered, which are fashioned from graywacke, of which the rockshelter itself is made: an abrading stone, a graywacke flake/knife, a bifacially worked piece of greywacke, a netsinker, and a natural broken cobble, which may have been used as a pestle or hammerstone.

Summary of Lithic Analysis

Analysis of the projectile points was the single most important information used to identify different components at the rockshelter. While different "types" are tentatively used here to suggest different components, it is possible that many of them overlap in time. For example, it is possible that the Rossville points, "lobate-stemmed" points, Green points, and Fishtail point are contemporaneous -- they were all recovered from the burial area.

While one may be quick to conclude a predominance of hunting at the site, many of them may have been placed in the burial as ceremonial items. The only indication of fishing among the stone tools is one netsinker. The numerous bifaces suggest other activities related to subsistence; however, they cannot be separated by component. Likewise, while different stages of lithic reduction took place at the site, the different components cannot be separated.

Ceramics Analysis

I undertook a minimum vessel count by identifying distinct vessel lots. The method I used to do this was inspired by Jane McGahan (1989) who identified vessel lots for the Indian Crossing site in Massachusetts. This method is an application of the technique used by Dincauze (1975), and fitted to the particular collection. Vessel lots are groups of pot sherds which are determined to be minimally from the same vessel. This is not to say that they are from the same vessel -- only that it is possible.

Classification by vessel lots requires the identification of specific attributes as opposed to the more generalized typological approach. Attributes analysis involves the comparison of classes of artifact features (e.g., surface treatment or decorative technique), whereas the typological approach involves the comparison of classes of artifacts, which are comprised of a complex of attributes (Lavin 1986:3). Pottery "typologies" in New York State (e.g., Ritchie and MacNeish 1949) have been primarily based on rim counts and decorative motifs. Funk (1976) also characterizes "vessels" largely on the basis of rim sherds, and sorting by pre-existing "types."

When we use analyses of attributes rather than "types" (see Dincauze 1975; Kenyon 1979), vessels, as opposed to individual sherds, represent the unit of analysis (Petersen 1985:10). In this way we can approach questions of site activities and post-depositional history. For example, we can discern whether 50 sherds likely discern whether 50 sherds likely represent one pot, fifty pots, or some number in between. We can then trace the deposition of vessels across the site.

The total number of sherds from the rockshelter was 527. I used 376 of these in my analysis; sherds that did not have intact exterior and interior walls were not used in my vessel lot determinations, since important attributes on these could not be discerned. A minimum of seven attributes were recorded for each sherd (two more for rim sherds) to determine vessel lots: modal thickness in millimeters (most frequent measurement as opposed to average); temper material (by ten microscopic analysis); temper size using the Wentworth scale (in Shepard 1956:118); temper density by percentage (after Spock 1953:27-36); interior and exterior color by Munsell Color chart (Anonymous 1975); exterior and interior surface treatment/decoration; location of the sherd on the vessel; and, in the case of rim sherds, the rim form (i.e., inverted, everted, straight, castellated) and lip form (flattened, pointed, rounded, thickened). After recording data on all of the above variables, I could make a final vessel lot determination on the basis of overall similarity. This final determination was, admittedly, partly subjective. I tended to err on the side of including a sherd with a vessel lot, since this was to be a minimum vessel count.

Temper material and density were by far the most important in the determination of vessel lots. It was also the most difficult and time-consuming to determine. "Temper" is perhaps the most used and abused term employed in archaeological descriptions of pottery (Rice 1987:406). It refers generally to the coarse components in a paste, presumed to have been added by the potters to modify the properties of the clay (Rice 1987:406). A variety of substances may be added to clay for these purposes: plant fibers, shell, dung, crushed rock, sand, volcanic ash, or ground pot sherds (referred to as grog) (Rice 1987:407). These materials, when added to the clay, may affect plasticity or stickiness of the clay, reduce shrinkage in drying, lower the vitrification point in firing, or increase the strength of the resultant vessel (Rice 1987:408). Temper was identified by macroscopic means using a ten scope. The identification is consistent, if not exact. For example, a series of dark black/red metamorphic rock fragments often containing feldspars were grouped together. These could have been more precisely identified by thin-section; however, for the purpose of determining vessel lots this was neither feasible nor necessary.

A total of twenty four vessel lots were discriminated. Of these vessel lots, some were represented by many sherds and others by only one or two (see Figures 7, 8 and 9).

Most of the vessel lots apparently date to the Early and Middle Woodland Periods, on the basis of temper size, wall thickness, surface treatment and decoration. In general, ceramics of the northeastern Middle Woodland period have larger temper, and wall thickness (Braun 1983) and were fired at a lower temperature than those of the Late Woodland Period.

While the first nine vessel lots comprise 93 percent of all the potsherds used in the analysis, the remaining fifteen vessel lots constitute only seven percent. Many of these vessel lots have only one sherd. It is striking that of 24 vessels lots, only three can be attributed to the Late Woodland period. The Late Woodland sherds likely broke off pots carried into the

rockshelter; the rest of the pot was then taken away. For the Middle Woodland, pots were apparently deposited whole, or nearly so, in Feature 2 (trash pit) and in the burial. For example, the photo of the burial taken in 1939 (see Figure 11, bottom left) shows much of Vessel Lot 1 broken in situ, in proximity to other large sherds.

Summary of Materials Analysis

There were maximally ten prehistoric components at the site, determined by analysis of diagnostic materials (primarily lithics): (1) Middle Archaic Stark component, (2) Otter Creek Phase, (3) Sylvan Lake Phase, (4) Bare Island component, (5) River Phase, (6) Snook Kill Phase, (7) Orient Phase, (8) Bushkill/Fox Creek component, (9) Fourmile Phase, and (10) Chance Phase (Table 2). But, as stated previously, due to a lack of stratigraphy on the site, many of these may be contemporaneous. At this point this is impossible to discern.

Human Remains

The remains of one individual were found in the rockshelter. A total of 121 bones and bone fragments were recovered. A significant portion of the human remains was culled from the faunal assemblage at the start of this thesis project; the excavators were unable to distinguish human from non-human remains in quite a few cases. Most of the bones excavated (58%) were identified as being within the burial feature. However, the excavators apparently did not recognize the remains from the same individual in other excavated contexts.

The condition of the bones varies from fair to very poor. Gnaw marks of a small rodent-like animal were present on a few bones, indicating post-depositional disturbance. Pelvic fragments, usually quite sturdy, were totally absent. Femur, tibia and humerus, which are relatively dense bones, were in very poor condition, where present. However, rib fragments and phalanges (fingers and toes), which are thin and prone to decomposition, were numerous and in fair/good condition. This is likely due to both differential preservation within the burial feature and disturbance of the burial, causing many of the bones to have been brought to the surface where rapid decomposition would take place.

The individual was presumably Native American, to judge from the cultural affiliation and age of the grave goods and the presence of one shovel-shaped maxillary incisor. This tooth alone would not be enough to make this determination; shovel-shaped incisors occur with high frequency in Chinese, Eskimo, and Native American populations, and with low frequency in American Black and American White groups (Dahlberg [1951] in Bass [1971:236]).

Sex determination of the individual is inconclusive; the pelvis, which is missing in this case, provides the most abundant and accurate data for sex determination (Ubelaker 1978:42). The individual was likely male as determined by a few less reliable criteria. Although none of the long bones are whole, the left radius and right ulna, which are in better condition than most, are quite large and rugged. The bones of males tend to be larger and more rugged, although this criterion should be applied with caution (Ubelaker 1978:41). The individual was muscular; there are pronounced muscle attachments on the proximal end of the ulna and along the phalanges of both hands, indicating that this person worked quite a bit with her/his hands and arms.

The individual was an adult at the age of death, since all of the bones present were fully fused.

Normally, all bone epiphyses are fused by the time a person attains the early twenties (Bass 1971:17). Since there were no cranial or pubic bones present, I relied on degenerative changes to estimate age at death; degenerative changes in the skeleton only serve as very general indicators of age (Ubelaker 1978:60). There was no indication of vertebral osteoarthritis. Although tooth wear is not a reliable indicator of age in the absence of other evidence (Ubelaker 1978:64), it is the best evidence we have in this particular case. Of the six teeth recovered, three molars show very pronounced and unequal wear on the tooth surfaces (Figure 37; b-d). Wear results from chewing and generally proceeds continuously throughout life (Ubelaker 1978:63). On the basis of D. R. Brothwell's (1965) age classification of pre-medieval British teeth, the molars from the individual from Goat Island would fall into the latter part of the "45+ years" age period. However, there are both individual and group differences in tooth structure and diet which contribute to the rate of wear. For example, hunter-gatherers are presumed to have had more gritty diets and thus would have more tooth wear, on the whole, than horticulturalists. From what we know of prehistoric diet, this individual should fall into the category of hunter-gatherer, and therefore may actually be younger than the 45 years inferred from tooth wear.

There was skeletal evidence of at least one trauma in this person's lifetime: the spine of one of the thoracic vertebrae was apparently broken at one time and had fully re-fused. This likely caused the person great pain at the time of the trauma, and, perhaps, even for the remainder of his or her life.

Historic Artifacts

Minimally there were three historic components at the rockshelter, from the seventeenth, eighteenth and nineteenth centuries (Figure 10). Artifacts included clay smoking pipes, a gunflint, nails, lead, brass, European ceramics, and glass. The historic artifacts indicate short, sporadic occupation of the rockshelter, likely by both Native American and Euro-american groups. It is likely that the occupations were small encampments for short periods of time. Since the view up and down the valley is spectacular from the island, it would have been a good location for an encampment in the strategic location between New Amsterdam and Fort Orange during the seventeen century.

Faunal Remains

The remains of numerous birds, reptiles, fish, shellfish and mammals were recovered from the rockshelter. Unfortunately most of the remains were cataloged as either "miscellaneous topsoil" or were not identified at all as to provenience. Catherine Carlson, a graduate student at the University of Massachusetts, Amherst, identified the bulk of the faunal remains, with the assistance of David Steadman of the New York State Museum for some problematic specimens. Eight species of mammal, six species of bird, two species of reptile and four species of fish were identified.

Only a few artifacts of bone were recovered from the rockshelter: a broken bone awl and an antler punch (unit 3A), a possible antler punch in Feature 2, and a bone awl and antler punch from "miscellaneous topsoil." The antler punches are worn and may have been used for stone-knapping. The two awls are slightly polished and may have been used for basket-making and/or a variety of other tasks.

Mammals

The most numerous species of mammal was the white-tailed deer (Odocoileus virginianus); over a thousand bones and fragments were identified, weighing over two thousand grams. The more numerous deer remains may in part be due to differential preservation afforded to larger and more dense bone. The individuals represented were apparently both sub-adult and adult. Although most of the deer were not identified as to provenience, there were deer remains identified for Features 1 and 2. Feature 1 also contained one bone of an elk and a few raccoon bones. Not all of the mammal remains were necessarily deposited by human activity; many animals may have lived and died in the rockshelter in between human habitations, especially the rabbit, squirrel, raccoon, bear, and bobcat. Two bones from a large dog were also recovered.

Birds

Bird remains were less numerous, numbering 68 specimens (six species). Most of the bird remains are of unknown provenience. However, turkey, duck, and dove/pigeon were identified in Feature 2, and duck and bird remains were identified for Feature 1.

Fish

Considering the fragility of fish bones, and the excavation techniques employed (i.e., mattock and shovel) it is a wonder that any were recovered from the site. Fish bones are rarely preserved in the Northeast, except for those of large sturgeon (Brumbach 1986:37). Some sculpin and perch was identified for Feature 1, and a sturgeon bone was recovered from Feature 2. The rest of the fish remains are of unknown provenience, and include striped bass, yellow perch, sculpin and sturgeon. Some of the fish remains may have been brought in by other animals (e.g., raccoon, bear).

Unlike the abundance of projectile points which may indicate hunting, few artifacts were recovered from the site to indicate fishing. This is generally true of Hudson Valley sites; Funk (1976) quite often concludes a predominance of hunting based on a majority of lithic artifacts presumed to be indicative of hunting and related activities. However, the relative scarcity of artifacts related to fishing can be explained if one assumes a technology based on the use of natural barriers or the construction of weirs and traps (Brumbach 1986:39). Shallows, which are presently associated with the site, function like man-made traps and impede the progress of schooling fish (Brumbach 1986:39). Perishable artifacts such as nets may also have been used for fishing.

Reptiles

The reptile remains from the rockshelter include two species of turtle. A few fragments of each of these were found in both Feature 1 and 2.

Shellfish

A small amount of shell was recovered from the site; most of it was freshwater clam (*Elliptio complanata*). Of this species there were 14 whole valves and 73 fragments. Today, this species is quite numerous in the area. Strayer (1987) reported, in a study of the freshwater

mollusks of the Hudson Basin, that Elliptio complanata was the most abundant and widespread unionid in his 1985 survey. However, this species requires a hard substrate and at least 1.5-3 meters of water (Bethia Waterman, personal communication 1990). There is a "shell heap" site on the other side of the island which also contains *E. complanata*; it appears to have been utilized in both Archaic and Woodland Periods. However, due to accelerated siltation of the Tivoli Bays, this species does not apparently inhabit the east side of the island; the substrate is too soft and the water too shallow (Bethia Waterman, personal communication 1990; see also Waterman 1991).

Freshwater mussel acquisition, like fishing, may not have necessitated the use of specialized equipment. A common method of obtaining freshwater mussels from rivers in historic times was to drag a branch behind a boat or canoe (Bethia Waterman, personal communication 1990). The mussels, which feed with their shells open, close when the branch passes and cling on as the branch is pulled up. This method would have been plausible for most of the year as long as the river was not frozen. This activity would not leave any remains, per se, in the archaeological record. Also present at the site were nine fragments of another freshwater mollusk that I could not identify, an unidentifiable snail, and numerous specimens (45) of the White-lipped forest snail (*Triodopsis albolabris Say*; see Jacobsen and Emerson 1971). This species has a high frequency in a deciduous forest and a low frequency in coniferous or mixed (Barber 1986). Although Barber (1986) demonstrates the usefulness of land snails for paleoenvironmental reconstruction, unfortunately, for this particular site, the snail's original context within the site is unknown.

Cultural Features

The material from the Goat Island Rockshelter is, to be sure, from many components. In the last section, the artifacts from the rockshelter were identified as having come from a maximum of ten prehistoric (with overlap possible) and three historic components. In this section I will relate those components to the cultural features at the site.

Feature 1

Feature 1 was identified by the excavators as an ash pit. It started about 1 inch below the surface in square 4B (Figure 2), and continued to a depth of 16 inches. The notes indicate that it was a "bed of almost pure ash." There were small bone fragments in the last 10 inches and apparently "hand-carved stakes" at 7-8 inches below the surface. These stakes are not in the collection, but were described as 1/2 X 1/2 inches (no length given).

Prehistoric and historic artifacts were found in this feature. Therefore, this was likely a historic Native American or Euro-American feature which had intruded into and disturbed prehistoric remains. In the feature were also remains of deer, elk, raccoon, duck, bird, sculpin and perch. Although Butler's crew identified this feature as an "ash pit", I believe that it was possibly a hearth and that some of these faunal remains belong to the feature.

Feature 2

The second identified feature consisted of "black " soil, and was considered to be a second firepit. It was located north and east of Feature 1, in units 2-4A (Figure 2), along the back wall of the shelter. According to the field notes, it contained a great quantity of animal bone.

However, as catalogued, only the following could be identified as having come from the feature: one fragment of turtle, one fragment of sturgeon, nine fragments of turkey, duck, dove/pigeon and other bird, 16 fragments of deer (including a possible antler punch and two other antler tine fragments) and 68 fragments of unidentified large mammal.

Most of the flakes that still exist in the collection came from Feature 2 (67%). Only one of these 112 flakes was potlidded. Therefore, I don't think that there was in situ burning in this feature. Other artifacts in the feature included the cache blade, two drills, three endscrapers, an ulu fragment and most of vessel lots 2 and 3 (72% and 85%, respectively). Both of these vessels were smooth with no apparent decoration. However, the walls of the vessels were relatively thick and the temper coarse. Therefore the vessels likely date to the Early or Middle Woodland Period. No historic artifacts were found in this feature.

Although there were no truly temporally diagnostic artifacts in this feature, I believe that it is a trash pit. It likely dates to the Middle Woodland, on the basis of the ceramics, as stated above. Some of the artifacts (e.g., the ulu fragment) may have been disturbed from earlier components in the rockshelter.

Feature 3

This feature was characterized by an area of "burnt orange soil" according to the field notes. It was located west of the burial, and south of Feature 1 in unit 5B and 6B (Figure 2). At 11" below the surface, the excavators encountered the remains of a stake or post that had been burnt in place. The burnt soil and post mold continue down another 17 inches.

The field notes indicate that only a few flakes were found in the feature and that no charcoal, ash or other material was encountered. However, artifacts catalogued as having been from Feature 3 include two bifaces, and a ground slate triangular "point." There are two flakes catalogued as having come from the "fireplace level," which may refer to Feature 3, since the notes indicate a few flakes for the feature. Two fragments of deer were also identified for the "fireplace level".

It seems likely that this feature was indeed a "fireplace", considering the burnt soil. The post may have been stuck into the fire as a means of roasting or hanging a pot. Since ash remained in the postmold, the post apparently burnt in place. No diagnostic artifacts were found in the feature; however, since no historic material was found, it was likely prehistoric. It is important to note that this hearth is situated toward the open end of the shelter, right along the drip line (Figure 2). In fact the post mold is also exactly on the drip line. For a similarly placed feature at the Powisett Rockshelter in Massachusetts, Dincauze and Gramly (1973:49) note:

> By situating the hearth toward the open side of the rockshelter, the firebuilders in effect created half a small wigwam at the site...This arrangement is the most efficient one possible in respect to smoke dispersal, heat reflection...and the exclusion of outside drafts....

Burial

The burial was located against the back wall of the rockshelter, in squares 5A and 6A (Figure 2) and (Figure 11). The field notes indicate that the burial was in "dark soil" in a rock pocket

that was underlain by yellow subsoil. The humus above the burial contained ash and charcoal. According to the field notes, two Greene points (made of red Normanskill chert) were found in the humus above the burial, "lying parallel 6" apart as if placed intentionally." The burial itself started at nine inches below the surface. Although the notes do not indicate the maximum depth of the burial, the maximum depth of the soil in the rockshelter was apparently 30 inches. Apparently, vessel lot 1 (dentate stamped) was located almost entirely within the burial, as well as much of vessel lots 5, 8 (pseudo-scallop shell and rocker dentate, and fabric impressed, respectively).

The bones within the burial were in poor condition; many bones were either missing or out of place; only 58% of the bones, which were identified as being from one individual, were recorded as having come from the burial feature -- the rest were scattered throughout the rockshelter. Gnaw marks on some of the bones further indicate disturbance of the burial.

Dr. Butler indicated in a later publication on two Lenape rockshelters in Pennsylvania (Butler 1947:247), that the burial at the Goat Island rockshelter was "badly disturbed." I do not think that this burial had been looted, since many whole projectile points remained to be found by Butler's crew. It was likely disturbed quite unintentionally by later occupants of the rockshelter over the past two thousand years. Analysis of other artifact material in the rockshelter indicates that later Native American groups and Euro-American groups occupied the shelter, and built at least one hearth (Feature 1). Since the shelter is quite shallow, any occupation of the site would have disturbed archaeological remains. Also, animals may have occupied the shelter between periods of human habitation and caused further disturbance. Since the burial was in a rock pocket, bones would have been susceptible to differential preservation depending on moisture and depth from surface.

Other artifacts from the burial include a bifacially worked piece of graywacke, three chert flakes, two lobate-stemmed points (one was found on the surface above the burial), and four Rossville points (one on the surface above).

Since the Rossville points all cluster around and in the burial and were in association with dentate stamped, fabric impressed and rocker stamped pottery, I conclude that the burial belonged to the Bushkill complex ca. 2-2,500 B.P. (Kinsey 1972).

The Greene points, found just above the burial, are diagnostic of the Fox Creek phase in the Hudson Valley (ca. 1,500 B.P., primarily from carbon dates produced from the Westheimer 2 Site [Funk 1978b:11]). However, the Greene points may be older in this case; the Lagoon points identified by Kinsey (1972:365) as diagnostic of the Bushkill phase bear a striking resemblance to Greene points. In fact, a similarity exists between Rossville, Lagoon, Lackawaxen stemmed (Straight Stem subtype), and Fox Creek (Lanceolate and Stemmed) (Kinsey 1972:367). According to Kinsey (1972:367):

> These morphological carry-overs from Late Archaic through Early and Middle Woodland can... be attributed to the persistence of a generally conservative Piedmont projectile point tradition...

Similarly, Dincauze (1974:51) suggested the existence of a province sharing a ceramic tradition (rocker- and dentate-stamping) and lanceolate points (e.g.,. Fox Creek, Greene and Cony points) that extends east from the Hudson Valley to the Boston area.

If further research supports my suggestion of a Bushkill complex in the Hudson Valley (late-Early Woodland to early-Middle Woodland complex sharing dentate stamped, fabric impressed and rocker-stamped pottery, and lobate-stemmed and lanceolate points) then the so-called hiatus in the Early Woodland period in the valley (approximately 3000-2000 B.P.) will be resolved. To uncover this evidence, archaeologists will need to treat Early and Middle Woodland ceramics as vessels, and not be anxious to fit sherds (or projectile points) into pre-existing typologies. Some of this new information may be gleaned from the other 44 sites investigated by Butler.

Relation to Other Goat Island Sites

Two other sites on the Island were also tested by the Butler crew: the Goat Island Campsite and the Goat Island Shellheap (Figure 1). These sites were only partially excavated. Therefore, the Butler collection from these multicomponent sites is a small sample. I did not analyze the collections from these sites. However, even my very general observations from these sites warrant consideration here.

As stated previously, the Goat Island Campsite is a large and extremely productive site, and continues to be ravenously looted today. While Butler referred to this site as a "campsite", it is more likely a very large, multi-component habitation site, with associated middens. My observations from a walk-over of the site in 1990, lead me to believe that most of the level part of the island is rich in archaeological remains. Therefore the "campsite" identified by Butler is likely only a small window into some of the numerous occupations on the island. The Butler excavation recovered over 5,000 pieces of debitage from this site, comprised mostly of local cherts. Other artifacts included one potsherd (plain and thin -- possibly Late Woodland), two Orient Fishtail points, five other untyped points (one corner-notched, four stemmed), two red hematite nodules and a quartz crystal.

The Goat Island Shellheap is located on the southeast part of the island (Figure 1). The Butler excavations at the Shellheap consisted of two trenches, intersecting at right angles, approximately 21 X 3 feet and 1 foot deep. This site also contained thousands of chert flakes, seven quartz crystals, and numerous ceramics (mostly Late Woodland). Projectile points included three Normanskills, six Sylvan Stemmed and one Levanna, two Orient Fishtails, one Meadowood-like, one possible Meadowood cache blade, one Adena point and seven untyped stemmed points.

Although these sites cannot be examined in detail here, it is obvious that both sites are multi-component, and that different components are represented at these sites than for the rockshelter. For example, no substantial amount of Middle Woodland pottery was in the collections for the other island sites. Also, while Late Woodland ceramics predominate in the Shellheap, very few Late Woodland sherds were found in the rockshelter. It is possible that the Shellheap, at least in part, represents a midden for habitation on the island during the Orient Phase, River Phase and the Late Woodland Period. Whereas, the Rockshelter, while being occupied sporadically over the past several thousand years, was most extensively utilized during the Middle Woodland, as exhibited by the burial and Feature 2.

Sequence of Occupation

The artifacts within the rockshelter indicate that the only major use of the site occurred during the Middle Woodland, which is represented by a burial which likely contained much of the pottery and projectile points from the site. Other remains indicate short, sporadic occupations by Native American and Euro-American . Activities that may have taken place on the site include cooking, flint-working, sleeping, and ceremonial activities (burial). Activities that may have taken place from the site include hunting, fishing, gathering, and warfare. Season of occupation cannot be determined for the individual components. However, all seasons are represented in the faunal remains (Catherine Carlson, personal communication 1990).

The Rockshelter did not produce much evidence of fishing gear (one net-sinker). However, prehistoric peoples may have been relying on shellfish, the remains of which are not found within the rockshelter, but elsewhere on the island (e.g., the Goat Island Shellheap, or on the slope below the rockshelter).

Conclusions

I have attempted to reconstruct the culture history of the Goat Island Rockshelter site, as a means of demonstrating the usefulness of "old" data for answering "new" questions. In the process, three larger, and perhaps more anthropologically interesting, issues have been brought to the forefront.

The first issue concerns typology. Typologies -- whether for artifacts, sites, or phases -- while providing a sense of order, can constrain our interpretations. They may mask certain kinds of change and variation -- the essence of anthropology. By not "typing" individual sherds, but rather analyzing attributes from distinct vessel lots, I was able to better understand ceramic use at the site through time. It became clear to me, however, that a lot more work needs to be done on ceramic periods in the Hudson Valley and the Northeast in general. For example, it is important to know not simply which "types" belong to which period in time or prehistoric culture, but what the processes were by which ceramics changed through time with respect to both technology and style. How did pots change with respect to what was they were being used for? What is being communicated prehistorically by what archaeologists refer to as "decoration"?

A second issue that confronted me in doing this project concerned another kind of attempt at order: geographical boundaries. There were certainly differences between prehistoric groups living along the Mohawk, Susquehanna, Hudson, and Delaware Rivers. The major river valleys likely acted as cultural constrainers, rather than as "cultural containers" (cf. Snow 1980:12). For example, many of the ceramics encountered in the rockshelter did not fit well with what we know for the rest of New York State, but in fact were quite similar to those found on the coast and in the Delaware valley. Understanding prehistoric cultural connections between geographical areas will necessarily involve looking for sites in areas previously assumed not to contain sites, such as uplands (Chilton 1985, 1989), instead of assuming that uplands formed natural barriers (cf. Ritchie 1969:xxxii; Funk 1976:8). What this means for Hudson Valley archaeology is that archaeologists need to question their present understanding of cultural connections in prehistory and look to regions over the Berkshires into New England, as well as downriver to the coast.

Finally, in this paper I have attempted to demonstrate the usefulness of "old data" for addressing contemporary, anthropological questions. In doing this project I often needed to

evaluate changes in both archaeological method and theory over the past fifty years. "Old data" will be crucial for the building and testing of new and existing archaeological models (Starna 1981:66); they do not simply provide us with more data; they bring to light the issues of historical context in which all science is embedded.

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The Hudson Valley Regional Review

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Archaeological Investigations at the Goat Island Rockshelter: New Light from Old Legacies

by Elizabeth S. Chilton

Figure 1

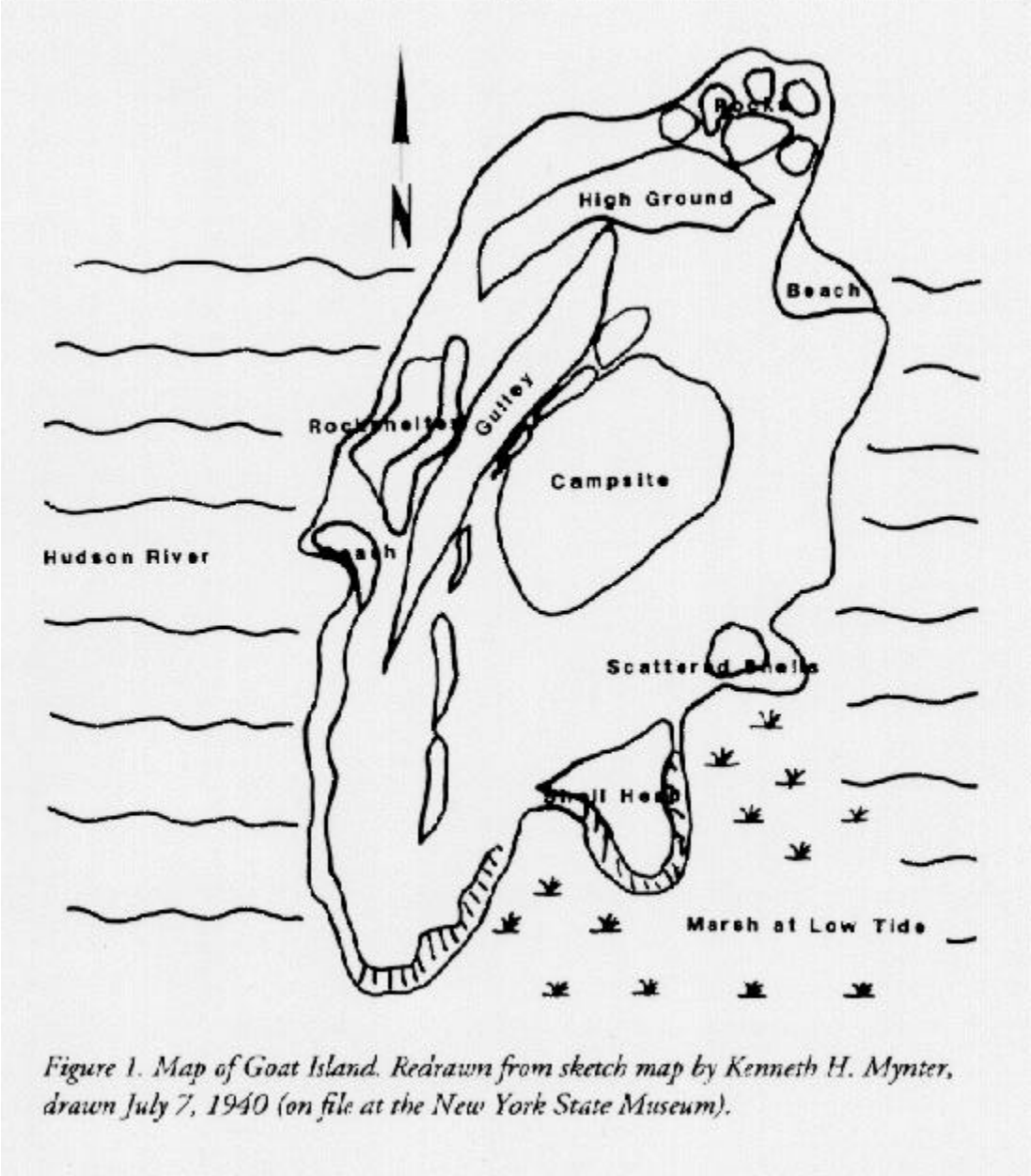

Figure 1. Map of Goat Island. Redrawn from sketch map by Kenneth H. Mynter, drawn July 7, 1940 (on file at the New York State Museum).

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Figure 2

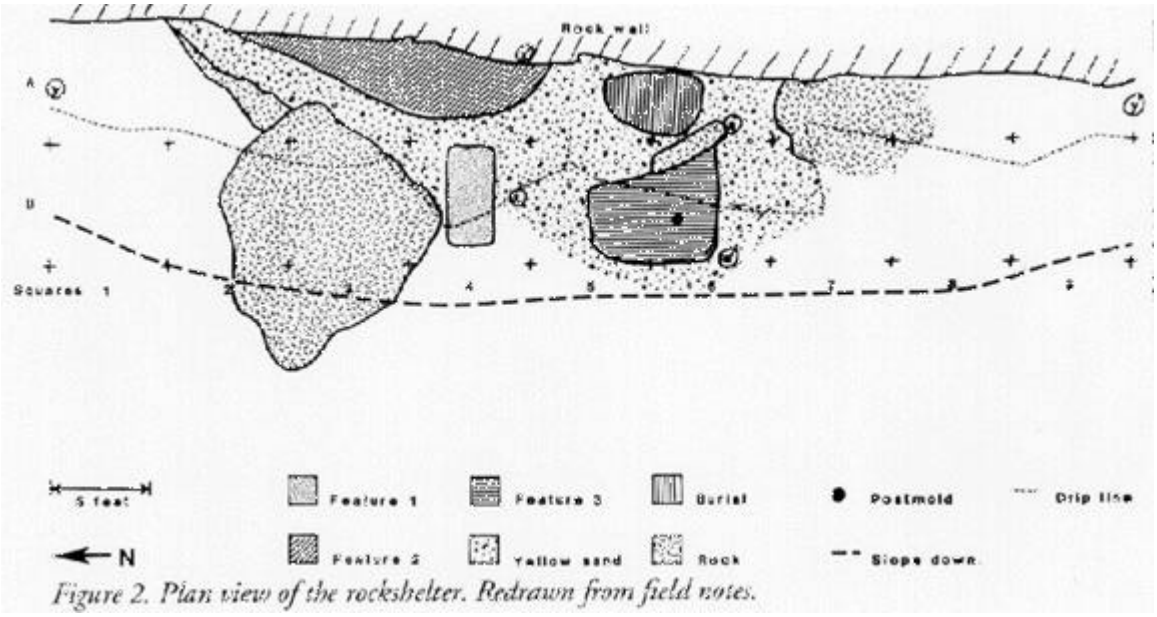

Figure 2. Plan view of the rockshelter. Redrawn from field notes.

Figure 2: Plan view of Goat Island rockshelter. Redrawn from field notes.

Hudson River Regional Review

Archaeological Investigations at the Goat Island Rockshelter: New Light from Old Legacies

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Figures 3, 4, 5, and 6

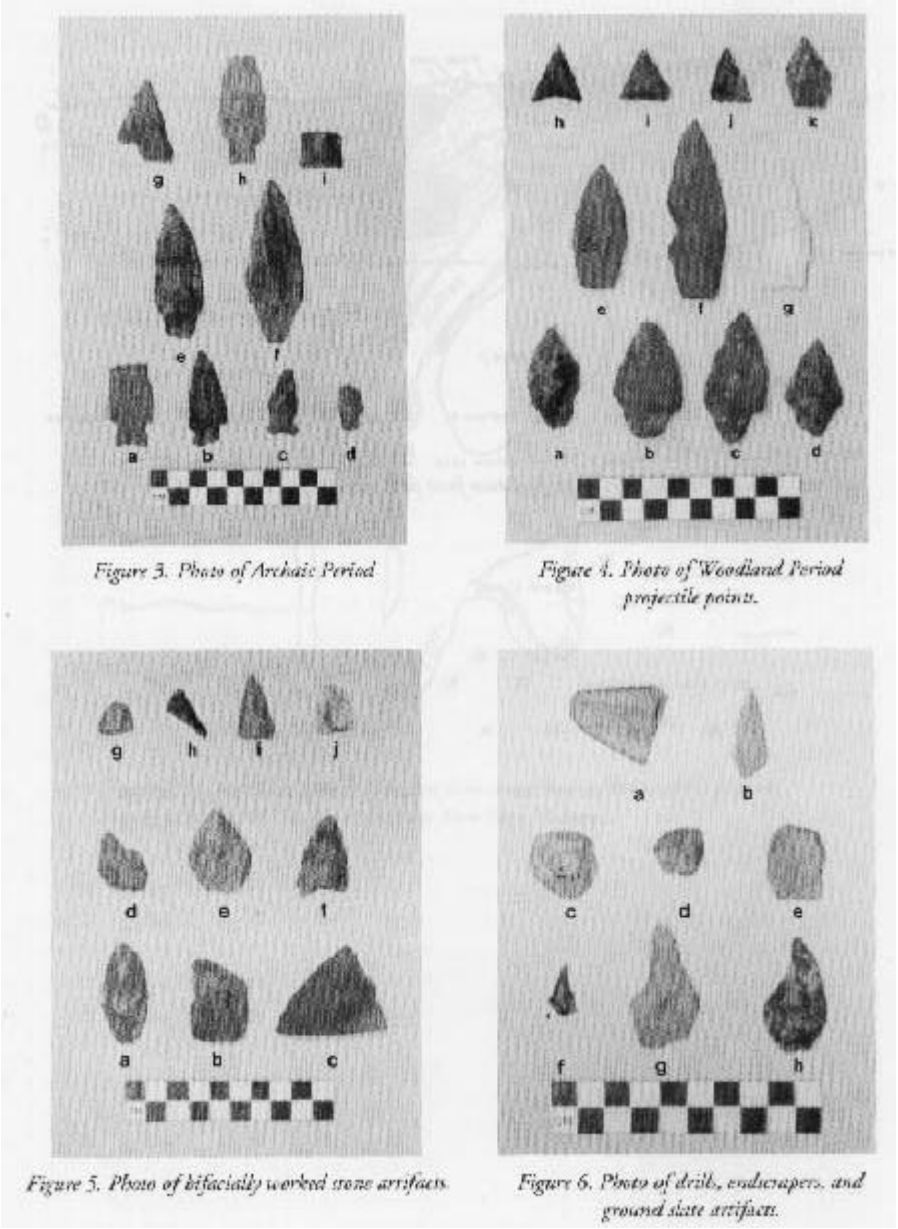

Figure 3. Photo of Archaic Period

Figure 4. Photo of Woodland Period projectile points.

Figure 5. Photo of bifacially worked stone artifacts.

Figure 6. Photo of drills, endscrapers, and ground slate artifacts.

Hudson River Regional Review

Archaeological Investigations at the Goat Island Rockshelter: New Light from Old Legacies

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Figures 7, 8, 9 and 10

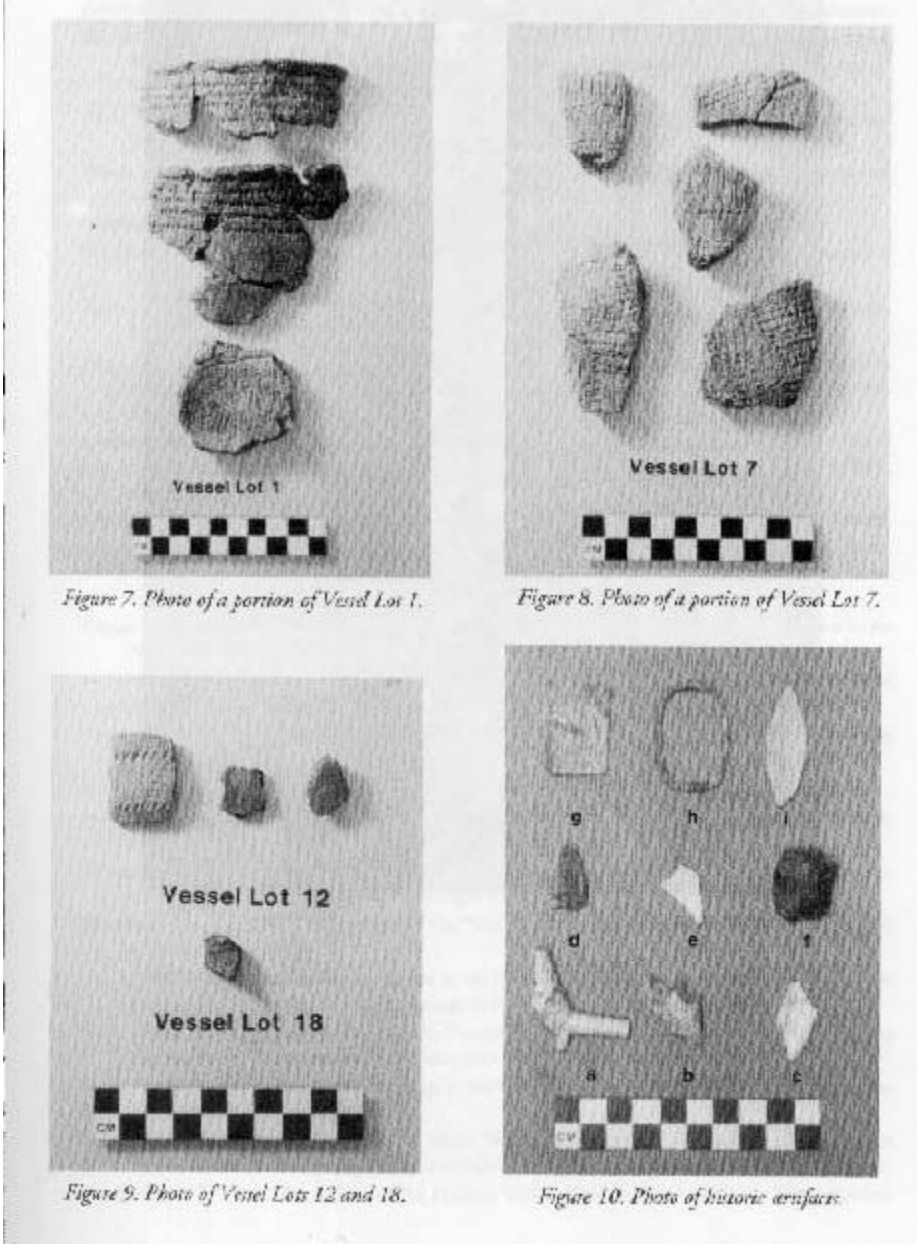

Figure 7. Photo of a portion of Vessel Lot 1.

Figure 8. Photo of a portion of Vessel Lot 7.

Figure 9. Photo of Vessel Lots 12 and 18.

Figure 10. Photo of historic artifacts.

Hudson River Regional Review

Archaeological Investigations at the Goat Island Rockshelter: New Light from Old Legacies

by Elizabeth S. Chilton

Figure 11: Burial Site

Figure 11: Photo of burial, 1939.

Hudson River Regional Review

Archaeological Investigations at the Goat Island Rockshelter: New Light from Old Legacies

by Elizabeth S. Chilton

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Hudson River Regional Review