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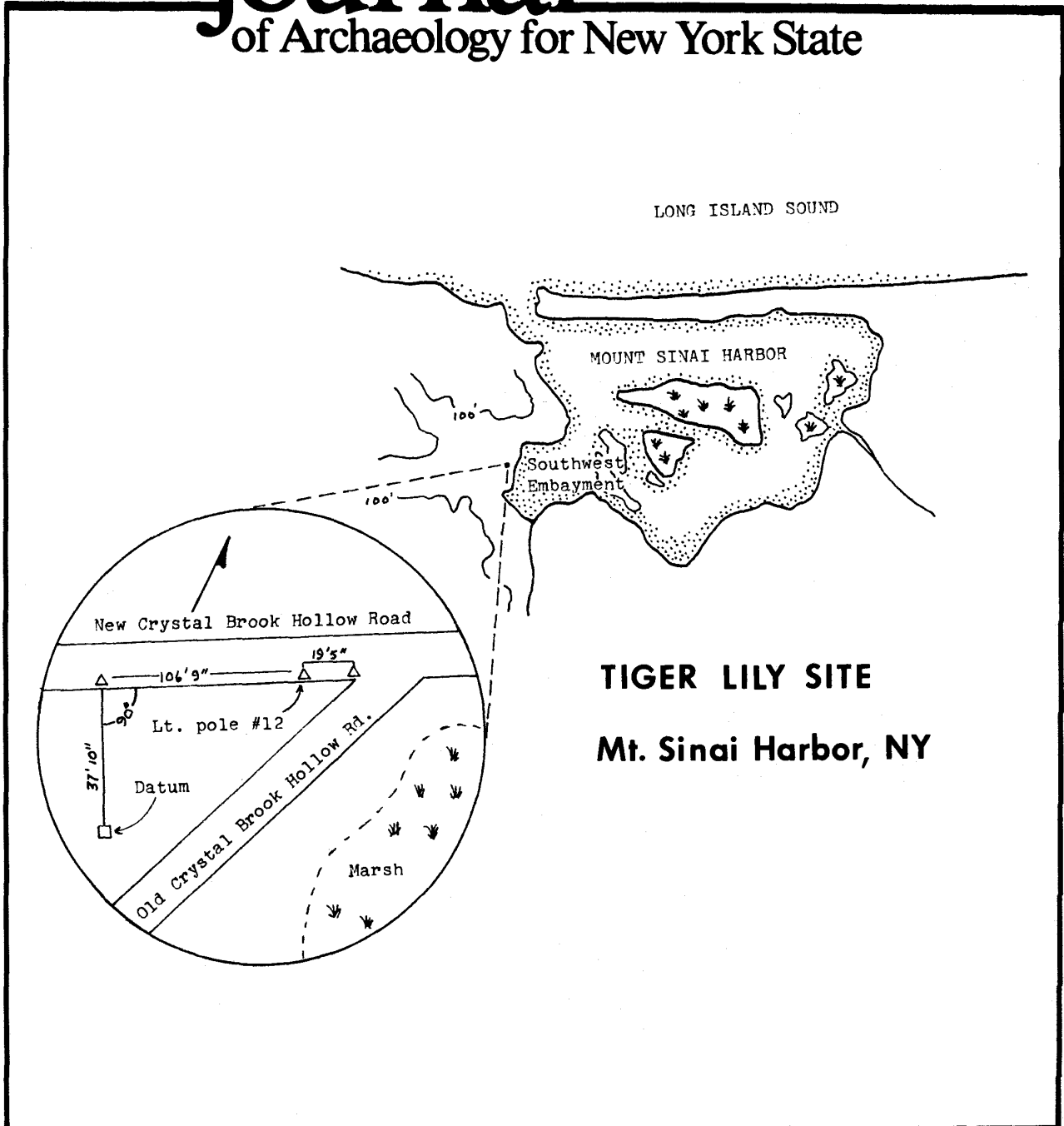
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THE TIGER LILY SITE, LONG ISLAND, NEW YORK:**A PRELIMINARY REPORT**

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INTRODUCTION

On the north shore of Long Island, New York, sheltered from the North Atlantic by the fish-shaped body of the Island, lies Mount Sinai Harbor, a small, tidal basin of glacial origin ringed by low hills. The harbor is protected from the open waters of Long Island Sound by a sandy barrier bar (Cedar Beach), now channeled at the west end permitting the tidal exchange of salt water from the sound (see map). (The barrier bar has apparently existed since the time of first human occupation of the area, although the location of its opening into the sound has changed from time to time.) Tidal exchange from the sound is an important condition for shellfish growth at Mount Sinai Harbor and archaeological evidence has shown the harbor to have been the source of a variety of saltwater shellfish throughout its long, history of human occupation.

In the prehistoric period, the now-dredged harbor was all extraordinarily rich marshland into which emptied at least three freshwater streams as well as numerous rivulets of fresh groundwater run-off. These fresh-water sources provided the marsh with the saline balance necessary for the proliferation of oysters and other shellfish. Now surprisingly, this once-beneficent marsh is today ringed by an almost continuous prehistoric habitation zone in which aboriginal American remains are plentiful, for it would have been difficult for the native Americana who lived at Mount Sinai Harbor from at least 2500 BC to the time of white contact to find a home which was richer in subsistence necessities or better-protected from the elements.

A small, squarish embayment of still-fertile marshland protrudes southwestward off the main body of the harbor, beneath a ring of protective hills ranging from 100 to about 160 feet¹ in height. Within this natural pocket Late Archaic hunter-gatherers are known to have lived an estuarine- and marine-oriented existence at several discrete habitation sites (Gwynne 1979). One of the richest of these sites, designated the Tiger Lily site, is the subject of this report.

The site is located on the western side of the embayment (see map). Well-sheltered from both northerly and westerly winds, and adjacent to productive shellfish beds, it was an ideal prehistoric refuge, perhaps occupied year-round. During excavation, the appearance of a layer of fine glacial gravel under several of the squares pointed to the former existence of a long-vanished fresh-water stream on the northern border of the site, running back to a rising bluff on the west and terminating in the marsh at the harbor's edge to the east. The site is situated on a gently-sloping terrace 15.8 ft. (at datum) above mean high water and about 75 ft. from the present marsh edge. At the time of excavation the dominant floral cover consisted of second-growth oak and locust trees with an understory of the 'nuisance' plants (poison ivy, cat briar and wild-flowers) which we have learned to associate with cultural disruption in the past. Despite these clues to human use of the area, however, there was no direct or indirect evidence that the site had ever been plowed or otherwise put to use in the historic period.

The site, named for the great number of tiger lily flowers blooming in the vicinity, was tested archaeologically in the spring of 1970 by the senior author and Mr. Matt Schreiner, who had learned that an access road (New Crystal Brook Hollow Road) for a planned housing development would be cut through the area. After transplanting the lilies to get at the prehistoric story which had lain buried beneath their root thousands of

years, these field-workers excavated 37 four-foot squares, which included nine features, in three successive seasons of week-end work. Excavation was terminated in November, 1973, when bulldozing for the new access road destroyed a portion of the site.

EXCAVATION

The 35 squares were based on a four-foot grid, which was laid out with reference to a datum point located 31'10" south-southeast of a point on the New Crystal Brook Hollow Road curb line which lies 126'2" west of the intersection of this road with Old Crystal Brook Hollow Road (see map front cover). Several of the squares were only partially dug due to obstructions such as tree roots. The first season's grid was directed along a southeast-to-northwest transect, to avoid the larger trees in the area. The subsequent seasons' squares were placed in relation to a north-south baseline (see Fig. 1).

The technique used was to shovel-strip the overburden of sod, duff, and nuisance vegetation down to the dark topsoil level, and then trowel down in arbitrary three-inch levels through the topsoil and the cultural levels to sterile subsoil (see Fig. 2 for a typical profile). All features were fully exposed and sectioned for profile views. Artifact depths were recorded with reference to the bottom of the topsoil; the distance above or over the subsoil line was also noted. The squares were numbered sequentially in the order of their excavation. The topsoil depth ranged from 4 in. to 12 in., the average depth being about 9 in. in most squares. Substrata containing shell refuse were present in 17 of the 35 excavated squares, shell depth ranging from 1 in. to 10 in. The clean subsoil line fluctuated from minus 9 in. to minus 24 in. beneath the topsoil layer, with all average of about 17 in. in most areas. No plow zone was observed, but the roots of numerous large trees intruded into many of the squares. Fire-cracked stones and quartz debitage were found distributed over about

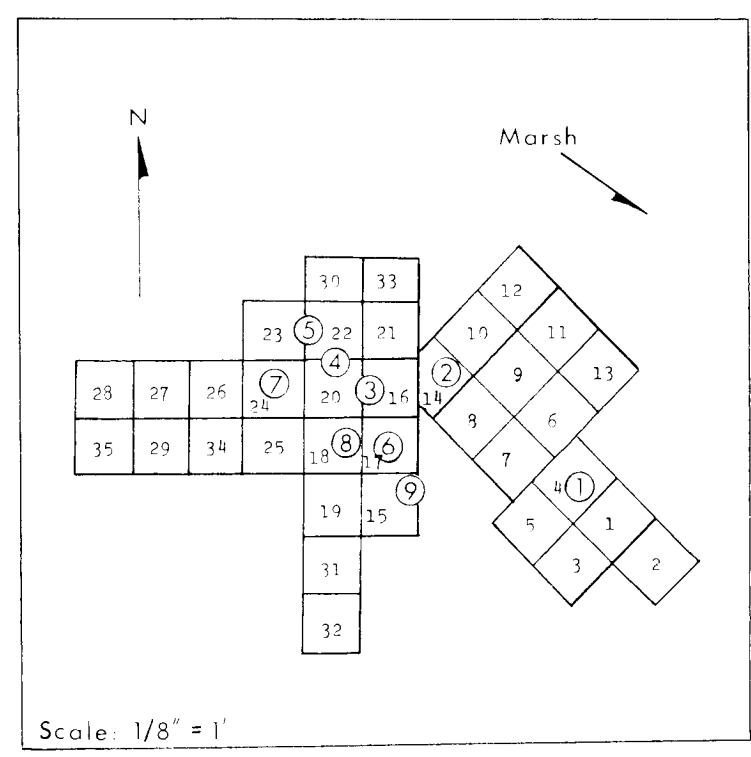


Fig. 1 TIGER LILY SITE, MOUNT SINAI HARBOR, NEW YORK

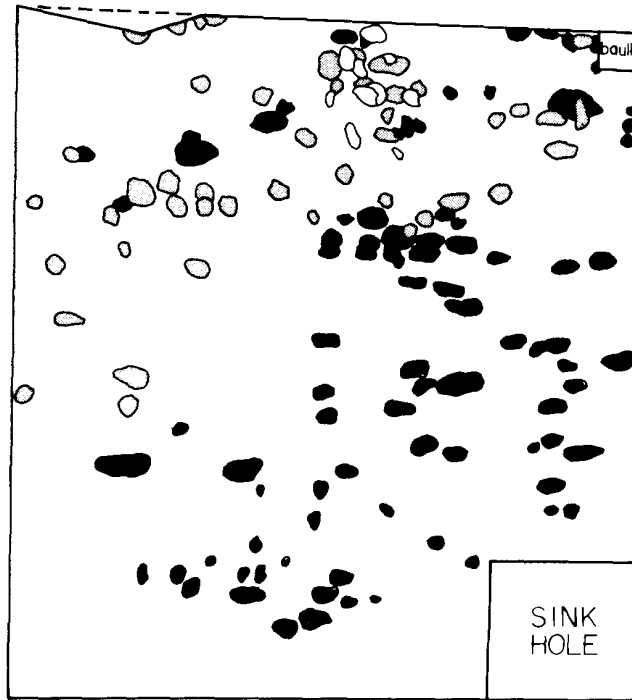


Figure 2: Horizontal Profile of Rock Feature
Scale 1"-1.00'

Legend

Shaded Level I

Dashed Level II

Blank Level III

Stippled Level IV

30% of the excavated area of the site, mainly in the lower zone. Animal bone fragments were present in 22 of the squares, although in nine of those squares only one or two small fragments were discovered.

STRATIGRAPHY

Generally speaking, the site was fairly clearly stratified into four layers or zones. Discounting the overburden, the strata were as follows:

Zone 1. Topsoil layer, made up of a black, sandy humus which varied in depth. Some scattered shell fragments and small quartz chips and flakes were present, along with occasional artifacts denoting only light and sporadic aboriginal occupation. Roughly 10% of the total artifact assemblage was found here, mainly in the lower half of the zone.

Zone 2. This stratum, the midden level, varied in depth as well as in composition, texture, and content. It can be divided into two major sub-strata which occurred separately but at the same depth and, on occasion, overlapped.

Zone 2-A. Midden with areas of heavy shell concentration in black or darkly-stained soil. The shell debris consisted of oyster, scallop, and hard and soft clam with some mussel shell. There was good organic preservation in this zone.

Zone 2-B. This zone is best described as midden without concentrated shell. It was composed mostly of deep grey or brown sandy loam, with some yellow and brown sandy mottling.

Both sub-strata 2-A and 2-B contained fire-cracked stone, quartz chippage, bone fragments, and some charcoal. The heaviest concentration of artifacts came from these layers (44% of the total assemblage).

Zone 3. This zone, underlying the midden area, was two to three inches thick and consisted of a mottled dark brown to light brown or tan sandy mixture. About 2710 of the chipped stone artifacts were found at this level which, we believe, formed the original occupation floor.

Zone 4. This zone comprised the subsoil base, composed of fairly compact light tan to yellow sand and sandy gravel (glacial till). Slightly more than 20% of the artifacts were uncovered in this lower zone, along with some quartz debitage. All nine features intruded into this zone.

FEATURES

Nine features were recognized at the Tiger Lily site. Their locations are indicated in Fig. 1.

Feature 1. Located in the south corner of Sq.4, this was a small pocket (about 10 in. in diameter) containing medium-sized oyster shells. Its top lay 6 in. below topsoil level and the pit extended to a depth of 13 in. A quartz knife, a small broken quartz blade and other quartz tool fragments were found adjacent to the pit in blackened soil, and a small jasper corner-notched point (Pl. 4:B-3) lay nearby, at a depth of 2 in. into the yellow subsoil, but not clearly associated with the feature.

Feature 2. This was an unusual rectangular feature located in Sq. 14 in clean subsoil under 16 in. of dark, sandy loam. It consisted of a cleanly-cut 9 in. deep depression which measured 8 in. by 9 in. at the top. Its side walls tapered gradually to a flat bottom which contained ten small stones, some of which showed signs, of having been exposed to fire. These were covered by a dark soil fill. A narrow-stemmed quartz point was found directly above the feature at minus 15 in.; a broken quartz scraper and a quartz knife lay adjacent to the feature, at the southwest and northwest corners respectively, at depths which approximated the top of the feature. The presence of fire-cracked and blackened stones at the bottom of the feature seemed to contradict the suggestion, provided by the straight sides, regular angles, and unusually precise geometrical shape, that the feature represented a buried container.

Feature 3. Located in Sq. 16, this was a deep, bowl-shaped firepit 18 in. deep, 14 in. in diameter, and extending throughout zones 2 and 3 to about 5 in. deep into clean subsoil. Some fire-cracked stones and quartz chips were present in the dark soil fill, along with several white quartz beach pebbles and a scattering of shell fragments. One stemmed and two side-notched points were found near its periphery, along with three quartz knives, and two scrapers. These specimens all came from depths between minus 13 in. and minus 24 in. below the topsoil layer, with one of the side-notched points occurring 3 in. into the clean subsoil.

Feature 4. Another bowl-shaped firepit was located in the southern portion of Sq. 22. The top of this 19 in. diameter cooking feature lay at minus 17 in. beneath topsoil, and it extended 11 in. into the subsoil. A number of medium-sized stones were clustered in the upper portion of the pit, stacked to a height of about 7 in. The feature's contents were composed of a dark, greasy soil mixture containing some carbon particles (see Fig. 2).

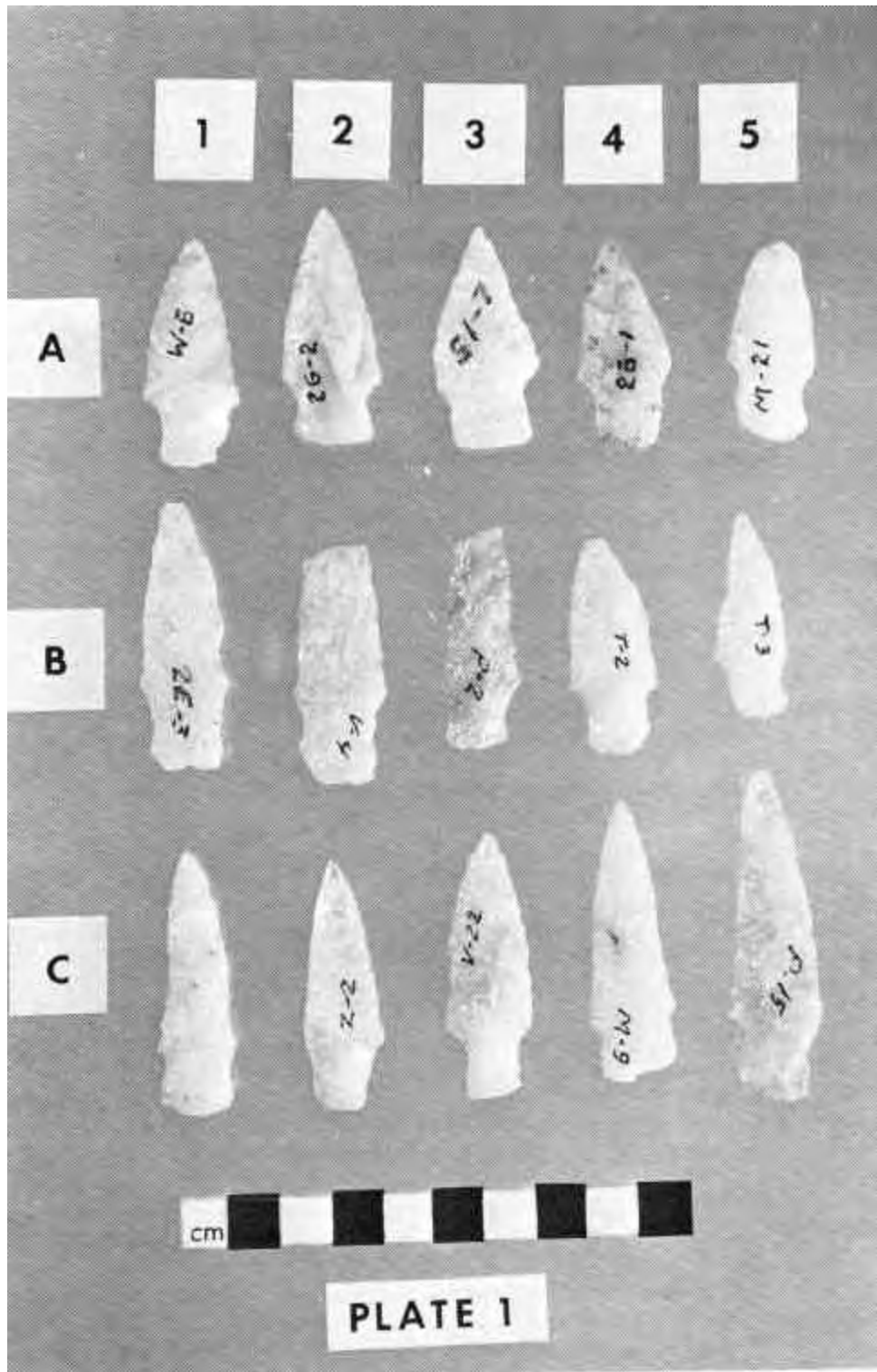
Feature 5. Adjacent Feature 4 in the western portion of Sq.22, and similar to Feature 4 in shape and size, Feature 5 extended in depth to a layer of glacial gravel 29 in. below the topsoil line. A pile of cooking stones was concentrated on top of the pit. A separate stone stockpile lay about 2 ft. north of the feature (see Fig. 2).

Feature 6. This feature, located in Sq. 17, consisted of a fire-cracked stone concentration above the subsoil level at minus 15 in. Bone fragments, along with pockets of oyster, scallop and soft clam shells, were found alongside the stone pile. Two quartz knives were located adjacent to this feature. and numerous other specimens were present nearby at feature level. These included a total of five knives, two side-notched projectile points and one scraper, all of quartz. The great quantity of stone debitage and broken utensils in the area suggest that this was a center of activity.

Feature 7. Another bowl-shaped firepit, 16 in. in diameter, was centered in Sq.24. The pit was depressed into clean subsoil to a depth of 11 in., and consisted of dark, greasy-textured soil which contained fire-cracked stones and several quartz chips, but no shellfish remains. Some carbon particles were also present. A cluster of fire-reddened stones was heaped above the pit at subsoil level. Two piles of cooking-size stones were situated in the northwest and southwest corners of the square alongside the pit.

Feature 8. A concentration of beach cobbles, some of which were fire-cracked, was located in the eastern portion of Sq. 18, beginning at minus 12 in. and extending down into the subsoil to minus 16 in. This area was virtually free of shell debris, but contained considerable quartz chippage along with 14 broken projectile points and bifaces. A red limonite geode ring (Pl. 6: B-3) was discovered in the subsoil adjacent to the feature.

Feature 9. This was a small, round, shellfish refuse pit approximately 20 in. in diameter and 7 in. in depth, located in the northeast corner of Sq. 15 and the southeast corner of the adjacent Sq. 17. The contents consisted of oyster, scallop, and soft clam shells. The pit started about 12 in. below topsoil and extended into the subsoil to minus 19 in. Two quartz blanks were found in the shelly area, and a crude quartz scraper or knife was located on its western edge.



ARTIFACTS

The inventory of identifiable items from the Tiger Lily Site consists of 231 specimens (See Table 1).

The major artifact category is projectile points, with 78 specimens divisible into 11 attribute groups. Table 2 shows the breakdown of each type with depth distribution.

Chipped-stone artifacts comprise 94% of the collection, and are mainly of white quartz or quartzite, the local raw materials (see Plates 1, 2, 3, and 5 for representative examples). The items of exotic raw material are as follows: projectile points: 3 grey chert, 1 red jasper, 2 argillite; drills: 1 yellow jasper; end scrapers: 1 grey chert. The small balance of the assemblage is made up of eight objects of rough or polished stone. Only one bone tool, an awl (Pl. 6:A) was discovered, despite the fact that refuse bone was present in 12 of the excavated squares. In contrast to this low bone-tool yield, the nearby Pipestave Hollow site's roughly contemporary deposits provided its excavators with numerous fragments of flaked and ground bone tools such as daggers and beamers (Gramly 1977; Gramly, pers. comm.).

Projectile points (78). Of the points recovered, 67% were found at depths of between 10 and 19 in. below the top of Zone I which, in most cases, was slightly above or below the subsoil level and therefore referable to the hypothesized living floor. Narrow-bladed, stemmed forms constitute 64% of the projectile point types (see Pl. 1), with the broad-stemmed and side-notched types forming a 15% minority. The group of 10 triangular points (see Pl. 3:C and D) represents approximately 13% of the total. The balance of the projectile points are ovate (1), cored triangular (1), and fishtail (1). One bifurcated-base point was recovered 6 in. into the subsoil (Pl. 2:D-1).

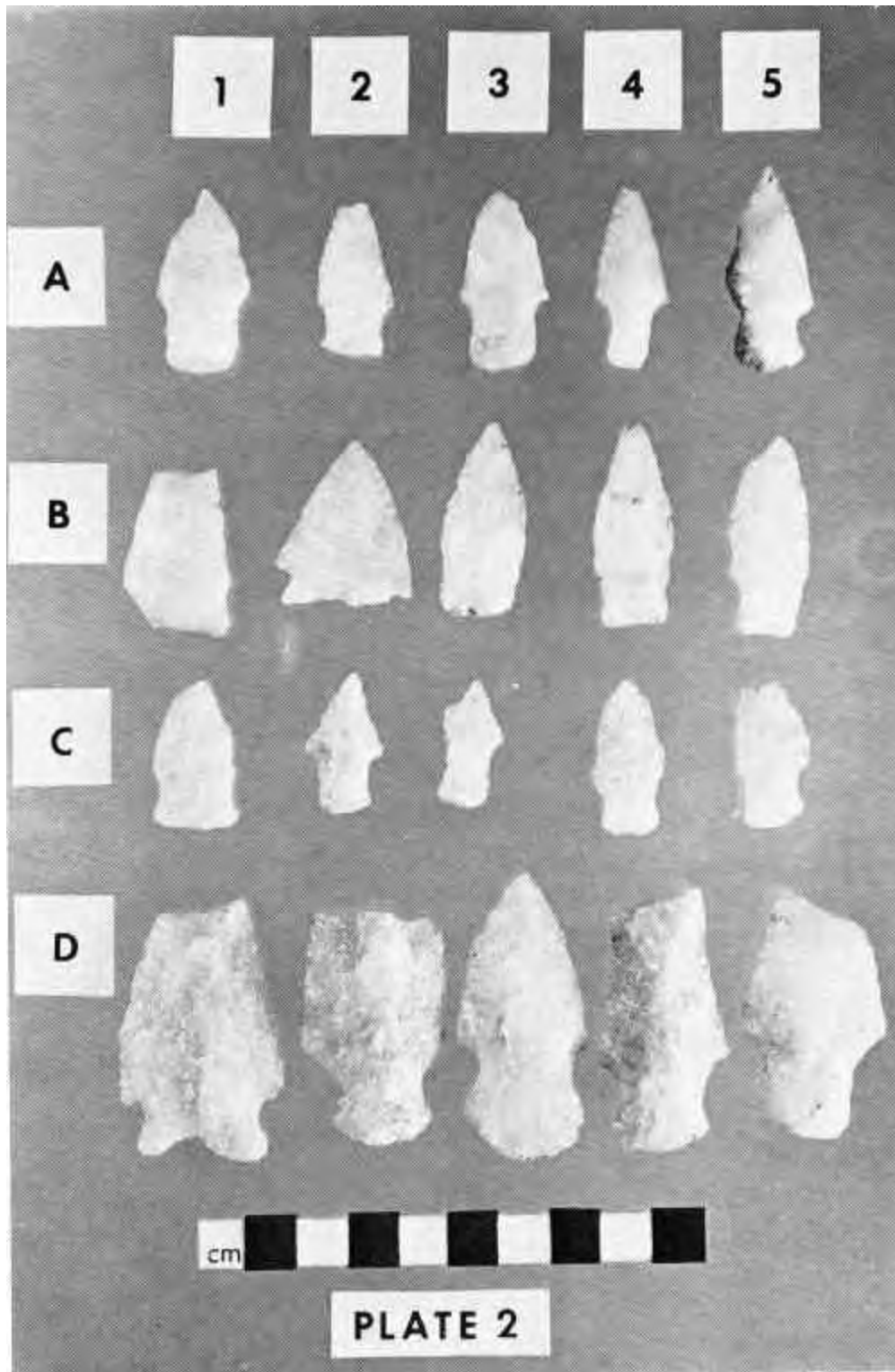
Quartz, because of its characteristic crystalline structure, flakes less precisely than some other lithic raw materials. Because of this, the Tiger Lily narrow stemmed points are extremely difficult to type, but all fall into the Lamoka/Bare Island/Wading River/Squibnocket Stemmed category and are therefore attributable to the Late Archaic Period. One (probable) Brewerton eared triangle (Pl. 2:B-1) and one classic quartz Vosburg (Pl. 2:B-2) suggest an early Late Archaic human presence at Mount Sinai Harbor, although neither was assignable to either a feature or midden deposit; the Vosburg was found a full 18 in. beneath datum.

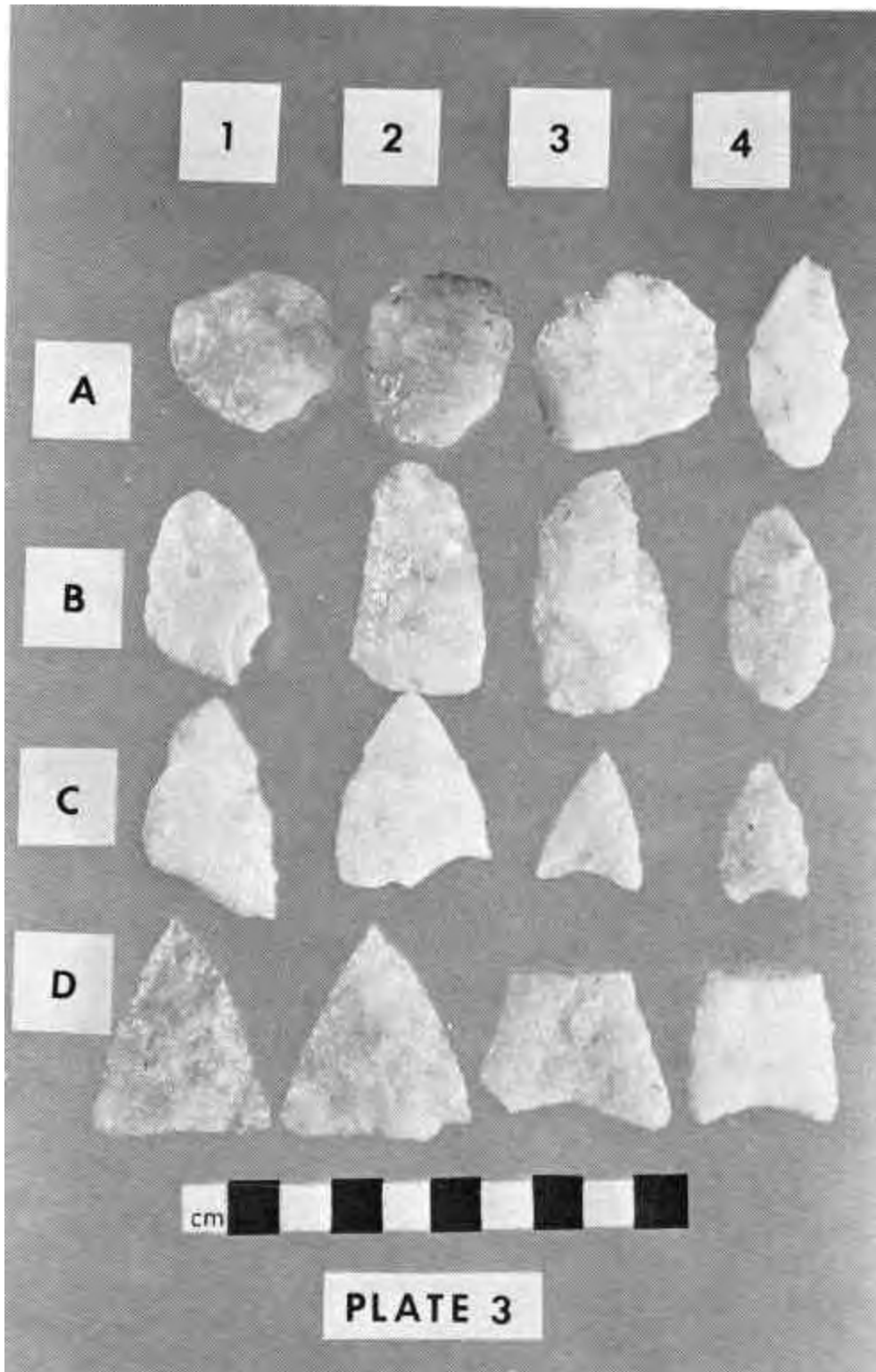
Of the triangular types, only one (Pl. 3:D-3) is definitely a Late Woodland Levanna type; other large triangles may be Beckman triangles, while several small ones (*e.g.* Pl. 3:C-4) may be Squibnocket triangles. Only two are thin enough to be possible Madison or Hunterbrook types (*e.g.* Pl. 3:C-3), and their provenience (a possible Madison in the subsoil and a possible Hunterbrook triangle at the top of the subsoil layer) is

TABLE 1

Inventory of Artifacts from the Tiger Lily Site

| Item | Quantity | Approx. % of Inventory |
|-------------------|----------|---------------------------|
| Projectile points | 78 | 33.77 |
| Knives | 46 | 19.91 |
| Scrapers | 45 | 19.48 |
| Drills | 12 | 5.19 |
| Blanks | 32 | 13.85 |
| Axe | 1 | .43 |
| Hoe (?) | 1 | .43 |
| Chopper | 1 | .43 |
| Hammerstone | 1 | .43 |
| Pebble Smoother | 1 | .43 |
| Adze (fragment) | 1 | .43 |
| Celt or adze | 1 | .43 |
| Geode Ring | 1 | .43 |
| Bone Awl | 1 | .43 |
| Antler tines | 3 | 1.30 |
| Potsherds | 6 | 2.60 |
| Total | 231 | 99.97% |





problematical. Together with the Levanna, they apparently indicate a transitory Late Woodland presence in the area. It should be noted that the distribution of Late Woodland projectile point types at Mount Sinai Harbor is ubiquitous.

Included in Table 2 is the number of projectile points from the Tiger Lily assemblage which retain a portion of the original outer surface of the parent rock (rind) still intact at the base (36%). This phenomenon occurs only on the narrow stemmed, narrow side-notched, broad stemmed, and broad side-notched types, and this restricted distribution may eventually prove significant in an explanation of this practice. We can state with some assurance that the appearance of rind on the Tiger Lily projectile points is not purely accidental, but rather that the rind was purposely left intact, perhaps as a sort of trademark.

On the evidence of the projectile point collection, Tiger Lily appears to be a single-component Late Archaic site with Squibnocket Complex affiliations. The presence of a couple of Laurentian Tradition and Late Woodland projectile point types at the site in no way alters the validity of this assertion, for their numbers are insignificant in relation to the Late Archaic types and their presence can be accounted for by intrusion. No feature contained evidence of other than Late Archaic construction.

Drills (12). The 12 drills in the Tiger Lily assemblage comprise only 6.63%, of the chipped stone artifacts. They vary in type, size, and raw material; nine are of quartz (e.g. Pl. 4:A-3), two of quartzite, and one of jasper (Pl. 1:B-4). Most of the drills were found at depths ranging from 12 to 22 in., and five of them were in the subsoil.

Scrapers (45). These were fairly numerous, as they were found in two-thirds of the squares (see Pl. 3:A-8 for representative examples). They represent 25% of the chipped-stone tool inventory. All were of quartz except for one end-scrapers made of grey chert (Pl. 4:C-4). The type distribution is as follows: end scrapers, 7; side scrapers, 8; thumbnail scrapers, 1. The balance (29) consists of oval or ovate flake scrapers ranging from 1 1/4 in. to 2 in. in diameter. Many of these were found in close association with the stemmed projectile points, and no doubt were a common tool at the time when those points were in use.

Knives (46). These almost equal the scrapers in number, and form over 25% of the chipped stone artifact assemblage. They were found in 25 of the 35 squares, and include 23 specimens found in association with features, five of which were firepits (Feas. 3, 4, 5, 6, and 7). All are ovate in shape except one, which has a weak stem. All are made from quartz with the exception of two (quartzite and chalcedony). They vary in size from 1 1/2 to 3 in. in length, with the majority falling into the 2 to 3 in. range (Pl. 5). The large number of knives which were situated at the same level as, and in close proximity to, the firepits (15) seem to suggest their use as mealtime utensils.

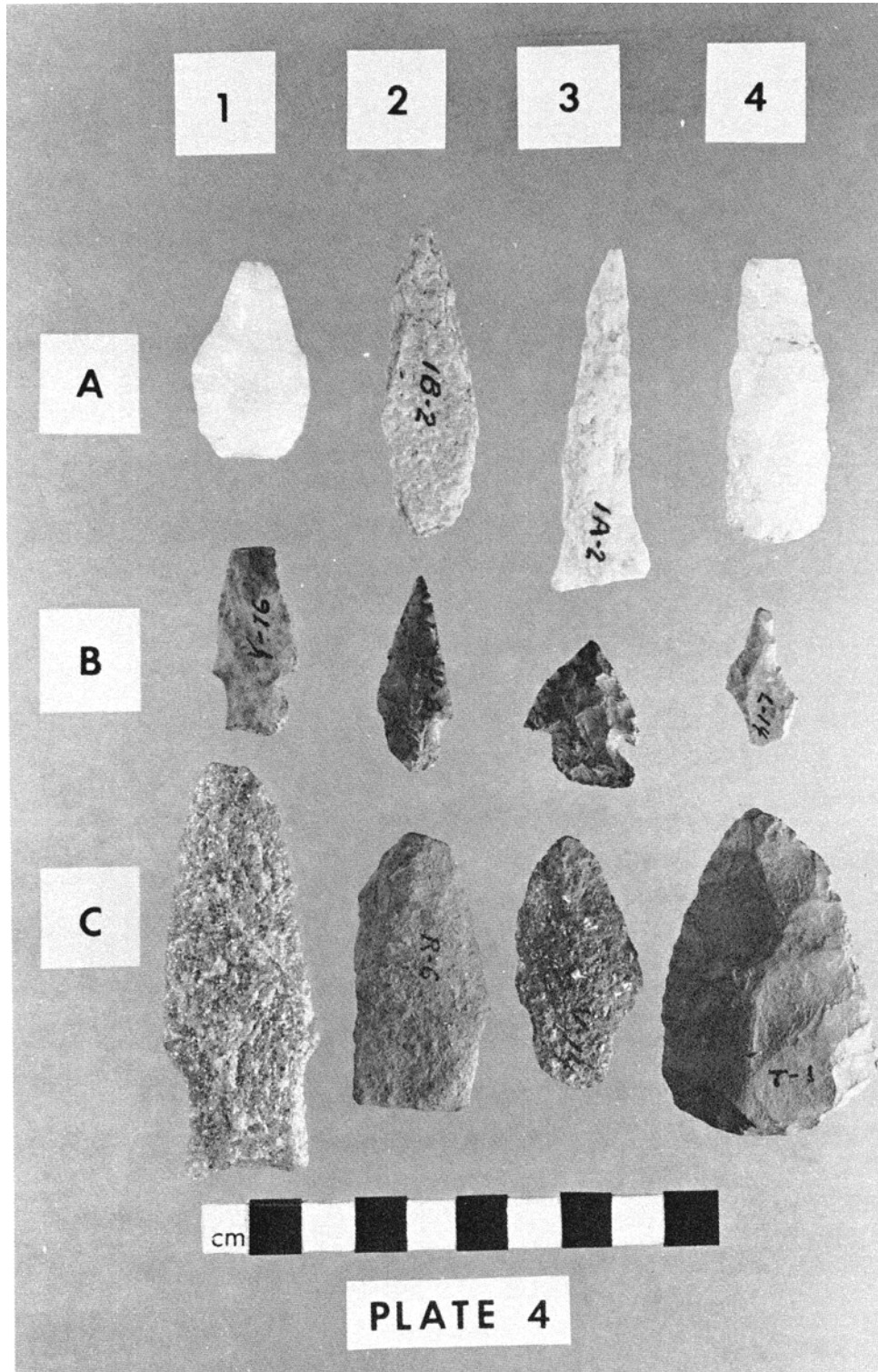
Large or rough stone objects (8). A chipped-stone axe, a hoe-like disc, and a large, crude, broken knife were discovered, all made from the same type of quartzite. A fourth object appears to be a rubbed stone celt or adze and is made of medium-grade diabase stone. The other large stone specimens are a quartzite pebble chopper, about 5 in. in diameter, a broken basal adze fragment with two side notches, a quartzite hammerstone, and an elongated, smooth-faced pebble about 3 in. long.

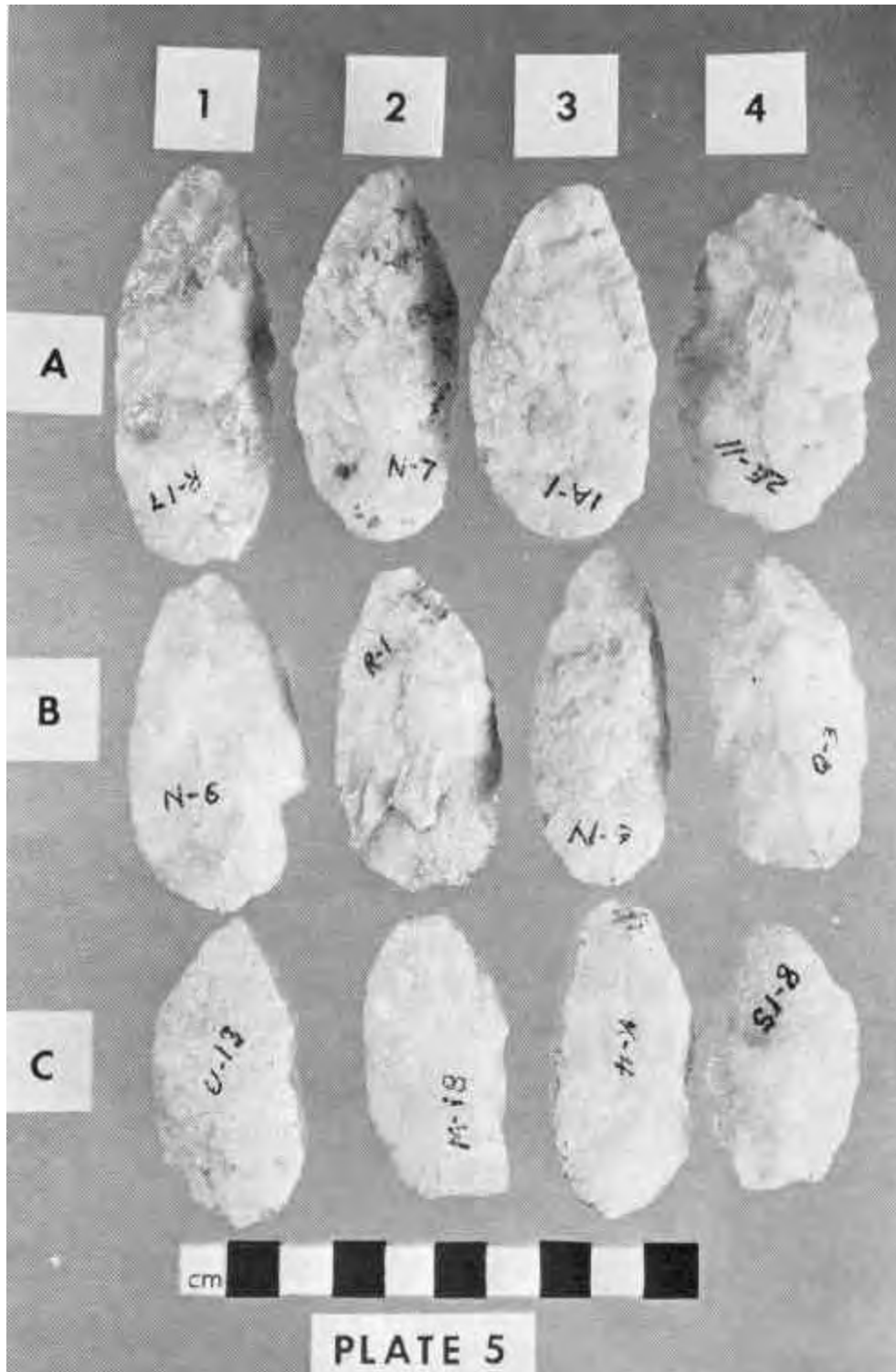
Miscellaneous. One unusual item was the geode ring (Pl. 6:B-3), previously mentioned, which was approximately 1/2 in. thick, with a half-inch inner hole and a 1 1/4 in. outer diameter. One face was rubbed fairly smooth, indicating that it might have been suspended for use as an ornament. A bone splinter awl (Pl. 6:A) and several broken antler tines (e.g. Pl. 6:B-2), along with six small potsherds, form the non-lithic portion of the collection. The sherds were all found in disturbed areas and are considered to be intrusive.

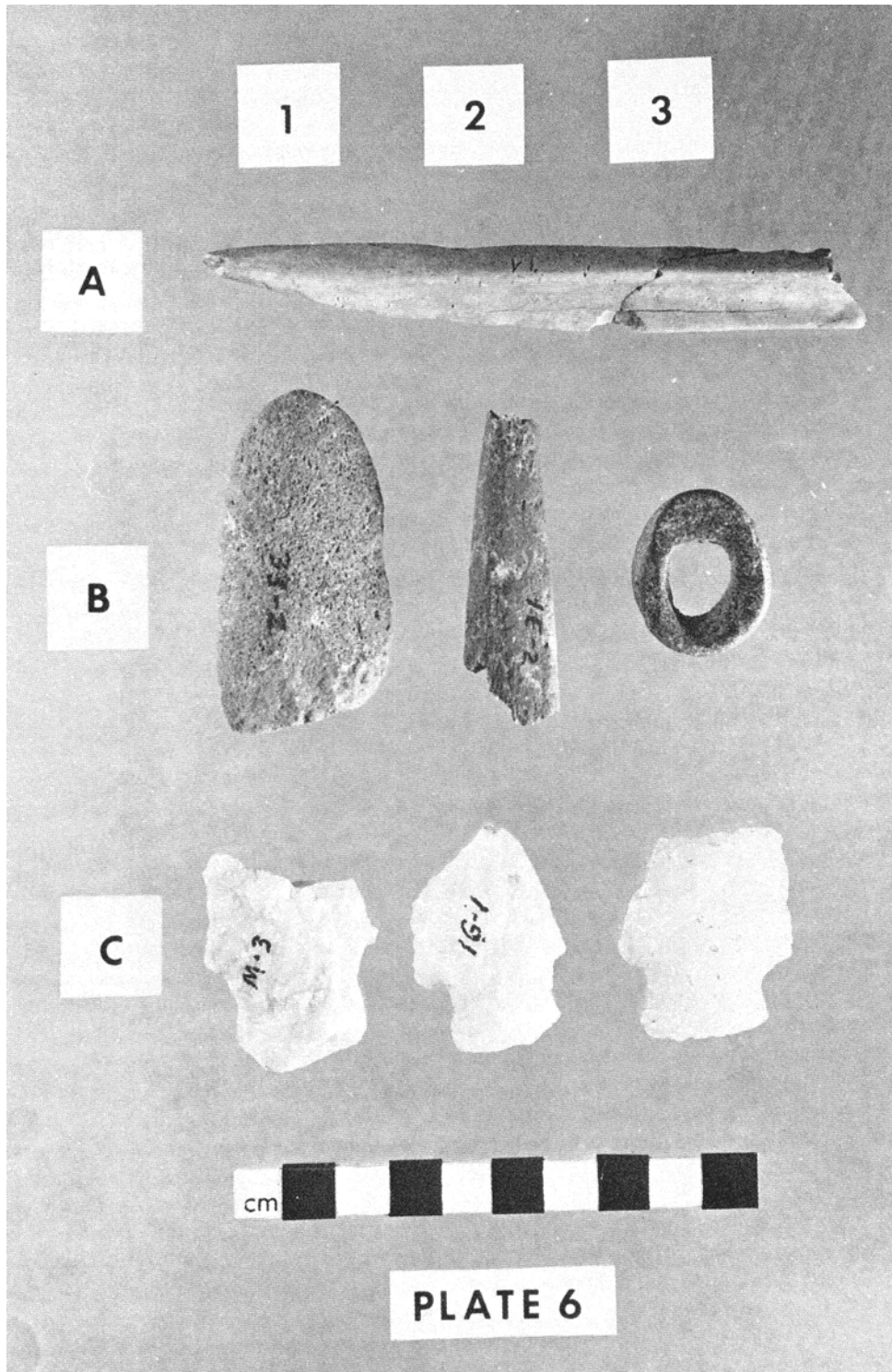
A broken, rubbed sandstone object (Pl. 6:B-1) may be a partial winged bannerstone. There are several more such objects in quartz; all are broken, making definitive identification impossible. Gramly (pers. comm.) has tentatively identified several smoothly-rubbed hematite siltstone objects from the Late Archaic component of the Pipestave Hollow site as partial bannerstones, and this identification is somewhat bolstered by the complete lack of other bannerstones at that site. We may assume, on the basis of analogy with other sites of the coastal Late Archaic with similar assemblages which do contain bannerstones, that the atlatl was in use at the Tiger Lily site, and that the inhabitants of the site simply adopted the most readily-available raw materials, roughly shaped for balance, to make their throwing-stick weights.

| VERTICAL DEPTH IN INCHES | NARROW, STEMMED | NARROW, SIDE-NOTCHED | BROAD, STEMMED | BROAD, SIDE-NOTCHED | BROAD, CORNER-NOTCHED | BROAD, CORNER-NOTCHED BIFURCATED BASE | TRIANGLE, ISOSCELES | TRIANGLE, EQUILATERAL | TRIANGLE, EARED | OVATE | FISHTAIL | TOTALS |
|-----------------------------|-----------------|----------------------|----------------|---------------------|-----------------------|--|---------------------|-----------------------|-----------------|-------|----------|-------------|
| 0-3 | 1 | 1 | | 1 | | | | | | | | 3 |
| 3-6 | 2 | 2 | | | | | | | | 1 | | 5 |
| 6-9 | 1 | 3 | | 1 | | | 3 | | | 1 | | 9 |
| 9-12 | 5 | 6 | 2 | 2 | | | 1 | 1 | 1 | | | 18 |
| 12-15 | 6 | 5 | 1 | 1 | 1 | | 1 | 1 | | | | 16 |
| 15-18 | 10 | 2 | 1 | | | 1 | | 1 | | 2 | 1 | 18 |
| 18-21 | 3 | | | | 1 | | | 1 | | | | 5 |
| 21-24 | | 1 | | | | | 1 | | | | | 2 |
| 24-28 | 2 | | | | | | | | | | | 2 |
| Total | 30 | 20 | 4 | 5 | 2 | 1 | 6 | 4 | 1 | 4 | 1 | 78 |
| % | 38.46 | 25.64 | 5.13 | 6.47 | 2.56 | 1.28 | 7.69 | 5.13 | 1.28 | 5.13 | 1.28 | 100 |
| With Rind % | 19 | 7 | 1 | 1 | | | | | | | | 28 (36%) |

Table 2
Vertical distribution of projectile point types: Tiger Lily site







DISCUSSION

The Late Archaic period remains at the Tiger Lily site presented us with a classic archaeological problem: was the site occupied repeatedly but briefly over a long period of time, perhaps in the same season of the year each time, or continuously for a relatively short time, perhaps for a number of consecutive months? We believe that the evidence points toward the latter conclusion. Although the presence at the site of several diagnostic projectile point types of other than Late Archaic provenience does indicate that aboriginal Americans made the shores of Mount Sinai Harbor their hone throughout a very long temporal sequence, the nine features excavated at the Tiger Lily site all appeared to be of Late Archaic construction, and their associations were Late Archaic as well. The predominance of scallop (*Pecten irradians*) and oyster (*Crassostrea virginica*) and virtual absence of hard clam or quahog (*Venus mercenaria*) in the shellfish refuse features parallels the proportions of the various species of shellfish found at Pipestave Hollow, for which three Late Archaic radiocarbon determinations (all in the range of 1500-2000 BC, uncorrected) have been obtained (Gramly 1977; Gramly n.d.).

The cultural homogeneity of the features and their contents seems to us to suggest construction and deposition during a relatively short time span in the Late Archaic. The presence of substantial cooking features dug deeply into the Subsoil, as well as the existence of refuse (formerly storage?) pits, indicate some degree of residential permanence during the shore time the site was in use. Although parts of the site had been vandalized before excavation began, and its boundaries were never firmly delineated due to the 1973 road construction, it is clear that the overall size of the site (of which a total of about 560 sq. ft. was excavated) was small, again suggesting a single episode of occupation by a band-sized (25 to 35 individuals?) group. The number of cooking features as well as their clustered distribution support this hypothesis and (see Fig. 1) demonstrates that the most intensively-used area of the site was indeed excavated. The relatively small size of the site (compared, for instance, to the 5-acre-plus habitation zone at Pipestave Hollow) also lends support to the suggestion of a single episode of occupation, since sites which have been repeatedly used, on a seasonal basis, tend to be more spread out than Tiger Lily. Postmolds were not recovered at the site, but this absence does not in any way suggest impermanence of residence since, in Long Island's sandy soil, postmolds of Late Archaic date are extremely rare.²

For all of these reasons, we postulate a single, relatively brief but probably multi-seasonal occupation sometime during the Late Archaic period, although clearly not as late as the Terminal Archaic. Charcoal samples taken from features on the site will doubtless help to resolve this matter when we obtain funding for radiocarbon analysis.

We have alluded to the possibility of year-round occupation of the Tiger Lily site. The question of residence patterns and site seasonality among pre-horticulturalists continue to intrigue and perplex fieldworkers on the northeastern coast of North America, with debate centering around the issue of sedentism at coastal sites in particularly beneficent locations. On the one hand, some researchers (e.g. Ceci 1977; 1979-80) believe that all pre-horticultural coastal sites in this area represent warm-weather encampments, and that coastal-dwelling aboriginal Americans retreated to better-protected inland camps during the cold months of the year. On the other hand, Ritchie's conclusions (1965:55) about possible sedentism among Squibnocket Complex hunter/gatherers on Martha's Vineyard, and the more recent research of fieldworkers such as Borque and Spiess at Maine's Turner Farm site (Spiess: pers. comm.). Yesner (1980) at Casco Bay (also on the coast of Maine), and, for Long Island, Gramly (1977) and Gwynne (1979) have suggested that at some northeastern coastal sites, sedentism was indeed practiced in the pre-horticultural period.

Warm-weather occupation of pre-horticultural sites on the temperate northeast coast appears not to be in question, rather, it is multi-seasonal (including winter and early spring) occupation which remains to be demonstrated conclusively. The ameliorating effects upon climate of the bodies of water which surround Long Island, and the ready availability of marine and estuarine resources, make the island's north shore (along with its sister islands, Nantucket, Block Island, and Martha's Vineyard) unique in the northeast in terms of environmental beneficence. Given the apparent scarcity on Long Island of the hypothesized inland winter camps, the island's north shore harbors, protected from the prevailing northwest winter winds by elevations of the Harbor Hill moraine and from the Atlantic Ocean by the body of the island, are a logical place to look for evidence of year-round occupation by hunter-gatherers.³ We believe that the Tiger Lily site is a strong candidate for such use.

Current research on the question of seasonality of pre-horticultural occupation includes the identification of remains of (seasonally-available) migratory or wintering bird and mammal species from archaeological sites;

tooth sectioning (Spiess 1976; Borque et al. 1978); and analysis of growth patterns of soft clam (*mya arenaria*) or other shellfish (Hancock 1980), all for indications of probable season of capture. In addition, Brennan (1980) argues that the practice; of splitting and chopping deer limb bones for the purpose of collagen extraction indicates possible late winter or early spring occupation of sites at which such bone refuse is present.

It is hoped that studies of these kinds will soon resolve the important question of seasonality of occupation of well-protected coastal sites in the pre-horticultural period. Arrangements are underway for the appropriate faunal analyses of the shell and bone refuse from the Tiger Lily site, and an amplified version of this report will be made available when these studies have been completed⁴. Meanwhile, several observations on the question of the season(s) of occupation of the Tiger Lily site can be made on the basis of the data we now have in hand. First, the theoretical possibility of sedentism is easily demonstrated for the Tiger Lily site. Yesner (1980), who has presented a plausible model of coastal settlement and subsistence, notes, that "maritime collecting is best undertaken from a single location" (1980:730)-an optimal location in which a number of microenvironments are available within a small radius-and that "one would hypothesize. . . that coastal settlements in areas of highest diversity would be continuously occupied villages" (Ibid.:735). "Tiger Lily is located in an area of high resource diversity, in which all subsistence necessities were available, in several discreet but contiguous microenvironments, within 10 km² of the site throughout the year (Gwynne 1979).

The faunal remains from the site show that major food sources for the occupants included both shellfish, of several different species, and deer. Both of these kinds of foods were available year round. Birds, as yet unidentified as to species, were also taken; if the bird bone assemblage turns out, as seems likely, to duplicate that from the (roughly contemporary) Pipestave Hollow site, in which migratory species available only at certain times of the year were identified (Gramly: pers. comm.), then birds can be added to the list of foods available all year round. Thus the fact that sources of fresh food existed in all seasons of the year is not in doubt; what remains to be demonstrated is that (1) subsistence necessities were available in sufficient quantity for year-round residence, and (2) the hunter/gatherers of the Tiger Lily site took advantage of this to remain stationary throughout the year.

Our second observation concerning the possibility of year-round residence at the Tiger Lily site rests on a persuasive thesis recently put forth by Brennan (1980, 1981: that the chopping up into small sections of split limb bones of white-tailed deer (*Odocoileus virginianus*) at some northeastern aboriginal sites is evidence of bone-boiling for the extraction of (almost pure-protein) collagen. The long bones of deer, saved for periods of food-resource scarcity, may have served as "a very efficient. . . canned preserve" (1981:13), which presumably could be used in times of need.

The anthropological literature is practically devoid of references to the practice and techniques of bone-boiling among American Indians (see Leechman 1951, Vehik 1977)⁵. Both Leechman and Vehik are primarily interested in the technique of bone chopping and boiling for the production of "bone grease", a high-calorie product of the fat contained in marrow which, skimmed from the top of the water in which marrow (primarily limb) bones are simmering, can be kept for up to three years (Leechman 1951:355). But it is clear, following Brennan (1981), that, after marrow removal, the collagen contained in the interstices of bone apatite can be extracted to provide an extremely nutritious, high-protein soup stock. Samples of bone from shell midden sites located along the lower Hudson estuary were discovered by Brennan to have been split and chopped into small fragments and to have been 80% collagen-depleted (1981:12), which he interprets as clear evidence for boiling for the purpose of collagen extraction.

The animal bones from the Tiger Lily site have similar features. The collection numbers approximately 210 fragments of bone, and their weight totals 654.6 gms (22.91 oz.), for an average weight per fragment of only a little over one-tenth of an ounce (.11 oz.). Clearly, these bones have been broken into very small pieces⁶. Deer bones represent the largest proportion of bone from any species (80%), and a large majority of the deer-bone fragments are those of the long (limb) bones of deer; we noted a virtual absence of skull, pelvis, and scapula fragments. Of this collection of small fragments, the largest piece in the entire assemblage measures only 9 cm (3.51 in.) in length. Every piece of deer limb bone in the collection has been purposefully and systematically broken, both longitudinally and horizontally.

For what purpose was this deliberate splitting and chopping-up of selected deer bones done? It seems reasonable to assume, following Brennan (1980; 1981), that these bone fragments were boiled for collagen extraction. The bones may have been split, and the marrow scraped out, at the time of butchery; the fact that the bones are split longitudinally does not suggest collagen extraction. But, as Brennan points out, "it would be simple to lay up a stock of (either split or whole) bone for later use" (1981:13)--and the fact that the split Tiger Lily limb bones have been further reduced in size, into small sections suitable for boiling by the hot-stone

method in skin bags, does seem to us to indicate that these bones were boiled for their collagen content.

At resource-rich Mount Sinai Harbor, there would have been little point in going to the extra effort required to chop up split, marrow-free bones into small pieces in the warm months of the year. In summer and fall, shellfish were waiting to be taken with no more effort than wading into the pleasantly warm water, and vegetable foods of many varieties, from early spring skunk cabbage to fall's hickory nuts, were also available (Gwynne 1979). In the wintertime, on the other hand, while shellfish would still be available, capturing them in icy water would be considerably less attractive, and vegetable foods (other than the stomach contents of deer or other mammals) would have been non-existent except for stored, roasted nuts. It seems reasonable to hypothesize that the split long bones of deer were saved and chopped for use as a winter food source, when other kinds of foods were in less plentiful supply. We know that Late Archaic inhabitants of Mount Sinai Harbor had dogs (Gramly 1977), so we must assume that the deer bones were buried for later use to prevent their being taken from the midden by dogs.

The caching of bone under non-refrigerated conditions does not seem to affect its ability to produce collagen. Although the marrow will begin to decompose soon after an animal is killed--Leechman (1951:375) tells us that Plains Indians made bone grease within a day after butchery lest the resulting product taste too "strong" --collagen "is resistant to decay. . . and may survive for thousands of years" (Chaplin 1971:13).

A final observation on the question of seasonality of occupation at Tiger Lily concerns the placement of the site relative to the harbor's shores. We have already mentioned that a ring of hills 100 ft. and more in height protects the southwest embayment, where the site is located, from the prevailing winter weather pattern (see map). We have also noted that a freshwater stream appears to have coursed near the site at some time in the past. The site is now located about 75 ft. from the open water of the harbor, but in the Late Archaic period it would have lain somewhat farther away from the water, since sea level has risen since that time; how much farther away is a function of the steepness with which the harbor bottom slopes; since this slope is very gradual. It is probably accurate to say that the Tiger Lily site lay 100 ft. or more from the edge of the marsh, and may well have been separated from it by forest which would have afforded some protection from on-shore winds. This particular location within a benign and resource-rich area - under a ring of hills, 100 ft. or more from open water, protected by encircling forest, within easy distance of shellfish beds and adjacent to a fresh water source--seems to us to be optimally suited for year-round residence.

A number of other analyses have yet to be made before our hypotheses about the temporal and cultural period, function, seasonality, and intensity of occupation of the Tiger Lily site become conclusions. After the speciation of the bone assemblage is completed, for instance, a minimum number of individuals of each species can be calculated and the approximate net weight of meat represented by these bones can be estimated. If the site's meat and shellfish yields can be broken down into their nutritional constituents, we may be able to estimate population density for the site, in a very general way, from an estimate of the numbers of calories and other dietary necessities that the remains represent. A shellfish seasonality study remains to be accomplished, and radiocarbon determinations have yet to be obtained. We would also like to submit bone samples for a collagen-content analysis, although since all the bones are fragmented and hence probably boiled, such an analysis would have to be done without a control sample (that is, a sample of bone which had not been boiled). For the moment, however, we believe that the Tiger Lily site represents a Late Archaic encampment by a small band of hunter-gatherers who found life at Mount Sinai Harbor comfortable enough to enable them to remain at the site for a year or more.

(ADDENDUM)

Since this essay was submitted for publication, we have learned from the faunal analyst, Dr. Spiess, that (on the basis of the presence in the faunal collection of a deer parietal with antler fused and cortex hard) fall/winter deer-hunting definitely did take place at the Tiger Lily site.

NOTES

- (1) In 1970, when excavation of the Tiger Lily Site was begun, the use of the metric system in archaeology was less well-established than it is today. All measurements were recorded in the U.S. Standard system, and we have elected to retain these measurements rather than convert them to their metric equivalents.

- (2) For Mount Sinai Harbor, soil stains suggestive of postmolds were found at the Hopkins Landing locus of the Pipestave Hollow site. but their location in storm-washed sand and gravel near the edge of the harbor made sure definition impossible. The junior author recovered small, closely-spaced postmolds, as from a flimsy shelter, at the Farm Road locus of the Crystal Brook Park site in a Late Archaic context. It appears that -whatever the season or duration of occupation- large, sturdy structures were not erected at Mount Sinai Harbor until well into the Woodland period (Gramly and Gwynne 1979).
- (3) Ritchie long ago proposed winter-only occupation for the (predominantly Late Archaic) Wading River site, located (like the Tiger Lily Site) near a fertile salt marsh on Long Island's north shore.
- (4) The bone, refuse from the Tiger Lily site is currently being analyzed by Dr. Arthur Spiess of the Maine State Historic Preservation Commission (see Spiess 1976).
- (5) We are indebted to Louis A. Brennan for bringing these references to our attention.
- (6) This bone refuse was preserved because of its association with shell fragments and does not necessarily represent the total amount of bone refuse originally deposited at the site.

REFERENCES

- Borque, Bruce J., Kenneth Morris, and Arthur Spiess
 1978 "Determining the Season of Death of Mammal Teeth from Archaeological sites: A New Sectioning Technique." *Science* 199:530-531.
- Brennan, Louis A.
 1980 "The Use of Bones for Food on Shell-midden Sites in the Lower Hudson." (Unpublished) paper presented at the 47th Annual Meeting, E.S.A.F., Albany NY, Oct. 31-Nov. 2, 1980.
 1981 "Inferences on Lifeway Function of Shell Midden Sites Along the Lower Hudson." *Archaeology of Eastern North America*. No. 9:12-52. Washington, Conn.
- Ceci, Lynn
 1977 *The Effect of European Contact and Trade on the Settlement Pattern of Indians in Coastal New York, 1524-1665: The Archaeological and Documentary Evidence*. (Unpublished) Ph.D. Dissertation. C.U.N.Y. Ann Arbor: University Microfilms.
 1979-80 "Maize Cultivation in Coastal New York: The Archaeological, Agronomical and Documentary Evidence." *North American Archaeologist* 1(1):45-74.
- Chaplin, Raymond K.
 1971 *The Study of Animal Bones from Archaeological Sites*. London and New York: Seminar Press.
 1977 "Archaeological Investigations at Pipestave Hollow, Mt. Sinai Harbor, Long Island: A Preliminary Report." *Anthropology* 1(1):20-32.
 n. d. "Pipestave Hollow: A Multi-Component Prehistoric Site on Long Island Sound." Unpubl. ms.
- Gramly, R. M. and Gretchen Gwynne
 1979 "Two Late Woodland Sites on Long Island Sound." *Bull. of the Mass. Archaeo. Soc.* 40(1):5-19.
- Gwynne, Gretchen A.
 1979 "Prehistoric Archaeology at Mount Sinai Harbor, Suffolk County, New York." *Bull. and Jour. of the NYS Archaeo. Assn.* 14:25.
- Hancock, Mary E.
 1980 "The Use of Shellfish Remains in the Determination of Site Seasonality: An Example from Coastal Maine." (Unpubl.) paper presented at the 17th Mtg. of the E.S.A.F., Albany, NY, Oct. 31-Nov. 2, 1980.
- Leechman, Douglas
 1951 "Bone Grease." *Am. Antiq.* XVI(4):355-6
- Ritchie, William A.
 1959 *The Stony Brook Site and its Relation to Archaic and Transitional Cultures on Long Island, Albany: New York State Museum and Science Service*. Bulletin 372.
 1969 *The Archaeology of Martha's Vineyard: A Framework for the Prehistory of Southern New England and a Study in Coastal Ecology and Adaptation*. National History Press, Garden City.
- Spiess, Arthur
 1976 "Determining the Season of Death of Archaeological Fauna by Analysis of Teeth." *Arctic* 29(1):53-55.
- Vehik, Susan C.
 1977 "Bone Fragments and Bone Grease Manufacturing: A Review of their Archaeological Use and Potential." *Plains Anthropologist* 22(77):169-182.
- Yesner, David R.
 1980 "Maritime Hunter-Gatherers: Ecology and Prehistory." *Current Anthropology* 21(6):727-50.

THE ARCHAEOLOGY OF WALTER'S SPIT*Donna Ottusch**Lower Hudson Chapter***INTRODUCTION**

The Walter's Spit site (NCM #235) was discovered during a systematic survey of a Nassau County Preserve in July of 1980. According to the New York State Coordinate System, Long Island Zone, the coordinates are North 2491, 910 and East 2099, 380. Excavation occurred under the direction of the author and associated staff from inception to September of the same year. The site was located during a subsurface testing of a small (200' N-S axis and 250' E-W) sand spit situated just 670 ft. east of the Long Island Sound and West Pond Inlet (Fig. 1) in Glen Cove. This knobbed-shaped protrusion juts into West Pond inlet and is surrounded by marsh on the north, east and south sides. The extreme west offers a single paved lane and the remainder of the Preserve. Elevation of the spit is approximately 6 ft. above mean sea level on the eastern extreme. Towards the western approach, the elevation rises slightly to 10 ft. There are several small fresh water creeks to the west including a large brook system (Flag Brook) which is approximately 2/3 of a mile long. The spit is forested, with a medium undergrowth of a green briar (*Similax rotundifolia*), poison ivy (*Rhus radicans*), arrowwood (*Viburnum recognitum*), blackberry (*Rosaceae rubus*) and wild lily-of-the-valley (*Maianthemum canadense*). The dominant tree species is the ponderosa pine (*Pinus ponderosa*) but red oak (*Quercus rubra*), black cherry (*Prunus serotina*), Norway maple (*Acer platanoides*), red cedar (*Thuja plicata*) and the Tree of Heaven (*Ailanthus altissima*) are also represented. The latter vegetation appears younger, a suggestion of selective clearing in the last hundred years. The area is active with small mammals such as raccoon and birds. This offshore deposit enjoys a considerable cooling breeze from the north-east or Long Island Sound.

GEOLOGY

According to Herbert Mills (1981), Nassau County Geologist, the study area was once part of a sandy shoreline beach deposit. The contour and aerial photographs, in addition to the soil types and general stratigraphy, are all suggestive of an earlier spit or bar. This type of geological feature is a sand embankment created by an excess of sediments deposited during the development of a shoreline. The soils usually comprise both fine wind blown and water deposited sand. Walter's Spit was probably created when West Pond was an open shallow lagoon ca. 500 B.C.-1000 A.D. As sedimentation accumulated, resulting in poor drainage, this shallow bay developed into a tidal marsh (currently West Pond), wet during low tide with a vegetation of salt water grasses.

HISTORY

In 1668, a 1,000 acre tract which included the study area was sold by Matinecock chiefs to Robert Williams, one of the Island's first settlers. The sale price was a barrel of rum and two dozen knives (Coles and Van Santvoord 1967:14). During 1670-1837, the property was owned by several different individuals usually as part of a larger estate or farm. According to the historical records a permanent dwelling formerly owned by the Winthrop family of Dosoris Farm was built only 1200 ft. to the east. The estate was sold 73 years later to the affluent Pratt family of Standard Oil. This was probably a period of selective landscaping and gardening for the study area. In 1975 it was purchased by Nassau County as a passive wildlife station.

SURVEY

Subsurface testing of the study area revealed relatively recent disturbances and modifications, consequently, the majority of the historical and prehistoric materials were recovered in direct association. A total of

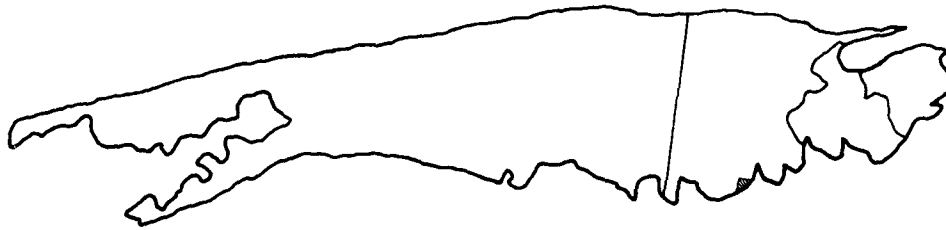


Figure I: Contour Map relating excavations and surrounding area. Above insert is a general map of Long Island showing site area.

33 test pits and an equal number of probe holes were placed at varying intervals, spanning the entire length of the spit. The area surveyed was approximately 110 ft. on both the north-south and east-west axis. All test and probe holes were placed at varying intervals, usually 15 to 25 ft. apart. Artifacts represented a mixture of periods and are included in the following artifactual analysis.

EXCAVATION

The excavation was undertaken not only to explore the natures of the prehistoric and historical sites but also in the hope of locating a pristine occupation. In addition, data concerning settlement patterns and utilization of the surrounding ecological community was a priority. A total of 10 five foot random squares were excavated, covering 105 ft. on both the east-west and north-south axis. These units were placed (Fig. 1) as follows: five in the center, one to the north and one at the eastern extreme. These all reflected a great deal of historical modification. The three southern squares located on the periphery of West Pond all contained a pristine prehistoric site.

STRATIGRAPHY

Layer I was a forest litter (upper tenth) and a fine grey sandy loam which averaged .55 ft. in thickness. The extreme southern square naturally contained a higher organic content due to its proximity to the marsh or West Pond. "The artifactual inventory for all squares in this stratum consisted of an assortment of both historical and prehistoric remains including nails, shell, glass, clinkers, brick, flakes, firecracked rocks and ceramics. The second stratum was a light brown sandy loam averaging .68 ft. in thickness. This also increased in organic content and thickness in the southern squares. Plowmarks were apparent about .92 ft. below the surface. The layer also contained a mixture of historical and prehistoric artifacts; clay pipestems, hammerstones, sherds, projectile points, bifaces, and ceramics. Prior to historical intrusion this was apparently the main occupational stratum, as indicated by the relative abundance of cultural remains. A pH determination from the southern must excavation assayed 5.5, which may explain the lack of bone and other perishable goods. Layer III was a light brown sandy loam with mottling in the upper tenth. In the seven middle to northern squares this stratum averaged 1.11 ft. and was the floor of the excavation. The extreme southern squares averaged considerably less in thickness, .36 ft. and began to increase in organic and clay content. There were also numerous mineral deposits including examples of iron oxide probably produced by a downward movement of surface water. The cultural inventory once again included both historical and prehistoric materials including flakes, clinkers, coal, sherds and brick. The fourth layer was exclusive to the three southern squares W5S75, W5S70, E0S80 and averaged in thickness .54 ft. In the former units this layer is only .1 to .2 ft. thick. Towards the southern approach this stratum increases in thickness to at least .1 ft. This may be a remnant of an old marsh deposit as it encroached upon the spit. A pH determination from E0S80 yielded 5.4. The inventory comprised flakes, quartz chunks, firecracked rocks, bifaces, brick and glass (exclusive to the northern most marsh square). The aboriginal activity level began approximately .3 ft. below from the introduction of this stratum. Layer V was pristine and averaged 1.24 ft. in thickness. Soil composition comprised fine beach or dune sand, with occasional mottling. A pH determination was 4.0. This layer contained the beginning of a large multi-level rock platform. Artifactual materials recovered were not only firecracked rock but also flakes and amorphous but purposively chipped quartz nodules. Layer VI was exclusive to the southern must square E0580 and ranged from 3.55 ft. to 4.75 ft. below surface. The total thickness was 1.20 ft. A sink hole in the south-east sector continued down to 5.38 ft. The soil was a fine beach or dune sand. A pH determination revealed a very acidic soil of 3.8 which may account for the lack of organic prehistoric remains. This layer comprised the majority of a large rock platform and associated cultural materials.

Two hand augered cores were taken from both a middle square and E0580. The former achieved a depth of 7.52 ft. and the southern sample 8.65 ft. Both yielded the line wet beach sand of layer VI.

HISTORICAL MATERIALS

The historical materials considered are the result of both the survey and excavation. According to the excavational data, the remains were randomly scattered and in association with the aboriginal artifacts. It can

| | I | II | III | IV | V | VI | Survey | Total | Percent |
|------------------|-------|--------|-------|--------|-------|-------|--------|-------|---------|
| Utilized Flakes | 1 | | | | | 1 | | 2 | 0.47 |
| Flakes | 41 | 220 | 37 | 49 | 39 | | 8 | 394 | 92.92 |
| Points | | 3 | | | | | 1 | 4 | 0.94 |
| Amorphous Stone | | 3 | 2 | 9 | 3 | | | 17 | 4.00 |
| Reworked Point | | | | | 1 | | | 1 | 0.24 |
| Chipped Unifaces | | | | 1 | | | 1 | 2 | 0.47 |
| Preforms | | 2 | | | | | 2 | 2 | 0.47 |
| Hammerstones | | 2 | | | | | | 2 | 0.47 |
| Total | 42 | 230 | 39 | 61 | 42 | 1 | 10 | 424 | |
| Percent | 9.91% | 54.25% | 9.20% | 14.38% | 9.91% | 0.24% | 2.36% | | |

Table I: Lithic Distribution of Walter's Spit

be safely assumed, based on oil distribution, type of artifacts and the small, fragmented condition of the material that this was a dumping zone, probably utilized repeatedly and subsequently plowed both during the 18th and 19th centuries. It is plausible that this small area could have been either farmed or was a plow turn-around. The soil type at the study area is sandy which could have supported a root crop such as potatoes or asparagus.

The vertical distribution of cultural materials is as follows: Layer I yielded 54 (9.6:3%), II 323 (57.58%), III 43 (7.66%), and IV 26 (4.63%). As noted, the majority of materials were located in layer II; this indeed suggests that the aboriginal occupation probably did not experience substantial soil deposition after occupation. The squares yielded a range of 30 to 82 artifacts as a unit. The historical artifacts recovered from the southern marsh excavation comprised glass, brick, creamware and unidentified china wares, a total of 8 fragments.

DESCRIPTION

Glass: This comprised 30.84% (173 pieces) of the entire artifactual inventory. All remains were fragmented bottle glass of varying colors. A few specimens were melted. Four complete bottles were located; a pharmacist bottle of G. W. Clingen (probably 18th century), a chemical company vial of Glenbrook, Conn., a Waterman's ink jar and a Gulden's mustard container. Glass was the only artifact found in all excavated units.

Brick: This category comprised 16% (90 fragments) of the total historical inventory. These were generally small eroded fragments with no identifying marks.

Buckle: A single (0.18%) twisted rectangular buckle (17-18th century) was recovered.

Pipestems and Bowls: This section comprised 3.39% (19 pieces) of the historical assemblage. These were 17-18th century types.

Nails: The sample comprised 12.83 (72 fragments) of the inventory. All remains were badly eroded and could have been manufactured and deposited from the 18th century to present. A single rusted key fragment was also recovered.

Slipware: A total of 20 (3.57%) slipware fragments were located in the upper three layers. Twelve (2.14%) of these are considered combed slipware exhibiting dark brown strips on a glazed yellow slip. The remainder are black and red bodies with no ornamentation. These have a long period of usage, spanning the 18th and 19th centuries. The combed slipware was not manufactured much later than 1750-75.

Redware: All of the (9 pieces, 1.60%) redware was too fragmented for further identification. This type of ware also spanned the 18th and 19th centuries.

Pearlware: A total of 13 (2.32%) fragments were recovered from layers II, III, and IV. This type of ceramic was manufactured circa 1780-1820 but used continuously for several decades.

Creamware: This 18th century cream colored earthenware was represented in relative abundance. Comprising 44 pieces or 7.84% of the total inventory. This was a common ware also with a long period of usage throughout the 18th and early 19th centuries.

Porcelain: This type of ceramic was not represented in the historical inventories until the second quarter of the 18th century. The Spit yielded 4 (0.17%) small sherds, one of which is export Chinese ware.

Stoneware: A total of 5 (0.89%) stoneware remains were recovered from the study area. Three (0.53%) sherds were apparently of the American made "blue and gray" ware common throughout the 18th and 19th centuries. This ware was employed as harvest bottles, cream pans and storage crocks. During the 19th century it was found in most homesteads, kitchens, dairies and taverns. A single Rhenish saltglaze stoneware fragment of probable 18th century origin was recovered from layer II. A second Rhenish ware sherd elaborately incised with geometric decorations was also recovered from the same stratum. This probably has a terminus ante quem of 1750, based on the shape which indicates an ovoid or bulbous vessel. These were probably no longer manufactured after 1750 (Richard Ryan, 1980).

Unidentified White Ware: This category comprised 56 (9.99%) fragments of an unidentified white glazed earthenware, generally small, with no identifying marks.

Unidentified China Ware: Small fragmented sherds (28, 4.28%) of various china types were interdispersed throughout the study area. Identification is speculative at best due to the size and exfoliated nature of the remains.

Exfoliated: A total of 24 (4.28%) sherds with an exfoliated exterior were located in layers II, III and IV. These were too badly eroded for identification.

Flower Pot Remains: Three (0.53%) pieces were excavated from layer III. Apparently flower pot remains are one of those "man made objects around us that have remained virtually unaltered for centuries. Prominent among them is the common red earthenware flower pot" (Noel Hume, 1976: 223).

Also recovered from the study area were numerous randomly scattered fragments of clinkers and coal.

Faunal: A total of two bone fragments were recovered: a small unidentified remnant and the femur of cottontail rabbit (*Sylvilagus floridanus mallurus*) from layer II. These are probably of historical origin.

Shell: The shell remains at the spit comprised 439 fragments. Their depositional history, as suggested by the scarcity, appearance and spatial distribution is the same as the bone remains. Layer I contained the majority of shell with 205 (53.39%) pieces, while layer II yielded 161 (41.92%) and III 14 (3.65%). The fourth stratum contained only four (1.04%) fragments. The predominant shell types include 188 fragments (42.82%) of the soft clam (*Mya arenaria*) and 169 (38.5%) quahog (*Mercenaria mercenaria*) fragments. Also represented were 48 pieces (10.93%) of blue mussel (*Mytilus edulis*), 21 (4.78%) of oyster (*Crassostrea virginica*), and 13 (2.96%) of the lipped sand snail (*Trioelopsis albolabris*). These fragments were recovered throughout the Spit during both survey and excavation. Distributional patterns were not discerned although the middle squares did yield the majority of finds.

PREHISTORIC

The lithic materials (including 51 firecracked rocks) comprised 79.83% of the total prehistoric inventory. This can be further divided into 396 (83.37%) flakes and 30 (6.32%) cores or tools. The horizontal provenience reveals layer II as the main occupational horizon. Layers I and III are probably the result of historical modifications and plow action. The lower horizons (IV, V and VI) all contain various quantities, of flakes and amorphous stones and are considered to be probably of an earlier occupation.

DESCRIPTION

Utilized Flakes: This class consists of two flakes (one of quartz and one of chert) which exhibit wear along the edges suggesting a possible scraper-like function.

Flakes: A total of 394 (92.92%) trimming flakes were extracted from the spit. The majority of the material was quartz (275: 64.85%), with chert (115: 27.12%) and quartzite (4: 0.94%) in lesser quantity.

Points: The four (0.94%) chert points, with the exception of one, all had broken or missing bases leaving identification as to type impossible. One point does however suggest a straight stemmed base but no definite affiliation can be determined. The only complete point, a black chert Levanna was located during survey from the northern extreme of the spit.

Amorphous Stone: This category comprises 15 quartz and 2 quartzite stones which have been purposively worked, but cannot be identified as of any particular type of artifact except, possibly, cores.

Reworked Point: This is a quartz crescent-shaped bifacially worked projectile point which may have been reworked into a knife.

Chipped Unifaces: This classification comprises 2 (1 quartz and one chert) unifacially chipped stones which have no immediately apparent function.

Miscellaneous: Also recovered from the study area in layer II were quartz hammerstones and preforms.

Firecracked Rocks: A total of 51 firecracked (10.74%) and reddened rocks were found randomly scattered throughout the study area. Horizontally the majority of rocks were from Strata II (19; 37.25%) and IV (18; 35.27%), while I (2: 3.92%) and III (3: 5.88%) contained far lesser quantities. The survey yielded 9 (17.64) quartz stones. Primarily, the raw materials represented were quartz (34: 66.66%), quartzite (7: 13.73%), chert (4: 7.84%), gneiss/hornblende (2: 3.92%), and single examples of pumice, feldspar, sandstone and an untyped igneous rock. Quartz and quartzite were confined exclusively to layer IV.

Ceramics: A total of 120 sherds were recovered, 18 of which were collected during survey. The majority (87: 85.29%) exhibited an exfoliated exterior while the remainder were essentially plain. There were brush marks on

the interior surface of a few specimens, a probable result of manufacture. Coil breaks were also noted on two specimens. Colors ranged from orange to brown. All sherds were tempered with a quartz beach sand. Generally these wares appeared to be well fired and compact. In only two instances was surface decoration/treatment hinted, one small remnant revealed a cord marking and another was incised.

Horizontal provenience is as follows: layer I (0.98%), II 81 (79.41%) and III 20 (19.60%). Virtually all sherds were recovered in the middle squares.

THE FEATURE

The feature had modest beginnings in the first two southern (W5S70 & W5S75) squares at a depth of 3.25 ft. below surface. Elevation was estimated at 3.6 ft. above mean sea level. Initially, the feature was manifested by only three firecracked rocks and two amorphous quartz stories. The grey mottling of the soil, later an intricate component of the feature, was still indeterminate. Additional investigation revealed a semi-circular stain with a few more scattered firecracked rocks and flakes. As the excavation progressed a bowl-shaped grey sandy stain in a brown beach matrix was exposed. In cross-section (Fig. 2) the top may have been oval with a 2 ft. diameter. The total vertical measurement was .9 ft. thick. Absent were any signs of a stone lining and fireburned Soil. Charcoal was rare and fragmented but discernible. Immediately below this, only 8 ft. south in E0S80, a large (at least 5 x 10 ft.) multi-layer rock platform was exposed. Essentially, the feature (Fig. 3) entailed 4 different levels of firecracked rocks and a scattering of flakes and amorphous stone chunks. There was on the average only .1 ft. of sand separating these divisions.

A discussion of the different levels is as follows: level I extended off the north wall approximately 1 ft. In the center of the square the depth range was 3.2 ft.-3.1 ft. from surface. This level yielded 6 quartz and Z chert firecracked specimens or 6% of the feature. In level II a total of 12 firecracked and reddened stories covered approximately the northern half of the square. They were: 17 quartz, 2 quartzite, 5 hornblende/gneiss, 10 mica-schist, 5 unidentified, and single specimens of sandstone, conglomerate, and pegmatite. These composed :31.58% of the platform. In some cases these rocks were located directly under stones from level I. These remains rested at a depth of 3.21 ft. below grade. Level III spanned the entire length of the square at a depth of 8.72 ft. The specimens recovered were of the following classes: 36 quartz, 8 chert, 2 sandstone, 21 pegmatite, 7 hornblende/gneiss, 5 mica-schist, 1 conglomerate and 2 untyped or 60.15% of the platform. The last level was concentrated off the east wall approximately 4.25 ft. below surface, and consisted of only nine specimens, three of quartz, two of quartzite, two of mica-schist and one of hornblende/gneiss, or 6.77% of the platform.

A further division of the platform can be based on raw material. Quartz was the primary material utilized (51.13%), with pegmatite (16.54%) second. But represented in considerable quantities were mica-schist (1.78%), hornblende/gneiss (9.77%), quartzite (9.02%), sandstone (2.26%), chert (1.50%) and conglomerate (1.50%). A total of 6.01% could not be identified but were igneous in origin.

Also of significance were stories recovered in the screen, but belonging to the general layer. These often were small, badly fragmented rocks. In the two northern squares, W5S70 and W5S75, 40 and 94 stones were located respectively. In the extreme southern square, E0S80, 20 were located in layer V and 275 in layer VI.

Raw material composition of those specimens located within the general layer are:

| | V | VI | % |
|----------------------|-----|-----|-------|
| quartz | 102 | 103 | 17.79 |
| quartzite | 24 | 51 | 17.18 |
| chert | 3 | 3 | 13.99 |
| pegmatite | 7 | 35 | 9.79 |
| feldspar | 5 | 20 | 5.83 |
| schist | 2 | 45 | 10.96 |
| hornblende/gneiss | 7 | 8 | 3.50 |
| sandstone | 1 | 1 | 0.44 |
| pumice | 1 | | 0.16 |
| conglomerate | | 5 | 1.17 |
| untyped | 1 | 4 | 1.17 |
| Total rock fragments | 429 | | |

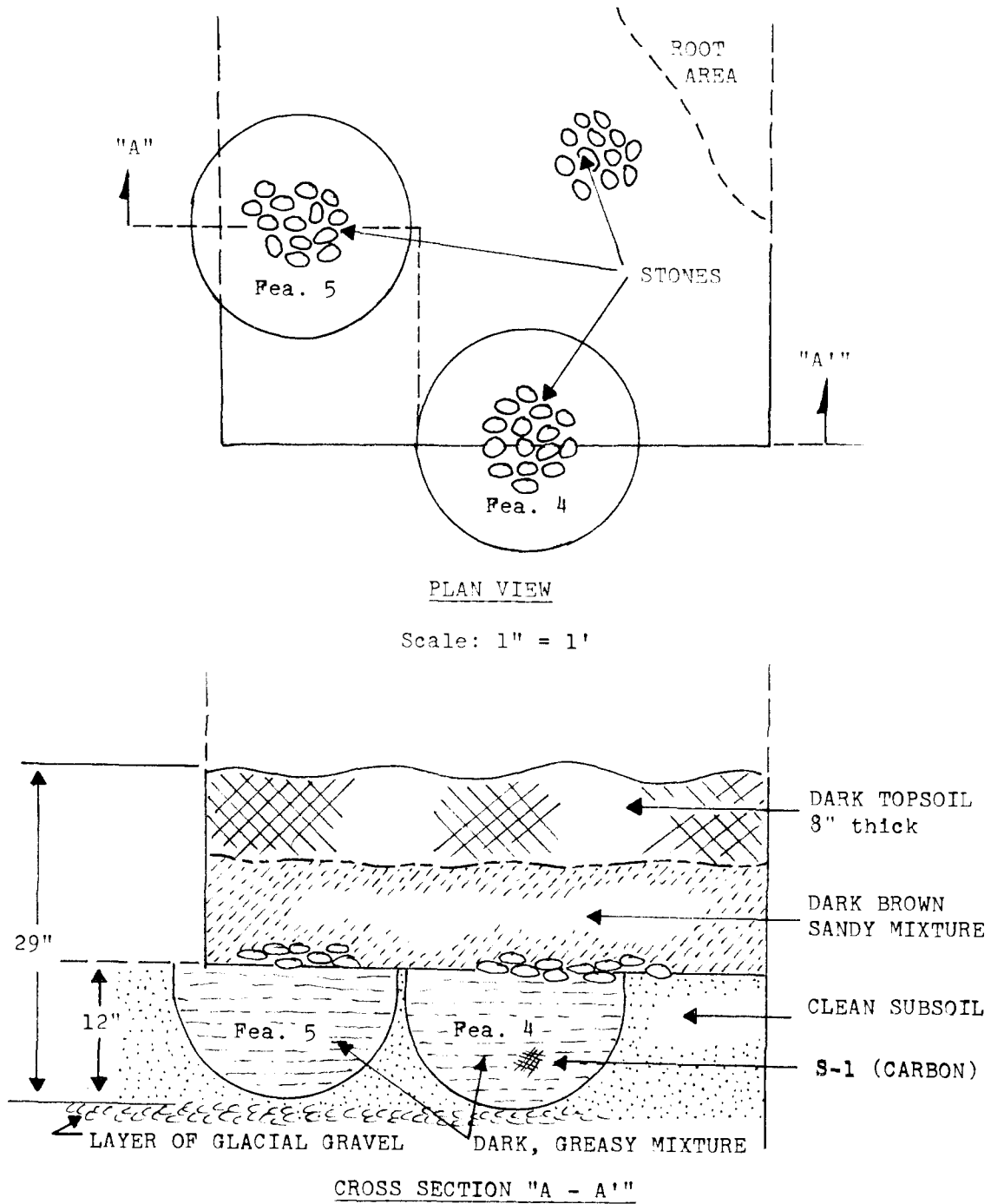


Fig. 2
PLAN VIEW AND CROSS-SECTION OF FEAS. 4 AND 5

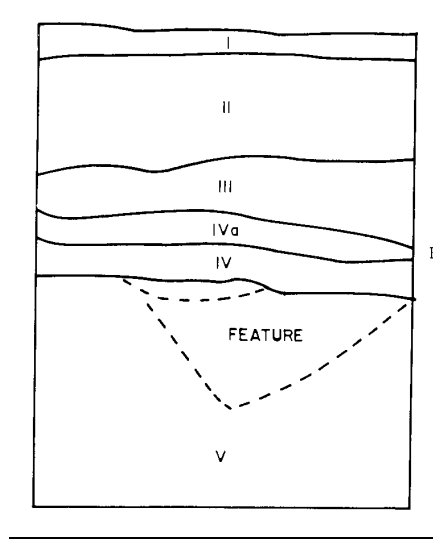


Figure 3:
Feature in Cross-section; Squares W 5S70 and W 5S75.
East Wall Profile
Scale 1"=1.00

The firecracked rocks increased in layer VI almost 122%. All rocks with an exception of a few igneous specimens were cracked, fractured and reddened. Generally they appeared to have undergone extensive heating, and were almost metamorphosed in some instances.

Cultural material associated with the feature consisted mainly of flakes, a chipped uniface, one utilized flake and amorphous stones. The only identifiable tool recovered was a crescent-shaped reworked point. A breakdown of flakes in layer IV yields 16 of quartz, one of chert and one of quartzite. The next layer yielded 36 quartz, 2 quartzite and one chert flake. The last stratum yielded one quartz chip and a utilized flake.

DISCUSSION

The Walter's Spit site was probably utilized by two different groups of people separated by an undetermined hiatus. First to be considered are the Woodland peoples as represented by pottery and a single Levanna projectile point. The recovery of a stemmed point usually characteristic of the Late Archaic may suggest repeated visitation. Apparently a wide range of activities occurred here, including food preparation as represented by the pottery and also the manufacture of tools. A high percentage of recovered materials particularly favors the latter but this may be due to two variables, of primary consideration is the fact that stone has a high survival rate. Ceramics, on the other hand, could have been recycled as temper for newer vessels. Another consideration is that the study area was disturbed, and the collection of aboriginal artifacts by subsequent peoples (for example, European) is tenable. This would consequently change the artifactual record.

The Spit was probably utilized on a seasonal basis according to the availability of edible flora and fauna, which could include the exploitation of aquatic resources, such as shellfish, suggested only by proximity to source. Furthermore, the Spit is also quite comfortable during the warmer months but is unprotected during the later cold periods making it most unsuitable for winter occupation. It has been noted that "in winter they often left the exposed sea coast, or the banks of the rivers and retreated into some wooded and sheltered valley, where they could, at once, be protected from the winds and plentifully supplied with firewood" (De Forest 1851: 11). Due to the nature and extensive disturbances, the Spit is not particularly valuable for its artifactual yield but for its clues as to settlement and ecological utilization.

Rock features have been previously addressed with a particular attention to possible utilizations. There are two unpublished accounts at the Nassau County -Museum which concern similar discoveries. The first is the River Bend Site (NCM #169) located in the Connetquot River State Park, Oakdale, Long Island, as excavated by Walter Saxon. This site yielded a total of 14 such in situ rock platforms believed to have been Woodland (Saxon 1975: 29), although Archaic-Transitional material was recovered. Generally, the platforms were circular and contained an abundant scattering of rocks only .2 ft. to .56 ft. front surface in a sand matrix. Associated were flakes, quartz cobbles, bifaces and charcoal, depending on the particular feature. The platforms ranged

from a single spread to several layers thick. There were two distinct types; piles of stones and multi-layered rock platforms. The dimensions ranged from 1 to 3.5 ft. Rock types comprised cryptocrystalline pebbles and cobbles of varying shapes and sizes. Saxon concluded that multi-layered platforms all had distinct layering but views his analysis as subjective. "It should be noted that this may be more apparent than real. However, each layer was separated by about one half to one inch of matrix sod (Saxon 1975: 21)." Another interesting notation made by the excavator is that there was probably disturbance from movement in and among the features by their users. Both of the latter statements can be considered in the final analysis of the Spit platform.

The second account deals with a feature at Shoreham (NCM #57) dug by Ronald J. Wyatt, Nassau County Museum, in 1967-1970. This rock feature was discovered at 5.3 ft. below surface and was considered to be part of an occupational stratum below the marsh (Wyatt 1974). The feature was located in a matrix of dark, organically rich sand with associated quartz flakes, biface fragments and partly worked cobbles. An interesting similarity is the absence of commonly associated traits such as charcoal and burned soil. In summary, Wyatt (1971) states that, other than chipping and heating operations, the activities that took place were not interpretable.

In the excavation of the Frontenac Island site additional examples of rock platforms were recovered by Ritchie "in the form of exposed heaped-up masses of water-smoothed limestone, sandstone and quartzite pebbles, spheroidal, ovate or elongate in shape and 1 to 3 inches in greatest length; obviously gathered along the beach of the mainland (Ritchie 1945: 6)." Other relevant accounts from upstate New York include Ritchie and Funk's work on the O'Neil site. Feature 8 bears a particularly striking resemblance to the Spit platform for "it consisted of a roughly circular mass of burned cobbles of granite, gneiss and quartzite between 5 and 12 inches in length. . . .(Ritchie and Funk 1973: 91)."

In the Upper Delaware Valley similar features were all recorded at the Zimmerman, Miller Field, Faucett and Byram sites. They all generally bear a striking similarity in that there are fire-broken and discolored rocks in beds or platforms, usually without associated stained soil or charcoal. One of the features from the Faucette and Byram site report is described as follows:

"Two are large platform-type structures containing vast amounts of densely-packed firecracked sandstone or silt stone river cobbles. The largest.... ranging from 9.44 inches below datum, extended into 9 squares and possessed an irregular elongated shape, and measured about 2m x 5.5m (40 by 80 feet), probably the irregular shape of this hearth is the result of use and disturbance (Kinsey 1975: 44)."

The recognition of these features as a cultural phenomenon is not the terminus of the discussion. The next essential task is the identification of function and purpose, particularly in regard to the surrounding ecological community. A perusal of the literature reveals that several different suggestions have been offered, almost all pertaining to food preparation; "a single example came to light of what we have on other sites described as a stone cooking bed or platform, on the assumption that after intense heating it was used in roasting large game (Ritchie 1947: 7)."

In his Stony Brook site report Ritchie continues; ". . . may have been a baking or roasting area for venison and other meat, perhaps including shellfish. Small fires may have been kindled on the stones from time to time, and the food to be cooked placed upon the heated bed, under an insulating cover of some kind (Ritchie 1959: 27)." Furthermore, "these features are perhaps best explained as reserves or stock piles of boiling stones, employed by the non-ceramic Archaic occupants in cooking in perishable receptacles and, as such, the source of the vast number of heat-shattered rock fragments found throughout the midden (Ritchie 1945: 7)." He is supported by Werner, excavator of the Zimmerman site in the Upper Delaware Valley; "there is no positive evidence within the large platform hearths to indicate their use in cooking, although it is believed that stones were removed from these hearths with wooden sticks for boiling the food in soap stone vessels (Werner 1973: 119)."

Alternate hypotheses include a range of suggestions from the very basic such as "fires on large beds of stone provided warmth and afforded some protection against scavengers (Werner 1973: 117)," to a complex social affiliation: ". . . it is possible that many of the stones found in the former feature were actually heated in the latter hearth. This raises the suggestion of a sweathouse structure, to which stones heated on a nearby fire were transferred (with wooden tongs?) for the purpose of creating the necessary steam for the sweating rituals or therapeutic practice, as recorded by various observers among the northeastern Indian tribes (Ritchie 1958: 18)."

A possible evaluation as to the ecological services this feature provided was discussed by Kinsey (1975: 86) in regard to Ritchie's work at the Stony Brook site:

". . . did encounter platform type stone hearths although none were as massive as the Delaware Valley counterparts. Possibly- the difference may be due to a variation in the habits of the local fish, if indeed the large rock-lined and platform hearths are fish processing stations."

Kinsey (1975:45) not only comments on the possible functions but also advances hypotheses on community and family behavior as reflected by these features:

"in spite of the absence of organic remains the large platform hearths may represent lineage or communal food-processing racks, perhaps for drying arid curing these migratory fish. If this supposition is essentially correct, then the large hearths suggest community-wide involvement in some food procurement and processing activity while the smaller hearths are nuclear family size hearths for cooking and for warmth."

In addition: "these hearths represent the multiple occupation of one group, limited in size, which returned annually in order to harvest fish."

The function for the Walter's Spit rock platform cannot be presently determined. Additional excavation might yield either a carbon 14 sample or diagnostic artifacts. The artifact assemblage located at the Zimmerman, Broadhead-Heller, -Miller, Faucett and Byram sites (all considered to be Orient) rock platform features is similar to the inventory at Walter's Spit. Of particular concern are the utilized flakes, amorphous stones and crescent-shaped knife made from a projectile point.

Additional accounts of drowned sub-marsh stations have also been reported from the southern New England area, for example, Grassy Island (Johnson and Raup 1947) in the Taunton River, Massachusetts, and some of the Connecticut sites opposite the eastern end of Long Island as reported by Bourn (1972:4-16), Pilots Point (Glynn 1953: 11-29) at Westbrook, Connecticut and the beach workshops at Grannis Island, New Haven (Sargent 1952: 30-50).

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BIBLIOGRAPHY

- Bourn, Richard Q. Jr.
1972 New submerged Sites of Coastal Connecticut *Bulletin of the Archaeological Society of Connecticut*. No. 37, pp. 4-16.
- Coles, Robert and Peter L. Van Santvoord
1967 *A History of Glen Cove*. Glen Cove. N. Y.
- De Forest, John W.
1851 *History of the Indians of Connecticut from the Earliest Known Period to 1850*. Hartford.
- Glynn, Frank
1953 The Pilot's Point Submerged Sites. *Bulletin of the Archaeological Society of Connecticut*. No. 27 pp. 11-29.
- Hume, Noel-Ivor
1976 *A Guide to Artifacts of Colonial America*. New York. Alfred A. Knopf.
- Johnson, Frederick and Hugh M. Rays
1947 *Grassy Island Archaeological and Botanical Investigations of an Indian Site in the Taunton River, Massachusetts*. Papers of the Robert S. Peabody Foundation of Archaeology, No. 2.
- Kinsey, Fred W. III
1975 Faucett and Byram Sites: Chronology and Settlement in the Delaware Valley. *Pennsylvania Archaeologist*, Vol. 45, No. 1-2, pp. 1-103.
- Kinsey, Fred W. and Charles W. McNett, Jr.
1973 Broadhead-Heller Site *Archaeological Excavation in the Upper Delaware Valley*. North Museum Publication. No. 1.
- Kraft, Herbert C.
1973 The Miller Field Site *Archaeological Excavation in the Upper Delaware Valley* - North Museum Publication. No. 1.
- Mills, Herbert C.
1981 Personal Communication.
- McNett, Charles A. Jr.
1967 Broadhead-Heller: A Preliminary Report on A stratified Transitional Period Site on the Upper Delaware. *Pennsylvania Archaeologist* Vol. 37, Nos. 1-2, pp. 22-32.
- Ottush, Donna I.
1980 Unpublished Field Notes and Research Design on Walter's Spit Site NCM #235. On file at Garvies Point Museum.

- Ottusch, Donna I and -Michael Petraglia
1981 A Historical Summary of Welwyn Preserve Long Island Forum, in press.
- Ritchie, William A. and Robert E. Funk.
1971 *Aboriginal Settlement Patterns in the Northeast* New York State Museum and Science Memoir 20.
- Ritchie, William A.
1940 An Early Site in Cayuga County, New York. *Researches and Transactions of the New York State Archaeological Association*, Vol. 10, No. 1.
- Ritchie, William A.
1959 The Stony Brook Site and its Relation to Archaic and Transitional Cultures on Long Island. *New York State Museum and Science Service Bulletin* 372.
- Ryan, Richard
1980 Personal Communication. Nassau County Museum Historical Section.
- Sargent, Howard R.
1952 A Preliminary Report on the Excavations at Grannis Island. *Bulletin of the Archaeological Society of Connecticut* No. 26, PP. 30-50.
- Saxon, Walter
1975 Archaeological Surveying and Testing in Connetquot River State Park. Unpublished ms. on file at Garvies Point Museum.
- Werner, David J.
1973 The Zimmerman Site *Archaeological Excavations in the Upper Delaware Valley*. North Museum Publication No. 1
- Wyatt, Ronald J.
1974 Unpublished mss. on the Shoreham and Wading River Sites. Chapter IV, pps. 6-11. Available at Garvies Point Yluaeum.

THE SOJOURNER'S ROCKSHELTER

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Beauchamp Chapter
Beauchamp Chapter

The Sojourner's Rockshelter (Cox 42) lies approximately 1 mi. east of the Flint Mine Hill quarries, 3 1/2 mi. east of the Hudson River and 1 1/2 mi. north of the Scott Farm flint quarries. Facing directly west, the site is situated before an up-tipped outcrop on non-siliceous Normanskill shale. The surrounding fields are covered with glacial outwash, leaving this outcrop (which runs less than a quarter of a mile north/south and 30 yards wide at its widest) as a geologic anomaly. The Long, narrow ridge of Coeymans limestone stretches north/south approximately 1/4 mi. to the west.

There is a slight 2-3 ft. thick overhang of shale that juts out to cover a "living" area to the base of the slope. This incline is at a 45° angle; the person or persons working flint was sitting on a fairly, steep slope. Possibly the overhang was a shelter from a cold wind and/or used to reflect sun from the west.

In excavating the site, we found 1,295 flint chips, a total weight of 14 pounds, of Normanskill debitage. About half of these were between 3 and 5 cm. in length; the remainder were smaller. Almost all were thin flakes produced during trimming percussion. Only a single palm-sized block of flint was found. Whoever worked here must have labored until there was little of use remaining. Judging from the distance of the Flint Mine Hill and Scott Farm quarries where the materials originated, the person had gone to some effort to bring the raw material to) this site. Subsequent search by ourselves has not discovered any other site in the immediate location.

In addition to the uniqueness of this physical situation, we suspect that only one person labored here. This we infer from the fact that most of the chips (and there were a lot of them) came from the middle 4 squares of excavation, enough space for a single person. The flint debitage appeared from the surface to 24 cm. within the dark brown topsoil. Certainly some downward movement of the flint was caused by gravity and animal action.

but it would not account for the complete absence of chipping at what would appear to be the "living" area, or the paucity of chips where the slope met the horizontal ground of the surrounding flats.

Unfortunately for us, the chipper was either very adept at his work, finishing everything in perfect form, or he was merely "whittling" away his time. We found only recognizable artifacts. These were:

1. An untyped broad-stemmed point which may have been 45 mm long before 10 mm of its tip was broken away. The shoulders were slightly down-sloped, while the base has some out-flare. Although not typable as we now recognize types, this point easily falls within the range of stemmed points of the Sylvan Lake phase of approx. 2000-2500 B.C. Strangely, this point was heavily fire-spalled. No other flint piece was so affected, nor were any fire-cracked rocks found. Perhaps it was from a piece of cooked meat.

2. A biface blade-58 mm long, 38 mm wide, and 6 mm thick. No wear was apparent, though its tip was broken.

3. A biface knife tip 31 mm long, 22 mm wide, 15 mm thick. Slight use is apparent on one side.

4. A large-100 mm Long, 61 mm wide, 29 mm thick sidescraper-used on both sides of its prepared edges.

In conclusion, unless a nearby site of group occupation is found, the Sojourner's Rockshelter is an interesting piece of individual activity, unique in its setting and evidence for human industriousness.

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The Katonah Gallery, Katonah, Westchester County will be staging an important exhibition "Indians of the Lower Hudson Valley- Mar. 12 to May 23, 1983, with emphasis on the Munsee, Mohicans and Unami. The catalogue, edited by Catharine Brawer, will feature contributions by Herbert Kraft, Robert Grumet and Nicholas Shoumatoff, all known to NYSAA members, and C. A. Weslager, authority on the Delaware. View the exhibit if you can, but write for the catalogue: The Katonah Gallery, 28 Bedford Rd. Katonah, N.Y. 10536. Price not known yet.