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Edited by LUCIANNE LAVIN

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Cover Photo: Niantic Incised pottery vessel from the Morgan site, Rocky Hill,
Connecticut (Illustration by Marina Mozzi).
As the cover page illustrates, our Bulletin has a new editor. I have made some changes, but they are minor ones. Bulletin format is essentially the same, as I fully intend to continue the excellent standards of journalism set forth by my immediate predecessors, Renee Kra and Roger Moeller. This year’s Bulletin has two themes about which I feel very strongly.

1. The importance of an inter-regional approach to Connecticut archaeology

and

2. The value of amateur and professional interaction for a better understanding of our past.

I became familiar with New York and Mid-Atlantic archaeology when a student at Indiana University and New York University. For the past 10 years, my research interests have centered on the archaeology and ethnohistory of southern New England and Long Island. This inter-regional background in archaeology resulted in a realization of the close relationship of Connecticut Indians with contemporary people dwelling in what are now adjacent states (as indicated by similarities in pottery and stone tool styles, diet and settlement patterns, and by early colonial documents that described instances of actual specific inter-cultural contact situations.)

Tribal boundaries and group relationships did not stop at the Connecticut state border. Funk and Pfeiffer’s description of points and pottery from Fisher’s Island, New York, Fiedel’s comparative analysis of Orient points from Rye, New York, and Pretola and Little’s overview of Nantucket archaeology attest to this fact. These articles show how important it is to keep abreast of archaeological discoveries in adjacent states.

Several of the articles illustrate theme two -- the value of amateur/professional interaction and sharing of archaeological information. Crew members for excavations at Fisher’s Island (Funk and Pfeiffer), Kent Sugar Loaf Hill (Thompson) and Morgan (Cooke, Lavin) comprised both avocational and professional archaeologists. Over half of the papers in this volume utilizes data from amateur studies in their research design, hypotheses, and/or conclusions. As editor, I look forward to publishing the results of further avocational/professional involvement in future Bulletins.
THE MORGAN SITE: THE BEGINNING

DAVE COOKE
ALBERT MORGAN ARCHAEOLOGICAL SOCIETY

ABSTRACT

The Morgan site is a Late Woodland period settlement located on the flood plain of the Connecticut River in the Rocky Hill very close to the geological center of the state. It is Connecticut's earliest agricultural community with a mean radiocarbon date of A.D. 1284. The following is a personal narrative of its discovery and all of the related events which took place prior to the first dig.

This is the story that is usually never told, although, I am sure, any archaeological dig would have a similar tale. This is the story of a site, a site that I feel extremely confident will prove to be one of the most important Late Woodland period settlements in the Northeast. These are the events that take place before the first stake is driven, before the first shovelful of dirt is sifted...before archaeology can begin. A site report will not reveal these happenings.

Few people realize or give any thought to this particular aspect of an archaeological dig. My strong convictions that this is a truly phenomenal site compels me to record the whole story. If there are those of you who read this and think that it isn't very professional I can only say..."Thank goodness!"

The Morgan site is located on the flood plain of the Connecticut River in the Rocky Hill meadows. The entire meadow encompasses a bit over 1000 acres, all of which is privately owned by various local farmers. The principal crops raised there today are corn, string beans, hay, and sod. It has only been within the past 15 years that the raising of sod has superseded the hay crop in many fields. The change from hay field to sod field led to the discovery of the Morgan site by my wife, June, in the fall of 1977. The most often asked question about the site by numerous visitors is: "How did you know the site was here?" To answer this, let's take a short trip back in time and relive the moment of discovery.

The sun had been up almost an hour and the early morning ground mist had burned off except for patches here and there along the river where the tall cottonwood trees cast their shadows. The thick knee-high grass, wet with dew, soon soaked through your pants above the low hunting boots, but it felt good along with the warm early sun on your back. So far our game pockets were empty, but things were changing fast.

The sleek black Lab sliced through the heavy cover with ease, his tail in constant motion, as the pungent bird scent filled his nostrils. June cut to the outside of the thick weed patch and raced up the edge in an effort to stay with the fast-moving Lab. I was forced to witness the events from a distance being locked into a tangled maze of giant ragweed which reached well above my head. Any attempt for speed in them only slows you down more. Within seconds came the whirr of wings as a pair of pheasants cleared the weed tops in their frantic effort to evade the dog. The hen headed for thicker cover along the river, but the big, gaudy cock swung towards the left giving June a long, clear shot.

It seemed ages before I heard the crack of the 20 gauge and I'm thinking to
myself, "She waited too long". I work my way out to the clearing and notice June up on a slight knoll several hundred feet away waving for me to come on. Thinking the bird must be a runner, I whistle for the dog, who has gone in pursuit of the hen, and start trudging up towards her. When I arrive she's grinning from ear to ear.

"Look at that," she said.

There laying on the edge of a stripped over sod field is one of those real trophy roosters with a tail a yard long.

He's a beauty," I said, "Congratulations! Come on, let's see if we can pick up the hen."

"No, no," she said, "you're not seeing everything. Look again."

I looked again.

"I still see only one pheasant," I said.

"No, no," she said, "not the pheasant, look closer."

I looked closer and then I saw it.

Within inches of the pheasant's head, but blending perfectly with the brown soil was a handsomely decorated piece of Indian pottery. The Morgan site had been found.

For the next two hours we covered the broad expanse of the bare field, picking up fragments of clay pottery along with occasional chips of flint and quartz while a thoroughly disgusted Labrador Retriever looked on.

During the next several years we periodically surface hunted the field adding greatly to our initial find. While pottery sherds from clay vessels were the most prolific artifacts found on the site, we also recovered triangular projectile points of both quartz and flint, several pieces of pestles, a complete Windsor hoe, an abrading stone with a small pit on one side and two small fragments of ceramic Indian pipe stem. On several occasions we could discern the evidence of hearths or pits by the darker circular stains in the soil containing fire cracked stone, fragments of raw bone and sometimes broken bits of shell which the plow brought to the surface.

The really outstanding characteristics that impressed me most about the site were its size -- in excess of 10 acres; the vast amount of clay pot sherds it was producing, which numbered in the thousands; the projectile points, all triangles so far; and lastly--pipe. Pipe fragments are extremely rare on any site in Connecticut, so who could tell what would be found on a site of this size?

The fall of 1984 found us at Steamboat Dock in Essex, Connecticut attending the semi-annual meeting of the ASC. Here I met Lucianne Lavin, who I had not seen since the summer of 1970 when she was working with Bert Salwen at Fort Shantok near Uncasville, Connecticut. Knowing Luci had done the final pottery analysis from the Ben Hollister site in Glastonbury, Connecticut, which was excavated by the Albert Morgan Chapter of the ASC from 1965 to 1970, I informed her of the material we were recovering from the site in Rocky Hill. Coincidentally, the site lies less than a mile away from the Hollister site as the crow flies. She expressed a keen interest in examining the material and it was agreed that we would meet at the April meeting of the ASC in Milford, Connecticut.

March 24, 1985 witnessed the reorganization of the Albert Morgan Archaeological Society, with many of the old timers who worked at the Hollister site in Glastonbury turning out to take part in the current activities. Present were Andy Kowalsky, Doug Jordan, Dick Pollard, Ray Marin, Bud and Helen Ewald, Dreda Hendsey, plus a host of others. Yours truly volunteered to serve as dig chairman and search for sites worthy of excavation. Things were shaping up and the enthusiasm that was emulating from the group appeared contagious... especially when the talk centered around the annual game dinner that takes place in early December.
I met Lucianne again, as planned, at the annual spring meeting of the ASC in Milford. At this time I brought along two large Riker mounts containing pottery rim sherds that had been found on the Morgan site. These were surface finds and represented perhaps 35 to 40 different individual vessels. Lucianne's eyes fairly sparkled as she examined the material. Here was a small sample of pottery which was already much more than most southern New England sites would produce after an extensive dig. I also brought some of the projectile points and the two small fragments of pipe stem that I had been lucky enough to find on the surface. Lucianne could go home tonight and not have to worry about visions of sugar plums...she had something better to think about.

One other outcome of the Milford meeting was that the AMAS was selected to host the semi-annual meeting of the ASC in October of 1985. This meeting was held at the Connecticut Historical Society in Hartford at which time Lucianne informed me that she wanted to dig the Morgan site with AMAS. I could only tell her that I'd try my best to get permission to excavate the site.

The weeks flew by and it wasn't until early December that I finally got around to visit Winding Brook Turf Farm in Wethersfield, Connecticut. Doug Morgan, the owner of the turf farm, is a tall, handsome blond, energetic young fellow who definitely comes across as an all business, no nonsense, hard-working individual. While business matters consume practically all of his time, he still has a keen interest and a sense of obligation in preserving and recording everything of local importance. I explained to Doug about the site on his property, the importance of it, and also a brief rundown on the Albert Morgan Archaeological Society and some of our earlier work in the area. I also quickly learned that he was not related to the Albert Morgan for whom our society was named, but he was in favor of the name. In fact he got quite a kick out of the coincidence. One other item of extreme interest that I learned from Doug was that several years ago four fellows had dug at the site for a short time. He supplied me with the names of one of these people and I mentally filed it away for a future check. Next we discussed the size of the area I wanted to excavate. I told him I'd like a section 100 ft by 100 ft. This posed no problem for him, but he stated that he'd like some kind of fence around it which would benefit both of us. I also told Doug that AMAS carried full insurance coverage in regards to liability and property damage. This insurance, I find, is a valuable tool in seeking permission to excavate on private property. A hearty handshake sealed our verbal agreement and I must say it was, indeed, a pleasure doing business with Doug Morgan. Now I had great news for Lucianne and the membership of AMAS. Everyone would be eagerly awaiting the coming of spring.

Procurement of the site brought forth a raft of other tasks to be accomplished before the actual dig. A variety of data sheets had to be printed; shovels, trowels, brushes, line levels and rulers had to be gathered; sifting screens had to be assembled; bags, both plastic and paper had to be obtained and last, but not least, I had the fence to contend with. I really lucked out on the fence problem when I ran across a fellow who had 4 rolls of snow fence for sale at a total price of fifteen dollars. Let me tell you I grabbed that bargain...fast! I also had been picking up any beach umbrellas at local tag sales because the Morgan site is entirely open with no natural shade. It's amazing how a little foresight paves the way for a smooth operation before the actual work begins.

In mid-April 1986 I made contact with John Cianfarani of North Granby, one of the fellows who had dug at the Morgan site for a short time several years ago. He told me, over the phone, that he had some of the artifacts from the site and also his notes he had kept while digging there. I made arrangements for Lucianne and me to meet with him at his home the following Friday, April 25th, to look over the material and to discuss the site in general. Any and all...
information Luci and I could gather on the site would be most helpful in our
approach to the coming dig.

Our meeting with John proved to be both pleasant and informative. He is one
of those rare individuals who is not only intelligent, but also very
knowledgeable in many different fields. Paleontology is his favorite while
archaeology is a close second. These are by no means his only interests, but
they certainly were his primary ones at this time. His notes and sketches showed
that we had a complex, deep site with possibly two components. Features were
found overlying features containing an abundance of clay pottery. Larger stone
artifacts were found at deeper levels suggesting an early occupation. John and
his friends had ceased their digging because they felt it was too complicated
and important a site for them to manage. We urged John to join AMAS and help us
with our excavation, but he declined much to our disappointment. I still feel
his involvement would have contributed much to our efforts.

We had hoped to have the site surveyed by the end of April, but Old Mother
Nature threw us a curve in the form of a spring freshet. As neither Luci or I
knew diddily about under-water archaeology we decided to wait for the flood
waters to recede. This is the one aspect of a flood plain site over which you
have no control.

On Wednesday, May 7th, we finally attacked the site with a transit and
compass. The assaulting force was composed of Andy Kowalsky, Wayne Hilt, Marina
Mozzi, Lucianne and myself. A strong northerly wind was whipping across the
flats and if I didn't know better I'd swear it was the middle of January.

We laid out the site in reference to magnetic north using a 5 foot grid
plan. I selected the English measurement system over the metric system because
of the equipment we already possessed. The squares would be designated by the
stake number in their southwest corner. Luckily we managed to finish this job up
with only a slight case of frostbite. Now everyone was eagerly anticipating that
first dig, which was only a week away.

In looking back over the years since June first discovered the site, I must
say that we found it both exciting and rewarding. The bits and pieces of pottery
and stone we had been picking up was the beginning of a story, and when you stop
and think about it the whole wonderful book was just laying there waiting under
our feet.

Soon now, so very soon we would begin to turn the pages of that book, and I
can only hope that we will have the ability to read every word that is there.
THE MORGAN SITE, ROCKY HILL, CONNECTICUT:
A LATE WOODLAND FARMING COMMUNITY IN THE CONNECTICUT RIVER VALLEY

LUCIANNE LAVIN
PEABODY MUSEUM OF NATURAL HISTORY AT YALE UNIVERSITY

ABSTRACT

The Morgan site is located in the lower Connecticut River Valley at Rocky Hill, Connecticut. Radiocarbon dates of A.D. 1170, 1320, and 1360 indicate at least two major Late Woodland occupations. The botanical remains and variety of artifact and feature types indicate that the site was used as a multi-seasonal village. Diversity of ceramic styles suggest that the manufacture of pottery vessels was one major activity performed by its inhabitants. The excellent preservation of floral and faunal materials at the Morgan site has provided new insights into the subsistence strategies of interior Late Woodland populations by shedding light on the variety of resources exploited and the increased importance of maize horticulture.

The Morgan site (6HT120) is located on the floodplain of the Connecticut River in Rocky Hill, Connecticut (Figure 1). It is one of the few carefully excavated and well-preserved Late Woodland village sites in southern New England. The area has been plowed, but disturbance is minimal. The recovery of artifacts from plowed surfaces indicates that the site covers several acres. The plowzone contains fragmented potsherds and lithics. Below it, the majority of artifacts and ecofacts are located in the aboriginal features (Figure 2). The site is deep and appears to be single component. Radiocarbon analysis of charcoal from three features dates the site to the late 12th and early 14th centuries A.D.: A.D. 1170±90 yrs or 780 B.P. (Beta 23,662); A.D. 1320±70 yrs, or 630 B.P. (Beta 20,147); A.D. 1360±70 yrs, or 590 B.P. (Beta 20,146). Several squares have been excavated to a depth of five and one half feet (1.65m), and they are still yielding Late Woodland pottery. This and the fact that pottery and point types from the surface match those from undisturbed Late Woodland levels and pit features indicate that the aboriginal materials from the plowzone may also be assigned to the Late Woodland period. Floral and faunal preservation is excellent. This is probably due to the annual spring flooding and rapid silting over of cultural levels, sealing out oxygen and enhancing preservation of organic materials.

The site is being excavated by the members of the Albert Morgan Archaeological Society under the direction of the author and David Cooke, dig chairman of the AMAS. Excavations were begun in the spring of 1986 and are ongoing. This paper reports our findings to date and their significance to the archaeology of southern New England.

LITHICS

Thousands of stone artifacts have been recovered. They include chipped, ground, and rough stone (i.e., unworked, but utilized) objects.
Figure 1. Location of Morgan site and other sites referenced in text.
Figure 2. Morgan site (GMR126), Locus 1, Feature Plan. Composite of all levels.
Chipped Stone. Most of the chipped stone artifacts are points and nonutilized flakes. There are virtually no artifacts representing the early stages of biface manufacture. No cobbles, split cobbles, or blanks have been recovered from Locus 1, and only a few quartz triangular preforms. Most of the debitage is nonutilized secondary and tertiary flakes. The triangular points are finished or nearly so (Figure 3). Field inspection suggests that 25% - 33% of the points were made of grey chert. Almost all of the remaining points were manufactured from quartz cobbles, locally abundant in the riverine deposits east of the site. A very few points were made of a reddish metamorphosed siltstone or fine grained sandstone, also locally available in secondary cobble form. A few flake scrapers were recovered (Figure 3). Several larger tools, some with completely chipped perimeters, were also recovered from the top of features (Figure 4). Their broadly flaked, sinuous edges suggest that they may have been used as hand spades for digging out the pits and hearths.

Figure 3. Chipped stone tools
Row 1: quartz triangular points
Row 2: (left to right): chert triangular points (4), quartz triangular point.
Row 3: (left to right): chert triangular point, siltstone triangular points (2), siltstone triangular preform.
Row 4: (left to right): jasper scraper, chert drill, thumbnail scraper, quartz biface, quartz preform.
Figure 4: Large chipped stone tools from the top of Feature 20.

Ground Stone. Ground and polished celt and adze fragments were recovered from the site, one from a pit feature in Locus 1 (Figure 5). Two complete Windsor hoes were also recovered (Figure 5). They show heavy use polish along their distal (working) edges. Several elongated tool fragments that are probably the proximal and medial ends of hoes were also recovered. All of these tools were manufactured from basalt, extensive outcrops of which are located in the cliffs and talus deposits located at the foot of the uplands less than 2km west of the site. A shallow basalt mortar exhibiting heavy use polish at its center also was recovered (Figure 6). The size, shape and wear pattern of its concavity are characteristic of mortars used by primitive technologists to pulverize and grind sandstone cobbles into temper for pottery manufacture (Robert Karalas, primitive technologist, AMAS, personal communication 1987).

Rough Stone. Numerous rough stone artifacts were recovered (Figure 6). A number are pitted at one or more ends, indicating a hammering function. Several exhibit abrasions along their sides, suggesting a grinding function. One plano-convex grinding stone exhibits a shallow, irregular pit in the center of its flat side as well as heavy abrasions all along its edges (Figure 6). The size and shape of the sandstone cobbles as well as its wear patterns suggest it was used to grind
mineral temper for pottery manufacture (Robert Karalas, personal communication, 1987).

The virtual absence of cobble cores, primary flakes, and other artifacts representing early stages of biface manufacture in the cobble core sequence of tool manufacture at Locus 1 indicates that the first steps in the cobble core reduction sequence were not part of the activities performed at this locality. These tool making activities were performed either at another part of the occupation area or at a processing site located elsewhere.

POTTERY

By far the most abundant and ubiquitous artifacts at the site are clay potsherds. The plowzone contains thousands of fragments. Below plowzone large sherds, partial vessels, and at least one virtually complete vessel were recovered. Relatively numerous clay pipe fragments were also found. I believe their presence is due to (1) the on-site manufacture of clay containers and smoking pipes, and (2) the function of the site as a multi-seasonal village where extensive cooking and other domestic activities occurred.
Several pieces of evidence support these hypotheses. One is the enormous number of sherds unearthed. Another is the discovery of local clay deposits in Goff Brook (June Cook, AMAS, personal communication 1986) just west of the site. A third piece of evidence is the recovery of the mortar and grinding stones characteristic of those used in temper manufacture (see discussion above). Chunks of porphyritic sandstone containing mineral particles representative of the tempering material in the pottery were recovered from cultural levels. We also found portions of clay coils with which vessels were manufactured, and small clay squibs - one with the potter's fingerprint - that resemble the pieces of clay that are rubbed off the potter's fingers after he/she has completed molding the pot.

There are several important points about the pottery assemblage from Morgan. The dominant pottery type is Niantic Incised, (Figure 7, cover photo), a term originally applied by Keener (1965) to some of the pottery from the Phillips Rockshelter in Glastonbury, Connecticut. Keener did not illustrate the new type. Perusal of the assemblage stored at the Historical Society of Glastonbury by the author indicated that the Niantic Incised vessels from Phillips were characterized by smoothed, constricted necks, and collared rims with incised decoration.
Traditionally, collared incised vessels were not included in the pottery repertoire of the Windsor tradition (e.g., Rouse 1945, 1947; Smith 1950; Lavin 1980a). Such pots found on sites in Windsor territory were usually attributed to trade with Indians of the East River tradition in southern mainland New York and western Long Island or with the Iroquois groups from the Hudson and Mohawk valleys of interior New York. Recent studies by McBride (1984) and by Lavin (1987a) hypothesize the initial occurrence of incised collars on Windsor vessels during the early Historic period. Contrary to these theories, at least 50 Niantic Incised vessels are represented at the Morgan site (a conservative estimate based on field and laboratory inspection of the pottery assemblage). Both of the radiocarbon dated pits contained Niantic Incised rim sherds, firmly dating the type to the 14th century A.D. These are the only dates for the pottery type.

Niantic Incised pots resemble closely the vessels of the Windsor type.
Niantic Stamped (Smith 1950; Lavin 1980a) in paste, form, surface finish, and motif. The evidence from Morgan suggests that the two types were at least partially coeval. Collar fragments from both types were recovered from the same cultural levels and pit features.

Such a large number of collared incised pots from a Late Woodland site in what has long been considered Windsor territory means we must rethink present models of Windsor ceramic sequences to either include collared, incised pottery in the Late Woodland period, or redefine the northern boundaries of Late Windsor geographic distribution.

The Niantic Incised vessels from Morgan extend the type description to include smoothed, semiglobular or bag-shaped bodies with shoulders and rounded bases. Virtually all of the vessels from Morgan are tempered with medium to fine grit. Collars are decorated in a variety of motifs, some performed by broad line incision, others with a narrow, scratchy incision reminiscent of Hackney Pond ceramics (McBride 1984), and still others with a stamp and drag similar to Niantic Stamp and Drag (Lavin 1980). Primary (i.e., collar) motifs include parallel horizontal lines often bordered with a row of parallel vertical or diagonal lines, and classic "Iroquoian" motifs of parallel opposed lines and filled-in triangles or chevrons. Necks are sometimes decorated with incision or horizontal rows of brushing.

Niantic Incised is not the only kind of pottery represented at Morgan. A wide variation of pottery styles is present (Figure 7). Collarless, constricted neck vessels with shoulders and straight or flaring rims were also found. Surface finishes include smoothed, cordmarked, fabric-impressed, and brushed. Decorative techniques include incision, punctation, notching, ticking, brushing, and various kinds of stamping (dentate, scallop shell, pseudo-scallop shell, cordwrapped stick, and several unknown stamps). Replicative experiments by June Cooke (personal communication 1986) suggest that a number of the sherds exhibiting pseudo-scallop shell stamps (see Lavin 1980a) were decorated by impressing the jagged edge of a chert flake into the wet clay prior to firing. Several vessels combine Windsor and non-Windsor traits making it difficult to place them within the known types.

Field inspection of their stratigraphic and featural locations suggests that vessels representing these various pottery styles are contemporaneous; i.e., they were being manufactured by the same group of people. The extensive variety in pottery attributes is probably due to increased contacts with Native American societies north and northwest of the Morgan site, especially the Mahican and Iroquois groups in the mid-Hudson and Mohawk River valleys, where some of the earliest dated (early 14th century) northeastern Indian villages containing collared incised pottery are located (Ritchie 1969). The fabric-impressed and brushed surface finishes, brushed and stamped decoration and collarless, shouldered vessels from Morgan are typical of the Late Windsor ceramic tradition in southern Connecticut and Long Island. In contrast, the cordmarked surface finish, decorative techniques of incision, linear dentate stamping, and notching or punctation at the base of collars and lips, and decorative motifs of filled-in triangles, nested chevrons, and bands of opposed diagonal plats occurring on much of the Morgan pottery are strongly reminiscent of Hudson and Mohawk valley pottery types (MacNeish 1952; Funk 1976; Hetty Jo Brumbach and Susan Bender, personal communication 1986).

The pipe bowl fragments from Morgan exhibit the same variability as the pottery. Punctation, incision, and stamped decorations occur in a number of different motifs. Bowl shapes, however, are the barrel or straight-sided forms typically found in the southern New England/southern New York cultural area (Lavin 1980b). Trumpet-shaped and effigy pipe forms, common to the Hudson Valley, are notably absent.
FEATURES

Many features have been profiled and excavated to date (Figure 2). Several functional types are represented.

Small Hearths or Fireplaces. These are small, fairly circular, shallow bowl or lens-like features containing darkened earth, charcoal, burned (reddened) soil, some firecracked rocks, floral and faunal remains, and sometimes artifacts.

Pits. These are larger and deeper features, circular or subcircular in plan view and bowl or basin-shaped in profile. They are filled with dark earth and artifacts, charcoal, and floral and faunal remains. Their contents suggest an ultimate use as refuse pits. The majority of artifacts below plowzone were recovered from within and adjacent to these pit features, suggesting that the Indians kept their living quarters clean by burying their garbage. Reddened earth indicative of heating on the walls of some of these pits suggests a cooking and/or smoking function prior to their use as garbage containers.

At least two of the pits were used as earth ovens for steaming shellfish. Features 8 (radiocarbon dated to 630 B.P.±70 B.P. (A.D. 1320) Beta 20,147) and 42 are stratified pits containing layers of dark earth, shell fragments and charcoal overlain by virtually sterile layers of silt. Apparently the shellfish were steamed in the pit, eaten, and the garbage thrown back in and covered with clean silt to (1) kill the odors, (2) put out the hot coals, and/or (3) fill up the pit to prevent small children from falling in and hurting themselves.

Field investigation of shells indicates that marine species such as quahog and soft shell clam (Mercenaria mercenaria), beds of which are not found this far upriver, were exploited. They demonstrate contacts with the coast - either in gift/exchange by parties visiting the inhabitants of the Morgan site, or by parties from Morgan visiting the coast and procuring the shellfish. Lithic and clay artifacts, and floral and faunal remains were also included in the "garbage" (including turtle, bird, mammal, and fish bones; seeds, nuts, and vegetal materials; chipped and rough stone objects, and pottery).

Several pits were still being used for storage of artifacts and materials used to manufacture artifacts. For example, Feature 43 was used to store a pottery vessel. The pot was stored upright; a maize kernel was recovered from within it. These finds indicate that the site was used repeatedly on a seasonal basis. Because clay containers are fragile and easily broken in transit, storage in pits until the owner's return to camp would be the most practical and efficient strategy.

Feature 29 contained a cache of deer antler. A large, worked sandstone artifact was recovered near the top of the pit. Its form and edge work suggest that it was a hand spade used to dig the pit. Several other pits contained similar tools at their openings, suggesting seasonal storage (Figure 4). Storage in covered pits would have protected the antler from being gnawed by animals. It may have also kept the material soft and more workable. Studies with stone raw materials suggest that below ground burial prevents loss of moisture and makes the stone easier to flake. A similar antler cache was unearthed at the Ben Hollister site in Glastonbury, Connecticut, located just across the river (Andrew Kowalsky, personal communication 1986).

Interestingly, no extremely large storage pits like those from Late Woodland sites in interior New York (e.g., Ritchie 1969) were located. Their apparent absence may be due to either (1) sampling procedures or (2) the season and/or length of occupation; i.e., the abundance of food resources available during the summer and fall may preclude the need for large storage container (see below for a discussion of this site's seasonality).

Numerous postmolds were uncovered. Diameters average about 2 - 3 inches.
(5 - 7.5cm). Most seem to encircle or cluster about the pit features, suggesting that posts were used as supports for roasting spits, drying platforms, and/or hanging pots. The thickened collars and constricted necks on many of the vessels would facilitate hanging over coals for lengthy simmering of stews and starchy grain dishes. Braun (1980) has suggested that pots with collars, necks and rounded bases - so typical of Niantic Incised - are ideal for processing wild grains and maize.

FLORAL AND FAUNAL REMAINS

As previously noted, the site is yielding a phenomenal amount of ecofacts. The rapid silting during the annual spring flooding of the Connecticut River apparently seals out oxygen from the occupation levels, preserving the bones and botanicals. Field identification of faunal remains indicates that white-tailed deer, small mammal, bird, turtle, fish, quahog, and soft shell clam were exploited. Flotation analysis of several features has resulted in the identification of hickory nut, butternut and/or black walnut, chestnut, raspberry, blueberry, grasses, and other seeds (Tables 1, 2).

Table 1: Results of Preliminary Botanical Analysis of Feature 1, Morgan Site, Rocky Hill, Connecticut

<table>
<thead>
<tr>
<th>Item</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>charred possible Chenopodaceae</td>
<td>2</td>
</tr>
<tr>
<td>charred flower parts (possible Sparganium or Carex)</td>
<td>1</td>
</tr>
<tr>
<td>charred twig</td>
<td>1</td>
</tr>
<tr>
<td>charred Plantago</td>
<td>3</td>
</tr>
<tr>
<td>charred Gaylussacia</td>
<td>1</td>
</tr>
<tr>
<td>charred Morus</td>
<td>1</td>
</tr>
<tr>
<td>charred possible Morus</td>
<td>6</td>
</tr>
<tr>
<td>charred unidentifiable seeds</td>
<td>1</td>
</tr>
<tr>
<td>charred Polygonum</td>
<td>1</td>
</tr>
<tr>
<td>charred nutlet</td>
<td>8</td>
</tr>
<tr>
<td>charred Carya (Hickory)</td>
<td>9</td>
</tr>
<tr>
<td>charred Beech or Chestnut (probably Chestnut)</td>
<td>5</td>
</tr>
<tr>
<td>charred unidentifiable nut shell</td>
<td>9</td>
</tr>
<tr>
<td>charred Gramineae (grass)</td>
<td>3</td>
</tr>
<tr>
<td>charred Juglans (Butternut or Black Walnut)</td>
<td>11</td>
</tr>
<tr>
<td>charred Chenopodium</td>
<td>100 &amp;</td>
</tr>
<tr>
<td>charred Zea Mays fragments (Maize)</td>
<td>4</td>
</tr>
<tr>
<td>charred Chenopodaceae</td>
<td>1</td>
</tr>
<tr>
<td>charred bark</td>
<td>5</td>
</tr>
<tr>
<td>charred possible Zea Mays seed coats (Maize)</td>
<td>30 &amp;</td>
</tr>
<tr>
<td>charred twig or reed fragments</td>
<td>1</td>
</tr>
<tr>
<td>charred unidentifiable botanical</td>
<td>1</td>
</tr>
</tbody>
</table>

One of the most important facets of the site is the recovery of relatively numerous maize kernels from virtually all of the features and adjacent occupation levels, including the two features radiocarbon dated to 630±70 B.P. (A.D. 1320) and 590±70 B.P. (A.D. 1360). These are the earliest dates for what appears to be intensive maize horticulture in Connecticut. The kernels possibly represent dried corn stored over the winter and spring; however, environmental factors do not support this hypothesis. The immediate site area is an ideal place for swidden, or slash and burn, agriculture - a flat, fertile floodplain
with few stones. Spring floods annually replenish the soil’s organic and mineral contents. The soil is ideal for agriculture. Farmers grow corn and bean crops there today. The recovery of Windsor hoes further indicates that the site was worked by aboriginal farmers.

Table 2: Results of the Preliminary Botanical Analysis of Feature 37, Morgan Site, Rocky Hill, Connecticut

(Radiocarbon dated to 590±70 B.P. (A.D. 1360), Beta 20,146)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 unidentifiable botanical (possible bark fragments)</td>
<td></td>
</tr>
<tr>
<td>1 charred Rubus (Raspberry)</td>
<td></td>
</tr>
<tr>
<td>1 charred possible Brassica (Mustard?)</td>
<td></td>
</tr>
<tr>
<td>1 charred possible Galium (Bedstraw?)</td>
<td></td>
</tr>
<tr>
<td>1 charred Portulaca (Purslane?)</td>
<td></td>
</tr>
<tr>
<td>1 charred Vaccinium (Blueberry)</td>
<td></td>
</tr>
<tr>
<td>2 charred possible Polamogeton</td>
<td></td>
</tr>
<tr>
<td>2 charred Cerastium</td>
<td></td>
</tr>
<tr>
<td>1 charred Chenopodaceae</td>
<td></td>
</tr>
<tr>
<td>1 charred Chenopodium</td>
<td></td>
</tr>
<tr>
<td>1 charred Galium (Bedstraw?)</td>
<td></td>
</tr>
<tr>
<td>1 charred Oxalis (Wood Sorrel)</td>
<td></td>
</tr>
<tr>
<td>2 charred Gramineae (grass)</td>
<td></td>
</tr>
<tr>
<td>12+ charred Zea Mays fragments (Maize)</td>
<td></td>
</tr>
<tr>
<td>wood charcoal</td>
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</tr>
</tbody>
</table>

CONCLUSIONS

I believe that the artifacts, ecofacts, and preservation at Morgan make it one of the most important sites currently under excavation in southern New England and southern New York. The findings are pertinent to several important questions about late prehistory presently being asked by workers in the field. It is the reason for this interim report. The implications for our present models of late prehistoric subsistence, settlement and culture history within the region are significant.

The site represents a Late Woodland village occupation in the floodplain of the lower Connecticut River Valley. Recovery of maize, butternut, and hickory from the same features (Table 1) indicates a multi-seasonal habitation extending from late spring to at least late autumn. The site was not a year-round habitation. Today, annual flooding during the late winter and early spring make it uninhabitable during those times of the year. The Connecticut River has been cutting eastward in this area for hundreds of years. The site is located on one of these old river banks. Since the river flowed much closer to the site during Late Woodland times, the flooding was probably even more extensive then than it is today, and thus even less habitable during the late winter and early spring.

The caches of antler and pottery, and storage of digging tools within pits suggest that Morgan was used repeatedly as a base camp in the group’s annual seasonal round. In fact, the wide range of food sources exploited suggest that although maize was a major food source, the traditional Late Archaic broad spectrum hunting and foraging subsistence activities (Lavin 1984) still formed the basis for the Late Woodland economy.

The early and relatively numerous presence of maize kernels at Morgan illustrates economic differences between the Late Woodland societies in interior Connecticut and those on the coast. Maize is rarely reported from prehistoric
sites in coastal New England and New York (e.g., Ceci 1977; McBride 1984; Feder 1984). With two exceptions the kernels with good provenience data or direct radiocarbon associations all date to the early Contact period (Williams 1972; McBride 1984; Lavin 1984; McBride and Dewar 1987). Ritchie (1969b) reports a kernel from the Hornblower II site on Martha's Vineyard, with a date of A.D. 1160. McBride and Dewar (1987: Figure 14-2) report one kernel from the Mago Point site in Niantic, Connecticut, with a radiocarbon date of A.D. 1100. Based on this data, McBride and Dewar consider the prehistoric introduction of maize horticulture a "non-event" in the lower Connecticut Valley, and hypothesize that the tropical cultigen did not become an important part of the aboriginal economy until the Historic period.

Our work at the Morgan site tends to qualify this statement. It appears that maize was a minor element in the prehistoric diet of coastal groups, but an important staple for inland Indians. Lacking the year-round wild resources provided by coastal marshes and marine environments, they needed a productive, reliable, and storable food to support their growing communities during the starvation period of winter and early spring. Maize horticulture was the answer.

Cultural distinctions between interior and coastal Late Woodland groups are also reflected in the lithic and pottery industries. Windsor hoes are found mainly in collections from the Connecticut River Valley between Middletown and Windsor, Connecticut. They are rarely reported from coastal sites, supporting the botanical evidence that horticulture was of less importance to late prehistoric coastal groups.

At Morgan all of the projectile points are triangles. On the coast, they are often a mixture of triangles and traditional narrow point types (Lavin 1984). About 25 - 33% of the points from Morgan are manufactured from chert, a rock type that does not crop out in Connecticut (Lavin 1983). The closest bedrock outcrops are located in the Hudson River drainage many miles west of the site. The chert artifacts do resemble chert types from eastern New York in hand specimen. In New York triangular points occur as early as the late Middle Woodland period (Ritchie 1971). Both point form and composition at Morgan suggest strong contacts with the Point Peninsula/Iroquois/Mahican groups to the west.

As noted above, the pottery attributes also resemble those of eastern New York. I believe that strong networking with Hudson Valley groups, reflected in the material culture remains at Morgan, was the catalyst for the early reliance on horticulture among interior Connecticut groups.

The reason for the economic distinction between interior and coastal groups in Connecticut was their distinctive physical environments. The abundant wild resources within the varied and closely spaced econiches of the coastal zone would have made it possible for task groups from the base camp to easily and quickly exploit a variety of food sources within a short period of time. I hypothesize that this fact plus the year-round availability of shellfish (Little 1986) and finfish (Andrews 1986) precluded the early adoption and intensification of maize horticulture by coastal Indians (see Lavin 1987b). The hard work of farming was not necessary for large multi-seasonal villages in the coastal zone.

ACKNOWLEDGEMENTS

This article would never have been written if it weren't for the dedicated efforts of the Albert Morgan Archaeological Society. The site was discovered by June Cooke. Since that time she and other members have worked hard and tirelessly excavating, washing, and cataloging the site's contents. A special
thank you to member Mary Jaworski, who is always there when we need her. Other individuals and groups too numerous to mention participated in the fieldwork. You know who you are and I thank you all!

It is a pleasure to acknowledge my co-director, David Cooke. His expertise in the field, concern for public awareness of Connecticut archaeology, and promotion of productive amateur-professional relationships helped make the Morgan site into a major teaching and research locus.

I am grateful to Kevin McBride and P.A.S.T. for providing the radiocarbon dates and flotation procedures discussed in the text, to John Pfeiffer and ASSEC members for "trenching" the old riverbank, and to Marina Mozzi for producing the photographs, maps, and tables. Much thanks to Roger Moeller for editing my paper and providing his usual valuable input.

Most importantly, I thank Douglas Morgan and the Morgan family for graciously permitting us to dig up their rich farmland for the past two years. Their generosity has allowed us to recover invaluable information on the culture and lifeways of Connecticut Indians that might otherwise have remained forever beneath the ground.

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ROCK SHELTER #14:
A PREHISTORIC CAMPSITE IN NORTHEASTERN CONNECTICUT

RAYMOND MARIN
ALBERT MORGAN ARCHAEOLOGICAL SOCIETY

ABSTRACT

Rock Shelter #14 is situated in the eastern section of the town of Ellington, Connecticut, about a fifth of a mile from Crystal Lake, overlooking an unnamed brook. Facing east, the shelter is eight feet (2.4m) high, 24 feet (7.3m) long, and overhangs about six feet (2m) at the widest section. The ground slopes away from the overhang to a large boulder 18 feet (6m) below. Artifacts were found throughout this area representing Late Archaic, Terminal Archaic and Woodland occupations of the site.

INTRODUCTION

Rock Shelter #14 is situated in the eastern section of the town of Ellington, Connecticut, about a fifth of a mile (.32km) from Crystal Lake, overlooking an unnamed brook (Figure 1). It was found by Ray Irons and myself in the fall of 1942. Facing east, the shelter is eight feet (2.4m) high, 24 feet (7.3m) long, and overhangs about six feet (2m) at the widest section. The ground slopes away from the overhang to a large boulder 18 feet (6m) below. Artifacts were found throughout this area. They represent Late Archaic, Terminal Archaic and Woodland occupations of the site.

STRATIGRAPHY

HUMUS. A humus layer averaging four inches (10cm) in thickness covered the excavation area. Variations in depth occurred where the vegetation cover of Mountain Laurel and grapevines was densest. A scattering of white quartz chips and a few potsherds were in the humus, near its junction with the underlying black soil stratum. The presence of this cultural material was due to the disturbance created by two animal burrows which continued into the underlying yellow and gravel strata.

BLACK SOIL. The black soil did not exceed eight inches (20cm) in depth below surface, and averaged three inches (7.5cm) in thickness. The largest percentage of potsherds were recovered from this layer. It apparently represents the Woodland occupation(s) at the site.

REDDISH LENS. A narrow streak of reddish soil appeared in the south side between the black and yellow layers. This was about two inches (5cm) thick; one artifact was located in it.

YELLOW SOIL. The yellow layer of subsoil varied from six to 20 inches (15 - 50cm) in depth below surface and averaged 12 inches (30cm) in thickness. The greatest amount of artifacts were found in this layer. It contained no pottery.
Figure 1. Location of Rock Shelter #14, Ellington, Connecticut.
The small brook about 70 feet (23.3m) below the shelter gave easy access to a fresh water supply. This brook originates from a spring fed pond a fifth of a mile (.32km) to the north. It flows into a larger brook which in turn flows into Crystal Lake. Smelt in large numbers ran up this brook in the springtime and are still mentioned by the older natives in this vicinity. These runs of smelt, no doubt, were welcomed by the inhabitants of this shelter as a plentiful and easily obtained food supplement to their diet.

Firepits

Two firepits were found. A circular pit 18 inches (45cm) deep and 18 inches (45cm) wide was located in the upper south side of the shelter. It showed up three inches (7.5cm) into the humus. The bottom was at the junction of the yellow soil and the yellow gravel. Quartz chips and fragmentary bone were distributed throughout the pit. The charcoal was very fine, only a few pieces being as large as a pea. A rectangular firepit measuring six by 16 inches (15 x 40cm) was located 16 feet (5.3m) outside of the overhang, directly to the east. This pit was shallow, being only four inches (10cm) deep. It contained only the tip of a rhyolite drill and charcoal in powder form, and was well mixed with the matrix of yellow soil.

Tools

Artifacts excavated at this shelter and used as tools are:

- Projectile points—39. 2 Bare Island (Figure 2:1, 15), 19 Lamoka (Figure 2:4 - 5, 9, 13, 17 - 20, 23, 29, 32, 34 - 36, 41, 43, 45, 46, 51), 2 Squibnocket Stemmed (Figure 2:47, 50), 4 Brewerton (Figure 2:3, 6, 8, 37), 4 Genesee (Figure 2: 7, 14, 27, 40), 1 Orient (Figure 2:38), 2 Levanna (Figure 2:30, 44), 4 Madison (Figure 2:2, 25, 31, 48), 1 triangle fragment (Figure 2:11).
- Drill—Broken tip of dark grey felsite (Figure 2:10).
- Scraper—Broken tip end of felsite point, well worn, used as a scraper (Figure 2:12).
- Scraper—Thumbnail of chert, well chipped edges (Figure 2:16).
- Stemmed scraper—Greyish tan slate, 3.75 inches (9.38cm) long at one end, tapering to a point at the other end (Figure 2:49). The widest end is chipped more finely, is rounded, and shows considerable wear.
- Knife—Brewerton side notched point of chert, shank portion only, rechipped at break, probably used as a knife (Figure 2:21).
- Knife—White quartz, 3.0 inches (7.5 cm) long, ovate in shape, chipped very sharp on the curved end (Figure 2:28).
- Stemmed knife—Light tan quartzite, 2.75 inches (6.88 cm) long (Figure 2:39). Both edges are chipped; one is more rounded than the other.
- Large biface—4.5 inches (11.25cm) long, reddish slate, well rubbed and polished edge (Figure 2:22). Possible celt or hoe. It could have been used as a
scraper or a knife. It is 2.75 inches (6.98 cm) at the cutting edge tapered to a point at the other end.

Graphite—1.5 inches (3.75 cm) long by 5/16 inch (.78 cm) wide, worn on sides (Figure 2:33).

Bone awl—5.0 inches (12.5 cm) in length, possible made from the rib of a deer (Figure 2:24). It was found four inches (10 cm) from the large biface described above.

Figure 2. Artifacts from Rock Shelter #14.
1 - Bare Island, white quartz, four inches (10 cm) in black.
2 - Madison, white quartz, tip missing, five inches (12.5 cm) in yellow.
3 - Brewerton, white quartz, tip missing, five inches (12.5 cm) in black.
4 - Lamoka, white quartz, tip missing, five inches (12.5 cm) in black.
5 - Lamoka, white quartz, five inches (12.5 cm) in mixed.
6 - Brewerton, siltstone, tip missing, eight inches (20 cm) in yellow.
7 - Genessee, chert, four inches (10 cm) in mixed.
8 - Brewerton, quartzite, ten inches (25 cm) in yellow.
9 - Lamoka, siltstone, five inches (12.5 cm) in black.
10 - Drill tip, felsite, five inches (12.5 cm) in mixed.
11 - Triangular, white quartz, base only, six inches (15 cm) in yellow.
12 - Broken tip, felsite, rubbed at break, heavy scraper use, five inches (12.5 cm) in black.
13 - Lamoka, white quartz, six inches (15 cm) in yellow.
CONNECTICUT ROCK SHELTER

14 - Genessee, rhyolite, base and tip missing, four inches (10cm) in mixed.
15 - Bare Island, quartz, eight inches (20cm) in yellow.
16 - Scraper, chert, twelve inches (30cm) in yellow.
17 - Lamoka, quartzite, eight inches (20cm) in yellow.
18 - Lamoka, quartzite, tip missing, eight inches (20cm) in mixed.
19 - Lamoka, quartzite, ten inches (25cm) in yellow.
20 - Lamoka, white quartz, mid section only, four inches (10cm) in yellow.
21 - Brewerton, chert, base section recitched at break to form a knife, eight inches (20cm) in mixed.
22 - Triangular shaped implement, hoe or celt, copper colored slate, one inch (2.5cm) in black.
23 - Lamoka, crude white quartz, tip missing, four inches (10cm) in black.
24 - Bone awl, five inches long, four inches (10cm) in black.
25 - Base section triangular, chert, eight inches (20cm) in yellow.
26 - Madison, white quartz, seven inches (17.5) in yellow.
27 - Genessee, chert, tip missing, eight inches (20cm) in yellow.
28 - Oval white quartzite knife, fourteen inches (35cm) in mixed.
29 - Lamoka, white quartz, fourteen inches (35cm) in mixed.
30 - Levanna, black flint, four inches (10cm) in mixed.
31 - Madison, grey basalt, ten inches (25cm) in yellow.
32 - Lamoka, white quartz, eight inches (20cm) in yellow.
33 - Graphite, well rubbed, five inches (12.5cm) in mixed.
34 - Lamoka, quartzite, ten inches (25cm) in yellow.
35 - Lamoka, white quartz, tip missing, six inches (15cm) in yellow.
36 - Lamoka, white quartz, four inches (10cm) in mixed.
37 - Brewerton, white quartz, tip missing, eight inches (20cm) in mixed.
38 - Orient fishtail, spear, quartzite, five inches (12.5cm) in yellow.
39 - Stemmed knife, quartzite four inches (10cm) in black.
40 - Genessee, grey chert, base only, eight inches (20cm) in mixed.
41 - Lamoka, white quartz, four inches (10cm) in black.
42 - Soapstone, two pieces rubbed and notched on one side, three inches (7.5cm) in black.
43 - Lamoka, spear, mottled chert, eight inches (20cm) in yellow.
44 - Levanna, white quartz, tip missing, eight inches (20cm) in yellow.
45 - Lamoka, quartzite, six inches (15cm) in yellow.
46 - Lamoka, white quartz, tip only, eight inches (20cm) in yellow.
47 - Squibnocket, white quartz, six inches (15cm) in yellow.
48 - Madison, white quartz, six inches (15cm) in yellow.
49 - Large scraper, grayish slate, four inches (10cm) in yellow.
50 - Squibnocket, tan quartz, broken, four inches (10cm) in yellow.
51 - Lamoka, white quartz, surface after excavation.

STONE CHIPS AND UNWORKED BONE

A dozen chunks of white quartz the size of a man's fist were mixed with a considerable amount of small chips of the same material throughout the area. Also recovered were less than 20 chips of quartzite, flint and slate. This large accumulation of chips suggests the onsite manufacture of arrowpoints and other chipped tools. Small fragments of split bone were scattered throughout both the black and yellow layers.
POTTERY AND STEATITE

Two steatite fragments, each about an inch (2.5cm) square, were found four inches (10cm) deep in the black layer. Although these pieces fit each other, one is thinner and larger and shows more smoothness and rubbed edges. A groove was cut into one edge of the other piece and both the groove and the edge are smooth. These fragments may have been used in the abrading and polishing in the finishing of clay pottery.

Sixty sherds from one clay pot were found. These averaged three sixteenths of an inch (.47cm) in thickness. The lip has a partly rounded to a flat edge and is devoid of any decoration. Bands of punctated dots a half inch (12.5mm) wide and spaced three quarters of an inch (18.8mm) apart start a half inch (12.5mm) below the rim’s edge and run diagonally down the sides of the vessel. Most of the sherds are a reddish tan color with a few ranging from a light to a dark gray. The clay was tempered with crushed gravel native to the shelter area and is quite hard.

CONCLUSIONS

The numbers and kinds of artifacts indicate that Rock Shelter #14 was used sporadically as a temporary camp for small groups of people throughout the late Archaic and Woodland periods. Most of the tools are hunting and butchering implements. The quartz cores and chips demonstrate stone toolmaking activities. Possibly the shelter was used as a hunting station, where hunters prepared meals and made points while they waited for game. Or perhaps it functioned as a rest stop along one of the many Indian trails that once connected Connecticut Indian communities to each other and to other New England and New York settlements.

ACKNOWLEDGEMENTS

I would like to thank Marina Mozzi for preparing Figure 1.
ABSTRACT

A limited number of artifacts indicate that this rock shelter was occupied during the following periods: either Paleo-Indian or Early Archaic, Middle Archaic, Late Archaic, Early Woodland, and Historic. The site was a temporary hunting camp throughout its history. Frost wedging is hypothesized as an important factor in the development of rock shelter stratigraphy.

THE SITE

The Kent Sugar Loaf Hill site is in the southeastern corner of the Town of Kent, Litchfield County, Connecticut. It is between 750 and 800 feet (273 and 292m) above sea level on the steep southeastern side of the Sugar Loaf Hill which rises to about 1080 feet (393m) above sea level. The hill is very rocky and covered with hardwood forest today. At the base of the eastern side of the hill, below the shelter, is a swamp overgrown with underbrush. The rock shelter is a cavity between two huge glaciated boulders, one of which leans toward the other. Above is another boulder which rests like a capstone between them to form the roof. There are many holes through the shelter, two of them serve as entrances. The downhill entrance is a crack between the two largest boulders, about two and a half feet wide (78cm), and full of rocks which must be climbed over in order to enter (Figure 1). It is approached from the base of the hill up a short, steep talus slope. The uphill entrance is a large hole through the roof of the shelter. Considerable climbing is necessary in order to enter. Above it, the eastern side of Sugar Loaf Hill forms a steep rocky cliff.

The eastern side of the hill is strewn with numerous glacial boulders. These were probably plucked from the side of the hill and deposited locally by the melting ice (Flint 1930:77-79). The bedrock is an unidentified badly folded metamorphosed rock. The southeastern orientation of these erratics conforms well to the movement of glacial ice in western Connecticut which was from the northwest to the southeast (Flint 1930: Fig. 6). Consequently, the rock shelter is of glacial origin.

EXCAVATION TECHNIQUES

The interior of the shelter is 32 feet (12m) long and 20 feet (8m) wide. A four foot grid was established. Cross-sections A-B and C-D are base lines within the grid (Figure 2). Cross-section A-B (Figure 3) extended from one entrance to the other. The A-B datum plane is level with the datum point described below. It indicates that the floor of the shelter sloped up at approximately a 30° angle from the downhill to the uphill entrance. Cross-section C-D (Figure 4) is at right angles to cross-section A-B and is just below the uphill entrance. An X was painted on the wall of the shelter as a datum point with which the surface of the ground, the stratigraphy, and the depth of all of the artifacts were
measured. A string with a line level was held horizontally from datum to a point above the in situ artifact. A plumb line was dropped from that point to the artifact. The length of the plumb line was then measured. These measurements (BD, i.e., below datum) are included with the description of the artifacts. A line was also painted around the entire inside of the shelter at ground level as further indication of depth in excavation. All excavation was done by grid, and according to natural levels. All soil was screened with 1/4" hardware cloth.

Excavation of an initial trench adjacent to cross-section A-B indicated that this rock shelter had probably not been disturbed. There were two soil zones. One was a thin layer of very black top soil matted with roots which became thicker toward the uphill entrance. Below this was very rocky, yellow-brown subsoil. It was thickest and rockiest just below the uphill entrance. The angle at which many flat, tabular rock fragments were resting in this area followed the contour of the ground. Some were stacked upon each other with overlapping edges like shingles on a roof. In the past, soil and rock, exfoliated from the cliff above the shelter, fell through the uphill entrance and were deposited as a talus pile inside the shelter (Figures 3, 4). It is suspected that frost wedging was the cause for this exfoliation. Artifacts were found below and above this rock pile. Weathering and deposition took place between periods of intermittent occupation. Also in the uphill end of the shelter was a very large slab of rock resting against the west wall. This probably did not fall through the uphill entrance, since it is so large, but was deposited when the shelter was formed at the end of the glacial period. Below the yellow-brown subsoil was a solid mass of irregular boulders. These were entirely cleaned off in order to expose possible cultural materials.

Some excavation was done immediately outside the down hill entrance at the top of another short, steep talus slope. A few objects were found here. A shallow trench (not illustrated on Figure 2) was dug down the side of this talus slope. No artifacts were found. However, the surface of the talus pile was uncovered. The rocks appeared to be very similar in all respects to the talus pile inside the shelter as described above.
Figure 2. Map of the interior of the Kent Sugar Loaf Hill site. Cross-section A-B runs from the up hill entrance to the down hill entrance. Cross-section C-D is just below the up hill entrance, and cuts through the deposit of frost wedged slabs of rock.
Figure 3. Cross-section A-B. The deposit of frost wedged rocks is represented.
Figure 4. Cross-section C-D. This shows part of the deposit of frost wedged slabs of rock below which was found the end scraper, and above which was found Late Archaic artifacts.

FEATURES

Two features, hearths A and B were found (Figure 2). Hearth A was at the junction of the humus and the subsoil and next to the large boulder as described above. It contained a small deposit of mostly ash and burned soil. Most of hearth B had been excavated by Sidney Hessel (see Acknowledgements) before the author arrived at the site. All that remained were some dark stains in the soil. Charcoal was not recovered from either hearth. Both were located below openings in the roof which could have emitted smoke.

ARTIFACTS AND OTHER OBJECTS

Nineteen specimens were recovered and are listed below (Table 1). Fifteen are prehistoric lithic objects. Of these, nine are typologically diagnostic of specific Northeastern cultural traditions. The remaining four are either of
historical significance or of natural origin. The number for each specimen gives the location on the floor plan of the rock shelter (Figure 2).

Table 1: Length, Width, and Thickness of Specimens 1 through 19.

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1. A small stemmed quartz point with thin, biconvex cross-section, a tapered stem, and a finished base (Figure 5D). It was 1'11" (58.6cm) BD (below datum) in yellow brown subsoil. It is south of and above the rock fall in the north corner of the shelter.

2. A gray flake of low grade chert with shiny black high grade chert mottling and a fragmentary fossil shell (Figure 6C). It is 2'8" (81.3cm) BD in yellow brown subsoil.

3. A Meadowood point of what looks like New York Onondaga chert (Figure 5F). Both edges of the blade, obverse and reverse sides, show many tiny flake scars which indicate a sequence of extensive use resulting in wear, followed by resharpensing by means of secondary retouching. The corner of the base below the right side notch is broken. The left side notch is either imperfectly made or broken. It is 1'11" (58.6cm) BD in the middle of the black top soil.

4. A Stanly Stemmed or Neville Stemmed point probably of a tan metamorphic shale (Figure 5A). The edges of the blade are relatively straight, but are excurvate near the tip, possibly due to slight damage of the tip. The shoulders are prominent, while the stem is slightly constricted. The base of the stem is rather irregular, slightly indented, and not ground. The shoulder-to-stem angle was produced by a steep crushing retouch, probably done with a relatively rounded tool. Most of this secondary chipping on the shoulders and stem is unifacial. The lateral cross-section of the blade is biconvex, but slightly asymmetrical. Much of the secondary chipping along the edges of the blade could be characterized as step-fracturing. There are very few broad, shallow flake scars due to direct percussion. The step-fracturing is possibly due to a specific flaking technique, but may also be due to the friable nature of the material. On the edge there is some very fine intermittent secondary chipping which could be wear due to use. On one side of the stem there is a possible heat
spall. The dimensions of this point (Table 1) overlap the range of variation of both the Stanly Stemmed (Coe 1964:35) and the Neville Stemmed (Dincauze 1976:51, Table 2) types. Dincauze points out that the Neville type may be considered a variety of the Stanly Stemmed. It was 5'8" (1.73m) BD in the yellow brown subsoil and was approximately 1 to 2' (30 - 61cm) from hearth B horizontally.

![Figure 5. A. Stanly Stemmed or Neville Stemmed point; B. Vosburg point; C-E. Small Stemmed points; F. Meadowood point; H. Untyped side notched point.](image-url)

5. The skull and atlas of a red fox (*Vulpes fulva*) was tentatively identified by Joseph H. Waters (personal communication, January 4, 1964). It was
3'4" (1.1m) BD in the topsoil near the surface. Waters commented that the bones may be less than 50 years old since the soil is probably acidic.

Figure 6. A. Knife; B. Flake teshoa; C. Flint flake; D. Flint flake; E. End scraper.

6. An end scraper of what looks like central New York Onondaga chert is made from a relatively thick, flat flake, secondarily chipped into roughly oval outline (Figure 6E, 7). The bulb of percussion has been removed, but conchoidal ripple marks indicate that it was at the proximal end on the ventral surface which is a single primary flake scar. The dorsal surface (Figure 6E) exhibits two primary flake scars. On one, conchoidal ripple marks indicate that the negative bulb of percussion should have also been at the proximal end. The lateral cross-section is trapezoidal. The secondary chipping on both ends is unifacial, short, and steep. The distal, or working end of the tool is the thickest and has the most pronounced secondary chipping, as well as superimposed
wear patterns consisting of many tiny chip scars terminating in abrupt step-fractures which may be seen with a 10X hand lens. These are continuous along the scraping edge, but have produced the most wear on the lateral ends of the scraping edge. The proximal end also exhibits a few similar step-fractures. The thinnest of the two lateral edges is slightly chipped bifacially. The use of a 10X hand lens reveals that this edge is slightly worn. Possibly it was used as a knife. However, if the scraper were a hafted tool (Funk 1972:19), then this wear could be deliberate grinding to prevent the tool from cutting the bindings (see page 13). The other lateral edge is thick and unmodified. It would have been at the point at which the tool was gripped when using the other lateral edge as a knife. It was 3'9" (1.14m) BD in yellow brown subsoil in a space between two large boulders in the bottom of the excavation and on the floor of the shelter. It is also below the talus pile of exfoliated bedrock which came into the shelter from above the uphill entrance.

Figure 7. Closeup of end scraper (Specimen 6, Figure 6E).

7. A Vosburg point of low grade gray chert (very similar to specimens 2 and 8) is very asymmetrical and carefully chipped (Figure 5B). The secondary chipping on the edges of the blade is fine and evenly done. The slightly concave base is ground, but not the side notches. The biconvex lateral cross-section is slightly asymmetrical: the obverse side is convex; while the reverse side is slightly flattened. This suggests that the point was made from a large flake. The tip of the point was slightly broken during excavation. It was 1'6" (46cm) BD in brown subsoil and approximately 10" (25cm) from the overhanging wall of the shelter (Figure 2).

8. A flake of low grade gray chert (Figure 6D) with high grade black chert mottling and a fragmentary fossil shell. It was 4'4" (1.34m) BD in a cavity below a large boulder leaning against the wall of the shelter.

9. A knife made from a large quartz flake with an asymmetrical outline suggestive of a knife blade with a short, wide stem (Figure 6A). It also has an asymmetrical lateral cross-section. The obverse side is markedly convex and is covered with moderate flake scars. There is no indication of secondary retouch flaking. The reverse side is relatively flat and is probably the inner face of a
large flake. There are a few secondary flake scars on it. It was 4'4" (1.14m) BD and 1" (2.5cm) below the top soil in the yellow brown subsoil.

10. Small stemmed point, with a carefully chipped blade (Figure 5E). The stem is rather irregular and sides of the stem and base are not carefully chipped. The lateral cross-section is thin and biconvex. The material may be a shale or siltstone. It is light gray and has a reddish streak on one side. It is 8" (20cm) above datum and at the junction of the top soil and the yellow brown subsoil.

11. Lathing hatchet (Mercer 1960:89-91; Fig. 85, and Sloan 1964: 20-21) (Figure 8). The broken end of the wooden handle and wedge still remain embedded in the socket. Next to the wedge, a Phillips screw has been driven into the end of the handle. The pole or head end opposite the blade was badly battered from use. Lathing hatchets are designed not only for one-hand cutting, but also for driving nails with the pole, and for pulling them with the notch on the lower side of the blade. The top side of the blade is flat in order to clear the ceiling when nailing the top plastering laths. It has been the carpenter's favorite tool since 1890, homemade until ca. 1840 after which they were made in factories. This one is factory-made. It was found just beneath the surface of the top soil.

![Lathing hatchet](image)

**Figure 8. Lathing hatchet**

12. A Meadowood point of probably western New York Onondaga chert (Figure 5G). Both edges of the blade, obverse and reverse sides, show many tiny flake scars which may indicate extensive use, wear, and reshaping as on specimen 3. Part of the right edge, and the edge of the base may be broken. The side notches are carefully made. The exact location of this specimen is uncertain. It probably came from the top soil in the center of the shelter.

13. A broken and weathered quahog shell (*Venus mercenaria*) from the surface near a few small pieces of broken glass.

14. A quartz core with multiple flake scars and striking platforms. It came from outside the downhill entrance of the shelter.

15. An untyped side notched projectile point (see Dincauze 1972: 51, Pl II c-e) of unidentified material (Figure 5H). The blade is triangular with relatively straight edges, excurvate near the tip which was worn smooth and blunt at an oblique angle on both edges (Figure 9). It was possibly pushed back and forth at about a 55° angle on skin or some other soft, but resilient tough
material. The base is relatively straight and, along with the pronounced side notches, are unground. The lateral cross-section is biconvex and symmetrical. The object came from outside the downhill entrance of the rock shelter. It was 1'2" (36cm) below the surface in rocky gray soil. It is similar to the untyped point from the North Shore Road site (6-LF-7) (Thompson 1973:18).

16. A canine tooth, 27mm long, probably from a small carnivore, was found just outside the downhill entrance of the rock shelter and between 0 - 1" (2 cm) deep. Possibly it belongs with the red fox skull (See No. 5 above).

17. Large flake from a quartzite boulder (Figure 6B). On the outside is some of the remaining cortex of the boulder. All edges have been worn round and blunt. On one end is some slight secondary chipping which may also be from wear. It was 4" (10cm) deep. It is a tchosa (Kraft 1966:1-6).

18. A fragment of burned bone 26mm long, from 4" (10cm) deep.

19. A small stemmed point of what looks like gray-brown Normanskill chert (Figure 5C). The point is crudely chipped and has a thick, asymmetrical, angular lateral cross-section. The base was thinned down to some extent, but is unfinished and faceted. It was 2' (61cm) above datum and below the top soil in light brown subsoil. It is also above the major concentration of rockfall which came through the uphill entrance.

OCCUPATIONAL HISTORY

A Paleo-Indian or Early Archaic Occupation. (10,000 - 6000 B.C.): The end scraper (no. 6, Figure 6E, 7) could belong to either a Paleo-Indian or Early Archaic occupation. It conforms very closely to Witthoft's (1952) description of "a short end scraper or planer" from the Paleo-Indian Shoop site in eastern Pennsylvania. This artifact is the most abundant type in the Shoop site assemblage. It is also similar to end scrapers from several other Northeastern Paleo-Indian sites: the Potts site, Oswego County, New York (Ritchie 1966a:23, Pl. 7); the West Athens Hill site, Green County, New York (Funk and Johnson 1964:45, Pl. 1, 6-10); the Reagan site, Franklin County, Vermont (Ritchie 1957: Pl. 12 and 17); the Bull Brook site, Ipswich, Massachusetts (Byers 1954:343-351, Fig. 92a; Wormington 1957:75-78; Fig. 25); and the Holcomb site just north of Detroit, Michigan (Fitting 1970:52-53, Fig. 18a and b). An end scraper was found in the nearby 6LF21 site (Moeller 1980:59-60, Pl. 11c) which has water-worn cobble cortex on the dorsal surface.
Funk (1972:19) has examined wear marks on the edges of Paleo-Indian end scrapers from several Northeastern sites. The tiny hinge chip scars on the working end of this scraper seem to be similar to end scrapers from the following New York Paleo-Indian sites: West Athens Hill, Kings Road, Potts, and Port Mobil. Funk infers that these scrapers were used to work hard materials such as wood, bone, antler, or ivory. Since these scrapers, including the Kent Sugar Loaf hill example, lack polished zones on the ventral and dorsal surfaces, attributed to direct manual contact (Semenov 1964:83), Funk further suggests that such scrapers were mounted in wooden or antler hafts. If this were true for specimen No. 6, then the wear on the lateral edge would be to prevent cutting of the bindings.

Although it may be argued that this end scraper is of Paleo-Indian origin on both typologic and stratigraphic grounds, it is difficult to prove because of the lack of an associated diagnostic fluted point and radiocarbon date. Funk (personal communication July 16, 1973) says that some Early Archaic end scrapers are indistinguishable from their Paleo-Indian predecessors. Occasionally they even have graving spurs. Some continuity is to be expected from Paleo-Indian into the Early Archaic. Usually Paleo-Indian end scrapers are more square-ended and longer than Archaic forms.

It is difficult to make detailed comparisons of published descriptions of Early Archaic end scrapers to Witthoft's (1952:37-39) original description, because attributes are seldom given the same significance by independent authors. At the Hardaway site in the Carolina Piedmont, Coe (1964:73-76, Fig. 64A) has recognized end scrapers in the Hardaway, Palmer, and Kirk Early Archaic occupations which are similar to Paleo-Indian forms. At the St. Albans site in West Virginia, Broyles (1971:35-37, Figs. 29 and 30) has defined nine different types of Early Archaic scrapers. They drop out of the Carolina Piedmont chronology in the succeeding Middle Archaic Stanly Complex. Furthermore they do not occur in the Neville occupation at the Neville site (Dincauze 1976) in New Hampshire which is derived from Stanly. Consequently these scrapers are restricted to the Early, and not the Middle, Archaic.

A Middle Archaic Occupation (5000 B.C.): Specimen no. 4 (Figure 5A) represents a local occupation during the Middle Archaic. It is diagnostic of the Neville Complex at Amoskeag Falls in Manchester, New Hampshire. Dincauze (1971; 1976:119-121) derived the Neville point from the Stanly Complex at the Doerschuk and Hardaway sites in the Carolina Piedmont (Coe 1964:122), implying that there is an ancient tradition of stemmed projectile points throughout the Atlantic watershed. The Corner-Removed No. 5 classification in the Massachusetts Archaeological Society classification system (Fowler 1963:2-3, Fig. 1) is related. Other occupations related to this tradition occurred at the H. F. Hollowell and Old Place sites on Staten Island, New York (Anderson 1967:89; Ritchie and Funk 1971:45-59). Similar point forms have been found buried deeply in both Grannis Island (Wilson nd) and in the Burwell-Karako sites (Lavin and Russell 1985:49-50) in the Quinnipiac River drainage, Fair Haven, Connecticut. Pfeiffer (1986:29-31) has defined a Middle Archaic Neville component at the Dill Farm site in East Haddam.

A Late Archaic Laurentian Vosburg Occupation (2500 B.C.): The single Vosburg projectile point (specimen 7, Figure 5B) indicates a Late Archaic occupation (Ritchie 1965a:83-84), stratified above the end scraper and Neville point.

A Late Archaic Small Stemmed Point Occupation (2000 B.C.): Three projectile points (specimens 1, 10, 19, Figure 5C, D, E) indicate an occupation by people of this cultural tradition (Ritchie 1965b). In comparison to the
Sylvan Lake points from test pit 1 in the Hopkins site (6-LF-1) (Thompson 1973), and from the Boat House site (6-LF-38) (Thompson 1975a), they seem rather small (Table 1), but probably within the range of variation for this type. The depth of these three points ranged from 2 feet (61cm) above datum to 1 foot, 11 inches (58 cm) below datum. The points were in the yellow brown subsoil and above the rockfall. One small stemmed point (specimen 1) is slightly deeper than the Vosburg point. This stratigraphic relationship may be compared to stratum 2 of the Sylvan Lake Rockshelter near Poughkeepsie, New York. (Funk 1976:148-172). In this stratum the Vosburg manifestation is abruptly replaced by the Sylvan Lake complex about 2500 B. C. within an inch or two of absolute depth of the specimens. There is some vertical overlap of points of these two complexes. It would seem that this overlapping is duplicated at the Kent Sugar Loaf Hill site.

Although not culturally diagnostic, the knife made from a quartz flake (specimen 9, Figure 6A) and the large quartzite flake (specimen 17, Figure 6B) may belong to the Small Stemmed point occupation, because they are stratified in the subsoil only a few inches below the junction of the subsoil and the humus.

Early Woodland Meadowood Phase Occupation (800 B. C.): Two Meadowood points of western New York Onondaga chert (specimens 3 and 12, Figure 5F, G) are the only stone artifacts found in the humus of the site and possibly are associated with hearth A. However, the humus is so thin that this hearth could have been made subsequent to the Meadowood occupation (Ritchie 1965a:179-195).

Both Meadowood points have side notches and were presumably made from the mortuary or "cache" blades of this culture (Ritchie 1961:35-36). The edges of these blades show attrition due to use, and resharpining by means of secondary flaking. The discovery of these points in an inland rock shelter is surprising, since this culture usually had a riverine oriented settlement pattern. Funk reports (1976:278) that Meadowood points are rarely found in rock shelters in eastern New York, but do occur in low lying camps along the Hudson.

The untyped side notched point (specimen 15, Figure 5H, 9) might also be of Early Woodland age. Dincauze (1974:51;PI. 2c, d, and e) identified similar points associated with early pottery in the greater Boston area. Since this point came from outside the shelter it cannot be positively associated with the Meadowood points.

Historic Occupation: Historic usage of this rock shelter is indicated by the lathing hatchet (specimen 11, Figure 8), which seems to be machine-made, and consequently must date to after 1840. The Phillips screw, as well as the quahog shell and broken glass (specimen 13) are all of recent origin. The skull of the red fox (specimen 5) probably represents recent use of the shelter as a fox den when not visited by man.

CONCLUSIONS

The most striking characteristics of this spacious rock shelter is the paucity of cultural remains in it. Indeed one may question what is the minimal acceptable evidence with which to infer the presence of man. No doubt men of the remote past could enter into and depart from such a site without leaving a single grain of evidence for the grist mill of the inquiring archaeologist. The fact that there are two features, both hearths, in the site suggests that perhaps on two occasions the site served for at least overnight stays during which a fire may have been needed for warmth, cooking, and perhaps to purge the area of insect pests.

Since the floor of the shelter slopes at a 30° angle, and the roof is not
impervious to the elements, the site, at least from this author's perspective, would have been a most uncomfortable place in which to camp. Although the floor of the shelter covers approximately 76 ft², it would appear from the lack of cultural debris in the entire southwestern section (Figure 2) that a good section of available floor space was not used. Head room was highly variable throughout the shelter. In the downhill entrance there was about 4 ft of space. Once inside in the vicinity of the two hearths there was 6 – 8 ft. However, in this area there was one large boulder which hung down in the center of the roof. When an excavator stood quickly to stretch the back from the labors of troweling, the presence of this boulder (Figure 3) frequently impressed itself upon the mind of the laborer! Artifacts seem to have the densest concentration in the northwestern section of the site. Here the uphill entrance is open to sky, or else in the vicinity of specimens 2, 3, 6, 7, and 8 (Figures 2, 4) head room is less than a foot. It is difficult to perceive any correlation between head room and the distribution of cultural materials.

In spite of physical limitations, the few artifacts found within the shelter do indicate repeated intermittent use by the practitioners of several New England cultural traditions over a long period of time. Since only three chert flakes (specimens 2, 8, and 18) and one quartz core (specimen 14) were recovered, the site would appear not to have served as a workshop for the manufacturing of lithic tools. These objects, as well as the others, would appear to have been transported here from elsewhere.

Since seven of the 19 objects found in the site were projectile points, it is reasonable to conclude that the site may have served as a temporary hunting camp. Wiegand (1983:1) in his extensive survey of 20 rock shelter sites in southwestern Connecticut points out that this same conclusion was arrived at independently by several investigators of northeastern rockshelters. He also notes that in the pages of the Bulletin of the Archaeological Society of Connecticut the percentage of rockshelters reported is obviously far greater than the actual proportion of rockshelters to open sites in the state. Rockshelters are obvious landmarks to which the investigator is easily attracted. If they frequently contain the meager artifactual remains of what might be called a "temporary hunting camp", this raises the difficult question of how one recognizes a "temporary hunting camp" situated in the open without an obvious landmark. This question would best be answered in the context of a tightly controlled regional test pit survey. It is perhaps safe to assume that the wandering hunter away from his resident village would have used a rockshelter, if he came across one or knew of one in the area. However, he was no doubt sufficiently prepared to spend the night in the open, if necessary.

The other artifacts from this shelter could all have been useful additions to the tool kit of either the hunter of game or the gatherer of plants. Plants would include either raw materials for making tools or food resources. During excavation numerous burrs of the now extinct American Chestnut (Castanea dentata) were encountered in the topsoil. These could have fallen in through the openings in the roof, or may have been deposited by animals. On the hillside outside the shelter there were several heavy, weathered beams of chestnut which were preserved because they had fallen across large rocks which supported them above the damp soil. There was no indication of human usage of chestnut. Aquatic products, either plant or animal could have been collected from the adjacent wetlands at the base of the eastern side of Sugar Loaf Hill. A formal catchment survey was not done. Nevertheless several reasons may be suggested why hunters and gatherers may have returned on repeated occasions to this site.

Eight artifacts as described above (specimens 3, 4, 6, 7, 11, 12, 15, and 17) exhibit wear or re-sharpening on their edges. If it is assumed that these patterns of attrition were produced at the site, then it is further implied that a range of economic activities took place there. For example, the wear patterns
on the end scraper (specimen 6) indicate that it was used on hard materials, rather than cleaning skins. It could have been used for making and repairing hunting equipment. The quartz flake knife (specimen 9) could have been used not only to make and maintain equipment, but also to butcher the kill. The blunt edges of the quartzite flake (specimen 17) appear to have been rubbed on something soft and resilient such as skins. Since Meadowood points are often found with Vinette I pottery in habitation sites (Ritchie 1965a:188-190), it may be significant that no pottery was found with the two Meadowood points. Pottery is not to be expected in a temporary camp. The wear on the tip of the untyped side notched point (specimen 15) is difficult to interpret. Perhaps it was used on skins or wood. The tip is too wide to have been a perforator. It is hoped that the data presented here will prove to be useful in respect to defining regional settlement patterns and their adaptive strategies in northwestern Connecticut.

ACKNOWLEDGEMENTS

The late Sidney Hessel from Washington, Connecticut, and his daughter, Susan, started work at this site in 1964 after obtaining permission to excavate from Mrs. Robert Schwartz, the owner of the property. Permission was also obtained from Arthur Camp, caretaker. David A. White, a graduate student at Yale University from England, helped with the excavation and mapping. William O'Connor from North Haven also did much of the digging. Douglas F. Jordan, Professor of Anthropology at the University of Connecticut and former State Archaeologist, visited the site. The Greater New Haven Archaeological Society has provided support for typing this manuscript.

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ABSTRACT

An overview of prehistoric and Contact period archaeology at Nantucket Island is presented as a survey of excavated sites and artifacts collected over the past 100 years. The Marshall Midden, a Contact period component of the Marshall site excavated by the University of Massachusetts/Amherst is presented in detail. Findings demonstrate that a number of site collections are available for study concerning research problems from the Paleo-Indian period through Historic period Native Americans.

ENVIRONMENTAL BACKGROUND

Nantucket Island is located 38 miles or 23.8km southeast of Wood's Hole, Massachusetts (Figure 1). It is a remnant of end moraine and outwash plain presently above sea level. It is the easternmost island in Nantucket Sound and its shoals form the southern boundary of the Gulf of Maine. Bedrock is more than 450m below the surface (Oldale 1969). Atop bedrock the island consists of sand, gravel, silt, and clay deposited during episodes of high stands of the sea and glaciation. According to the recent work of Robert Oldale (1976, 1981, 1985, 1986), the Cape Cod Bay lobe of the last Wisconsinan ice sheet at its maximum extent covered most of the island. The ice front, in retreat by 16,000 B.P., and meltwater laid down a sequence of outwash plains and ice-contact deposits. A readvance produced a thrust moraine across the island (Woodworth 1934; Oldale and O'Hara 1984). This moraine appears to be related to the Ronkonkoma Moraine of southern Long Island and the Martha's Vineyard Moraine. Deglaciation occurred soon after as the ice retreated to the position marked by the Buzzard's Bay, Sandwich, Charlestown, and Harbor Hill moraines (Schafer and Hartshorn 1965:102).

The soils which developed on the post-glacial surface (Langlois 1977) show the influence of the glacial substrate. For example, the sand and gravel outwash deposits are very porous and the clay and silt deposits have poor drainage. Correlations between soils, vegetation, and prehistoric land use are strong (Little 1983a).

When the ice front was at its maximum advance, sea level was perhaps 100m lower than today, and a large amount of the continental shelf was dry land. This is suggested by mammoth and mastodon teeth dredged up by fisherman on Georges Banks and elsewhere; some may be riverine outwash, however (Oldale 1976, 1986; Barber 1979:163). As the ice melted, sea level rose and the sea transgressed the land. Nantucket, once a high place on the mainland with fresh water lakes to the north, is today only a small unstable sandy island surrounded by the sea. Storm winds and waves have been eroding the island's shoreline for about 5000 years (Oldale 1985; Gutman, et al. 1979). Storms, however, also bring useful resources such as live surf clams, scallops, quahogs, fish, lobsters,
drift whales, and driftwood to island beaches (Little and Andrews 1982, 1986).

![Diagram of Nantucket Island location moraine system of Southern New England](image)

**Figure 1.** Nantucket Island location moraine system of Southern New England (After Schafer and Hartshorn 1965).

**ARCHAEOLOGICAL BACKGROUND**

Valuable collections have been made over the past hundred years by college professors. In addition, the Shawkemo Chapter, the first Massachusetts Archaeological Society chapter, carried out several well documented excavations under the direction of Edward Brooks and Ripley Bullen between 1939 and 1949. A number of islanders have extensive artifact collections with provenience records. In 1978 the Nantucket Historical Association, supported in part by a Survey and Planning Grant from the Massachusetts Historical Commission, undertook a survey of archaeological records, sites, and collections in conjunction with a site survey and field school being conducted by Barbara Luedtke at the University of Massachusetts Quaise Field School (Little 1979a, 1980; Luedtke 1981).

The 1978 survey provides a substantial data base for further research. The artifact styles observed in island collections -- Woodland triangles, Jack's Reef Corner Notched, Greene, Fox Creek, Lagoon, Rossville, Meadowood, Orient Fishtail, untyped side notched, Susquehanna Broad, Squibnocket Triangles, Small
Stemmed, Brewerton Eared-Notched, Stark, Neville, and bifurcate base -- are radiocarbon dated on the mainland from about 350 - 9000 years B.P. We have since identified additional Early Archaic styles and five fluted points, one of which has provenience and has been identified as a reworked Clovis point (Dena Dincauze, personal communication 1983). Artifacts from the Middle Woodland and other periods, some of which are untyped, often are made of high quality lithics. Pottery, bone tools, and heavy tools are well represented.

Although the data are limited and biased, Table 1 shows the distribution of artifact styles for five collections catalogued by D.F. Dincauze in 1978, compared to data from Ritchie’s Martha’s Vineyard sites.

Table 1. Distribution of Styles for 644 Nantucket Points Catalogued by D.F. Dincauze in 1978. For comparison, in parentheses are the percentages for the 429 points identified by Ritchie (1969) at six Martha’s Vineyard sites (Little 1979b).

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</tr>
<tr>
<td>Middle and Early Archaic:</td>
<td>8%</td>
<td>(.5%)</td>
</tr>
</tbody>
</table>

These data show that at Nantucket the percentage of (usually quartz) Small Stemmed and Squibnocket points is lower and the percentage of (usually felsite) Levanna-like points is higher than at Ritchie’s six Vineyard sites (Ritchie 1969).

Study of 106 inventoried sites revealed that the 56 prehistoric shell midden sites all lie within 1km of sheltered shellfish habitats. The distribution can be related to the availability of shellfish beds in estuaries and to the erosion which takes place on unprotected beaches; it shows that people did not carry shell any farther than necessary (Little 1983b, 1986; Little and Andrews 1986:23). Transgression of the land by the rising sea would have been larger at Nantucket with her shallow waters than at Martha’s Vineyard with deep adjacent waters. The drowning of vast areas of coast may account for the paucity of Late Archaic shell middens and artifacts at Nantucket as noted.

Another determinant of site location is the prevailing northwest winter wind, which strongly biases site aspects to southeasterly directions. It is proposed that winter sites must face southeasterly (Little 1984, 1985). Recent shell seasonality data from Cape Cod support this hypothesis. Collection dates for prehistoric quahog shells show that all winter Late Woodland shell concentrations face southeasterly (McManamon 1984:391; Little 1986).

Because mariners tried to avoid the dangerous shoals near the island, there were few early contacts with Euro-Americans. Historic records provide little information about about Nantucket during the Contact period. According to an 1807 report, Nantucketers did not coin wampum and most clothing consisted of "coarse mats, made of grass", because deer were scarce (Freeman 1807:35). Settled by English families in 1659, by 1750 Nantucket had an English town with framed houses and a number of Indian settlements consisting of both wigwams and framed dwelling houses (Little 1983a, No.4)
PROSPECTS FOR FUTURE WORK

Peter Dunwiddie of the Massachusetts Audubon Society at Nantucket has been studying plant succession and pollen cores, and Robert Oldale of the United States Geological Survey, Woods Hole, has an ongoing interest in glacial and periglacial effects. Elizabeth Little and Clinton Andrews, with the Nantucket Historical Association and the Maria Mitchell Association, continue their work on use of marine foods.

The archaeology committee of the Nantucket Historical Association does not encourage excavations other than those for survey or salvage. Too many sites at Nantucket have been excavated without publication (McDowell-Loudan 1978). Material in storage from a number of sites could help to answer current questions as well as formulate future research strategies. The Nantucket Historical Association will make this material available to qualified researchers and students under strict guidelines and supervision. An example of the analysis of previously excavated material and how it can relate to our understanding of the past is presented in the remainder of this paper.

THE MARSHALL MIDDEN: A FORGOTTEN PAGE IN THE CHRONOLOGY OF NANTUCKET

INTRODUCTION

The Marshall site was investigated as part of the University of Massachusetts/Amherst 1966 summer field school. Dr. William Harrison was the professor and the field crew was based at the University of Massachusetts Nantucket Field Station. The Marshall site is located between Shinno and Pinny points on the south shore of Nantucket Harbor, in the hollow between two stabilized sand dunes (Figure 2). Excavation consisted of five units: Datum A, Sections A and B; Datum B; Datum C and test pits amounting to over 2500 ft² (153 m²). Datum point A was established in the swale and Datum B was established on top of the west ridge. Excavation at Datum B yielded a cremation burial and a separate primary burial associated with pottery. A charcoal sample from the primary burial at Datum B produced a radiocarbon date of 960±80 yrs B.P. or A.D. 990 (GX-1577). Datum A, Section B evidenced Late Archaic and Late Woodland workshop sites. The material also indicated a high degree of mixing with a Colonial dump site located to the south of the section. Two 5x5 ft (1.53 m square) test pits placed northeast of the ridge at Datum C produced further evidence of the Colonial dump. The shell midden, the subject of this report, was designated Datum A, Section A.

Midden excavation methodology incorporated standard practices for the time and was essentially pre-metric. The excavators layed out an area of 375 ft² (46.8 m²) in 5 ft (1.53 m) grid squares located by north and west coordinates. All soil removed was sifted through a 1/4 inch screen. Excavation was by trowel in 5 inch (12.7 cm) arbitrary stratigraphic units.

STRATIGRAPHY

At the 5 inch (12.7 cm) level, three lateral differences in soil configuration were noted (Figure 3). The shell midden was designated soil Facies A and consisted of black organic soil mixed with shell particles. While mainly homogeneous, two shell lenses were noted during excavation. Lens 1 consisted of several large whelk shells (Busycon sp.) in the northeast corner of excavation unit N2W10. Lens 2 appeared as trench of denser black earth and shell. It ran
Figure 2. Sketch map of the Marshall site.
Figure 3. Datum A, Section A, Stratum 1, 5-10 in. Facies A: Dark organic shell midden soil; Facies B: "Cocoa brown" soil with some shell; Facies C: Dark mottled yellow sand; Lens 1: Whelk shell concentration within midden; Lens 2: Dense black earth and shell concentration within midden.
through the center of units N2W9, N1W9, and into the unexcavated area. The midden appeared to have a flat floor at the 10 inch (25.4cm) level. The top 10 inches of the site was designated Stratum I. Facies B was identified as a "cocoa brown" soil horizon to the east of Facies A. It contained some shell, but not as much as in the midden proper. In the northeast section of the excavation, Facies B interfingered with a dark mottled yellow sand designated Facies C.

Stratum II occurred below the 10 inch (25.4cm) level. It was composed of a clear yellow sand that was approximately 5 inches (12.7cm) thick and appeared to slope to the south. Stratum III consisted of a dense pale yellow sand (Figure 4).

CULTURAL STRATIGRAPHY AND FEATURES

Interpretation of the midden is complicated by the effects of down slope movement from components above, Colonial dumping, and possible curating of artifacts by the inhabitants themselves. Generally, Stratum I indicates an Early Contact midden occupation. Strata II and III give testimony to Middle and Early Woodland occupation beneath the midden.

The two component dichotomy is mirrored in feature distributions. Three features in addition to the midden lenses were identified (Figure 5). Feature 1, a pit yielding a shell radiocarbon date of 385+95 B.P. or A.D. 1565 (GX-1870) was identified near the bottom of Facies A (Figure 6). Feature 1 served as a storage pit lined with a 6 inch (15.2cm) layer of whole scallop shell with edges pointing upwards. This was superimposed on a smaller, earlier pit designated 1b. After removal of its contents, Feature 1 was refilled with organic rich soil mixed with shell. Later another small pit was dug into the feature and refilled in several episodes, each capped with a layer of sterile yellow sand.

This technology for filling empty storage pits with trash is typical of Contact period sites and reported at the Fort Hill site in Hinsdale, New Hampshire, and also at the Fort Hill site in Springfield, Massachusetts (Pretola, 1985; Thomas 1979). Several artifacts were recovered from this feature including a fragment of sheet brass, a quartz Levanna point, and a dense accumulation of faunal material.

Features 2 and 3 were detected 2 inches (5cm) into Stratum II. They consisted of a complex of postmolds and fire reddened hearth areas associated with scrapers and mammal bone. The features suggest an occupation predating the formation of the shell midden.

ARTIFACTS

At present, artifacts from the Marshall midden are being curated by the Anthropology Department of the University of Massachusetts/Amherst. Stratum I yielded the bulk of the artifacts. Thirteen Levanna points predominated, but earlier points such as a Brewerton Eared Triangle, Rossville, Bare Island, Jack’s Reef Pentagonal, and a broadspear were also recovered (Figures 7 - 11). Some of these forms may have been curated or have such a great time depth that they were still in use in Contact times. Alternatively, the earlier point types may represent admixture from other components due to cultural disturbance or downslope movement (discussed above). Stratum II yielded a Meadowood-like projectile point (Figure 12), reinforcing the idea of a two component site. Non-projectile point artifacts from Stratum I included preforms, bifacial and flake blades, choppers, awls, drills, scrapers, utilized flakes, possible bone point, bone needle, and shell piercing tool (Figure 7). Ground stone objects included hammerstones and grinding stones as well as a gorget and
Figure 4. Midden cross section, Datum A, Section A.
Figure 5. Locations of features.
Figure 6. Feature 1 location and profile.
Figure 7. Artifacts, Stratum I, 0 - 5 in.
Materials: 7, 10, 15 - 18, 20 - 22, 25, 28, 29, 34 - 36. porphyry; 1, 6, 8, 9, 13, 31, 32. felsite; 3 - 5, 14, 23, 24, 26, 27, 30, 33. quartz; 12. bone; 11. shell.
a polishing stone (Figures 8 and 11). In all, there were 154 artifacts manufactured from locally available porphyries, felsites, quartz, quartzites, and exotic jasper. The flake count demonstrates the relative frequencies (Figure 13).

The pottery sample from the Marshall Midden, though small, also demonstrated a two component site (Figure 14). Sherds from Stratum I (designated pottery class A) appear to be Late Woodland and Contact period ceramics on the basis of associations, shell temper, and fine paste. Sherds from Stratum II and III (pottery class B) were coarser in texture, appearing similar to Middle Woodland Point Peninsula Plain pottery as described by Ritchie and MacNeish (1949:103).

European items represented problematic Native American use (Figure 15). Unlike Feature 1 where the association cannot be questioned, objects from other parts of the midden could represent mixing. Glass bottle fragments suggest an early to mid-18th century date (Noel Hume 1961:99-100).

FAUNA, FLORA AND GEOGRAPHY

Only the faunal remains from the undisturbed Feature 1 can be studied with some confidence because of mixture with the Colonial dump. Feature 1 floral and faunal remains included white-tailed deer, sturgeon, striped bass, white perch, winter flounder, and unidentified seed, fish, mammal, and bird remains. Striped bass can be found inshore all summer, although they are especially liable for capture during the spring and fall migration runs. They winter in deep water and are hard to catch at that time. The white perch (Morone americana) are available except for winter when they retreat into deep bays and become torpid. Winter flounder (Pseudopleuronectes americanus) is available in spring and fall, less so in summer, and are absent from the coast in winter. The sea sturgeon (Acipenser sturio) spawns in fresh water in spring, can summer in fresh water, then runs back to the sea in September (Bigelow and Schroeder 1953).

As these faunal remains would seem to indicate, the feature was probably filled during the spring, summer, or most likely, fall. On the basis of floral and faunal material, a mild weather habitation is likely.

Shell analysis suggests an almost equal dependence on bay scallop and quahog followed by oyster and soft-shell clam with a very small amount of other shell species. All are available in the area today. Shell midden lens 1 yielded several whelk shells. This is most likely to happen in summer when whelk are available in summer when they come inshore to spawn, but they can be cast up by storms in fall and winter as well (Little and Andrews 1986). Geographic aspects of the Marshall Midden demonstrate that the site is protected from the north and west winter winds and so could have been occupied in winter and early spring.

INTERPRETATIONS OF THE MARSHALL MIDDEN

The Marshall Midden contains an Early Contact Native American occupation on the south shore of Nantucket Harbor. The radiocarbon date and undisturbed association of sheet brass conclusively date Feature 1 to the early Historic period. The artifact assemblage consists predominantly of Levanna points, various blades, preforms, gravers, and piercing tools. Lithic studies suggest that porphyry and jasper were the favored chipping materials with felsites, quartz, and quartzite used to a lesser degree (Figure 13). There were faint traces of earlier Woodland occupation below the midden and intrusions from a nearby Colonial dump.
Figure 8. Artifacts, Stratum I, Facies A, 5 - 10 in.

Artifacts: 1. corner-notched blade; Levanna point; 3. preform; 4. retouched flake; 5. lanceolate blade fragment; 6. retouched Levanna point; 7. end scraper fragment; 8, 9. iron fragments; 10. gorget; 11. blade fragment; 12, 13. awls; 14. drill; 15. chopper; 16, 18, 23, 24. side scrapers; 17, 19 - 22. end scrapers.

Materials: 2, 5, 7, 11 - 13, 16, 17, 21, 23. porphyry; 1, 4 felsite; 3, 6, 14, 19, 20, 24. quartz; 10. shale; 15. metamorphosed porphyry; 18. jasper.
Figure 9. Artifacts, Stratum I, Facies B, 5 - 10 in.
Figure 10. Artifacts, Stratum I, Facies C, 5 – 10 in.
Artifacts: Bare Island point; 2 – 4, 11. Levanna points; 5. unfinished Levanna point; 6, 10, 16, 19. side scrapers; 7, 8, 9. blade fragments; 12. drill tip; 13. graver; 14, 18. end scrapers; 15. chopper; 20 – 22, 24. preforms; 17. denticulate tool; 23. ground stone fragment.
Materials: 2 – 5, 8, 10, 12, 15, 16, 19 – 21, 24. porphyry; 7, 13. felsite; 1, 6, 9, 11, 17, 18. quartz; 22. quartzite; 23. granitic gneiss.
Figure 11. Ground stone objects, Stratum I, 0 - 10 in.
Artifacts: 1, 3, 6. hammerstones; 2, 5. grinding stones; 4. polishing stones.
Materials: 1. diorite; 2. quartzite; 3. quartz; 4, 5. metamorphosed sandstone; 6. porphyritic granite.
FEATURE 1

FEATURE 2

STRAVUM III

STRAVUM II

Figure 12. Artifacts from Features 1 and 2 and Strata II and III.
Feature 1: 1. side scraper; 2. retouched flake; 3. grinding stone fragment; 4. sheet brass fragment; 5. end scraper.
Feature 2: 6, 8 end scrapers; 7. chopper.
Stratum III: 9. awl; 11. retouched flake; 12, 13. utilized flakes.
Materials: 1, 5, 6, 9, 10, 12, 13, 16, 17. porphyry; 2, 3, 7. fesite; 4. brass; 8, 11, 14, 15. quartz.
White-tailed deer was the major game food. Fish such as the striped bass, white perch, winter flounder, and sturgeon were also caught. Shellfish made up another fraction of the diet. There was slight evidence for fowling and possibly, gathering plant materials. The Marshall Midden appears to be the shell heap, dump, and storage area for an adjacent coastal Native American residence and could have been utilized during several or all seasons of the year.
Figure 14. Marshall Midden pottery.
Stratum I: Pottery Class A; Stratum II and III: Pottery Class B.
Figure 15. European Artifacts, Stratum I
1. glass fragments; 2 - 4. kaolin pipe fragments; 5. iron fragment; 6. small hand wrought iron nail (brad).

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ARCHAEOLOGICAL AND PALEOENVIRONMENTAL INVESTIGATIONS
ON FISHERS ISLAND, NEW YORK: A PRELIMINARY REPORT

ROBERT E. FUNK
NEW YORK STATE MUSEUM

JOHN E. PFEIFFER
WESLEYAN UNIVERSITY AND SUNY AT ALBANY

ABSTRACT

Prehistoric cultural remains on Fishers Island, New York were first described by Ferguson (1935) and later studied by Briggs (1976). Archaeological investigations by the present writers from 1985 - 1988 have outlined a cultural sequence ranging from Late Archaic to Late Woodland, supported by 13 radiocarbon dates. Evidence of Paleo-Indian occupation is lacking. The Early and Middle Archaic periods are weakly represented in surface collections. At least ten previously unrecorded sites were located and tested during systematic surveys, and limited excavations were conducted on shell middens first explored by Ferguson (1935). A diversity of site types were defined including coastal shell middens, horticultural stations, lithic workshops and hunting-gathering camps. Both marine and terrestrial food resources were exploited. Most sites were definitely occupied in the fall but other seasons cannot be ruled out. Paleoenvironmental reconstruction is in progress, based on pollen samples obtained from bogs and salt marshes.

INTRODUCTION

The concept of the Fishers Island project began to take shape when the senior author was invited to the island to lecture on New York prehistory, under the auspices of the Henry L. Ferguson Museum, in July 1984. Accompanied by John E. Pfeiffer, he was treated to a tour of Fishers Island sites by Charles B. Ferguson, who owns a summer residence on the island and serves as president of the museum association. A number of archaeological sites including shell middens had been reported almost 50 years previously by Mr. Ferguson's father, Henry L. Ferguson (1935). Many of the sites were still in existence in 1984. Using the data and materials collected by Henry L. Ferguson (the collection is presently stored in the museum that bears his name), his granddaughter, Marion Ferguson Briggs, synthesized the ecology and culture history of Fishers Island in her Master's thesis at the American University (Briggs 1976).

To further assess the archaeological potential of the island, the authors decided to return in June 1985 for two days of survey and testing. Encouraged by the results of those investigations, we planned a longer period of archaeological field work in the spring of 1986. This was to be a joint project by the New York State Museum, the Henry L. Ferguson Museum, and the Archaeological Society of Southeastern Connecticut.

Our principal research objective was to delineate prehistoric cultural ecology and culture change in relation to the changing postglacial environment on and around Fishers Island. We hoped to obtain sufficient data to treat the island as a microcosm of adaptive patterns in the prehistory of coastal New York.
and New England. Subsidiary objectives were:

1) To generate a radiocarbon-dated sequence of archaeological complexes on the island.
2) To map the distributions of sites of all periods in relation to microenvironments on the island.
3) To reconstruct the postglacial ecological history of the island, including the effects of rising sea level on land area, floral and faunal resources, and human settlement.

Shell middens were one focus of our investigations. However, evidence suggested that they were relatively recent, and shellfish were only one of a variety of resources utilized by the Indians who lived on the island. We expected to find a number of non-shell sites because deer, birds, fish, nuts, and other resources were probably also important to prehistoric subsistence. A number of important questions presented themselves: Were shell middens seasonally occupied, perhaps in the spring and summer? Were people living on the island all year round, instead of making brief visits by canoe from the mainland? If present throughout the year, did they maintain a seasonal round, exploiting terrestrial animals and nuts in the fall and winter, engaging in fishing and mollusk collecting in the spring and summer? Where did they obtain materials for their stone tools? What were the oldest occupations on the island? Was it connected with the mainland during lower sea level in the Paleo-Indian and Early Archaic periods?

In 1986 our investigations commenced on May 19 and were terminated May 23. With field work limited to just five days, the crew was initially divided between the two main sites tested in 1985, Hawks Nest Point and Two Springs. Later in the week, the crew was further divided, some members working at the Sharp and Arrowhead Beach sites. A survey transect across the eastern part of the island resulted in the discovery of the Grassy Pond site. On the last day, pollen samples were collected from a small kettle hole pond and from East Harbor. Later in the summer, pollen samples were also taken from the HLF Bog and the Buckner Salt Marsh. Completion of the transect started in May resulted in the discovery of the Cant site.

The second full week of excavations took place from May 10-15, 1987. We concentrated our efforts on more extensive exploration of the Sharp and Cant sites and also tested the newly discovered Barlow Pond site. Plans for further work at the Grassy Pond and Hawks Nest Point sites did not materialize. The third season of field investigations consisted of two weeks in May, 1988. During this period further excavations were carried out at Barlow Pond and a major survey transect was completed in the middle of the island. Three new sites were discovered: Turtle Pond No. 1, Turtle Pond No. 2, and Betty Matthiessen. Organic samples from the archaeological sites were submitted to Geochron Laboratories for radiocarbon dating. Samples from HLF Bog and Buckner Salt Marsh were also submitted for radiocarbon dating. In this article, we provide brief site reports, including the radiocarbon dates, and conclude with a summary and preliminary interpretations of the data.

FISHERS ISLAND GEOGRAPHY

Fishers Island is located two and one-half miles from the Connecticut coast and ten miles north of the eastern tip of Long Island at Montauk Point. It straddles the meridian at 72° west longitude and lies at about 41° 24' north latitude. Although continuous with Long Island Sound, the body of water between Fishers Island and Connecticut is called Fishers Island Sound and the body of
water between Fishers Island and Montauk Point is referred to as Block Island Sound.

The island is 6.7 miles long and ranges from 0.2 to 1.4 miles in width (Figure 1). It is roughly linear in shape, but features many embayments and coves along the shore, chiefly on its north side. It is a segment of a Wisconsinan glacial moraine, locally the Fishers Island moraine, that projects a maximum of 105 feet above sea level. The moraine also surfaces to the east along the Rhode Island coast as the Charlestown moraine, and to the west on Long Island as the Orient moraine (Sirkin 1986). These morainal segments represent the recessional position of the Connecticut and the Connecticut-Rhode Island lobes of the late Wisconsinan ice sheet approximately 21,000 years ago (Sirkin 1986).

As might be expected, Fishers Island displays the irregular, pitted surface that characterizes moraines. There are numerous kettle holes and small gravelly hills interspersed with level terrain; till is predominant but outwash and even lacustrine deposits are represented. The larger kettle holes not open to the sea are fresh water lakes and ponds; others are brackish because they are at least occasionally subject to incursions of salt water during storms and high tides. There is also evidence that some of the coves and harbors are former large kettle holes breached by rising postglacial sea level. Running water is difficult to find on the island, generally occurring as springs. Streams are almost nonexistent, manifesting as very small brooks draining kettle holes at three places known to the writers.

Undeveloped portions of the island are covered by wooded areas similar in species composition to Connecticut and Long Island. The island was almost completely denuded of trees in the 1938 hurricane, so most of the trees are relatively young. There are large areas of scrub as well as dense undergrowth of bittersweet, briars, and other shrubs. Poison ivy seems to be everywhere.

Large terrestrial mammals are completely absent from the island except for the occasional deer that swims across from the mainland. Small mammals such as squirrels, chipmunks, woodchucks, raccoons, and mice are occasionally seen but rabbits, introduced in the 1940's, are extremely abundant. Marine mammals including seal and porpoise inhabit the waters surrounding the island. Ospreys, herring gulls, and other birds are common.

Judging from the mammal, bird, fish, reptile, and mollusk remains preserved on some prehistoric sites, the island offered a considerable diversity of food resources to Native American residents. However, raw materials for stone tools were limited to the pebbles and cobbles transported by the glacial ice from Connecticut and points north. The most abundant material for the Indian knapper was milky quartz in the form of cobbles that were available on some beaches and in till exposures.

THE HAWKS NEST POINT SITE

The largest shell midden on the island is located on the south-facing slope of a hill (elevation 55 feet) that overlooks the west shore of West Harbor at Hawks Nest Point (see Figure 1). Collectors have been digging in the midden since before the 1930's (Ferguson 1935: 6,7). Shells visible on the surface cover an area at least 300 feet (90 m) long and 70 feet (21 m) wide. The western part of the site adjoins a swamp that empties into the harbor via a drainpipe underlying the Hawks Nest Point Road. This swamp may, at least in part, be the result of a rise in the water table following construction of the roadbed. It probably occupies an old kettle hole. The site was apparently cultivated in early years of the 20th century (Ferguson 1935: 6).

Ferguson (1935) and Briggs (1976) reported the past discovery of steatite
Figure 1. Map of Fishers Island showing locations of sites described in text.
bowl fragments, projectile points, and stone flakes on the surface of the hill behind the site. The shell midden itself had yielded a variety of artifacts including a boatstone, celt, hammerstones, netsinkers, chipped stone projectile points and scrapers, a soapstone bowl fragment, bone awls, fishhooks, and potsherds. Briggs (1976) listed the ceramic types Windsor Brushed, Windsor Cord-Marked, Sebonac Stamped, and Crossed Cord-Marked Exterior/Smooth Interior (Smith 1950), all of which were shell tempered. Although projectile point types were not identified, she suggested a Late Woodland provenience for the midden.

Charles B. Ferguson took the present writers to the site in June 1985. Despite a heavy overgrowth of bittersweet, numerous shells could be seen on the surface and it was obvious that the thickest and presumably most productive parts of the midden had been extensively dug by collectors. A 1.0m by .5m test pit on the lower slope of the site, about 10m from the road, disclosed stratified deposits. From the surface to a depth of 33cm was a dark gray to black earthy zone, generally homogeneous in appearance and containing little shell. This was probably the plow zone. It was underlain by a 20cm thick layer of light gray to grayish brown earth, shell, and fire-cracked stones. On the north profile this second zone overlay a yellowish-brown sandy subsoil. On the west profile faintly stratified deposits continued to a maximum depth of 1.2m. The upper part of these deposits was mottled in color, displaying dark horizontal streaks. It contained a fair quantity of shell fragments and occasional fire-cracked rocks. From .9m to about 1.1m below surface was a faintly distinguishable reddish-brown zone. The basal zone (1.1 - 1.2m below surface) was gray in color, with a thin lens of shell at its base. The shape of these deposits suggested that we had encountered the eastern portion of a large storage pit, opening from the base of the second zone.

The feature (designated feature 1) produced a Levanna type point of gray chert (Figure 2:5), potsherds, shells and shell fragments, refuse bone, charcoal and a probable charred corn kernel (identified by Charles Sheviak, Curator of Botany, New York State Museum). The mollusks represented included soft clam, quahog, and scallop.

Henry L. Ferguson (1935:6) reported finding numerous pits, some of large size, on the site. We had hoped to fully excavate feature 1 upon our return to the island in 1986. Unfortunately, we were unable to relocate our test pit under the dense, renewed overgrowth. Also, as will be seen, we failed to find any other large pits in our 1986 explorations.

We returned to Hawks Nest Point on May 19, 1986 and established a grid system. By excavating a series of widely spaced units in the central part of the site, where the midden was known to be thickest and most productive, we hoped to ascertain the potential for relatively undisturbed deposits including features. We were also looking for indications of stratigraphy, and wanted a sample of systematically collected artifacts to compare with items previously found on the site by H.L. Ferguson (1935).

The EO line was oriented 20° east of north and perpendicular to the road. The EONO stake was set on the lower slope in an area where amateur digging appeared to be minimal. Following clearing of brush, we set an east-west row of stakes along the NO line. A contour map was made with the aid of a transit. By May 23, we had excavated seven one-meter squares (see site map, Figure 3). They all lay to the north and east of the exceptionally disturbed area. Two test trenches were also excavated on the lower slope near the swamp, and two 50 by 50 cm tests were also emplaced on the higher slope some distance west of the grid (off the map). Thus the total area excavated in 1986 was 10m².

In all excavation units the stratigraphy was much simpler than in our 1985 test. Below the surface was a brown to dark brown sandy silt containing intermixed fire-shattered stones, unmodified pebbles and cobbles, dark charcoal stained lenses, modern nails, brick, cinders, and glass, and occasional shell
Figure 2. Artifacts from Fishers Island, New York. Nos. 1 – 11 from the Hawks Nest Point site; Nos. 12 – 28 from the Two Springs site. No. 1 potsherd of Sebonac Stamped type; 2, 6 – 11, sherds of Windsor Brushed type (#2 is round-lipped rim sherd); 3 – 5 Levanna type points (#5 is missing the basal corners); 12 – 15 Susquehanna Broad type points; 16, contracting-stemmed Susquehanna-like point; 17, reworked Susquehanna knife; 18, fragment of Susquehanna knife; 19, small, thin triangular point; 20, 21, plain coarse-grit tempered potsherds; 22, large corner-notched projectile point/knife with serrated edges; 23, 24, narrow stemmed points in process; 25, 26, small stemmed points; 27, ground slate ulu; 28, quartz cobble core. Lithic materials: 3, 4, 23, 25, 26, 28, milky quartz; 5, gray flint; 12 – 16 gray to greenish-gray slate; 17, 18, red ledite; 19, gray quartzite; 22, pink quartzite; 24, reddish-brown ledite; 27, gray banded slate.
fragments. The deposit ranged from 40 - 50cm thick and rested on yellowish-brown sandy subsoil. In some squares vague stratification was evident, consisting of a lighter zone about 20cm thick (believed to be the plowzone) overlying a darker zone 20 - 30cm thick. In places the culturally sterile subsoil, identified as glacial drift, contained abundant cobbles which often protruded up into the cultural layer. In general, the historic items occurred in the upper levels of the midden.

Seven features, six probably hearths, were recorded within the grid area. None was excavated in its entirety since in each case the feature extended beyond the borders of the square. Feature 7 was finally identified as a rodent burrow. The others (Features 2, 3, 4, 5, 6, and 8) appeared to be round to oval depressions, estimated to be 40cm - 1m in diameter and 20 - 30cm in depth (Figures 4, 5). All were first detected at the junction of the midden with subsoil, but their levels of origin may have been higher, because their fill was generally indistinguishable in color and texture from the overlying deposit. In some cases the feature fill was darkly stained from charcoal; other features contained many fire-cracked stones.

Two 1.0 by .5m test trenches were excavated on the lowest portion of the site near the swamp. Test trench No. 1 was located 3m from the swamp's edge. Below the surface, which was devoid of shell, was a dark brown humus-rich topsoil 29 - 33cm thick. It overlay yellowish-brown sand containing cobbles. No shell, artifacts or other cultural material were present in either zone.

Test trench No. 2 was 3m east of test trench No. 1 and about 1m south of it (Figure 3). The dark brown topsoil, 20 - 25cm thick, contained an occasional pebble or cobbles and yielded one fragment of modern glass. At its base was a 5cm thick zone of dark brown to black earth mixed with broken shells (mostly quahog), two large mammal bones, and one quartz flake. Evidently this shell rich zone represents the extreme margins of the shell midden, generally intact below a more recent accumulation of earth and humus (a plowzone?). It rested upon yellowish-brown subsoil containing numerous cobbles.

Subsistence remains collected in 1986 from features and the lower midden deposit consisted entirely of faunal remains, which were examined by David Steadman, vertebrate paleontologist at the New York State Museum. His preliminary analysis documented the presence of large terrestrial mammals (species indeterminate), porpoise (species indeterminate), various birds, including Canada goose (Branta canadensis), goose (Anserinae sp.), heron (Ardea herodias), white-winged scoter (Melanitta fusca), and sea duck (Mergus serrator or M. merganser), and fish (species not determined). A large bone from the shell zone in test trench No. 2 appears to be from a cow, indicating considerable disturbance in that peripheral area of the site.

Artifacts found in our 1986 excavations comprise one Levanna type point of quartz (Figure 2:4); a triangular biface (Levanna ?) in process (Figure 2:3); a possible hammerstone; 59 potsherds; and 133 pieces of debitage (nearly all white quartz or quartzite). Many potsherds were too small for precise identification of surface treatment or decoration, and only three were rim sherds. Although analysis is incomplete, the only types represented appear to be Windsor Brushed (Figure 2:2, 6-11), and Sebonac stamped (Figure 2:1)(Smith 1950). Most of the sherds are shell tempered. The Levanna points and ceramics are compatible with a Late Woodland origin of the shell midden, as proposed by Briggs (1976). A terminal Archaic occupation of the site is indicated by the reported finds of soapstone sherds. Analysis of the vertical and horizontal distribution of artifacts and debitage by Beth Wellman supported the interpretation of two basic stratigraphic zones at the site. The upper zone was probably created by plowing. She also analyzed the lithic debris and concluded 1) that most of the raw material was available as pebbles or cobbles in glacial till or on the island’s beaches, 2) that the frequencies of the core fragments, primary flakes
Figure 3. Map of Hawks Nest Point site.
Figure 4. Section W1S3, Hawks Nest Point site. At tip of trowel is feature 4, a small basin-shaped hearth intrusive into glacial till from base of midden.

Figure 5. Section W9N0, Hawks Nest Point site. Adjoining meter stick is partially excavated feature 3, a small basin-shaped hearth intrusive into glacial subsoil from base of midden.
and secondary flakes indicated the full range of lithic manufacture at the site.

The 1986 excavations did not succeed in determining the exact limits of the site, nor in locating intact stratigraphy that might assist in refining the chronology of components on the site. However artifacts, debitage, subsistence remains, and feature data were recovered under controlled conditions for the first time. The Late Woodland occupants were hunting (presumably the deer, other mammals and birds), fishing and collecting mollusks. Apparently they also cultivated corn somewhere on the island. Groups larger than the nuclear or extended family may have stayed on the site for weeks at a time while harvesting these resources. The large aboriginal pits reported by Ferguson (1935) and the pit partially excavated by us in 1985 suggest some storage of foodstuffs and therefore occupations of relatively long duration.

In 1989 we plan to excavate more widely distributed tests on Hawks Nest Point, in the main midden and in the portions on higher and lower slopes of the hill. The goal will be to discern vertical or horizontal separation of components, if any, to determine the site boundaries, acquire a larger artifact sample, and recover additional subsistence data.

THE TWO SPRINGS SITE

Discovered on survey in June 1985, this north shore site is located on a small point of land that projects northward into Chocomount Cove (Figure 1; Figure 6). Here glacio-fluvial deposits (sand and small gravel) overlie and surround massive boulders. The finer deposits in turn are capped by a thin humus zone. There is no evidence the site was once cultivated. At one time the site may have been much larger since a fringe of boulders surrounds the point and extends some 100 meters out into the water. Considerable erosion of the fines may have occurred since first human occupation of the locale.

Figure 6. View looking west on Chocomount Cove toward the small point of land on which lies the Two Spring site.
Figure 7. Map of Two Springs site.
The occupied area of the site covers the small point and a portion of the adjoining, gently sloping beach that lies 1.5m above the beach and extends south and east from the site. The ground surface rises gently southward and eastward, reaching its maximum elevation at the edge of a kettle hole. Water overflowing from the kettle finds its way to the sea via two brooks, one adjoining the site on the east and the other located about twenty meters to the west. These outlets are the basis for the name "Two Springs."

Test pitting showed that the maximum area of the site is about 150m²; in Figure 7 excavation units 10, 70, and 130 were devoid of any signs of occupation. However, on a visit to the site in 1987, Pfeiffer noted features and debitage eroding from the bank of the brook some distance upstream from the main site. This suggests a narrow, linear extension of the site because nothing was found in the tests several meters back from the bank and inland to the edge of the kettle hole.

In addition to the aforementioned excavation units, a one-meter square dug in 1985, and three additional small tests, we excavated five two-meter squares (Figure 7). Below the leaf litter in these major excavation units were two discernible soil zones, the humus and the underlying yellow-brown sand/gravel in which occurred numerous boulders and cobbles. Cultural materials were recovered from the humus and from the plane of contact between the two zones. All the recognized features were at this junction or were intrusive from it into the drift deposit. We estimate that about 20% of the site has been excavated, not counting the linear extension up the brook and portions lost to erosion in the last 3600 years.

We were surprised to learn that the prehistoric components were horizontally separated, though intersecting, within the grid (Figures 4 and 5). The 1985 test square that overlapped with major excavation unit 1 produced a small stemmed point of quartz (Figure 2:26), found near a feature that contained charcoal dated 3630 B.P.+250 years, or 1680 B.C. (GX-12,564). Major unit 2, located about 2m west of the 1985 test, yielded Middle Woodland potsherds (Plate 9:20, 21), a small stemmed point of quartz (Plate 9:25), and a notched stone netsinker. Charcoal in association with sherds was dated 2605 B.P.+255 years, or 655 B.C. (GX-12,561).

Unit 3, adjoining unit 2 on the west, contained two Susquehanna knives of red "ledite", a cryptocrystalline material of sedimentary nature and, so far, unknown source (Figure 2:17, 18). Ledite was commonly used in the manufacture of Susquehanna tradition bifaces on the Connecticut mainland. Also found were a small stemmed point of quartz (Figure 2:23), an untyped corner-notched point of pink quartzite (Figure 2:22), and fragmentary bifaces of quartz and yellow jasper. Scattered charcoal from the occupation level was radiocarbon-dated 2785 B.P.+260 years, or 835 B.C. (Gx-12,562).

Five projectile points unearthed in the northern units, 4 and 5, closely resemble the Susquehanna Broad type and are chipped from a gray-green slate (Figure 2:12-16). Also found were a ground slate ulu exhibiting a deliberately created slot (Figure 2:27); and several fragmentary bifaces of chert and slate. Feature D in the northeast corner of unit 5 (Figure 8) contained a small, thin isosceles triangular point of quartzite (Figure 2:19) and charcoal dated 900 B.P.+215 years, or A.D. 1050 (GX-12,563).

The density distribution of debitage coincides nicely with the distribution of diagnostic artifacts on the site (Figures 9, 10, Table 1). Only quartz debitage and a little slate occurred in the area of the presumed Archaic component, in major unit 1. Ledite was confined chiefly to units 3 and 4 which had produced artifacts predominantly of Susquehanna affiliation. Quartzite was found only in units 2, 3, and 4 whereas quartz was present in every major unit.

Quartz debitage probably derives chiefly from the manufacture of small stemmed points. The three small stemmed points and other bifaces of this
Figure 8. Feature D in major unit 5 at Two Spring site. Small, thin triangular point of quartzite is visible on periphery of feature. Charcoal from this hearth was date A.D. 1050±215 years, or in the Late Woodland period.

| P | Potsherds |
| S | Susquehanna Broad point |
| SK | Susquehanna knife |
| ST | Small stemmed point |
| UCN | Untyped corner-notched point |
| UT | Untyped triangular point |
| B | Biface fragment |
| BP | Biface in process |
| H | Hammerstone |
| NS | Netsinker |
| U | Ulu |

Figure 9. Horizontal distribution of artifacts on Two Springs site showing materials used for chipped stone and polished stone items.
Figure 10. Density distribution of debitage according to Lithic materials, Two Springs site.
material may have belonged to two, even three components since this style and the associated quartz cobbles technology have a long history in New England (Ritchie 1969b; Lavin 1984; Pfeiffer 1984). The diagnostic artifacts and radiocarbon dates indicate occupation of Two Springs from Late Archaic through Terminal Archaic (Transitional), Middle Woodland, and Late Woodland periods.

Table 1: Depth Distribution of Debitage, Two Springs Site.

<table>
<thead>
<tr>
<th>Depth Below Surface (cm)</th>
<th>Quartz</th>
<th>Quartzite</th>
<th>Ledite</th>
<th>Slate</th>
<th>Totals</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10</td>
<td>55</td>
<td>3</td>
<td>18</td>
<td>8</td>
<td>84</td>
<td>8.5</td>
</tr>
<tr>
<td>10 - 15</td>
<td>56</td>
<td>8</td>
<td>246</td>
<td>45</td>
<td>355</td>
<td>36.0</td>
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<tr>
<td>15 - 20</td>
<td>41</td>
<td>11</td>
<td>323</td>
<td>55</td>
<td>430</td>
<td>43.6</td>
</tr>
<tr>
<td>20 - 25</td>
<td>6</td>
<td>0</td>
<td>83</td>
<td>29</td>
<td>118</td>
<td>11.9</td>
</tr>
<tr>
<td>Totals</td>
<td>158</td>
<td>22</td>
<td>670</td>
<td>137</td>
<td>987</td>
<td>100.0</td>
</tr>
<tr>
<td>Percentage</td>
<td>16.0</td>
<td>2.2</td>
<td>67.0</td>
<td>13.9</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Subsistence remains were meager on the site. A charred nut fragment, either hickory or butternut, was associated with the Susquehanna component and another nut fragment, probably hickory, occurred in unit 1 and may be of Late Archaic origin. Fragments of calcined bone, too small for species identification, occurred in features and in the general occupation zone. Thus hunting (of mammals and birds?) and nut-gathering were important activities during some episodes of occupation. Fishing, perhaps by Middle Woodland people, is also suggested by the notched netsinker. On the evidence of debitage, hammerstones, and bifaces in process, the manufacture of bifaces was a major preoccupation of the groups who lived on the site.

**THE SHARP SITE**

H.L. Ferguson (1935: 9, 10) referred to this locality as "Bay View." At the time of his investigation the midden was near the surface, relatively undisturbed, and consisted of at least four strata. It measured 150 feet (45 m) long and 90 feet (27 m) wide. He excavated one aboriginal pit on the site. Ferguson found "stone chips and potsherds" throughout his excavations. Briggs (1976) reported a broad stemmed point in the Ferguson collection that came from this midden. Charles B. Ferguson recommended that we test this area during our May 1986 reconnaissance. Permission was very kindly granted by the present owner, Penni Sharp.

The Sharp's property comprises a rectangular area bordered on the north by the road, on the south by a hedge, on the west by a woods, and on the east by a gardener's shed and the property line of the adjacent owner (Figure 11). Beyond the hedge is a narrow strip of marsh that lies along an embayment of West Harbor. The Sharp's summer residence occupies a large part of the eastern half of the property. Shell fragments are scattered over much of the lawn including the area between the house and the hedge. The property is lowest in elevation along the hedgerow and marsh, rising gradually to its highest elevation at the road and to a similar elevation in the woods to the west.

We established a north-south baseline (BO line) in the lawn west of the house. This line of stakes spaced at one meter intervals was oriented 10° east of north. Another line was set proceeding east from the EOS22 stake. Two 50 by 50 cm test units near the BONO stake, a 1 by .5m unit at EOS17, and a 1 by .5m
These tests disclosed a stratigraphic pattern unlike that reported by Ferguson (1935). High on the lawn the surficial, highly fragmented clam shells lay on and in a dark brown zone only 1cm thick. It overlay a brown sand about 75cm thick that contained rare fragments of brick and shell. The sand rested upon a dense shell deposit of undetermined depth. The test unit in section W1S17 on the west slope near the woods also revealed an apparently undisturbed shell midden below 90cm of brown sand. Stratigraphy in section E6S22 was vaguely similar to that reported by Ferguson. Under the lawn was a 20cm thick zone of mixed shell and dark brown to black earth. This zone rested upon a layer of brown sand 25cm thick, devoid of shells. Both of these zones contained pieces of glass and brick, as did a thin shell layer at 40 - 45cm. Beginning at a depth of about 45cm was a mass of densely packed, highly fragmented shell in which occurred occasional bits of brick. Around 75cm this changed into an apparently undisturbed shell midden with many whole valves of quahog and soft clam. With increasing depth scallop became numerically predominant. The water table occurred at 88cm, but the midden continued down to at least 1.2m.

Few Indian artifacts were recovered in our 1986 test pits. They consisted of 2 plain potsherds, 1 bone awl, 3 biface fragments of quartz, and 17 items of debitage (chiefly quartz). We also collected a number of shells identified as from hard and soft clam, oyster, scallop, and whelk. Faunal remains besides shell included small fragments of mammal bone and a few fish vertebrae. Historic items include fragments of glass and brick, kaolin pipes, cinders, and rusted nails.

Excavations were resumed in May 1987. Because we were unable to relocate the 1986 base stake (EONO) in the thick new grass of the lawn, we established a new north-south baseline oriented 9° east of north which later proved to be 1.95m east of the original baseline. A one-meter square (section W1S19) was laid out in the new grid system and excavated to sterile levels. A two meter square (E6S21) was located just north of the 1986 test trench (E6S22 in the original system).
In section W1519 the stratigraphy was as follows. Below a sod 5cm thick were zones of yellow-brown and gray-brown sand totaling about 30cm in thickness. Below these zones was a gray-brown to medium brown sand containing historic period trash such as rusty nails, brick fragments, kaolin pipe stems, glass, animal bones, and some broken shells. The apparently undisturbed aboriginal midden began at about 80cm below surface and continued down to the glacial sand and cobble subsoil at 1.4m. Vague lensing or stratification occurred in the midden, including a layer of refuse bone fragments at about 1.1m. The earthy component was a gray to black sand with some visible chunks of charcoal. The water table lay just 80cm deep here.

Section E6521 displayed a slightly different pattern, similar to that observed in the adjoining test in 1986. Below the 10cm thick sod was a layer of mixed black earth, pulverized shell, and modern trash averaging 35cm thick. The top of the prehistoric midden was encountered about 45cm below surface but occasional brick fragments were present to a depth of 70cm. From 75cm to subsoil the midden seemed undisturbed. The water table was reached at 75cm (requiring a pump to facilitate excavation) and the culturally sterile subsoil at 1.0 - 1.3m below surface. There was lensing and vague stratification within the midden. Feature 1, a mass of fire-reddened cobbles in section E6521, was the only feature defined on the site.

In both excavation units the midden contained thinly scattered fire-cracked rocks, unmodified pebbles and cobbles, bits of charcoal, considerable refuse bone, charred hickory nuts, and rare quartz debitage. The most numerous artifact category was potsherds, occurring throughout the midden. Two projectile points, a hammerstone, a bone awl, a small perforated bone needle, and a few other items were recovered. Large samples of shell, weighing about 900gm each, were collected from the base of the midden in both excavation units and submitted to Geochron Laboratories for radiocarbon dating. Column samples were taken from the midden for flotation and malacological analysis. Pollen samples were also collected.

The projectile points, both found in two-meter section E6521, comprise a Fox Creek Stemmed point of quartzite (Figure 12:11) and an unusual bi-pointed biface of gray chert (Figure 12:12) that somewhat resembles the Rossville type (Ritchie 1961). Apart from a very small number of quartz flakes, the only other lithic artifacts are the aforementioned hammerstone and two fragments of a soapstone vessel (Figure 13:8, 9).

There are approximately 298 identified potsherds in the collection; 17 rim sherds and 281 body sherds. These totals do not include 588 crumbs or scraps of pottery too small for positive determination of surface treatment or decoration. The great majority of sherds (59.4%) are shell tempered (Table 2). Next most important temper category is a mixture of shell and grit, the latter chiefly quartz (32.2%), followed by shell and sand (4.7%), sand (2.0%), and grit (1.7%). Exterior surfaces range in color from pale brown to medium brown to grayish brown (Table 2).

<table>
<thead>
<tr>
<th>Material</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell</td>
<td>177</td>
<td>59.4</td>
</tr>
<tr>
<td>Shell and grit</td>
<td>96</td>
<td>32.2</td>
</tr>
<tr>
<td>Shell and sand</td>
<td>14</td>
<td>4.7</td>
</tr>
<tr>
<td>Grit</td>
<td>6</td>
<td>1.7</td>
</tr>
<tr>
<td>Sand</td>
<td>5</td>
<td>2.0</td>
</tr>
<tr>
<td>Totals</td>
<td>298</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 2: Incidence of Pottery Tempering Materials, Sharp Site.
Figure 12. Artifacts from Fishers Island, New York. Nos. 1 - 10 from Barlow Pond site; 11 - 19 from Sharp site. #1, rim sherd from collared, incised pottery vessel with flat lip; 2, smooth plain neck sherd; 3, 4, smooth plain body sherds; 5 - 9, small stemmed points; 10, midsection from broad biface; 11, Fox Creek Stemmed point; 12, bipointed biface; 13, tip portion of biface; 14, fragmentary biface; 15, small, retouched flake perforator; 16, small perforated bone needle; 17, bone awl; 18, bone awl with incised decoration; 19, cobble hammerstone. Lithic materials: 5, milky quartz; 13, 15, quartz crystal; 6 - 11, 14, 19, quartzite; 12, dark gray rhyolite(?).
Figure 13. Ceramics and other artifacts from the Sharp site. No. 1, rim section of Point Peninsula Plain vessel with rounded lip and lacing hole; #2, rim sherd from vessel bearing horizontal scallop-impressed lines below the flat lip and a single scallop-impressed line encircling the lip; 3, body portion of rocker-dentate stamped vessel; 4, rim sherd from Jack’s Reef Corded type vessel with rounded lip; 5, punctated body sherd; 6, thick plain body sherd; 7, fragment of possible stone pipe bowl; 8,9, soapstone vessel fragments. Tempering material in ceramics: No. 1, 4 grit and shell; 2, shell; 3, 5, 6, medium to coarse grit.
Identified types comprise Jack's Reef Corded (Figure 13:4), Point Peninsula Rocker-Stamped (Figure 13:3), and Point Peninsula Plain (Figure 13:1). Surface treatment ranges from plain (Plate 13:6) to corded (Plate 13:4) to brushed. The predominant lip form on rim sherds is semi-flat (13 examples). Only 3 lips were classified as flat in cross section, and 1 was classified as rounded. One possible pipe bowl fragment of soft stone was unearthed (Figure 13:7).

Analysis showed no obvious patterning in vertical distribution of ceramic types and attributes within undisturbed portions of the midden (Tables 3, 4). Sherds from two vessels, one rocker-stamped, the other plain, occurred from about 60 - 120cm of depth in section B6S21. Although the stratigraphy appeared to be intact in this area, the wide vertical occurrence of the sherds may be accounted for by aboriginal disturbances during the period of Middle Woodland occupation or by variations in the rate of deposition of shell from one part of the midden to another.

Table 3: Depth Distribution of Pottery in 1-meter Section W1S19, Sharp Site (Number of rim sherds indicated in parentheses).

<table>
<thead>
<tr>
<th>Depth (cm)</th>
<th>40-</th>
<th>45-</th>
<th>55-</th>
<th>60-</th>
<th>65-</th>
<th>70-</th>
<th>80-</th>
<th>90-</th>
<th>100-</th>
<th>110-</th>
<th>115-</th>
<th>120-</th>
<th>125-</th>
<th>130-</th>
<th>135-</th>
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<td>Attributes</td>
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<td>50</td>
<td>60</td>
<td>65</td>
<td>70</td>
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<td>110</td>
<td>115</td>
<td>120</td>
<td>125</td>
<td>130</td>
<td>140</td>
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<tr>
<td>Plain exterior and interior</td>
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<td>2</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Incised or brushed exterior, plain interior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Corded exterior, brushed, or channelled interior</td>
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<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Corded exterior, plain interior</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>3</td>
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<tr>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Scallop-impressed, plain interior</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Smoothed-over cord, channelled interior</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td>1</td>
<td>2</td>
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<td>Indeterminate</td>
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<td>21</td>
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<tr>
<td>Totals</td>
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<td>5</td>
<td>9</td>
<td>12</td>
<td>3</td>
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<td>5</td>
<td>2</td>
<td>1</td>
<td>40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The great majority of artifacts in the collection are of Middle Woodland affiliation. The predominance of semi-flat and flat lips on rim sherds suggests a time late in the Middle Woodland period. Rounded or wedge shaped lips generally characterize relatively early Middle Woodland ceramic industries in
New York State, but do occur infrequently in later Middle Woodland assemblages. A mixture of rounded, wedge-shaped, and flat lips was reported for the Stratum 3 component at the Cunningham site on Martha’s Vineyard (Ritchie 1969b). This stratum produced Fox Creek, Greene, and Jack’s Reef Corner-Notched points and was dated at A.D. 400 (Ibid.). Rounded lips characterized the Middle Woodland ceramics in Stratum 3 at the Westheimer site in the Schoharie Valley, New York. These ceramics and other traits represented a component of the Fox Creek phase, radiocarbon dated around A.D. 400 (Ritchie and Funk 1973). Therefore although the ceramic lip forms suggest a late stage of Middle Woodland development, around A.D. 700–800, the Fox Creek point from the Sharp shell deposit indicates a relatively early placement at about A.D. 400.

A 900gm shell sample from the base of the midden in section W1S19 was radiocarbon dated at 2365 B.P.+75 years, or A.D. 415 (GX-13,435), consistent with a “middle” Middle Woodland temporal position. In apparent contradiction is a date on 900gm of shell from the bottom of the deposit in section B6S21, 3655 B.P.+85 years, or 1705 B.C. (GX-13,436). This date indicates that there was a Late or Terminal Archaic contribution to the midden. No recognizable Late Archaic items were recovered, but two soapstone vessel fragments suggest the presence of a Susquehanna component.

Table 4: Depth Distribution of Pottery in 2-meter Section B6S21, Sharp Site (Number of rim sherds indicated in parentheses).

<table>
<thead>
<tr>
<th>Depth (cm)</th>
<th>50-</th>
<th>55-</th>
<th>60-</th>
<th>65-</th>
<th>70-</th>
<th>75-</th>
<th>80-</th>
<th>85-</th>
<th>90-</th>
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<td>(3)</td>
<td>46</td>
<td>(3)</td>
<td>4</td>
<td>(3)</td>
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<tr>
<td>Corded exterior, brushed interior</td>
<td>1</td>
<td>(1)</td>
<td>3</td>
<td>(3)</td>
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<td></td>
<td>4</td>
<td>2 different Jack’s Reef Corded pots</td>
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<tr>
<td>Corded exterior, plain interior</td>
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<td></td>
<td>4</td>
<td></td>
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<td>Rocker-stamped, brushed interior</td>
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<td>25</td>
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<td>All sherds from one Point Peninsula Rocker-stamped pot</td>
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Totals: 4 4 28 52 332 104 330 13 1 857
THE BARLOW POND SITE

This locality was discovered during a survey along the periphery of Barlow Pond. It is situated on the northwest shore of the pond on a nearly flat area of high ground. It is adjoined on the north by a low ridge of till and glacial erratics which may have served as a windbreak during cold weather.

In May 1987 test pitting showed the site was at least 1000m² in area, although it may cover the entire 2500m² surface of level ground. The 50cm² shovel test pits were spaced 10 - 15m apart, criss-crossing the length and width of the wooded terrace. Every pit produced debitage and some produced ceramics. However, pits in the center of the site had higher yields than those toward the margins.

After shovel testing a 2 by 2m excavation unit was positioned north of a centrally located test. Another unit was staked out about 40m to the south. It began as a 1m square but was expanded to a 2 by 2m square and two adjoining units of 1m by .5m were added.

Apparently the area has never been plowed. Observed stratigraphy consisted of a thin leaf litter or AO horizon overlying a dark brown A zone, averaging 5 - 10cm thick. The A zone was underlain by a yellowish-brown zone of sand and gravel that extended well below the lower limit of excavation (maximum depth about one meter) and was identified as glacial outwash.

The great majority of flakes and artifacts were confined to the A zone, from about 10 - 20cm below surface. The exceptions occurred in the largest excavation locus, where a reddish-brown zone was observed as a separate band within the yellowish-brown sand. Charred hickory nuts, quartzite chips and a fragmentary biface were found in the reddish-brown zone. However, further excavation of that zone in the major locus and also in a nearby shovel test pit failed to yield cultural material. We suspected that the zone was actually a soil horizon developed in the outwash, and that the chips and biface came from a poorly defined feature intrusive from the base of the A zone.

The total amount of material recovered in 1987 is small. Most of the debitage comprises quartzite flakes and pebble core fragments, but there are a small number of quartz flakes. There are five rather crudely fashioned small stemmed points of quartzite (Figure 12:5-9). Also found were one probable small stemmed point in process, fragments of at least two small, broad relatively thin bifaces that may have been knives (Figure 12:10), and 11 small potsherds. The only rim sherd (Figure 12:21) is from a flat-lipped, incised and probably collared vessel tentatively classified as Shantok Incised (Smith 1950). All other sherds are body fragments; 2 are cord-marked, 5 are plain on both interior and exterior, and 3 are too small for positive identification of surface treatment (Figure 12: 2-4). All sherds are fine grit tempered. Intact sherds range from 5 - 6mm in thickness. The sherds in the 1987 collection all appear to be of Late Woodland provenience.

The total area excavated in May 1987, not counting 50 x 50cm test pits, was about 9m². Subsequent testing by Pfeiffer in October exposed a hearth lying well below the brown humus zone. A small stemmed point of quartz was found in the hearth. Charcoal from the feature was later dated 4250 B.P±145 years or 2300 B.C. (GX-13,922). These discoveries encouraged us to believe that there was a stratigraphically distinct Late Archaic component on the site.

Upon our return to Barlow Pond in 1988 we expanded the grid system with the intention of obtaining a systematic sample of the site. Three 2 x 2m units were opened in the area where the buried hearth was located, and six 1 x 1m units were excavated in other parts of the grid. Therefore a total area of approximately 27m² was excavated over two seasons. This is slightly over one percent of the site. We were unable to complete the planned systematic sample of one-meter squares placed at 10m intervals throughout the grid, due to inclement
weather and a smaller than expected crew of volunteers.

The buried hearth was completely excavated. It was basin shaped, one meter in diameter and 25cm deep. A basal black lens very rich in charcoal was overlain by a mottled brown and gray layer in which occurred charcoal fragments and 47 fire-cracked cobbles or fragments thereof. No debitage or artifacts occurred in the fill besides the small stemmed point from the original test.

The feature seemed to originate in the reddish-brown sand previously alluded to, separated from the brown humus zone by 20cm of culturally sterile yellow-brown sand. Our search for evidence of an Archaic living floor at the same level was unrewarded, except for two fragmentary cracked rocks from comparable depths found in adjoining excavation units. Evidently the weakly defined Late Archaic occupation zone represented by the hearth and reddish-brown "soil" was confined to the southwestern part of the site where it sloped down toward Barlow Pond.

It is hypothesized that the buried zone was open to the sky 4000 years ago and subsequently covered by reworked outwash transported downslope by sheet wash and soil creep. This depositional episode took place during the 1000 to 2000 year interval between the Late Archaic occupation and the first Woodland occupation. Several other features were recorded within one-meter units at the base of the brown zone. These appeared to be of Middle or Late Woodland origin.

Although the 1988 collection and associated data are incompletely analyzed, the meager artifact recovery can be summarized briefly. All of the items came from the brown zone. Three small stemmed projectile points were found, one of quartz, two of quartzite. Other stone artifacts comprise three biface fragments, a cobble hammerstone, and a cobble anvilstone. Ceramics include a corded rim sherd and one body sherd of Vinette 1 type, and 18 relatively thick (7 - 9mm), weathered body sherds, three with corded exteriors, the remainder showing plain surfaces. Thus the pottery unearthed in 1988 appears to be of Early Woodland or early Middle Woodland affiliation, in contrast to the Late Woodland sherds found in 1987. A charcoal sample associated with the 1988 ceramics has been submitted for radiocarbon dating.

At least three prehistoric components appear to be present on the site, of Late Archaic, Early (or Middle) Woodland, and Late Woodland affiliation. The only diagnostic item from the Late Archaic "floor" is a small stemmed point. Small stemmed points occurred above this level and were associated with Early to Middle Woodland ceramics in the stratified portion of the site. This point style may also have been part of the Late Woodland component elsewhere on the site, since none of the expected Levanna type points were found in the excavations.

Subsistence remains were meager, consisting of several charred corn kernels, charred seeds, a charred hickory nut, a possible butternut, and fragments of calcined bone. All of these items came from the Woodland components except for the possible butternut fragment from Feature 1.

THE CANT SITE

Near the east end of the island are several small hills (maximum elevation about 85 feet) interspersed with kettle holes and ponds. The largest kettle hole in this area covers several acres near the south shore and is sometimes breached by Atlantic storms. Intermittently filled with standing water, this wetland basin contains one to two meters of peat resting on gravel.

Overlooking the basin from an adjoining rise is the summer home of the Cant family. About 100m east of the house is a small hollow, the floor of which slopes from north to south down to a bench situated 2.5m above the bog surface. The prehistoric site lies within this hollow and was discovered during a survey transect in May 1986. Tests made that summer disclosed evidence of
features and a poorly defined occupation zone that yielded sherds of Vinette 1 pottery, hearth charcoal and rare flakes of debitage.

Upon our return in May 1987 we laid out a north-south baseline 38m long in the middle of the hollow. A rectangular grid of one-meter squares, six squares in width, was established but time permitted the excavation of only 17 squares and three additional one-meter test units for a total area of 24m² (Figure 14). The site covers an area of at least 400m².

Figure 14. Excavations at the Cant site, looking north along baseline.

The site had never been plowed and showed no signs of subsurface disturbance. Stratigraphy was simple but the two main archeological components were vertically separated. Stratum 1, a leaf litter or AO horizon averaging 5cm thick covered the whole site. Below this was a humus or A horizon designated Stratum 2 and averaging 10cm thick. Stratum 3 was a yellowish-brown to light brown sand 10 - 25cm thick, and Stratum 4 was a yellowish-brown sand extending below the tested depth of one meter. Presumably Stratum 4 was a glacio-fluvial deposit overlying till. Boulders and cobbles of glacial origin litter the ground bordering the hollow.

Cultural material was sparse in the upper 15cm of deposit, equivalent to strata 1 and 2. Stratum 3 produced meager quantities of artifacts representing a Middle Woodland occupation. Just below the Stratum 3/4 junction occurred equally sparse Early Woodland debris. Only one potsherd was found in Stratum 1. The remaining 134 sherds occurred in strata 3 and 4, almost evenly divided between the strata except for numerous unidentifiable crumbs or scraps of pottery that raised the count for Stratum 4. The depth distribution of recovered artifacts is presented in Table 5.

The upper occupation level is identified as Middle Woodland because there is one rounded-lipped cord-impresed rim sherd and 8 out of 11 identifiable body sherds are plain on both interior and exterior surfaces (Figure 18:1). They are medium to coarse grit tempered and average 8mm in thickness. The other three sherds are of Vinette 1 type and coarse grit tempered; their attribution to Stratum 3 may be a recording error.
Table 5: Depth Distribution of Artifacts, Cant Site

<table>
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<tr>
<th>Stratum</th>
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<th>Projectile Points</th>
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<th>Graphite</th>
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<tr>
<td>Totals</td>
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<td></td>
<td>52</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>191</td>
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</tbody>
</table>

The lower occupation level is identified as of Early Woodland affiliation because 16 of the 25 identifiable sherds are of Vinette 1 type (Plate 18:2, 3), averaging 9.5mm thick; the other 9 sherds are plain and average 7.6mm thick. Seven of the nine plain sherds are extremely friable, poorly fired, and sand tempered. These may well belong to the Early Woodland component, rather than being intrusive from Stratum 3.

The only projectile point found on the site is narrow and side-notched, resembling the Late Archaic Normanskill type (Ritchie 1961) and is of no help in chronological and cultural placement of either component.

Other artifacts comprise a graphite flake, a graphite pebble with an abraded face, two cobble hammerstones and a cobble possibly used as a hammerstone. Radiocarbon dates support the proposed chronology. Three dates on Stratum 4 are 2080 B.P.±195 years, or 130 B.C. (GX-13,431), 2675 B.P.+230 years, or 725 B.C. (GX-13,433), and 3025 B.P.+265 years, or 1075 B.C. (GX-12,603). The age readings on Stratum 3 are 1625 B.P.+190 years, or A.D. 325 (GX-13,432) and 1440 B.P.+185 years, or A.D. 510 (GX-13,434). The Stratum 4 date of 2080 B.P. or 130 B.C. seems rather young for an Early Woodland component and would be more appropriate for an early Middle Woodland occupation; the other Stratum 4 dates are consistent with numerous determinations on Vinette 1 pottery throughout the Northeast. The two dates on charcoal from Stratum 3 are quite compatible with relatively early Middle Woodland use of the site. Subsistence remains consist of fragments of calcined bone, a possible charred acorn fragment, and charred nutshell identified as either hickory or Juglans (walnut or butternut).

THE GRASSY POND SITE

This small station was discovered during systematic shovel testing along a north-south transect near the east end of the island; the previously described Cant site was also found on this transect. Prehistoric occupation debris occurred on a large, lobate bench some 20 feet (6m) above the south shore of a kettle hole pond and marsh referred to as both Ice Pond and Grassy Pond.

A 1 x 1m square was excavated at the initial locus of discovery, resulting in the complete exposure of feature 1. A grid system was later established consisting of a north-south baseline and another line at right angles, both lines intersecting at the EO stake. (The north-south baseline was actually oriented 45° west of north.) Test units either 30cm square or 50cm square were opened along both axes; their spacing varied from 2 - 10m. Nothing was found except for fire-cracked rocks in tests within 4 - 6m of feature 1.

Subsequently, more units were dug adjoining the 1m unit along the east-west line. A 3 x .5m meter trench was extended eastward, and two 1m squares were added to the west. Two faint features, a handful of fire-shattered stones, and some potsherds were found. The site, defined by the horizontal distribution of sherds, features, and cracked rocks, covered an area no larger than 60m².

The features, cracked rocks, and artifacts occurred at the junction of a
duff or topsoil, about 10cm thick, and a yellow-brown sandy subsoil (probably glacial outwash). Feature 1 was about 80cm in diameter, consisting of fire-reddened earth, charcoal flecks, and fire-cracked rocks. It contained clam shell fragments (probably of quahog), refuse bone of large mammal, bits of calcined bone, and potsherds. Feature 2 was an amorphous stain of charcoal stained earth and charcoal flecks, containing some burned bone fragments. It was about 40cm in diameter. Feature 3 was an even fainter, amorphous lens of charcoal stained subsoil. Charcoal from an adjoining concentration was collected and later submitted for radiocarbon dating. The resulting date was 3570 B.P.±185 years, or 1620 B.C. (GX-12,604).

Despite diligent search, no postmolds were found that might represent structures associated with this small campsite.

Apart from two quartz flakes, the only artifacts recovered were a handful of rim and body sherds from a collared, incised pottery vessel of Shantok Incised type (Figure 16:12-14). These sherds were found both within and outside feature 1 and suggest that the site is a single component manifestation of the Late Woodland period. Unfortunately, the radiocarbon date is compatible with a Late Archaic occupation, although no Archaic artifacts were present in the excavated areas of the site.

Despite the perplexing date, Grassy Pond is considered to have been briefly occupied by people of the Shantok phase, who hunted terrestrial animals and collected shellfish from the nearby shoreline of Fishers Island Sound. We returned to Grassy Pond in September 1987 for additional testing, but the site had been destroyed by construction of the foundation for a summer home.

THE ARROWHEAD BEACH SITE

A small, crescentic strip of beach on the west side of Chocomount Cove (Figure 15) has been a favorite surface hunting locality for local collectors over many decades. Artifacts and debitage, almost entirely of quartz, litter the surface of the beach and extend out some distance under water, even at low

Figure 15. View of Arrowhead Beach site, a crescentic strip of sand between two small bouldery points of land. Looking southeast.
tide. Artifacts from the site were illustrated by Ritchie (1959). We collected a small stemmed point and quartz debitage in 1986 (Figure 16:9-11). A major aspect of collections from this locality are small stemmed points of quartz (Ritchie 1959: Plate 52; Briggs 1976; Figure 16 herein). A few points of Laurentian and Susquehanna affiliation have also been found there.

We suspected that the materials on the beach were all that remained of deposits since eroded away by rising sea level. It also seemed possible that part of the site remained intact on the small, shrub-covered terrace that lies behind the site. Test-pitting of the terrace in May 1986 revealed a two-part stratification; a fine, brown-colored sand about 35 cm thick overlay a fine yellow-brown sand of undetermined thickness. The brown upper deposit produced abundant modern trash such as glass, coal, brick, slate and plastic. These items were intermixed with chert and quartz chips and fire-cracked rock. A much smaller quantity of material occurred in the top of the yellow-brown sand. No features were observed.

Obviously the uneroded parts of the site are considerably disturbed. We assume that the prehistoric occupation "floor" was originally at the junction of topsoil and subsoil. Further investigations are planned of areas adjoining the beach.

OTHER SITES

A number of other sites were briefly examined, many of which were previously reported by H.L. Ferguson (1935). Charles B. Ferguson has collected artifacts ranging in age from Late Archaic to Late Woodland from the surface of his property at "Flounder Inn" on the north shore of the island. A short distance to the south is a small shell midden. We also inspected a nearby lot that had been cleared prior to house construction, finding quartz flakes and two pieces of polished slate from two different artifacts (Figure 16:6-8). Testing of the Brickyard shell midden near Barlow Pond produced a small stemmed point of quartz; Ferguson (1935) reported potsherds and bone implements from this site. A handful of artifacts were found on the surface at several other localities, including Stanley Beach, Middle Farms Pond, and West Harbor.

The May 1988 survey transect was situated at the geographic center of the island, beginning on the north shore east of Clay Point and ending on the south shore near the east end of Isabella Beach. The total length of the transect was 1400 m. It was designed to intersect the maximum possible number of environmental zones characterizing the island outside the most heavily settled areas: shoreline, lowland kettle hole swamps, interior uplands (maximum elevation 80 feet or 24.6 m), and the margins of the inland ponds (in this case Island Pond). The transect was 30 m wide. Shovel test pits were 30 - 50 cm in diameter, spaced 10 m apart for the length and breadth of the transect. Nearly 300 tests were completed.

Three sites were discovered within the south half of the transect. Turtle Pond No. 1 was located on a hilltop about 50 feet (15 m) above Turtle Pond, which adjoins the north side of Island Pond and may have been connected with it prior to road construction. One thin, plain-surfaced Late Woodland potsherd was recovered. No lithics or other materials were found despite the excavation of 10 shovel tests at 5 m intervals around the pit that produced the sherd.

Turtle Pond No. 2 was situated on a flat bench near the north shore of the pond. Following initial discovery, one 2 x 2 m square and a 1 x 1 m square were excavated near the most productive test pits. Twelve additional shovel tests were dug over an area 30 m long and 20 m wide in order to define the limits of the site. Without exception they were devoid of cultural remains. The total area of the site did not exceed 25 m².
Figure 16. Artifacts from Fishers Island, New York. Nos. 1 - 5 from Cant site; 6 - 8 from Ryder site; 9 - 11 from Arrowhead Beach site; 12 - 14 from Grassy Pond site. #1, plain grit-tempered body sherd; 2,3 Vinette 1 body sherds; 4, flake of gray flint; 5, fragment of quartz cobble core; 6, fragment of polished slate object; 7, quartz flake; 8, fragment of second polished slate object; 9, small stemmed point fragment; 10, quartz flakes; 11, fragment of quartz cobble core; 12,13, rim sherds from Shantok Incised pot; 14, thin plain neck sherd. Lithic materials: 5,7, 9 - 11, milky quartz; 6,8 gray slate (two different varieties).
Recovered artifacts comprised a rocker-dentate stamped sherd, an incised Late Woodland sherd, and debitage of quartz and quartzite. Charcoal associated with the rocker-dentate sherd was submitted for radiocarbon dating.

The third site was located on the south side of the peninsula that juts into the center of Island Pond. The peninsula contains the Betty Matthiessen Nature Preserve; hence the site is designated Betty Matthiessen No. 1. Following initial discovery an area 20m long and 10m wide was tested at 5m intervals. Two quartzite chips occurred in one shovel test; five weathered, thin, plain-surfaced Late Woodland sherds were found in a 2 x 2m unit 10m from the shovel test. Intermediate tests, including a 1 x 1m square and 30cm units, produced nothing. A charcoal sample was associated with the pottery and was submitted to Geochron for dating.

The stratigraphy at all three sites can be described as follows: a leaf litter over a sod, totalling 10 - 15cm thick, overlying a brown earth also 10 - 15cm thick. The brown zone contains all the cultural remains and overlies yellow-brown gravelly subsoil of glacial origin.

We were alert to the possibility of post molds or other structural evidence on all of the sites examined. Nothing was found that could be interpreted as evidence of structures such as houses, palisades, storage sheds, and so on.

PALEOENVIRONMENTAL STUDIES

In May 1986 and again in July we examined several localities that potentially contained thick deposits of organically rich sediments accumulated since late Wisconsinan time. Four were chosen for further investigation using the Davis and Hiller samplers. The first locality, designated "Ninth Tee," is a kettle hole pond between Ice Pond and East Harbor near the east end of Fishers Island. During our visit it was being partially filled with sand and gravel to extend the ninth tee of the Fishers Island Country Club. The fill gave us access to the center of the pond. A dense growth of phragmites was rooted in shallow, soft sediment just below water level. We tested the sediment with the Davis borer; depth penetration was variable, because bottom sands and gravels were struck at different depths. It proved difficult to retain the loose, muddy samples in the borer. A gray clay-rich sample was recovered at 337.5cm and a loose, wet brown mud at 275cm.

We then moved to East Harbor. A lobe of the harbor bordering the golf course contained fringing salt marshes surrounding open water. Large boulders protruding above the water's surface along the margins indicate that the lobe is a kettle hole depression flooded by rising sea water. Penetration of the Davis borer through the spongy, grassy mat of the marsh varied from 1.33 - 3.67m or four to 11 feet.

The samples obtained from the salt marsh were labelled "Fourteenth Green." Upper levels produced peaty samples from 50 - 75cm, 120 - 145cm, and 155 - 180cm. Clay-rich gray colored samples came from 215 - 240cm, and from 275 - 300cm. There were problems getting samples from 0-50cm and other levels because the loose material fell out of the corer.

Another salt marsh was sampled adjoining the Buckner Property in Barleyfield Cove. There the maximum depth to gravel was just over nine feet. Using the Davis borer, samples were obtained from depths of 147-172, 183-208, 244-269, 269-295, and 274-300 cm.

A number of inland localities proved too shallow for our purpose, but as luck would have it, a fine inland bog was located on the property of the H.L. Ferguson Museum. Wooded in some areas, covered with grass in other, its value was not obvious until we closely examined the dark brown surface and a small
pond recently dug with a backhoe. The pond water was colored dark brown from floating or suspended organic matter and tannic acid. Since the Davis borer was temporarily inoperative, we used the Hiller sampler in a place near the pond, central within the bog, where we assumed the deposits reached their maximum depth. We ascertained that the depth to hard, late-glacial sand and clay was about six meters. This site was named the HLF Bog.

A shovel was used to remove a 50 x 50 x 25cm block of root-laced sod. Below the top 25cm we were able to force the sampler through the sediments. The Hiller would not hold the samples from 20 - 100cm but good samples were obtained from about 1.5m to the bottom. Due to errors in our calculations of the length of the attached rods, some depths were skipped. The deposit consisted of peat to about 4 - 4.5m, below which clay became a major ingredient. Several samples were taken for radiocarbon dating in addition to those taken for pollen analysis. We completed sampling of the bog in September 1987, using the Davis borer. We were able to collect samples from depths of 75 - 225cm and 325 - 600cm. The sampler would not retain samples of watery peat from 225 - 325cm.

The samples collected with the Davis borer were analyzed by Dr. Leslie A. Sirkin of Adelphi University; the results are briefly summarized here, in anticipation of a fuller presentation in the final report on the Fishers Island project.

Pollen from the 500 - 600cm levels pertained to the A zone (spruce-fir). Associated radiocarbon dates are 11,730 B.P.+250 years (GX 13,807) from the 533 - 559cm level and 11,145 B.P.+285 years from the 508-533 cm level.

The B zone (pine, birch, oak) was represented in the 375 - 500cm levels. The base of the zone is dated 10,170 B.P.+305 years (GX-12,593) and middle levels are dated 9380 B.P.+110 years (GX-12,594). The basal portion of the C1 subzone (oak-hemlock) occurred at 325 - 375cm. It has not been radiocarbon dated. Upper portions of this subzone were missing and presumably peaked in the 225 - 325cm level. An oak, holly, hickory zone was present in the 75 - 225cm levels. Ordinarily this assemblage would be referred to the C2 subzone in the standard scheme but this placement seems contradicted by the radiocarbon dates. The C1- C2 transition is dated around 4200 - 4600 B.P. or 2250 - 2650 B.C. at numerous localities but the 232 - 280cm levels at HLF Bog are dated 5760±75 years or 3810 B.C. (GX-12,595), the 140 - 187.5cm levels are dated 5030 B.P.+330 years or 3080 B.C. (GX-12,596), and the 75 - 100cm level is dated 4625 B.P.+160 years or 2675 B.C. (GX-13,808). The apparent discrepancy cannot be explained at this time.

The basal level of the Buckner salt marsh, about 2.7m below surface was dated 6075 B.P.+90 years, or 4125 B.C. (GX-12,597). This date was a considerable surprise because, extrapolating from the known rates of sea level rise in Long Island sound (Bloom 1983a, 1983b; Gordon 1983), we expected the date to be around 3000 B.P. Possibly, lower levels of the salt marsh contain organic matter from the original kettle hole, deposited before East Harbor was inundated. We plan to obtain complete and continuous paleobotanical samples from the Buckner salt marsh and additional radiocarbon dates that may aid in developing a eustatic curve for the Holocene of Fishers Island.

Sirkin also processed pollen samples from the Two Springs, Cant, and Barlow Pond sites. Samples from the Sharp site midden were devoid of pollen. The results, from Two Springs, Cant, and Barlow Pond were not particularly illuminating. Most samples, even those from glacial deposits underlying occupation zones, contained pollen evidencing the clearing of land in colonial times. This is readily explained by the shallowness of the deposits and the action of roots, burrowing animals, Indian activities, and other disturbances.
The following discussion offers some preliminary hypotheses and conclusions that will certainly be modified after final analysis of data from the 1985 - 1988 investigations and from our 1989 fieldwork on Fishers Island. During our 1985, 1986, and 1987 investigations, we examined several sites first reported by H.L. Ferguson (1935). These sites still have archaeological potential and merit further work. Our first survey transect (1987) near the east end of the island succeeded in locating two intact and previously unknown non-shell sites. Three such sites were found in our second transect (1988) in the middle of the island. Additional sites were also discovered in central and western parts of the island. Also, as far as we know, we were the first researchers to obtain sediment samples from bogs and salt marshes for pollen and radiocarbon analysis.

We confirmed the later periods of the culture sequence and chronology proposed by Briggs (1976), based on her typological analysis of the H.L. Ferguson collection and comparisons with data from other areas of the Northeast. Thirteen radiocarbon dates are now available for archaeological sites on Fishers Island (Table 6). As Briggs (1976) pointed out, there is no firm evidence for Paleo-Indian occupation of the island. Subsequent Early Archaic occupations are weakly suggested by two bifurcated-base projectile points and by a possible Kirk Stemmed point, provenience unknown, seen by the writers in the H.L. Ferguson collection. A Middle Archaic presence is indicated by a small number of Neville-like points. The large, broad corner-notched point with serrated edges unearthed at the Two Springs site (Figure 2:22) is reminiscent of southeastern Early Archaic styles but could also be part of the Susquehanna component. The paucity of relatively early Archaic products in collections from the island is not surprising, since such materials are also sparse on the mainland.

Table 6: Radiocarbon Dates from Fishers Island, New York.

<table>
<thead>
<tr>
<th>Site</th>
<th>Context</th>
<th>Laboratory Number</th>
<th>Date</th>
<th>Cultural Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Springs</td>
<td>Feature D</td>
<td>GX-12,563</td>
<td>900 B.P.±215</td>
<td>Small triangular</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(A.D. 1050)</td>
<td>projectile point,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>slate debitage</td>
</tr>
<tr>
<td>Two Springs</td>
<td>Features B, C</td>
<td>GX-12,561</td>
<td>2605 B.P.±255</td>
<td>Vinette 2 pottery,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(655 B.C.)</td>
<td>quartz debitage,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>small stemmed point</td>
</tr>
<tr>
<td>Two Springs</td>
<td>Living Floor</td>
<td>GX-12,562</td>
<td>2785 B.P.±260</td>
<td>Susquehanna knives,</td>
</tr>
<tr>
<td></td>
<td>Section W43</td>
<td></td>
<td>(835 B.C.)</td>
<td>ledite debitage</td>
</tr>
<tr>
<td>Two Springs</td>
<td>Feature A</td>
<td>GX-12,564</td>
<td>3630 B.P.±250</td>
<td>Small stemmed points(?)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1680 B.C.)</td>
<td>, quartz debitage</td>
</tr>
<tr>
<td>Grassy Pond</td>
<td>Feature A</td>
<td>GX-12,504</td>
<td>3570 B.P.±185</td>
<td>Late Woodland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1620 B.C.)</td>
<td>pottery</td>
</tr>
<tr>
<td>HLF Bog</td>
<td>75 - 100cm</td>
<td>GX-13,806</td>
<td>4625 B.P.±160</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(2675 B.C.)</td>
<td></td>
</tr>
</tbody>
</table>
Table 6: Radiocarbon Dates from Fishers Island, New York (continued).

<table>
<thead>
<tr>
<th>Site</th>
<th>Context</th>
<th>Laboratory Number</th>
<th>Date</th>
<th>Cultural Associations</th>
</tr>
</thead>
</table>
| HLF Bog               | 140 - 187cm    | GX-12,596         | 5030 B.P.\(\pm330\)
                       |                |                   | (3080 B.C.)     | None                  |
| HLF Bog               | 232 - 280cm    | GX-12,596         | 5760 B.P.\(\pm75\)
                       |                |                   | (3810 B.C.)     | None                  |
| HLF Bog               | 427 - 475cm    | GX-12,594         | 9380 B.P.\(\pm110\)
                       |                |                   | (7430 B.C.)     | None                  |
| HLF Bog               | 475 - 523cm    | GX-12,593         | 10,170 B.P.\(\pm305\)
                       |                |                   | (8220 B.C.)     | None                  |
| HLF Bog               | 508 - 533cm    | GX-13,807         | 11,145 B.P.\(\pm285\)
                       |                |                   | (9195 B.C.)     | None                  |
| HLF Bog               | 533 - 559cm    | GX-13,808         | 11,730 B.P.\(\pm250\)
                       |                |                   | (9780 B.C.)     | None                  |
| Buckner Salt Marsh    | 9 ft           | GX-12,597         | 6075 B.P.\(\pm90\)
                       |                |                   | (4125 B.C.)     | None                  |
| Cant Feature 1        |                | GX-12,603         | 3025 B.P.\(\pm1265\)
                       |                |                   | (1075 B.C.)     | Vinette 1 pottery     |
| Cant Stratum 4        |                | GX-13,431         | 2080 B.P.\(\pm195\)
                       | Section 84     |                   | (130 B.C.)      | Vinette 1 pottery     |
| Cant Feature B        |                | GX-13,433         | 2675 B.P.\(\pm230\)
                       | Stratum 4      |                   | (725 B.C.)      | Vinette 1 pottery     |
                       |                |                   |               |                       |
| Cant Feature A        |                | GX-13,432         | 1625 B.P.\(\pm190\)
                       | Stratum 3      |                   | (A.D. 325)     | Plain pottery         |
                       | Section 84     |                   |               |                       |
| Cant Stratum 3        |                | GX-13,434         | 1440 B.P.\(\pm185\)
                       | Section 167    |                   | (A.D. 510)     | Plain pottery         |
| Sharp Basal level     |                | GX-13,435         | 1535 B.P.\(\pm75\)
                       | Section W1S19  |                   | (A.D. 415)     | Plain and scallop-    |
                       |                |                   |               |                       | impressed pottery      |
| Sharp Basal level     |                | GX-13,436         | 3655 B.P.\(\pm85\)
                       | Section R6S21  |                   | (1705 B.C.)    | Rocker-stamped        |
                       |                |                   |               |                       | pottery, soapstone    |
                       |                |                   |               |                       | fragments             |
| Barlow Pond Feature 1 |                | GX-13,992         | 4250 B.P.\(\pm145\)
                       | Section W1S6   |                   | (2300 B.C.)    | Small stemmed point   |

Briggs (1976) noted a substantial representation of lithic artifacts assigned to the Late Archaic Laurentian and Narrow Point traditions, especially
the latter. We found no evidence of Laurentian components in our excavations (the ground slate ulu from the Two Springs site is attributed to the Susquehanna component, but may possibly have been curated from an older Laurentian component located somewhere on the island or mainland). Important Laurentian habitation, workshop, and burial sites may still exist on the island since they are appearing with some regularity on the Connecticut coast (Pfeiffer 1984; McBride and Dewar 1981).

Small stemmed points of quartz and quartzite were recovered at the Two Springs, Arrowhead Beach, Barlow Pond, and Brickyard sites. Briggs (1976) counted 81 Wading River points, largely of quartz, in the Ferguson collection and also listed several other types, including Squibnocket Stemmled and Squibnocket Triangle, found in the Late Archaic of southern New England (Ritchie 1969b).

Throughout southern New England small stemmed points, including the Wading River type, have been found in contexts dated from the Late Archaic through the Middle Woodland periods. There is some evidence for their persistence into Late Woodland complexes. The Martha's Vineyard data hinted at the association of small stemmed points and Laurentian artifacts, with small stemmed (Wading River, Squibnocket Stemmled) points heavily predominating in the later Squibnocket Complex (Ritchie 1969b). Some writers have even postulated that small stemmed points originated in the Middle Archaic (Dincauze 1976; Lavin and Russell 1985). However, in upstate New York the small stemmed or narrow stemmed points, including the Lamoka type, are confined to the Late Archaic (Ritchie 1961, 1965a; Funk 1976, 1983, 1984).

Fishers Island is geographically close to eastern Long Island and the Connecticut shore, and not surprisingly Native American manifestations in all three areas had much in common. As in southern New England, evidence suggests that small stemmed points predominated in the Late Archaic by 4000 B.P. and persisted into the Woodland periods on the island. At Barlow Pond feature 1 with its small stemmed point was dated 4250 B.P.±145 years or 2300 B.C. (GX-13,922). Feature A at the Two Springs site contained quartz debitage and was in proximity to a small stemmed point, also of quartz. Charcoal from the feature was dated 1680 B.C. ±250 years (GX-12,564). These age readings are compatible with the bulk of determinations for Late Archaic small stemmed point manifestations throughout the Northeast. Thus Late Archaic components were present on both sites. At Two Springs a small stemmed point was also found in feature B, in association with Middle Woodland potsherds; the feature was dated 2605 B.P.±255 years or 655 B.C. (GX-12,561). Similar dates have been obtained for small stemmed points in Early Woodland and Middle Woodland contexts of Connecticut (McBride and Dewar 1981; Juli and McBride 1984). As previously noted, small stemmed points were associated with Early to Middle Woodland, and perhaps Late Woodland pottery at Barlow Pond.

Briggs (1976) described a relatively small number of projectile points attributed to the "Terminal Archaic" or "Transitional" stage that she observed in the H.L. Ferguson collection. These included the Snook Kill, Perkiomen Broad, Susquehanna Broad, and Dry Brook/Orient Fishtail types. Occasional finds of soapstone vessel fragments were probably also of Terminal Archaic origin. The principal component at the Two Springs site pertained to the Susquehanna tradition, more specifically to a complex closely allied with the Frost Island phase of central New York (Ritchie 1965a). Diagnostic artifacts comprised five Susquehanna Broad points of gray to green slate, and two contracting-stemmed Susquehanna knives (one whole, one fragmentary) of red ledite. Despite the small size of the site, there was no overlap with the pottery-rich area centered in major excavation Unit 2. Charcoal from the occupation floor in Unit 3, which produced the two knives and most of the ledite debitage, was dated at 2785 B.P. or 835 B.C.±260 years (GX-12,562). Within one sigma this date is compatible with
other dates for the Frost Island phase, as well as with dates for Susquehanna manifestations in southern Connecticut (Pfeiffer 1984; Lavin 1984). It also falls within the early part of the range of dates available for the Orient phase on Long Island (Ritchie 1965a). We found no evidence of the Orient phase in our explorations.

A Terminal Archaic or Susquehanna component may have been present at the Sharp site, on the evidence of two soapstone sherds and a date of 3655 B.P. or 1705 B.C.±85 years from the base of the shell deposit. Subtracting two sigmas from the date gives a figure of 1530 B.C., very similar to dates on Susquehanna manifestations throughout New England (Ritchie 1965a, 1969b; Dincauze 1988, 1975; Funk 1976; Pfeiffer 1984).

Briggs (1976) described a small number of potsherds representing Early Woodland occupancy in the Ferguson collection. Identified types were Vinette 1, North Beach Net-Marked, North Beach Incised, and Matinecock Point Stamped (Smith 1950). Also in the collection are the Early Woodland projectile point types Lagoon Stemmed, Rossville, Meadowood Side-Notched, and Adena (Ritchie 1961).

The writers partially excavated the Early Woodland component associated with the basal occupation zone at the Cant site. This very unproductive zone yielded a handful of quartz, quartzite, and chert debitage, no diagnostic bifaces, pottery and some charcoal. Three radiocarbon dates were obtained on as many samples; 3025 B.P. or 1075 B.C.±265 years (GX-12,603), 2080 B.P. or 130 B.C.±195 years (GX-13,431), and 2675 B.P. or 725 B.C.±230 years (GX-13,433). The first and last dates are well within the range of most dates on Vinette 1 ceramics throughout the Northeast, but the date of 130 B.C. seems too young and would be more appropriate for an early Middle Woodland occupation. Possibly the dated charcoal was at least in part intrusive from stratum 3. Two Vinette 1 sherds found with corded and plain sherds in the brown zone at the Barlow Pond site may pertain to an Early Woodland or early Middle Woodland component there.

Middle Woodland ceramics from shell middens investigated by Ferguson (1935) comprise the Vinette Dentate, Vinette Complex Dentate, Windsor brushed, and possibly Windsor Fabric Marked types (Ritchie and MacNeish 1949; Smith 1950; Briggs 1976). Projectile point types include Fox Creek Stemmed and Lanceolate, Greene, and Jack's Reef Corner-Notched (Briggs 1976).

Middle Woodland components were revealed in excavations at the Two Springs, Cant, and Sharp sites. At Two Springs all of the pottery was concentrated in excavation unit 2, which also produced a small stemmed point of quartz and a side-notched stone netsinker. The point was in feature B, associated with potsherds and charcoal. The date on the charcoal, 2605 B.P. or 655 B.C.±255 years (GX-12,561) seems rather old for a Middle Woodland component, even if one sigma is subtracted. Some of the dates for the Bushkill phase of the Delaware Valley are of comparable antiquity (Kinsey, et al 1972). It is of course possible that older charcoal from the Susquehanna component became incorporated in the feature fill, decreasing the rate of radiocarbon decay for the mixed sample.

Charcoal from the Middle Woodland component in Stratum 3 at the Cant site was dated 1625 B.P. or A.D. 325±190 years (GX-13,432) and 1440 B.P. or A.D. 510±185 years (GX-13,434). Except for the enigmatic side-notched point, no lithic artifacts occurred in the excavated areas. This fact and the meager recovery of ceramics makes it impossible to effectively compare the assemblage with more fully described Middle Woodland manifestations in other parts of the Northeast.

The majority of artifacts from the Sharp site shell midden are of Middle Woodland origin. Ceramic types include Jack's Reef Corded, Point Peninsula Plain, Point Peninsula Rocker-Stamped, and possibly Windsor Brushed. The majority of rim sherds display lips that are flat to semi-flat in cross-section, suggesting a relatively late Middle Woodland provenience, ca. A.D. 700-900.
This is supported by the predominance of shell temper and paddle/anvil construction; as noted by Ritchie (1969b), earlier Middle Woodland ceramics in southern New England are characterized by grit temper and the coiling method of manufacture.

The single identified projectile point from the midden is of Fox Creek Stemmed type; the other point is untyped, vaguely resembling the Rossville type. A radiocarbon date of 1535 B.P. or A.D. 415±years (GX-13,435) on basal shells from section W1S19 is similar to dates on Fox Creek points and Middle Woodland pottery from the Cunningham site, Martha's Vineyard (Ritchie 1969b) and the Westheimer site in eastern New York (Ritchie and Funk 1973). However the basal date of 3655 B.P. or 1705 B.C.+85 years from section E6S21 is appropriate for a Late Archaic or Terminal Archaic component, possibly represented by the soapstone fragments from deep levels of the midden.

The evidence at Two Springs suggests that small stemmed points were associated with rocker-stamped ceramics. Small stemmed points were found with Vinette 1 and thick plain sherds at the Barlow Pond site. Such an association would not be surprising considering the growing body of data in southern New England (Ritchie 1965b, 1969b; Juli and McBride 1984; Pfeiffer 1984; Lavin 1984) that supports association of small stemmed points with ceramics.

Late Woodland occupation of the island was fairly intensive. Most of the shell middens were largely or entirely products of this period. Pottery types identified by Briggs (1976) in the Ferguson collection comprised Windsor Brushed, Windsor Fabric Marked, Windsor Cord-Marked, Sebonac Stamped, Niantic Stamped, and Bowmans Brook Incised. Fifteen Levanna points are in the collection. Late Woodland items recovered in May, 1986, from the Hawks Nest Point site consisted of three Levanna type points, and potsherds of Windsor Brushed and Sebonac Stamped types. The site has not yet been radiocarbon-dated. At Grassy Pond, we recovered rim and body sherds of what appears to have been a Shantok Incised vessel. No lithic artifacts were found, and there was no evidence of older components at this very small, isolated site. Nevertheless, the date of 3570 B.P. or 1620 B.C.+215 years (GX-12,604) on charcoal from feature 3 is clearly too old for the sherds associated with nearby feature 1 and cannot be explained at this time.

An acceptable Late Woodland date of 900 B.P. or A.D. 1050±215 years (GX-12,563) was obtained on feature D in excavation unit 5 at the Two Springs site. The only directly associated artifact was a small, thin isosceles triangular biface of gray quartzite, presumably a projectile point. The point could readily be fitted into known Late Woodland types, including the Madison point (Ritchie 1961). No pottery was found in the unit. The significance of the date remains uncertain, in the absence of better contextual data.

All of the potsherds from the 1987 test units at the Barlow Pond site pertained to a Late Woodland component. Thin, smooth-surfaced body sherds and an incised rim sherd appear to represent a component of the Shantok phase (Smith 1960; Salwen 1969, 1970; Lavin 1984; Ritchie 1966a). However, it appears that associated projectile points are of small stemmed rather than the usual triangular (Levanna) type. Perhaps this association should have been anticipated, in view of similar discoveries on Late Woodland sites in coastal New York and New England (Lavin 1984; Lavin and Russell 1985).

Subsistence and Settlement Patterns

No direct evidence of subsistence practices is available for the Early, Middle, and Late Archaic occupations of Fishers Island. The lower levels of shell middens on Martha's Vineyard were deposited by Late Archaic groups of Laurentian and Squibnocket phase (small stemmed point tradition) affiliation (Ritchie 1969b), but such sites remain to be discovered on Fishers Island. The exploitation of marine fauna by Late Archaic groups using small stemmed points...
is suggested by the shoreline location of the Arrowhead Beach and Two Springs sites; this hypothesis cannot be confirmed in the absence of preserved shells and other marine faunal remains. A possible butternut fragment from feature 1 at the Barlow Pond site suggests the harvesting of nuts by Late Archaic users of small stemmed points.

Regarding the Terminal Archaic (Susquehanna tradition), there is evidence from Two Springs that the Frost Island occupants were harvesting nuts (either *Carya* or *Juglans*) in season. Fragments of calcined mammal (?) bone also occurred in associated features. Occupancy in the fall is definitely indicated, although other seasons cannot be ruled out.

No subsistence remains were directly associated with Vinette 1 ceramics in the Cant site explorations. The location of the site overlooking a kettle hole bog may reflect the occupants’ reliance on terrestrial, inland resources, although the shore was only about one-fourth mile distant, even when sea level was 2 – 3 m lower. If the site was occupied in the fall primarily to collect nuts it should still have been possible to catch fish and gather mollusks along the shore.

The Middle Woodland zone at the Cant site produced charred nut fragments, probably acorn and either *Juglans* or *Carya*. Bits of calcined refuse bone were also present. Hickory nuts and calcined bones were found with Middle Woodland pottery at Barlow Pond. These meager remains suggest both hunting and gathering activities during these occupations, which took place during at least the fall season.

If the netsinker in pottery-rich major unit 2 at Two Springs belonged to the Middle Woodland component there, then fishing and hunting are inferred from the stone artifacts. The absence of mollusk shells at Two Springs may have been due to an accident of preservation, and does not necessarily mean that shellfish were ignored by aboriginal residents in any period of site utilization. The same is true of the Cant site, which also failed to produce evidence that mollusks were harvested.

It seems certain that most, if not all, of the Sharp site shell deposit was accumulated in Middle Woodland times; potsherds of that cultural substage were distributed throughout the undisturbed levels of the midden. Expert analysis of the molluscan and other faunal remains should yield important clues concerning the dietary patterns and seasonality of occupations at the site. Charred hickory nuts scattered through the deposit evince fall occupancy of the locality. However non-molluscan food remains include deer, seal, birds, fish, and turtles and spring-summer occupation is probably also indicated.

During Late Woodland (Sebonac?) occupation of Hawks Nest Point, a variety of mollusks including hard and soft clam, scallop, oyster, and whelk were collected, processed, and consumed. On the evidence of refuse bone the white-tailed deer, porpoise, Canada goose, other birds, turtles, and fish were also part of the diet. The practice of maize horticulture is indicated by a single charred corn kernel found in feature 1. A very similar subsistence pattern may be proposed for the small Late Woodland (Shantok?) component at Grassy Pond. Several charred corn kernels from upper levels at Barlow Pond were probably associated with the Late Woodland component there.

Since field reconnaissance and analytical studies are incomplete, generalizations about site types and their place in settlement systems must be preliminary. A majority of the known sites are shell middens and the bulk of deposits appear to be of Middle to Late Woodland age. We have only been able to excavate two of these sites, Hawks Nest Point and Sharp. At least eight sites located on survey can be described as non-shell camps; Grassy Pond, Cant, Two Springs, Turtle Pond No. 1, Turtle Pond No. 2, Betty Matthiessen No. 1, Gaillard, and Barlow Pond. A few shells were present in feature 1 at Grassy Pond, but not at the other camps. Seven of the eight listed sites are
exclusively of Woodland affiliation; Archaic, Transitional, Middle and Late
Woodland occupations characterized the Two Springs site.

The shell/non-shell contrast is the most obvious characteristic of Fishers
Island sites. Deeper analysis reveals a more complicated set of problems. The
Grassy Pond example shows that shellfish were probably used in relatively small
quantities at some sites, and lacking high concentrations, the shells may not
have survived to the present at Cant, Two Springs or Barlow Pond. Mollusks may
not even have represented the main subsistence pursuit at the known shell
middens. Furthermore, the bones of mammals, birds, reptiles, and fish were
usually preserved only within high shell concentrations and were lacking on
other sites.

Also, there was no consistent locational pattern for shell vs. non-shell
sites. Several sites consisting entirely of lithics and occasionally features
were situated close to the shore of a harbor or cove, whereas some shell middens
were located well back from the shore. An inland/shore settlement dichotomy is
probably meaningless on Fishers Island, because the island is so narrow that
people had quick access to marine resources from any interior location.
Conversely, groups living along the shore had ready access to deer, nuts, and
other resources available in the interior.

When analyses of faunal remains are complete, we may be able to address the
problem of seasonality with some hope of success. Mollusks were available
throughout much of the year, as were fish, and both terrestrial and aquatic
mammals, birds, and reptiles. Charred nutshells from several sites are evidence
of fall occupancy, but those sites may also have been occupied in the warmer
periods of the year. At this stage of analysis, it is pure speculation to
propose a particular model of seasonal rounds, whether confined to the island
environment or resulting from movement between mainland and island.

Non-subsistence activities may show interesting contrasts between sites.
Lithic tools and debitage were rare to nearly nonexistent on the Cant, Grassy
Pond, Turtle Pond No. 1, Turtle Pond No. 2, and Betty Matthiessen sites, but
moderately abundant at Hawks Nest Point, Sharp, Two Springs, Barlow Pond, and
Arrowhead Beach. The implication is that tasks requiring bifaces were not
performed at the former five locales, but were relatively important at the
last-mentioned sites. Since bifaces are generally assumed to relate to hunting
and butchering, one may hypothesize that hunting of terrestrial animals was not
an important activity at Cant, Grassy Pond, Turtle Pond No. 1 and No. 2, and
Betty Matthiessen.

The Cant site may have primarily been a nut-gathering camp. Hunting and
nut-gathering were basic activities at Barlow Pond. Yet other sites were
apparently lithic workshops, where quartz cobbles were worked into bifaces. No
settlement types and systems comparable to those suggested by Lightfoot (1985)
on Long Island are proposed at this stage in our investigations.

Postglacial environmental change: some considerations

Briggs (1976) sketched the geology, geography, and cultural ecology of
Fishers Island based on information available to her. Her proposed succession of
postglacial floral and faunal communities followed generally accepted models for
the Northeast. She also offered a scenario of change in the size and shape of
the island resulting from the rise in sea level that accompanied retreat of the
Wisconsinan ice.

We have insufficient information to propose substantial modifications in
these models. Pollen samples collected from bogs and salt marshes during the
1986 - 1988 field work have been partially studied. Sirkin's analysis of HLP Bog
generally corresponds to the zonal scheme of pollen assemblages developed by
Sirkin (1967, 1977), Davis (1969, 1983), and others for coastal New York and
southern New England. Also, the eustatic curves proposed by Bloom and Stuiver
(1963), Bloom (1983), and Gordon (1983) for the Connecticut coast are generally equivalent and are assumed to be valid for Fishers Island. We hope to contribute additional data concerning land-sea relationships with continued sampling of salt marshes and, perhaps, the coring of offshore sediments.

The basal dates for the HLF Bog show that organic sediments had commenced accumulating in depressions on the island by at least 11,700 years ago or long after the presently accepted time of glacial retreat, around 21,000 B.P. (Sirkin 1986).

The maximum age of the salt marshes presently fringing the bays and harbors on the north side of the island remains conjectural. We compared their depths from surface to sand and gravel (anywhere from 4 - 11 feet, or 1.2 - 3.3m) with estimated ages for different positions of sea level (Gordon 1983: Figure 5). Sea level was 3m lower than at present about 3500 years ago. However, a radiocarbon date on the basal level (3m below surface) of Buckner salt marsh was 6075 B.P.±90 years, or 4125 B.C. (GX-12,597). This relatively old date is difficult to explain; theoretically, sea level was 8m (27 feet) lower than present at 6000 B.P. One possibility is that the lower levels at Buckner's consisted of remnant kettle hole deposits still in place, because some of the bays and harbors are semicircular in shape and appear to be drowned kettle holes. The upper levels may represent more recently accreted marine deposits. Clearly more radiocarbon dates (as well as pollen and macrofloral studies) are needed for the island's salt marshes.

As noted by Briggs (1976), the island was probably attached to the Connecticut and Rhode Island mainland in Paleo-Indian times, around 10,000 years ago, and did not actually become an island until about 8,000 years ago, when sea level was 20m lower than today. At 8000 B.P. the island was much larger than now. Although Early Archaic traces are apparently rare on the island, a number of sites of that substage may now lie in portions submerged below sea level. Even at 6000 B.P. the island was larger (Briggs 1976: Figure 2), but by 2000 B.P. it had shrunk to almost its present size. Quite a few sites from Early Archaic to Woodland may have been destroyed as former embayments along the south shore were eroded away by rising water and Atlantic storms, leaving a relatively straight modern shoreline.

The present-day bays and harbors on Fishers Island are shallow, with maximum depths below mean low water of 2.1 - 3.6m (7 - 12 feet). Even allowing for some infilling by sedimentation following their inundation, they were presumably dry land, or perhaps contained wet kettle hole sediments, when sea level was 3 - 4m (10 - 13 feet) lower. Their abundant marine food resources, including mollusks, would not have been available then (3000 - 4000 years ago). The Indians would have had to seek resources at locations outside the present mouths of the bays. Therefore, we hypothesized that the shell middens on West Harbor are no older than about 3500 years, and this is so far supported by recovered artifacts. However, the date for Buckner Salt Marsh poses a problem, and we must remember that Ritchie (1969b) found Late Archaic components up to 4,200 years old at the base of shell middens on Martha's Vineyard, located on the shores of shallow bays similar to those on Fishers Island.

It seems impossible to fully reconstruct the subsistence and settlement systems of cultural manifestations on the island when sea level was considerably (3m or more) lower, since presumably many sites are, or were, flooded by rising
However, reasonably full settlement data may be available for the Middle and Late Woodland periods.

In conclusion, the prehistoric occupations of Fishers Island had much in common with cultural developments on Long Island and the Connecticut coast for at least the last 4000 years, and probably throughout the 11,000 years of human presence in the Northeast. There is no reason to postulate subsistence-settlement systems significantly different from those in the adjoining areas. However, relatively little is known of such systems or their relation to contemporaneous environments. Continued research on Fishers Island should make important contributions to resolving these research problems.

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Smith, C.S.

ORIENT FISHTAIL POINTS FROM THE RYE MARSHLANDS CONSERVANCY

STUART J. FIEDEL
NEW YORK UNIVERSITY
CULTURAL RESOURCE SURVEYS, INC.

ABSTRACT

A surface collection from the intertidal zone of the Rye (N.Y.) Marshlands Conservancy includes 28 complete Orient Fishtail points, as well as numerous point fragments and preforms. These points are divisible into two groups on the basis of length, and analysis of other variable attributes allows recognition of nine sub-types. One sub-type (Dry Brook) has chronological significance, but it is unclear whether temporal, functional, or social factors account for the other variants.

INTRODUCTION

Orient fishtail points are diagnostic artifacts of the Orient culture (or "phase" or "complex" (Ritchie 1965)). This culture was originally recognized at burial sites on the northeastern tip of Long Island (Latham 1953). Orient material was soon interpreted as a local manifestation of a more widespread Transitional period (Boyd 1962) or Terminal Archaic (Snow 1980). Radiocarbon dates for Long Island sites place the Orient culture between 1043 B.C. and 763 B.C. (Ritchie 1965). This culture was not restricted to Long Island; typical artifacts have also been found in the Hudson Valley (Funk 1976), Massachusetts (Ritchie 1965:173, Dincauze 1973), Connecticut (Swigart 1974, Lavin 1984), and in the Delaware Valley (Kinsey 1972, Kraft 1970) (Figure 1). Hudson Valley Orient material has been C14 dated to 1090±95 - 720±105 B.C. (Funk 1976:254). In western Connecticut, dates of 1230±20, 1150±175, and 1115±175 B.C. have been obtained for Orient-related features at 6LF33 and 6LF70 (Swigart 1974:25). In the Delaware Valley, Orient assemblages date from 1280 - 810 B.C. Research in this area has documented the stylistic evolution of the Orient point from the earlier Susquehanna Broad type, through an intermediate form called Dry Brook (Kinsey 1972). Similar points have been found in the Lower Hudson region (e.g., Fiedel 1986:35, #30) and in western Connecticut (Swigart 1974:19, plate 20: 6-10). Essentially, the Susquehanna-Orient transformation involved a marked thinning of the blade, and loss of sharply defined shoulders. The reason for this thinning trend is unclear. It has been suggested that an originally intrusive broadspear-using population gradually achieved a modus vivendi with the native inhabitants, who continued to make narrow stemmed points. Their interaction was reflected in the blending of point types, resulting in the hybrid Orient form (Dincauze 1968, Snow 1980). This pseudo-genetic model is not very convincing; but on the other hand, there is no evidence that narrow blades were functionally superior to broad blades.

There has been some difference of opinion with regard to the density of Orient phase population on Long Island and in nearby areas. Latham (1953) noted the finding of "several thousand arrowpoints" at the four major sites on the island (Orient 1 and 2, Jamesport, and Sugar Loaf Hill (see Figure 1)), and he also reported numerous surface finds from the north shore and along creek
banks. However, Wyatt (1977) asserted that there were few "substantial" Orient phase components on Long Island, and that "even the diagnostic point type is poorly represented in most Long Island artifact collections". Ritchie (1965:164) suggested that "the scarcity of Orient settlement sites may in part be owing to their having had near-shore situations, which are now submerged". In western Connecticut, 137 Orient points are reported from 16 sites; major settlements seem to have been situated beside lakes or rivers (Swigart 1974:41). Rutsch (1970), in his study of points in the collections of the Museum of the American Indian, recognized only 9 Orient points from Westchester County, and 39 from the Bronx. There are only 22 points from the Croton-Ossining region, out of a total of 461 from the entire Hudson drainage, in the collections of the New York State Museum (Funk 1976:195).

THE RYE MARSHLANDS COLLECTION

In view of this paucity of material from Westchester, the surface collection from the Rye Marshlands Conservancy (Figures 1, 2) is a significant addition to the archaeological record. It includes 31 complete or nearly complete Orient points, 26 basal sections, 3 midsection pieces, 27 whole or broken late stage preforms, and at least 8 tips that can be confidently assigned to this type (Figures 3-7. Points, fragments, and preforms: 1-4, subtype 1; 5-13, subtype 2; 14-18, subtype 3; 19-21, subtype 4; 22-37, subtype 5; 38-41, subtype 6; 42-47, subtype 7; 48-51, subtype 8; 52-53, subtype 9; 54-56, subtype 10; 57-60, tips; 61-67, preforms. Lithic materials: chert 34, 35, 43, 44, 49, 50, 54, 63; quartzite 14, 16, 48, 52, 64; sillstone 3, 45; felsite (?) 32, 36, 38; remainder quartz.) All of these specimens were collected by the author between 1980 and 1987. In addition, another 57 points were collected previously.
by a local avocational archaeologist, Wilbur Clark (Morse, n.d.). Clark's material has not been included in this study.

Figure 2. The setting of the Marshlands site. The hypothetical 1000 B.C. coastline is based on a sea level 8 feet below present; dashed line through the harbor indicates possible former course of Blind Brook.

All of these specimens were found in the intertidal zone, along the shore of three rocky islands on the western side of Milton Harbor. These islands, which are connected by sand bars at low tide, create a barrier that has allowed formation of a marsh between them and the mainland. The marsh itself has not been tested; the islands contain a few small sites, the remnants of what must once have been much more extensive shell middens (Morse 1986). Two Late Woodland sites have also been excavated in the mainland section of the Conservancy. Points of Orient type are predominant both in the author's collection and in Clark's, but numerous specimens of other Late Archaic and Woodland types have also been recovered from the same intertidal areas. There are a few points of possible Middle Archaic origin (Neville or Stark), but no Early Archaic points. A lanceolate point found by Clark may be a late Paleo-Indian product. Clearly, the rising waters of Long Island Sound have submerged prehistoric campsites that once stood on dry land. Nautical charts
show the present mean depth of Milton Harbor to be about 6 feet (2m). North Atlantic sea level has probably risen at a rate of 1.2 - 1.4 m per 1000 years since ca. 6000 B.C. (Stuiver and Daddario 1963); another estimate puts sea level in southern New England at 700 B.C. at about 8 feet (2.5m) below present mean (Redfield 1967). Using either estimate, it appears that Milton Harbor was not an embayment of the Sound at the time of Orient occupation, ca. 1200 - 700 B.C.; rather, it was part of the valley through which flowed Blind Brook (Figure 2). The location of the site would thus have resembled, in a general way, the reconstructed settings of the Stony Brook and Baxter sites (Salwen 1962).

Lacking intact features or subsistence debris, it is impossible to characterize the Orient phase occupation of the Marshlands with regard to seasonality, range of activities, or the like. Nevertheless, it is clear that one on-site activity was stoneworking. This is demonstrated by the presence of both whole and broken preforms. Chipping debris is also abundant, although none can be specifically associated with the Orient occupation. In one case, I was able to refit the two pieces of an almost finished quartz point, which were found about 45 feet (15m) apart (Figure 5: 51).

Analysis of the preforms offers some insight into the process by which Orient points were made. The raw material for most points was quartz, in the form of water-worn cobbles presumably collected from a nearby stream bed. The cobble was initially worked into a long ovoid, 8 - 10.5cm long and 3 - 3.5cm wide. The cortex was often left intact on one side, while unifacial flaking created a central hump on the other face. Thickness of these first stage blanks ranges from 2.5 - 3.5cm (Figure 8). Early in the reduction process, the artisan began to shape the projecting ears of the fishtail base. On one broken basal fragment (Figure 7: 62), the ears are already roughed out, while the body is still 2.5cm thick. On a few other preforms, the delicate ears of the base are fully delineated, while the blade and tip are only roughly chipped (Figure 7: 65, 66). Late stage preforms seem to fall into two groups; some designed to produce a long point of ca. 6 - 7cm (Figure 6: 51, Figure 7: 63), others to make points of ca. 4.5 - 5.5cm length (Figure 7: 65, 66, 69, 70).

Kraft (1970) divided the Orient points from the Miller Field site in New Jersey (Figure 1) into two classes - long and short - although he surmised that the shorter specimens might have been repainted, and also observed that intergrades existed. Similarly, the Marshlands assemblage is divisible according to length. Based on a sample of 35 points and late stage preforms, whose length can either be measured directly or reliably estimated, 28 fall in the range of 3.8 - 5 cm. Four points are 6 - 7cm long, two are ca. 3cm, and only one is between 5 and 6cm. Ritchie (1971) described Orient points as "predominantly 2 to 2 1/2 inches" (5 - 6.3cm). While this description implies a unimodal distribution of length, the Marshlands material suggests a bimodal pattern. In fact, the Orient specimens illustrated by Ritchie appear to fall into the same size classes as those from the Marshlands - 4 - 5cm and 6 - 8cm. Orient points from western Connecticut range from 3 - 7cm (1 1/4 - 2 3/4 inches) (Swigart 1974:42). However, all the points from 6LF2 measured less than 1 5/8 inches (4cm). Swigart suggests that the smaller points may have been used to spear small fish.

Apart from length, the Marshlands points can also be subdivided on the basis of differing basal form and other stylistic attributes. Nine distinct subtypes can thus be segregated: (1) a Dry Brook variety, with fairly sharp shoulders and flat retouching (Figure 3: 1-4); (2) a thick-waisted variety with symmetrical, yoke-shaped concave bases (Figure 3: 5-13); (3) points with nearly convergent bases and weak shoulders (Figure 3: 14-18); (4) a wide-bodied form with thin, squarish base, lacking projecting ears (Figure 4: 19-21); (5) the "classic" form - constricted waist, flaring base with one ear sharper and projecting (Figure 4: 22-37); (6) points with constricted necks, bases straight
Figure 8. Early stage preforms, probably for Orient points. Note cortex on #1 and #4. Materials: #1, #2, #4 are quartz, from cobbles; #3 is made of unidentified grey material.
or slightly concave, with lobate ears (Figure 5: 38-41); (7) points resembling classic form, but with angled blades and narrower, less flared bases (Figure 5: 42-47); (8) elegant, long, thin points, with bases tending to be more angular than in the classic form (Figure 5: 48-51); (9) thin-bladed points with squarish bases (Figure 6: 52, 53); (10) points with broad, flaring, angled bases (Figure 6: 54-56).

Examples of some of these variant sub-types can be recognized in other Orient assemblages. Subtype 1, the Dry Brook variant, has been found in the Delaware and Lower Hudson valleys, and in western Connecticut (see references on pg. 1). Ritchie (1965) illustrates a few Long Island specimens that are comparable to subtype 2 (Ibid: 167, #10) and subtype 3 (Ibid: 171, #13). Subtype 5 occurs in western Connecticut (e.g. Swigart 1974: 19, 20, Plate 20: 10, Plate 22: 3; Thompson 1973:23, Plate 20: A-C); this variety is also common in the Delaware Valley and on Long Island. Subtype 6 can be compared to specimens from Massachusetts, illustrated by Dincauze (1973:34, #6), and from Connecticut (Lavin and Russell 1985:72, Figure 13: 14). Swigart (1974: Plate 20: 13, 14; Plate 22: 4) illustrates specimens that seem to belong to subtype 7. Long, thin points, comparable to subtype 8, have been found in Massachusetts (Dincauze 1973: 34, #5, #7) and on Long Island (Ritchie 1965:171, #21).

Subtype 1, the Dry Brook form, is clearly transitional from a Susquehanna Broad prototype, so it can be regarded as an early temporal variant (ca. 1200 B.C.). Lacking any stratigraphic control, it is impossible to discern temporal variation among the other recognized subtypes. The long, thin points of subtype 8 may well have had some function different from the rest; perhaps they were intended for mortuary offerings, or ritual exchanges. However, there seems to be no reason to postulate differing functions for the other variants. Another possibility is that the small stylistic differences reflect band-level or family-level microtraditions, or even the styles of particular individuals. In this case, we would expect to find some degree of spatial clustering of similar points. Along the Marshlands shore, there are four "hot spots" where artifacts are most often found, separated by relatively unproductive stretches (Figure 9). On the hypothesis that these loci might represent contemporaneous encampments of related families or bands, a test was conducted to determine whether similar points tended to occur together at particular hot spots. No such clustering was discerned. If particular point styles were peculiar to families or individuals, the points must have been so frequently exchanged that their original distribution pattern was completely obscured. In any case, the presence of the same sub-types at distant sites tends to negate the microtradition hypothesis.

Seventy seven per cent of the Marshlands Orient specimens (including fragments and preforms) were made of quartz (65 out of 84). Eight pieces were made of chert, six of quartzite, two of siltstone and three of "felsite" (a dark grey, rough-surfaced material, possibly of igneous origin). This choice of lithic materials conforms to the pattern observed on Long Island by Ritchie (1965: 170). In contrast, all of the 147 Orient points found at the Miller Field site were made of jasper or black flint (Kraft 1970). At 6LF22, in western Connecticut, 83% of the projectile points were made of flint; 32% of all tools were flint, 38% were quartz (Swigart 1974:42). The predominance of quartz in the Marshlands assemblage doubtless reflects primarily the local availability of quartz, rather than a strong cultural preference for this material.

CONCLUDING REMARKS

As noted above, Orient fishtail points are clearly derived from the Susquehanna tradition, by way of the Dry Brook type. This stylistic evolution is
well attested in the Delaware Valley (Kinsey 1972). In my collection from the Marshlands, there are only two Perkiomen points and one Susquehanna Broad point. Four of the Orient points (subtype 1) can be classified as Dry Brook specimens. Morse (n.d.) recognized only two broadspears in the Clark collection. Broadspears are similarly rare on Long Island (Wyatt 1977). In contrast, the broadspear tradition seems to have flourished on the coastal plain of Connecticut (Pfeiffer 1984), and also extended much farther east and north, e.g., Maine (Sanger and Bourque 1986). Perhaps, the presence of a dense indigenous Wading River population on Long Island initially impeded penetration of the area by intrusive broadspear users. It may have taken several generations of population growth and adaptation to coastal environments until the Orient phase descendants of the broadspear pioneers could successfully establish settlements on Long Island and some sections of the mainland coast (e.g., the Marshlands).

The ultimate fate of the Orient culture is more obscure than its origins. Early forms of pottery were found in association with Orient material, both on
Long Island (Ritchie 1959, 1965: 166) and in the Delaware Valley (Kinsey 1972). Ceramic technology seems to have been borrowed from groups to the south and west (Custer 1987). Similar Vinette I pottery is associated with Meadowood points in central and western New York, but these points are uncommon in eastern New York and New England. There are only two chart Meadowood points in the Marshland collection. The Early Woodland Rossville point type is well represented at the Marshlands (21 points), but there is no hint of stylistic continuity with the Orient type. Instead, Rossville and Lagoon points bear a vague resemblance to the contemporaneous Adena type, which suggests some kind of participation by Northeastern populations in the Adena interaction sphere. It is also possible that the indigenous population absorbed or extirpated the Orient people, and continued to make Late Archaic-like narrow stemmed points during the Early Woodland period.

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Wyatt, R. J.
DAVE COOKE is an avocational archaeologist and dig chairman of the Albert Morgan Archaeological Society.

STUART J. FIEDEL received his Ph.D. in anthropology from the University of Pennsylvania. He is an adjunct professor at New York University, and the principal archaeologist for Cultural Resource Surveys, Inc.

ROBERT E. FUNK has his Ph.D. in anthropology from Columbia University. He is the state archaeologist of New York State, and curator of anthropology for the New York State Museum and Science Service in Albany.

LUCIANNE LAVIN has her Ph.D. in anthropology from New York University. She is a curatorial affiliate in anthropology at the Peabody Museum of Natural History at Yale University, and editor of the ASC Bulletin. She is a member of the Albert Morgan Archaeological Society and the Greater New Haven Archaeological Society.

ELIZABETH A. LITTLE is editor of the Bulletin of the Massachusetts Archaeological Society, and curator for prehistoric archaeology at the Nantucket Historical Association.

RAYMOND MARIN is an avocational archaeologist and a member of the Albert Morgan Archaeological Society.

JOHN E. PFEIFFER received his M.A. in anthropology from Wesleyan University, and is a Ph.D. candidate at the State University of New York at Albany. He is president of the ASC and president of the Archaeological Society of Southeastern Connecticut.

DAVID H. THOMPSON has an M.A. in anthropology from the University of Pennsylvania. He is president of the Greater New Haven Archaeological Society and a past president of the ASC.

JOHN P. PRETOLA has an M.A. from the University of Massachusetts/Amherst, and is curator of anthropology at the Springfield Science Museum in Springfield, Massachusetts.