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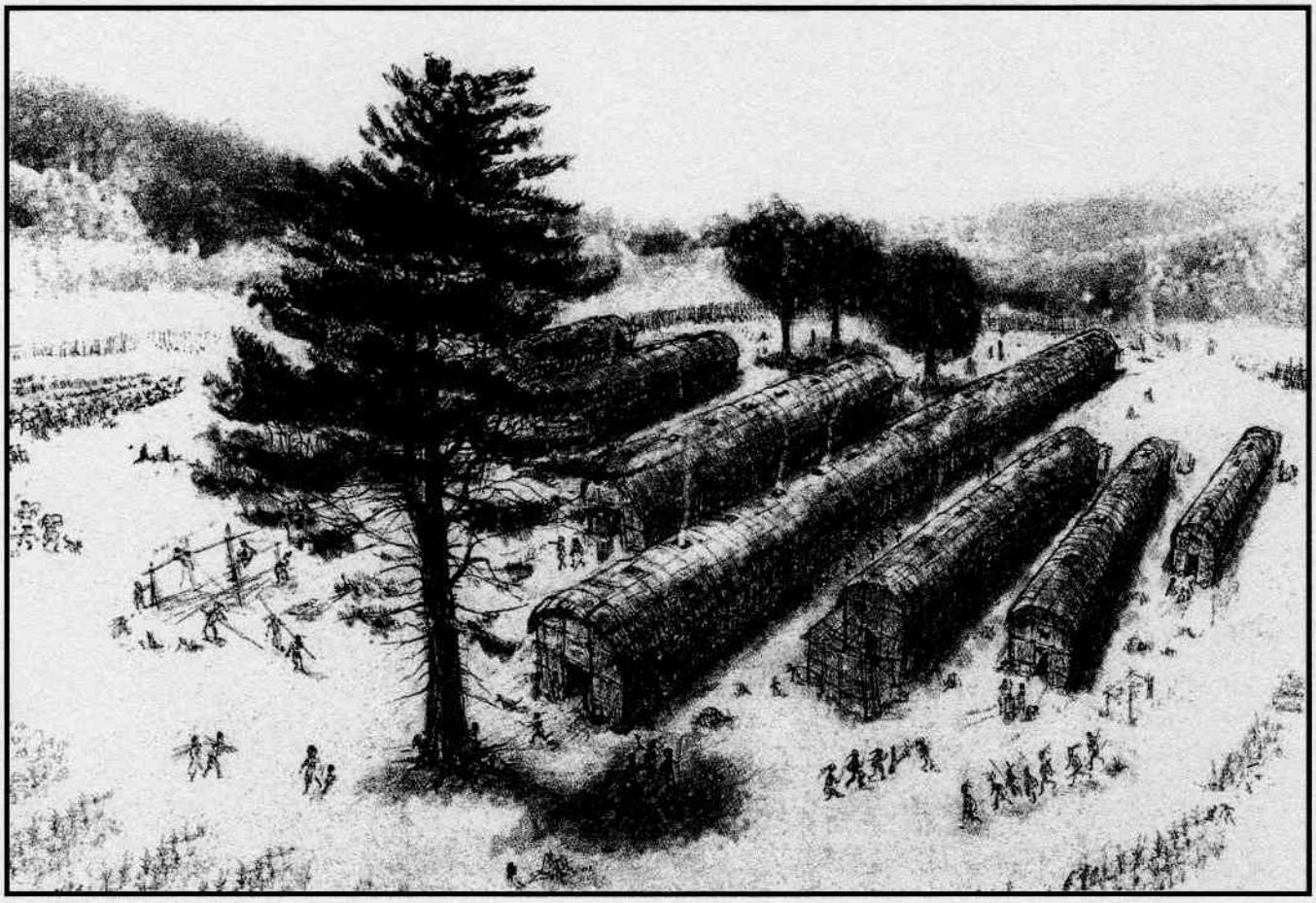

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Archaeological Research at the Oneida Vaillancourt Site

Anthony Wonderley, Legal Department, Oneida Indian Nation 1256 Union Street PO Box 662 Oneida, NY 13421-0662

Vaillancourt, in Madison County, stands out in the Oneida village sequence as an unusually large site, a place where new social arrangements may have been created. It is also the site at which a human-like figure is first visible in Oneida ceramic art. Recognizing its importance to the Oneida past, the Oneida Indian Nation recently acquired Vaillancourt to protect it and to preserve its artifacts. Additionally, the Oneidas sponsored research, summarized here, to learn more about their ancestors' lives. As a result, Vaillancourt is now dated to the second quarter of the European sixteenth century and two metrical indices are identified as possible indicators of temporal trends. Oneida subsistence practices are better understood. And, the ceramics offer insight into the effigy tradition coalescing at Vaillancourt while yielding new evidence for links with St. Lawrence Iroquoians far to the north.

Introduction

The Oneida Indian Nation (OIN) of central New York is in the business of owning and preserving its own past. In recent years, the Oneida Nation has acquired a half dozen ancestral village locations as well as several collections of archaeological objects taken from Oneida sites. As Oneidas assume responsibility for stewardship, they also seek ways to reconnect with their local past, to understand how their ancestors lived. Major goals of the Oneida heritage program include rediscovering continuity in the Oneida story and getting at an Oneida meaning of things.

This is a report of research sponsored by the Oneida Indian Nation and conducted over the past two years at the Vaillancourt Site—an important Oneida village about 450 years ago in the residential heartland of the Oneidas[1] in today's Madison County. Vaillancourt probably has been mined for relics for well over a century. In the late twentieth century, it was the focus of excavations, most recently by members of the Chenango Chapter of the New York State Archaeological Association. By mechanically clearing the topsoil off large areas, these avocational archaeologists revealed traces of perhaps seven longhouses. Their work will surely stand as the crowning achievement of this form of settlement archaeology in the Oneida region (Figure 1).

The Oneida Nation acquired the Vaillancourt Site in late 2003, very shortly before the death of the most colorful of the Chenango Chapter members, Norwich pediatrician Dr. Richard E. Hosbach. For many years, "Doc Hosbach" had dug Oneida sites on privately owned land, retaining excavated material as his own property. When his artifact collection was sold at public auction in October of 2005, the Oneida Indian Nation stepped in to preserve, through purchase, some of what was otherwise dispersed and presumed lost forever. Among the objects so obtained were most of the artifacts identifiable as from Vaillancourt.

The Chenango Chapter archaeologists who recorded excavation information at Vaillancourt are Dr. Gerald L. Hayes, a retired veterinarian of Earlville, and Mr. Daryl E. Wonderly, a retired teacher of Oneida (Hayes et al. 1999, 2001). These two also preserved for study a wide range of excavated material. The Oneida Indian Nation (OIN) gratefully acknowledges the artifacts and archaeological residues from two areas of the site made available by Hayes and Wonderly.

Drawing, then, on the archaeological collections of Hayes-Wonderly and of Hosbach, Oneida-sponsored studies have focused on three previously neglected topics: dating the site, identifying the faunal remains, and classifying the pottery. Here, I detail the findings as well as my interpretations and hopes for future research. Before describing the results, I provide background about, first, Oneida prehistory and Vaillancourt's place within the site sequence and, second, the site's archaeological history.

The Place of Vaillancourt in the Oneida Sequence

Peter Pratt, the dean of Oneida archaeology, began the Oneida sequence around A.D. 1450-1475 at Nichols Pond, a 3-acre (1.2 ha) site south of present Canastota, Madison County (Pratt 1976:107,148; Pratt and Pratt 1986:12). What came before that? The great mystery of Oneida beginnings is that, unlike the situation apparently documented among Onondagas to the west and Mohawks to the east, no horti-

[1]The Oneida residential heartland is the area Oneidas reserved for their exclusive use in a 1788 treaty with New York (Wonderley 2003). Today, it comprises most of Madison County and a portion of Oneida County (Figure 2: upper panels). All known sites—that is, all sites regarded as Oneida—occur within these boundaries

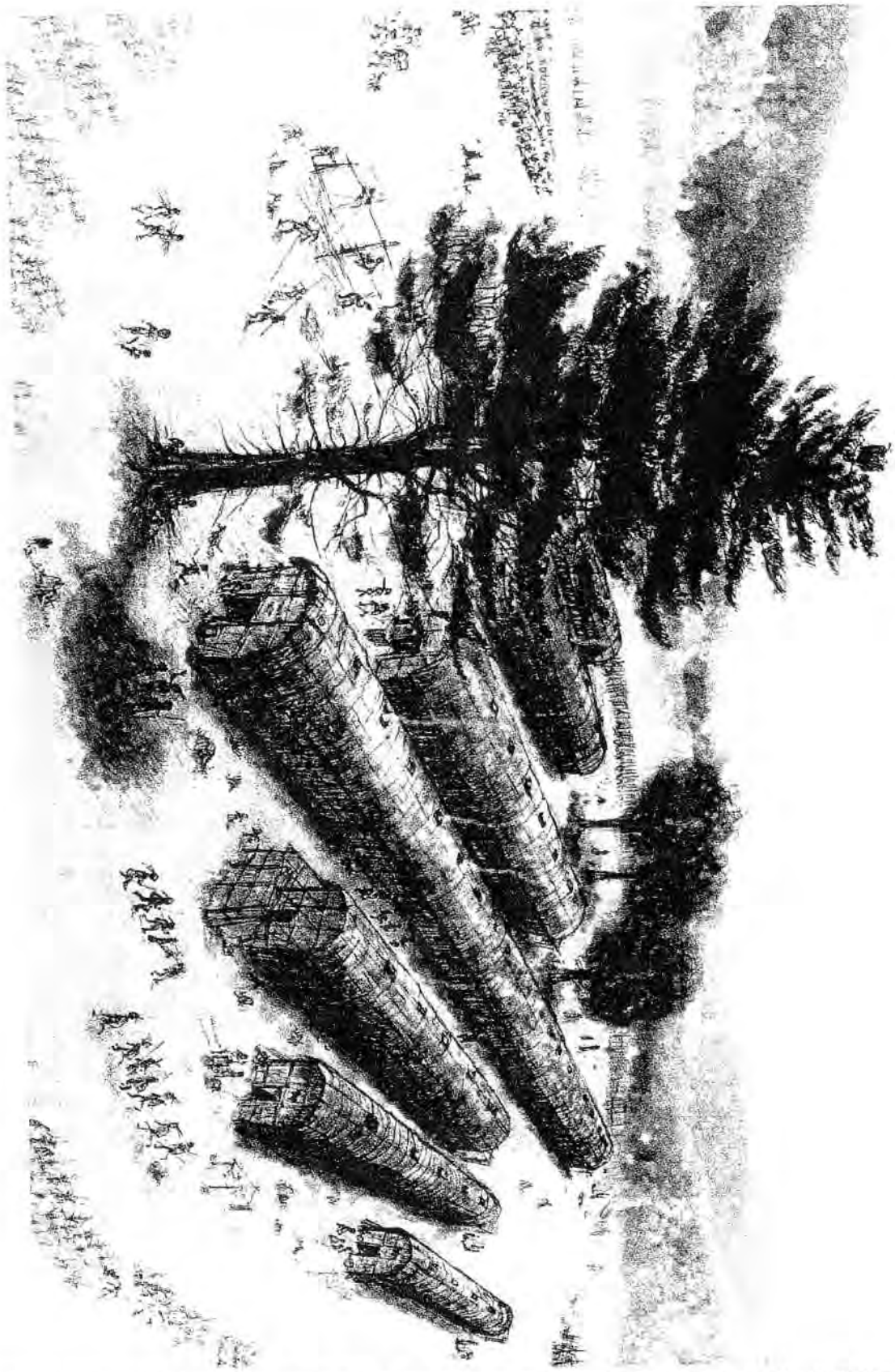

Figure 1. Vaillancourt imagined. Artist's reconstruction of longhouses discovered by Chenango Chapter archaeologists (drawing by Daniyel Faulkner).

cultural villages are known with any certainty in the Oneida residential heartland prior to Nichols Pond.

The Oneidas offer several explanations for their origins. One myth of beginning states that they are autochthonous, having emerged from the ground in this region (Lounsbury and Gick 2000:161). Other traditions of origin derive Oneidas from a pair of Onondaga brothers to the west (Schoolcraft 1975 [1846]:46,210) or have Oneidas arriving in the vicinity of Nichols Pond from the east (Beauchamp 1892:12).

Archaeologists offer the same three speculations and add a fourth. First, local antecedents exist but have not yet been found (Tuck 1978:323). Second, the Oneidas branched off from the Onondagas as indicated by similarities in ceramics (MacNeish 1952:57, 84), by the propinquity of Oneida to Onondaga sites (Engelbrecht 1974:62-63), and by the possible existence of earlier Oneida sites in the area between Oneida and Onondaga site clusters (Weiskotten 1988; Whitney 1970a:1). Third, Oneidas might be descendants of Mohawks who moved west to judge by similarities in pottery (Pratt 1976:107; Snow 1995:91) and language (Lounsbury 1978). Fourth, Oneida ancestors emigrating from Pennsylvania may have reached central Chenango County (Eaton Airport Site) by about 1300. Sites preceding Nichols Pond, therefore, should be sought to the south in the direction of Norwich (Pratt and Pratt 1996:59, 65).

Whatever the answer may prove to be, Oneida villages subsequently moved east toward the drainage of Cowaselon Creek (Figure 2). The move may have begun with the Tuttle Site—less than an acre (0.4 ha) in extent and about a mile (1.6 km) west of the creek. Three other sites—Buyea, Goff, and Moon—overlook the Cowaselon from promontories roughly 300 ft (91 m) above and 0.3-0.45 mi (0.5-0.7 km) distant from the creek. A fourth—Brunk—is on a slight rise just above the watercourse (Gibson 1971a). Buyea, Goff, and Moon were small occupations about one acre or less in extent (Bennett c. 2004; Gibson 1971, 1986; Pratt 1976:96-100; Whitney 1970a). Their chronological order (early to late) is thought to be: Tuttle, Buyea, Moon, Goff, and Brunk—a sequence based, in part, on a seriation of pottery types which included material from Buyea and Goff (Pratt 1976:172-175).

A distinctive tradition of humanoid effigies on pottery, evolving over time from face to full-figure depiction, arose in both the Oneida and Onondaga areas (Gibson 1963; Wonderley 2002). In the Oneida sequence, effigy faces originated at these Cowaselon Valley sites, possibly making their first appearance at the Buyea Site (Pratt 1976:100).

Further south and later in time, the next two sites—Vaillancourt and Olcott—are similar to one another and stand out from the others for their distinctive characteristics. Like most of their apparent predecessors, both sites are roughly 300 ft (91 m) above and a half mile (0.8 km) from Cowaselon Creek. Both were bigger than earlier sites (Olcott about 10 acres [4.1 ha]; Vaillancourt close to 5 acres [2 ha]), and both had heavy palisade lines at least partially composed of huge poles with girths (post mold diameters up to 2 ft or 0.6 m) not seen in the archaeological record before or after. Previously separate villages may have merged at Olcott and Vaillancourt in circumstances requiring unusually strong protective walls (Peterson 1958; Pratt 1976:100).

Characteristic of both Vaillancourt and Olcott are large grooved boulders and numerous small stone discs of unknown function. Ceramic smoking pipes, which had seemed common earlier in time, occur sparsely at these two sites. Only two pipe fragments have been reported from Olcott (Whitney 1971:13); eight (including seven pieces from our collections) are known from Vaillancourt (Pratt 1961a:57). Also, these sites mark the beginning of the humanoid figure in Oneida ceramic art. Isolated depictions of what look like human arms or legs are known from Olcott while, at Vaillancourt, limbs certainly are attached to faces in an anatomically correct fashion. These two sites are regarded as being very close in time because they have so much in common.

Differences between the sites, however, also are important. Artifactual remains at Olcott (but not Vaillancourt) seem curiously scant, possibly indicative of brief occupation. Vaillancourt is regarded as being the later of the two, primarily because European material is reported there for the first time in the Oneida sequence. The foreign items most likely to be old are two small beads possibly composed of European copper or brass (Gibson 1966). European trade goods appear in the neighboring Mohawk Valley no earlier than 1525 (Funk and Kuhn 2003:133).

Bach and Diable, the next two sites in the Oneida sequence, certainly contain European material and are believed to be close in time to one another—possibly dating to around 1570-1590 (Pratt and Pratt 1997:103; Weiskotten 1993; Whitney 1970a:12). Both are approximately two acres (0.8 ha) in extent. Bach, about 1.8 mi (2.9 km) southwest of Vaillancourt, is on a low knoll far from the Cowaselon valley (Whitney 1967). Diable, about 3 mi (4.8 km) southeast of Vaillancourt, is on a promontory overlooking a tributary of Oneida Creek (Gibson 1991; Pratt 1976:118-120; Young 1995).

With Diable, the focus of Oneida village occupation definitively shifted east to the valley of Oneida Creek. European material steadily increased thereafter and, immediately after Diable, came to include substantial numbers of glass beads. Beginning with the Cameron Site at the start of the seventeenth century, the later Oneida sites have been

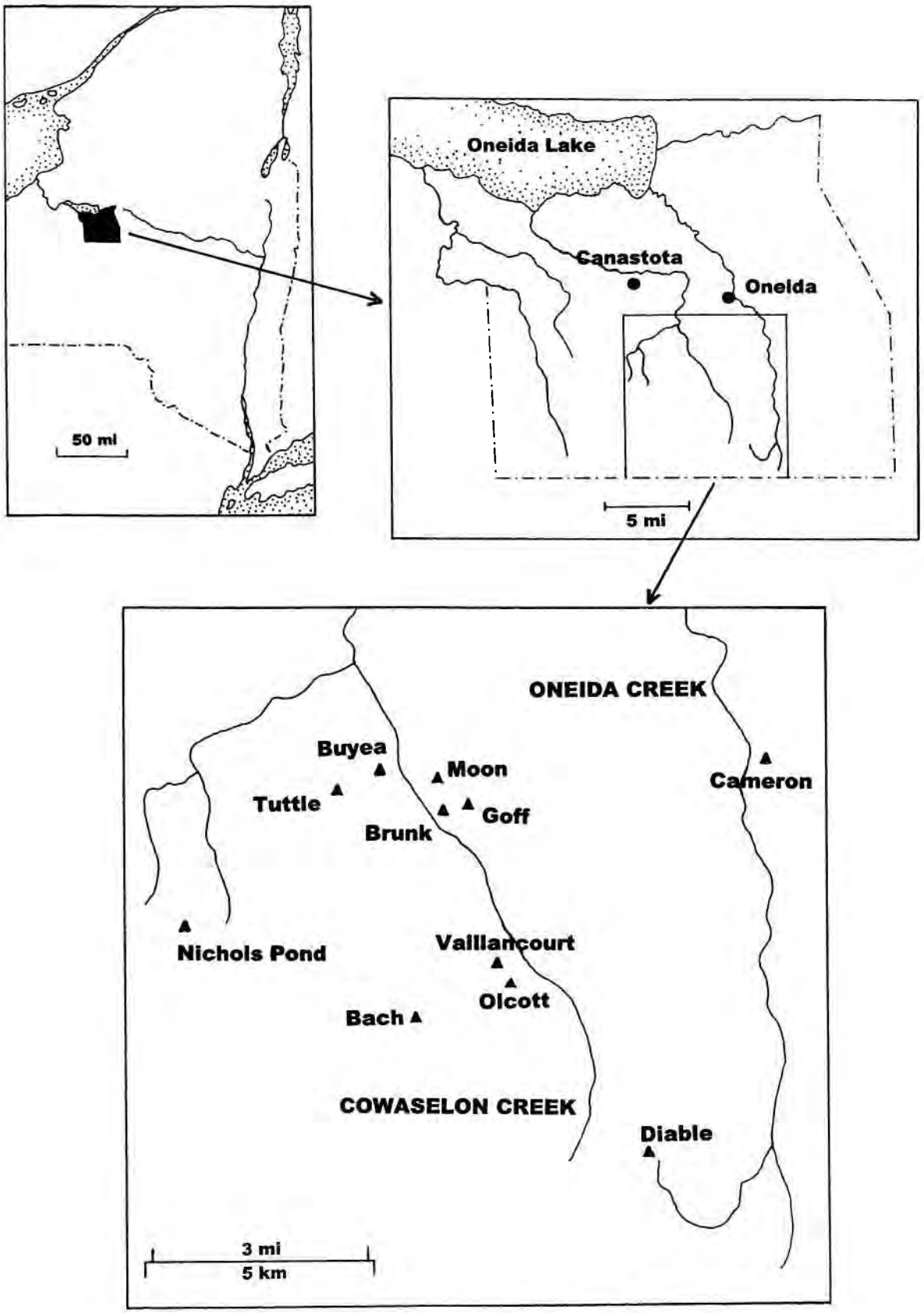

Figure 2. Sites of the Cowaselon Drainage. Panel at upper left depicts the Oneida residential heartland (darkened) in eastern New York. The panel at upper right shows the location of Cowaselon sites within the Oneidas' traditional zone of residence.

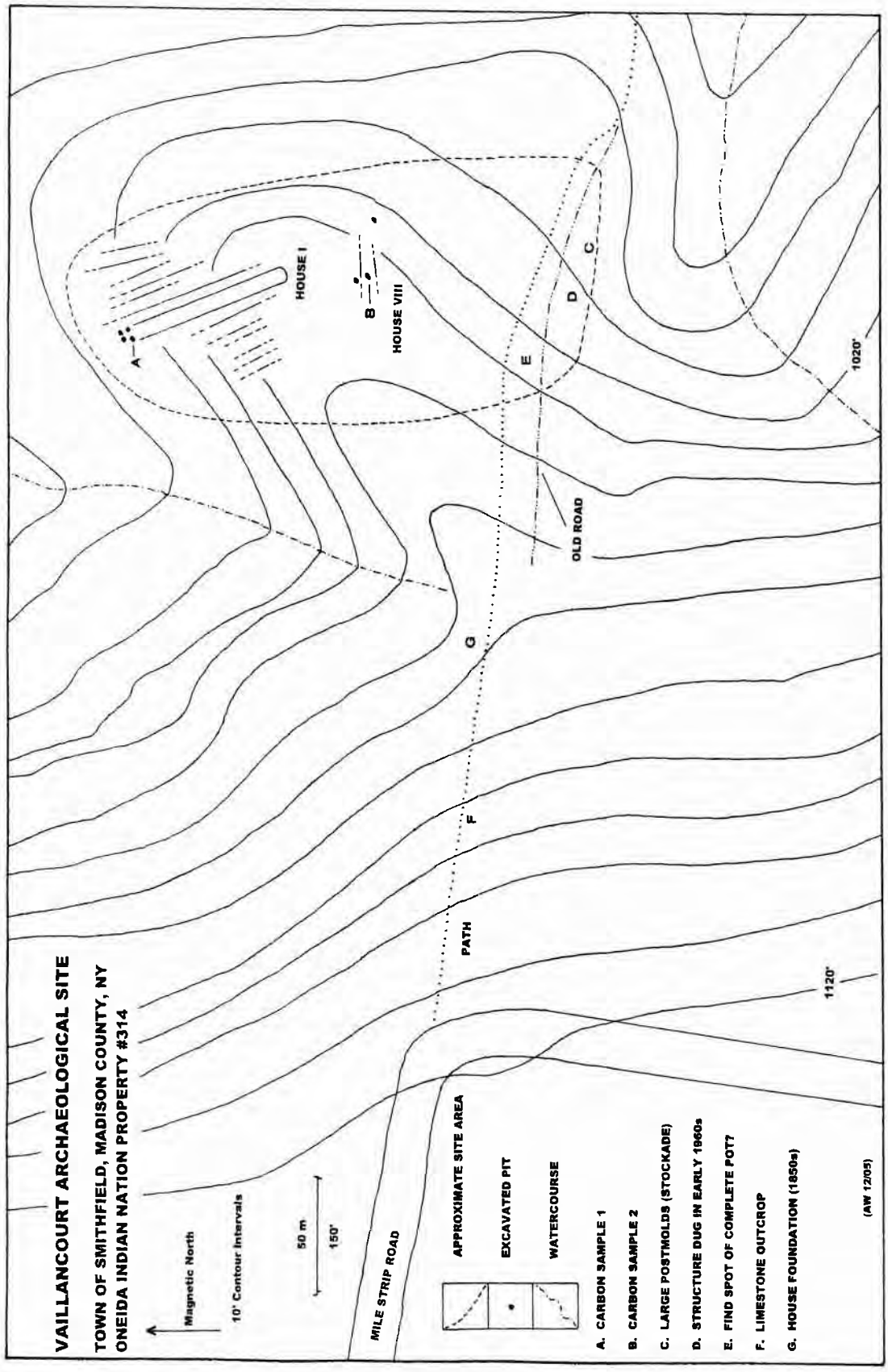

Figure 3. Plan of the Vaillancourt Site.

dated with some precision from the glass beads (Bennett 1983; Pratt 1961b; Sempowski 2004).

But, as regards the earlier portion of the sequence in pre-glass-bead times, the state of knowledge remains much as it was when outlined by Pratt in 1976. While any of the sites could provide important information about the Oneida past, Vaillancourt stands out for its potential to elucidate social and cultural issues. It is an unusually large site at which previously separate groups of people may have come together to forge new social arrangements. It is also a place where new forms of ceramic symbolism were worked out.

Archaeology at Vaillancourt

Vaillancourt is located on the eastern slope of a north-south trending ridge at an elevation of 1020 ft (311 m), about 0.6 mi (1 km) west of Cowaselon Creek (Figure 3). The closest crossroad (labeled "Elsaman's Corners" on the "Morrisville" USGS quad sheet) is at Buyea and Mile Strip Roads in the Town of Smithfield, Madison County.

The site "is in the shape of a broad oval and covers about 4.75 acres of cultivated brown clay loam with another 0.25 acre in woodlot. Good drainage is provided by a gentle grade from west to east" (Pratt 1961a:47). The steepest drop-off is a ravine with running water along the southern edge of the site. Immediately above (north of) this gully is an old road recognizable by stones piled along each side. Once an extension of Mile Strip Road to the west, this thoroughfare dates to between 1839 (Burr 1839) and 1853 (Evans 1853). It was abandoned by 1943—the date of the USGS quad sheet. The site was then owned by a farmer named Vaillancourt.

The topsoil consists of Cazenovia Silt Loam with pH readings in the neutral to slightly alkaline range—an environment favorable to bone preservation (Hayes et al. 1999:2). The same authors describe a limestone outcrop (Figure 3F) west of the site containing nodules of knappable Onondaga chert. This material is pervasive throughout the site (about 1,400 gm of chert per cubic meter of topsoil), its abundance going far to account for the expedient and seemingly informal nature of chipped stone use at Vaillancourt. Retouch of any sort is seldom seen and, while the chert industry remains to be studied in detail, the only tool type recognized at present is the bifacially worked Madison projectile point. Impressionistically, these triangular points seem to be very common.

Vaillancourt has been under cultivation since at least 1853, the time of the first land-use map showing a house (Figure 3G) just southwest of the site (Evans 1853). Shown again in 1859 (French 1859), the residence was gone by 1875 (Beers 1875:77). Undoubtedly the site has been known for as long as the field was being farmed, although it receives no mention in the archaeological inventories compiled by Beauchamp (1900) and Parker (1922).

The earliest archaeological reference to Vaillancourt is a recollection that, about 1919, a woman walked the plowed field in search of relics (Zeller c. 1960). That may have been Hope Allen, an independent scholar living in nearby Kenwood. It was Allen who brought William Beauchamp, the great Syracuse antiquarian, to visit the site around 1920 (Allen 1948:36-37).

E.R. Bradley, an amateur archaeologist who claimed to have excavated 50 village sites within 30 miles of his Cazenovia home, probably dug here in the early 1930s (Anonymous 1935). Bradley, at any rate, is the source of eleven effigy pottery faces—now in the holdings of the National Museum of American Indian (19/1477)—which could well have been taken from Vaillancourt. Another amateur digger, Burr Andrews of Norwich, was at Vaillancourt in the late 1930s (Gibson 1971b:1).

Herbert Bigford of Earlville excavated extensively at Vaillancourt, probably during the 1940s. Bigford found the complete pottery vessel shown in Figure 6 around the middle southern portion of the site (Figure 3E). He also may have located traces of a stockade line along the east side (Pratt 1961a:47-48). Peter Pratt, who briefly tested in the same general area in the late 1950s, wrote a valuable article describing Bigford's artifact collection (Pratt 1961a). Among other things, Pratt called attention to the existence of small stone discs and pottery effigy faces at Vaillancourt. Bigford's collection subsequently was sold to Colgate University where it remains today.

Vaillancourt attracted members of the Chenango Chapter of the New York Archaeological Association in the early 1960s. Ted Whitney excavated a structure aligned east-west in the southern area of the site and, in all probability, uncovered some large post molds in what would have been a stockade line overlooking the steep ravine (Whitney c. 1995). Stanford Gibson (1966) reported finding marine shell material and two metal artifacts believed to be European. He also mentioned the large number of groundstone axes and celts found at Vaillancourt but not, apparently, present in any quantity elsewhere (Gibson 1971b).

Whitney described (1990) another odd feature of Vaillancourt shared with nearby Olcott: large boulders usually modified with grooves. One, known as the Indian Council Rock, had been located above the steep southern ravine but had disappeared by 1950 (Pratt 1961a:47-48). Possibly, it was washed downstream and was the one recovered by Daryl Wonderly in 1989. This grooved stone now resides under a protective overhang at the Town of Stockbridge municipal building in Munnsville. A second

boulder with a cup-like impression on its top surface, existed northeast of the site area but was bulldozed away in the 1980s.

A subsequent wave of Chenango Chapter interest occurred when the "Wednesday Afternoon Group," including Doc Hosbach, returned to the site in 1993. Their goal was to find longhouses, that is, to locate the outlines of formerly existing bark-covered structures. They did this by following out lines of post molds, the circular stains marking the locations of poles once set vertically into the ground. This form of settlement archaeology requires large horizontal exposures and, at Vaillancourt, Chenango Chapter members employed a bulldozer to clear the soil overburden across substantial areas. Typically, the bulk of the topsoil was mechanically removed, then hand-troweled down to orange clay hardpan at about 36 cm (14 in) below ground level. The diggers mapped their work in 2-meter-square units and seldom used screens.

For about four years, they worked in the southern zone, mostly north of the abandoned road. Among other things, they encountered a storage pit with maize, some of which was submitted for a radiocarbon date. This sample yielded a conventional radiocarbon age of 220 years ± 80 (A.D. 1730), its 2-sigma range encompassing the calendar years 1485 to 1950 (Hayes et al. 1999:6).

Moving north in 1997, they completely uncovered the outline of a longhouse, oriented northwest-southeast, about 63 m (207 ft) long[2] and nearly 6 m (19.7 ft) wide (Hosbach 1997). House I, as it is labeled in Figures 3-4, was identified by its distinctive post mold pattern: four parallel lines in which the outside rows contained more and mostly smaller post molds than the presumed interior lines.

At the northern end of House I were four large pits (Figure 4), each at least 1 m (3.3 ft) in diameter. Pit 4, the one furthest to the northwest, was lined with "brilliantly fire-burned-red clay" (Hayes et al. 1999:6). Evidently, it had been used for cooking and the other pits may have been similarly employed at different times. The first depression northwest of House I ("Pit 1") contained a particularly rich concentration of pottery, wood charcoal, and well preserved animal bone—the residue, in all likelihood, of food consumption occurring over a short period of time. Since evidence for carnivore gnawing (probably the result of scavenging by village dogs) was very low here (1% or 6 of 588 pieces), this primary deposit must have become sealed quickly (Keck 2005).

Throughout House I, no overlapping lines of post molds occurred and the excavators reported no indications of

[2]House I was reported as 76 m long (Hayes et al. 1999:6), a length including the four large pits which are interpreted here as occurring at the northern end of (outside) the house

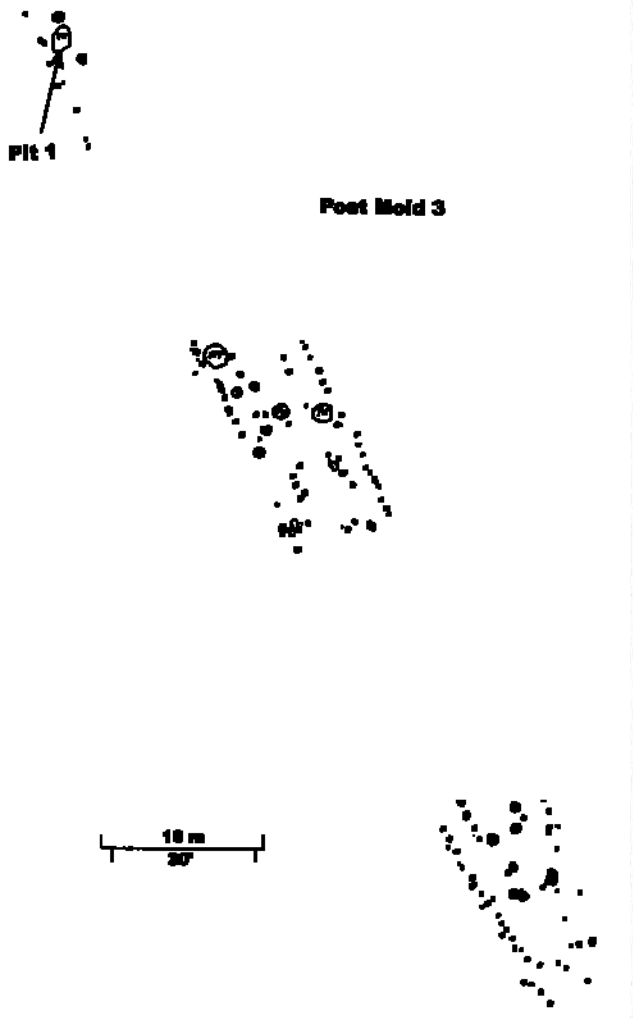

Figure 4. Plan of House I (after Hayes et al 1999: Figure 2)

rebuilding or repair. However, a possible structural duplication (pits in the middle of the House I resembling those at the northern end) implies the northern half may have been a later addition.

Cultural material, most of it looking "discarded, broken, or used up," was "plentiful at the subsoil surface and in many post molds, pits, and plow scars" (Hayes et al. 1999:4). Objects and charcoal found within holes extending beneath the hardpan layer were interpreted as occupational debris from the living surface. "[A] variety of artifacts, including calcined and green bone, was recovered from the same post molds, suggesting that these artifacts originated from outside the post mold. It is likely that the original ground surface included a lot of charcoal and associated

cultural debris, which were preserved by falling into these cylindrical 'pits'" (Hayes et al. 1999:4). The excavators determined that charcoal within post molds derived from maple, beech, hop hornbeam, birch, and elm trees (Hayes et al. 1999:4).

Excavations lasting through 2000 established the probable existence of six additional longhouses parallel to House I and generally about 4 m (13.1 ft) apart (Figure 3). Most appear to have been about the same width. The excavators may have encountered traces of a stockade just east of the easternmost building (Hayes et al. 2001).

Gerald Hayes and Daryl Wonderly continued digging at Vaillancourt through the fall of 2003. About 28 m south of House I, they encountered parallel lines of post molds, 6 m (19.7 ft) apart and at right angle to the house outlines further north. This "House VIII" is not precisely comparable to the other building outlines because it seems to have two (not four) clearly defined rows of post molds. In the same vicinity, the excavators uncovered three pits—all apparent primary deposits filled with well preserved cultural material including animal bone and plentiful wood charcoal. Presumably, these features originally were storage pits which subsequently filled with occupational debris as implied by a carnivore gnawing rate higher than that of Pit 1 (7.8% or 7 of 90 pieces). Hayes and Wonderly made cultural material from this provenience and from House I available for the research described below.

Dating

Vaillancourt has been characterized as Prehistoric, Late Prehistoric (Garoga phase), Protohistoric, and Early Contact in age. Calendric estimates of occupation include the late fifteenth century, the mid-sixteenth century, and the third quarter of the sixteenth century (Hayes et al. 1999:6-7; Pratt 1976:139; Whitney 1970a:12, 1971:1). Independently of the issue of Gibson's metal find,[3] comparative and chronometric forms of evidence indicate Vaillancourt was occupied during the second quarter of the sixteenth century.

Turning first to information available from neighboring regions, I look to identify those sites most closely resembling Vaillancourt and Olcott on the assumption that similar characteristics imply comparable age. Certainly such traits as the large post molds in the palisades, a decrease in the frequency of ceramic pipes, and the first appearance of European material are regarded as time-sensitive characteristics elsewhere. Additionally, two metrical indices should be considered as possible indicators of temporal trends: length-to-width ratios of chert projectile points and collar heights of ceramic vessels.

Ceramicists visualize the top portion of most Iroquois pottery vessels as a "collar," a neck-like construction built up above the vessel's orifice that gives Iroquois pots their characteristically Iroquoian appearance. The height of collars rose steadily during the late 1400s-early 1500s, then gradually declined in both the Mohawk and Onondaga areas (Bradley 1987:38,53-54). Among Mohawk ceramics, the simple statistic of mean collar height proved to be "an extremely robust chronological indicator" (Funk and Kuhn 2003:137). At Vaillancourt, the mean collar height is 40 mm. The only other comparable figure available is 32 mm from the earlier Buyea Site (Whitney 1970a:7).

Archaeologists have long known that Madison projectile points, the form characteristic of the Late Woodland period throughout the Northeast, tend to attain the drawn-out form of an isosceles triangle, reaching a maximum length sometime in the late 1400s-early 1500s. After that, their lengths decrease and they become increasingly equilateral in outline. Kuhn (1996) proposed that the relationship was most simply expressed as a length-to-width ratio that, as a summary statistic by site, could be arranged linearly to produce a seriation. Seneca material presented by Sempowski and Saunders (2001:702) "solidly confirms the occurrence and temporal progression" of such a trend, at least from the early 1580s to about 1620 in western New York. At Vaillancourt, the length-to-width ratio of projectile points is 1.58 (n = 75). The corresponding figure from earlier Buyea is approximately 1.71 (n = 39).

Gazing westward toward Onondaga, the sites most similar to the Oneida examples are those Tuck (1971:203) classified as Late Garoga phase in date: Temperance House and Atwell Fort. These are the ones with large post molds in their palisade lines. The frequency of pipes seems to fall off at these locations (Bradley 1987:61,63; but see Ricklis 1963), and these are the places yielding the first traces of European material. Collars on ceramic vessels may be decreasing after attaining a maximum height (44 mm) at the Barnes Site (although we do not have the requisite information in comparable format). The projectile points, while still long, are shorter than the maximum registered at the earlier Barnes Site (length-to-width ratios are Barnes: 1.90, Atwell: 1.64, and Temperance: 1.58 as compared with Vaillancourt: 1:58)(Bradley 1987:54-55,63,67; Gibson 1968:7,9). Bradley (1987:49-50) dates Temperance House and Atwell Fort to about 1525-1550.

[3]Prof. Peter Pratt (letter to the author dated March 20, 2006) recalls a conversation in which Doc Hosbach reported the discovery of kettle brass fragments in good context. Dr. Gerald Hayes emphasizes that he has seen no old metal in a decade of digging at Vaillancourt (letter to the author dated Jan. 30, 2006, and see Hayes et al. 2001:4). I am very grateful to Pratt and Hayes for commentary on this manuscript. I also thank Daryl Wonderly and Daniel Hayes for reviewing it. Naturally, the views expressed in this article are my opinions.

Looking east to Mohawk country, the sites that seem most similar to Vaillancourt are Garoga, Klock, and Smith-Pagerie, a sequence of village removals dating to between 1520 and 1580 (Funk and Kuhn 2003:133). All three have large palisade post molds and trace amounts of European material. Strangely static in some respects, these sites register little change in projectile point length. However, the frequency of ceramic pipes falls off after Garoga (Garoga: 72 pipe fragments, Klock: 19), and Garoga and Klock together provide the closest fit for Vaillancourt collar heights (Garoga: 36 mm; Klock: 43 mm as compared with Vaillancourt 40 mm)(Funk and Kuhn 2003: 37,76,120, 124,138,141). Snow (1995:146,165) dates Garoga to 1525-1545, Klock to 1540-1565. Vaillancourt, presumably, brackets those times. In conclusion and as an exercise in bringing Vaillancourt in line with comparative evidence from neighboring areas, the period 1530-1560 looks like the most reasonable synthesis of Onondaga and Mohawk dating information applicable to estimating Vaillancourt's age.

We have two radiocarbon assays performed on large samples of wood charcoal taken from primary deposits in House I (Pit 1) and House VIII (one of the storage/refuse pits). That from Pit 1 (Beta-196913) yielded a conventional radiocarbon age of 310 ± 50, or A.D. 1640 (2-sigma calibrated range: 1460-1660). The intercept dates (radiocarbon age with calibration curve) are 1530, 1550, and 1630. The assay from the House VIII pit (Beta-195935) registered a conventional radiocarbon date of 410 ± 60, or A.D. 1540 (2-sigma calibrated range: 1420 to 1640). A single intercept date is 1460.

Obviously, the second date (1540) conforms with my expectations; the first (1640) does not. Inasmuch as radiocarbon readings from apparent fifteenth- and sixteenth-century settings frequently seem unrealistic (Funk and Kuhn 2003:133; Pendergast 1996:45-46), this is not an unusual outcome. One acceptable date out of two is, perhaps, a good result.

However, the two Vaillancourt assays are similar in important respects. Faced with all ten of the relevant ^{14}C dates seeming aberrant in the Mohawk Valley, Funk and Kuhn (2003:98,128) noted that several of the readings seemed to coincide with the probable occupation time if one favored the mean intercept date. That appears to be true in our case as well—the mean intercept of the first date is 1550.

I believe ^{14}C readings are best evaluated using the 2-sigma range—that is, the time-span to which a 95% (rather than 67%) probability attaches that the sample's true age falls within the indicated limits (Lenig 2000:67). Our assays have similar (calibrated) 2-sigma ranges. If one accords weight to shared overlap and similar central tendencies, the combined ^{14}C readings indicate dating in the neighborhood of 1530-1560 (Figure 5).

Figure 5. Two radiocarbon dates from Vaillancourt: Midpoints of 2-Sigma ranges.

Whether or not any sense can be made of an aberrant ^{14}C reading, there is sound chronometric evidence pointing toward 1540. Placing a generous fifteen-year cushion on either side of that year, I propose Vaillancourt occupation occurred about 1525-1555, a suggestion consistent with comparative evidence and the possible presence of European material.

As a matter for future research, collar heights of pots and length-to-width ratios of projectile points may provide the means to clarify pre-Vaillancourt dating and sequence. As mentioned above, mean collar-height figures are available for only two sites. However, thanks to William Engelbrecht's ceramic studies (1974, 1978), a comparative statistic exists that seems to measure the same phenomenon differently: the percentage of collars 32 mm or more in height. When these (Engelbrecht 2004:10) are listed in the suspected temporal order of sites (early to late), they apparently conform to the expectation that collar heights rise then fall over time:

Nichols Pond	26%
Buyea	36%
Vaillancourt	67%
Bach	53%
Cameron	30%
Thurston	18%

Likewise, when we list our preliminary figures of Madison-point ratios[4] in suspected temporal order, we end up (apparently) demonstrating that Oneida Madison points decreased in length and became increasingly equilateral over time:

Buyea	1.71
Olcott	1.70
Vaillancourt	1.58
Bach	1.61
Diable	1.43
Cameron	1.28

Therefore, collar height and projectile point form look promising as time-sensitive traits in the Oneida region, both variables potentially furnishing convenient gauges of temporal change.

[4]The length-to-width ratio is calculated by dividing mean length (in cm) by mean width. Projectile point measurements from three sites were recorded at Hesse Galleries (Otego, New York) on Hosbach material prior to sale. The sites so recorded are Bach (n = 27), Diable (n = 26), and Vaillancourt (n = 75). The other summary statistics are approximations derived from counts grouped in 2-mm increments: Buyea (n = 39), Olcott (n = 31), and Cameron (n = 30)(Hosbach and Gibson 1980:56,58-59).

Faunal Remains

Maize certainly is present at Vaillancourt and, presumably, domesticated and wild plant foods provided a significant portion of the diet. The basic archaeological food residues, however, are animal bones. Our unscreened sample of bones, made available by Hayes and Wonderly, derives from Houses I and VIII. Archaeofaunalist Charlene A. Keck (2005) sorted this material into the following categories.

Mammals	1,042	(74%)
Fish	341	(24%)
Amphibians/reptiles	20	(1%)
Birds	8	(0.5%)

Keck identified these animals as present at Vaillancourt (n = number of bones).

	n
Odocoileus virginianus (white-tailed deer)	187
Canis, sp. (dog/wolf)	18
Canis lupus (gray wolf)	9
Castor canadensis (beaver)	16
Ursus americanus (black bear)	6
Marmota monax (woodchuck)	7
Microtus pennsylvanicus (meadow vole)	4
Procyon lotor (raccoon)	3
Urocyon cinereoargenteus (gray fox)	1
Lutra canadensis (river otter)	1
Didelphis virginiana (opossum)	1
Peromyscus, sp. (white-footed/deer mouse)	1
Catostoma, sp. (sucker)	2
Catostomus commersoni (white sucker)	2
Ictaluridae (catfish family)	1
Ictalurus punctatus (channel catfish)	3
Ictalurus natalis/nebulosis (yellow/brown bullhead)	10
Lepomis, sp. (sunfish)	1
Micropterus salmoides (largemouth bass)	2
Stizostedion vitreum (walleye)	78
Anura (frog/toad)	19
Chrysemys picta (painted turtle)	1
Anas, sp. (duck)	1
Colinus virginianus (bob-white quail)	1
Meleagris gallopavo (turkey)	1
Scolopacidae (woodcock/snipe)	1

Also in evidence were remains of Gastropoda (land snail) and Unionoida (pearly mussel). Whether the snails were an ancient food item is unknown but the freshwater clams certainly were (Kuhn and Funk 2000:37).

Deer is overwhelmingly predominant at Vaillancourt (187 of 254, or 74% of identifiable mammal bones) as it is

at most Iroquoian sites in New York and Ontario. And, even though our sample is small, it seems to mirror the next four kinds of mammals most frequently present after deer in the Mohawk Valley from about 1300 to 1525: bear, beaver, dog, and woodchuck. Dog and woodchuck are regarded as indirect evidence for increased horticultural activity at this time (Kuhn and Funk 2000:47-52).

Historically, Iroquois hunted deer during two cold-weather seasons. For Oneidas in the 1700s, a fall hunt occurred during November-December and a spring hunt from mid February through April (Pilkington 1980:104,124, 160,207,231,266-67,298,395). Our meager evidence for deer seasonality at Vaillancourt (two skulls with antlers cut off, one with antlers naturally shed) is consistent with such a two-season pattern.

Hunts described by European observers were wide-ranging activities taking place far from home. "The women do hardly anything else, all the winter," wrote a French observer of the Oneidas in 1668 (Thwaites 1899:51:129), "but go and get the flesh of the deer or of the moose that the men have killed, sometime fifty leagues away from the village." At Vaillancourt, in contrast, the high degree of skeletal completeness (including presence of skulls) suggests deer (both mature and immature) were killed nearby and brought back to the village whole. While these data do not refute the historically attested pattern, they do raise the possibility that Vaillancourt hunters stayed closer to home than did hunters later in time.

Human remains show up in Onondaga midden deposits of the 1400s and 1500s (Bradley 1987:53-54; Gibson 1968:8; Tuck 1971:118) and, in much the same context, at the later Oneida Diable Site (Weiskotten 1993). Such finds have been interpreted as evidence of mourning war practice in which foreign captives were ceremonially tortured and slain, and possibly consumed ritually (Bradley 1987:37,54; Tuck 1971:113-114). No comparable evidence is known from Mohawk sites of the sixteenth century (Funk and Kuhn 2003:46) and no human material has been identified at Vaillancourt.

Documentary accounts of the Eastern Iroquois indicate that "a wide range of both freshwater and anadromous fish were exploited and that, through the use of a variety of techniques, fishing took place on a nearly year-round basis" (Bradley 1987:120). Though perhaps less important among the Mohawks than among the Oneidas and Onondagas, Recht (1995) argues fishing played a major role in the diet, beliefs, and ritual life of all three peoples.

In the Oneida case, for example, the first European visitor remarked (December, 1634) that Oneida homes contained 60-70 dried salmon and "six or seven or even 800 salmon" were taken daily (van den Bogaert 1988:13). Each spring, the Oneidas conducted a public rite to welcome the salmon back (Jones 1851:872-873). The anadromous salmon aside, however, Oneida knowledge of bony, freshwater species must have been profound to judge by an Oneida's speech of 1655 reported by a French priest: "[He] invited the salmon, brill, and other fish, to leap into our nets, and to fill that river for our service only. He told them they should consider themselves fortunate to end their lives so honorably; named all the fishes of that river, down to the smallest, making a humorous address to each kind; and added a thousand things besides, which excited laughter in all those present" (Thwaites 1899:42:79).

Salmon is not present at Vaillancourt, probably because its soft body parts rarely survive in the archaeological record. Freshwater fish are present, however, and comprise a significant proportion (24%) of the animal remains. Keck's analysis suggests Vaillancourt Oneidas were getting fish from everywhere (lake and running water, deep and shallow) all the time (different seasons). Three of the species identified at Vaillancourt are also reported at the earlier Oneida sites of Nichols Pond and Buyea: walleye, bullhead, and catfish (Pratt 1966:235-238).

Keck's work underscores what increasingly seems to be a distinctive feature of the Oneida archaeological record. Oneida sites contain an abundance of fish parts: 16% of the faunal record at Nichols Pond, 23% at Buyea, 24% at Vaillancourt, and 44% at Cameron (Clark 2004:213; Pratt 1966:235-238).

Neighboring regions, in contrast, yield insignificant amounts of fish. Fish at three Mohawk sites spanning much of the sixteenth century comprise less than 1% (Funk and Kuhn 2003:45, 257; Ritchie and Funk 1973:329). Most Onondaga sites of the 1400s and 1500s have, at most, 4% fish remains (Bradley 1987:53-54; Gibson 1968:8; Tuck 1971:118,135,146). Exceptional in this regard is the Onondaga Crego Site (c. 1400-1425) near present Baldwinsville. This occupation on the Seneca River contained numerous fish remains (nearly 40%) but virtually no deer bones. Clearly, it was a fishing station (Pratt and Pratt 1997:144-153).

In effect, therefore, Oneida villages resemble what elsewhere stand out as special-purpose sites devoted to taking fish. While it is difficult to imagine that only Oneidas loved fish, it seems equally unlikely that the disparity in fish remains resulted from accidents of preservation occurring solely in the Oneida area. At any rate, the archaeological record confirms Samuel Kirkland's assessment that fishing among the Oneidas in the late 1700s ranked second in food importance only to crops (Pilkington 1980:313).

Among the raccoon remains is a polished baculum or penis bone, found in Pit 3 at the north end of House I. A

second Vaillancourt specimen (also polished) derives from Hosbach's collection. These distinctive objects are reported from the Oneida Buyea, Olcott, and Wilson sites (Hosbach and Gibson 1980:71; Pratt 1963:63). Their presence "is usually assumed to reflect a concern with virility" (Engelbrecht 1991:2). In the Seneca region, such bones (often polished) frequently show up in the burials of subadults although they also occur in more general refuse and village contexts (Sempowski and Saunders 2001:68-69, 378).

Not included in the faunal sample examined by Keck is the tooth of an elk (*Cervus canadensis*) perforated for suspension (recovered from overburden above House IV, the second longhouse pattern west of House I). A second drilled elk tooth from Vaillancourt was included in Hosbach's material. Elk was once common enough to have been a dietary item in the Mohawk and Oneida (Bach and Cameron Sites) areas (Clark 2004:198; Kuhn and Funk 2000:32-33; Whitney 1967:4).

However, the elk parts most frequently present are teeth modified for use as pendants. Examples identical to those from Vaillancourt have come from sites spanning at least 150 years: Buyea, Goff, Diable, Cameron, Wilson, Thurston, and Stone Quarry (Bennett 1984:10, 1991:8; Bennett and Bigford 1968: Pl. 11, B-45 through -47; Hosbach and Gibson 1980: Pl. C, Fig. 3; Pratt 1976: Pl. 8, #6 and Pl. 22, #14; Whitney 1970b: Pl. 3, #5). Among burials at the Seneca Cameron Site (c. 1595-1610), perforated elk teeth were strongly associated with children (Wray et al. 1991:365-366).

Two other drilled canines were in Hosbach's possession, very possibly canid teeth. That collection also contained a tubular bead of bone measuring 1.4 cm in length. 0.5 cm across.

A fragment of a carved antler comb was found in Pit 3 north of House I. When complete, the top portion of the comb was in the form of a rectangle about 2 cm across and 2.5 cm high. A circular hole was drilled into its top center. Very likely it had four tines, each about 4 mm across and separated by a gap of about 2 mm—the older kind of comb created without metal tools. Combs are reported from the earlier Buyea and Olcott Sites (Pratt 1963:82,86; Whitney 1970a:9,12).

Pratt (1961a, 1963) described a fair number of bone tools from both the Vaillancourt and Olcott Sites. With the exception of the comb, however, the only worked bone in Keck's sample consisted of a cut antler tine (a punch?), a deer ulna with one edge partially ground, and a bone fragment with a drilled perforation. Hosbach's collection, on the other hand, contained the hollowed tip of an antler tine 4.5 cm long (projectile point?) and fragments of seven awls splintered from (deer?) long bones, the longest a polished piece 16.5 cm long. Beaver incisors and deer phalangeal bones are present in an (apparently) unmodified state.

The House I faunal material from Hayes and Wonderly included one tubular bead, 0.9 cm long and 0.45 cm across, presumed to be made from marine shell.[5] Hosbach's collection contains two additional tubular beads of seashell—one measuring 1.7 cm long and 0.7 cm across and a second smaller one 1.0 cm long and 0.4 cm across. The House I and the smaller Hosbach example fall into the range of "early wampum" (Wray et al. 1987:139-141), apparently the first appearance of this material in Oneida country. The presence of tubular but not discoidal forms may prove to be temporally significant (Kuhn and Funk 1994).

Other marine shell material owned by Hosbach includes two columella pieces 3.5 and 5.0 cm long and two curved fragments (maximum lengths about 5 and 4.5 cm) of a shell's outer surface. The latter carry a pattern of closely ribbed parallel lines on their exteriors and have smooth, nacreous interiors. All (including the bead from House I) are white and feel rather chalky. All are very possibly from whelks *(Busycon)*, a widely distributed family of univalves that seemingly accounts for most shell material on Iroquoian sites of the period (Ceci 1989; Pendergast 1989; Sempowski 1989).

Two additional marine shell pieces from Hosbach include, first, a curved shell surface (2.5 cm across) with a drill hole. The exterior surface of this pendant bears a geometric pattern far more intricate than those described above. Second, there is a small univalve shell 1.8 cm high. Opposing sides of this marginella-like shell were removed to create a suspension hole. The pendant, the possible marginella, the smaller Hosbach tubular bead, and the smaller Hosbach columella were described and illustrated by Gibson (1966:4 and Pl. 2, Figs. 6-9).

I hope to obtain better knowledge of this shell material, particularly of the small univalve described above. If it truly is marginella, it would point to the southern Atlantic coast since North Carolina is the northern limit of this shell's occurrence (Bradley 1987:68-69). Such a provenience would, in turn, imply that marine shell reached Oneida country via the Susquehanna River and Chesapeake Bay region (Bradley 1987:90-96; Crerar 1994; Sempowski 1994; Wray et al. 1987:250).

[5]Another possible marine shell piece derives from Pit 3 of House I. Under low magnification, shell-like lamination is visible and it may be a portion of a columella. However, its amber feel and brown-marbled appearance set it apart from the other seashell pieces. It has two longitudinal grooves, one resembling the interior whorl of a shell's central column. The other, less clearly natural in appearance, could be a drilled channel. If so, this piece would be half of a generally tubular bead 2.7 cm long and perhaps 1 6 cm across.

Figure 6. Effigy pottery vessel from Vaillancourt (Wonderley 2002: Figure 7). About 28 cm high, this pot of the Richmond Incised type is now at Colgate University (#2087; drawing by Julia Meyerson).

Pottery

About half the pottery sample derives from what Hayes and Wonderly retained from excavations at Houses I and VIII. Most of the rest comes from Hosbach's collection obtained by the OIN. We have in the neighborhood of 2,000 grit-tempered bodysherds—smoothed and apparently undecorated below collar bases. Vessel bodies are predominantly globular although several vessels with low collars have carinated shoulders.

My analytic attention focuses on rimsherds large enough to record in the coding system devised by Engelbrecht (1996:129-138).[6] This, the most widely used method of ceramic documentation, requires a complete section of the collar or, in the case of collarless vessels, at least 2 cm of surface present beneath the lip. The OIN collection comprises rims from 34 vessels. Obviously, this small sample cannot be regarded as statistically adequate or representative. I claim only that it seems instructive.

One of the fields in Engelbrecht's system invites the analyst to identify the sherd's type from a provided list. Available choices include types originally defined by MacNeish (1952; for example, Fonda Horizontal). Also listed are several types defined by Pratt (1960) in revision of MacNeish categories (for example, Cayadutta-Otstungo Incised in place of Cayadutta Incised and Otstungo Incised). Additionally, the list includes at least one type (Garoga

[6]Engelbrecht (2004), who examined sherds from Hayes and Wonderly at the Oneida Indian Nation, should not be held responsible for any questionable typologizing described in this report

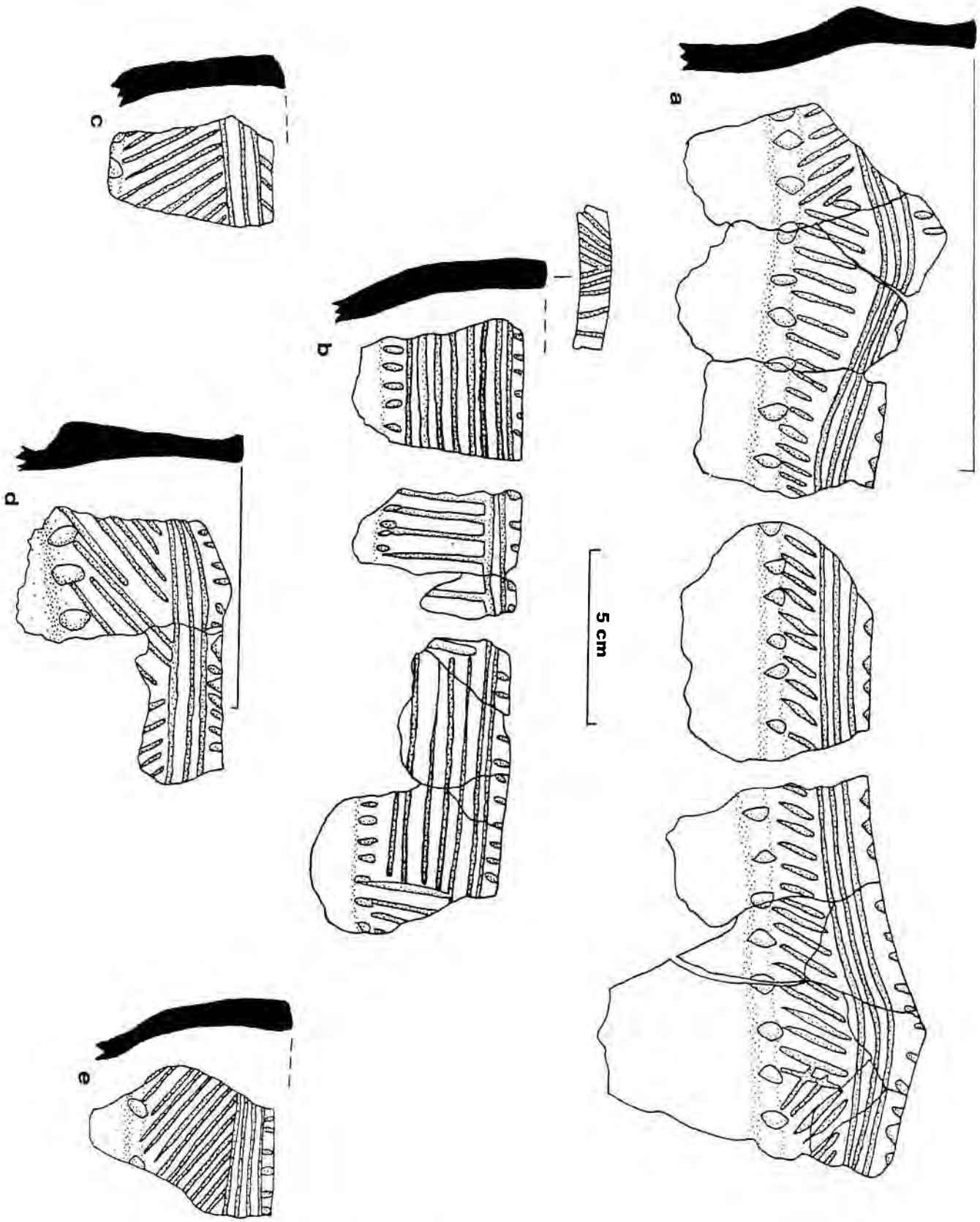

Figure 7. Sherds of Garoga Incised from Vaillancourt. A line drawn to the right of a darkened cross-section indicates the radius of a vessel's aperture.

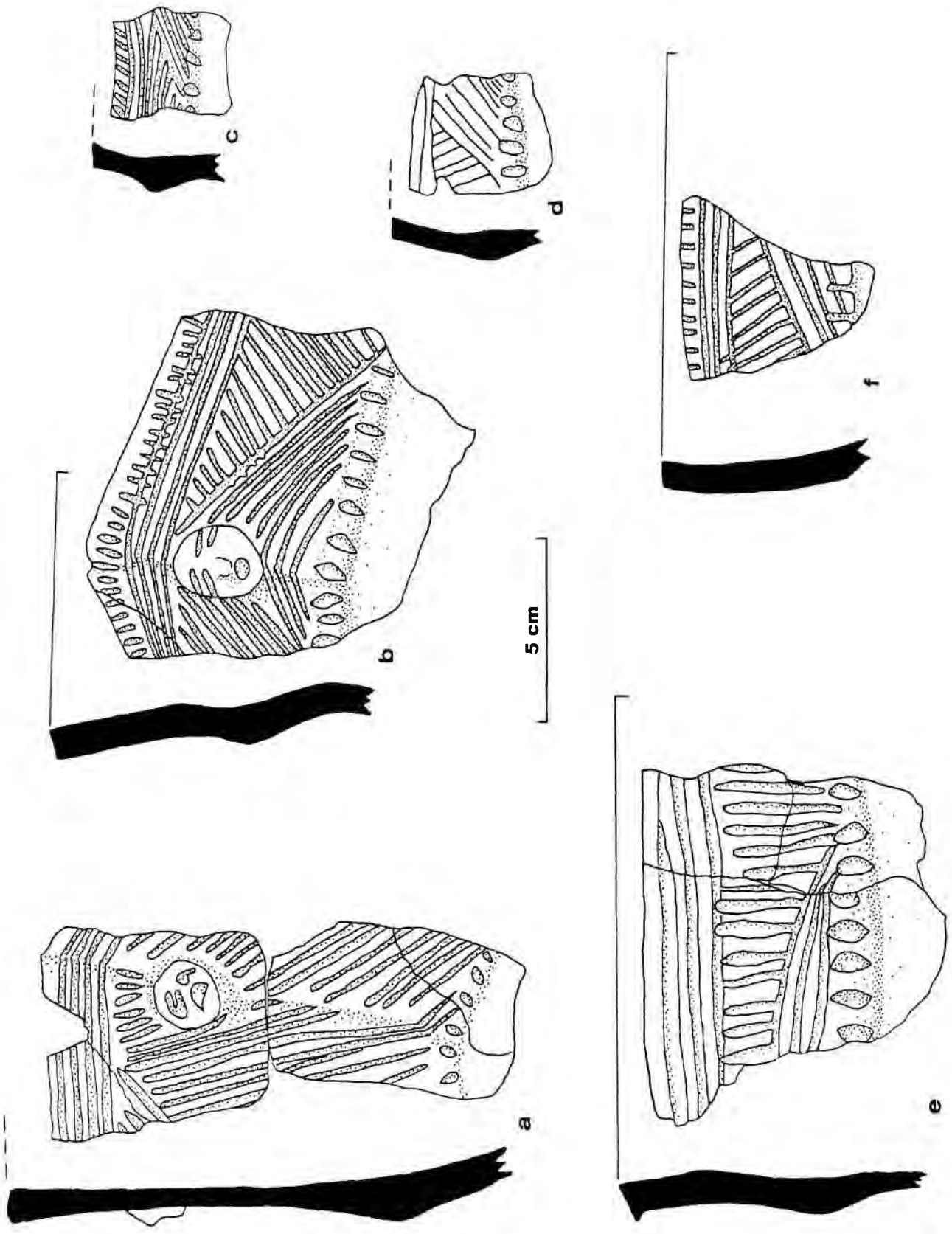

Figure 8. Sherds of Richmond Incised (a) and Onondaga Triangular from Vaillancourt

Incised; see Figure 7) defined by Lenig (1965:7-8) in revision of three MacNeish types (all mentioned above). As far as I know, the considerable overlap among these categories has never been reconciled (Pratt 1980:36).

Further, different ceramicists identify types in different ways. Thus, my Onondaga Triangular is a loosely executed incised design (beneath horizontal lines and above a collar base with notches) tending toward the form of isosceles triangles (Figure 8b-f). Scanning published photographs of pottery, it seems likely that, on the one hand, Pratt's application of this type name is far more limited than mine and, on the other, that examples of what I call Onondaga Triangular probably are subsumed within Garoga Incised in the Mohawk Valley.

Problems with typological concept, definition, and methodology will not be solved here. I hope merely to convey, in pictures and words, what I am talking about. These typological categories offer a convenient shorthand for characterizing salient features and for relating our material to what has been published about Oneida, Mohawk, and Onondaga pottery (see Funk and Kuhn 2003:36; Pendergast 1980:135).

The larger rimsherds from Vaillancourt are classified in this fashion:

	n	Illustrations
Otstungo Notched	7	Figure 10i-k
Rice Diagonal	2	Figure 10l
Garoga Incised	5	Figure 7
Onondaga Triangular	5	Figure 8b-f
Wagoner-Syracuse Incised	6	Figure 9
Corn-ear	4	Figure 10e-h
Warminster Horizontal	2	Figure 10b-c
Richmond Incised	1	Figure 8a
Lawson Incised	1	Figure 10d
Untyped	1	Figure 10a

The first two types listed above lack collars, that is, the upper portion of such a vessel is thought to terminate directly in a thickened lip (also called an everted rim). Design on collarless pots is confined to incision and punctation at the rim, especially on the lip's upper surface.

Collarless vessels comprise 26% of the Vaillancourt sample, precisely the same proportion reported at the Mohawk Klock Site (Funk and Kuhn 2003:36)—possibly another indication that the sites are approximately the same age. Most of the Vaillancourt examples belong to the Otstungo Notched type, a category sensitive to time in the Oneida context. Well represented at earlier sites (Nichols Pond: 23%, Buyea: 22%; Engelbrecht 2004), the type becomes uncommon at sites succeeding Vaillancourt (Bach: 8%, Diable: 5%, Cameron: 6%, Thurston 5%; Engelbrecht 2004:6).

The collared vessels have high collars (40 mm) at or near the point of maximum height development in the Oneida sequence. The collar bases are notched and, in almost every instance, one could fairly say they are "boldly notched" in the fashion characteristic of Garoga Incised (Lenig 1965:6-8). "Bold" basal notching is likewise a defining feature of Ritchie's Garoga phase (1980:320) and Funk and Kuhn's Garoga ceramic horizon (2003:132-133). Smaller notches occur on the exterior lips of most Vaillancourt vessels.

Exterior collar surfaces are zones of incised decoration. The decorative scheme may take up the entire space between lip and collar base (Wagoner-Syracuse Incised; see Figure 9). More commonly, the main decorative program occurs below two to four horizontal lines incised circumferentially directly beneath the lip (Garoga Incised, Onondaga Triangular, Richmond Incised). Incised design consists chiefly of triangular patterns (10 examples, 42% of the collared vessels) or zones of oblique lines (7 examples, 29%).

Triangles must be the principal designs on contemporaneous Onondaga vessels to judge by the predominance in that area of the type Onondaga Triangular (Barnes Site: 85%, Temperance House: 60%, Atwell Fort: 55%; Gibson 1968:6). In the Garoga-Klock-Smith sequence of the Mohawk Valley, in contrast, design preference is more equally balanced between "filled triangles" (41%) and oblique lines (39%; Funk and Kuhn 2003:139). By the terms of this stylistic contrast, Vaillancourt incised decoration adheres more closely to Mohawk standards.

In the Oneida area, however, both Onondaga and Mohawk design tendencies may be in evidence—at different sites. That, at any rate, was the opinion of Ted Whitney (1970a:12):

> Some irregularities appear, that may require some revision of the one village-one time-one people concept of Oneida occupation We had this situation at the Bach and Diable sites (Whitney 1967:8) where we noted that Bach pottery was strongly Onondaga, whereas Diable, of about the same period, was predominantly Mohawk. In this study, we find Buyea, which is so Mohawk in characteristics, in proposed line of sequence with Olcott, so Onondaga in nature. We may have to consider the possibility of neighboring, co-existent, peaceful villages with somewhat different cultural influences. This would help in the allotment of time for occupation, which is now very brief, if we include all sites in a single line of succession. It would also help to explain the small size of some sites like Buyea.

I hope future research will clarify the nature of stylistic contrast in incised design between sites. Such a phenomenon

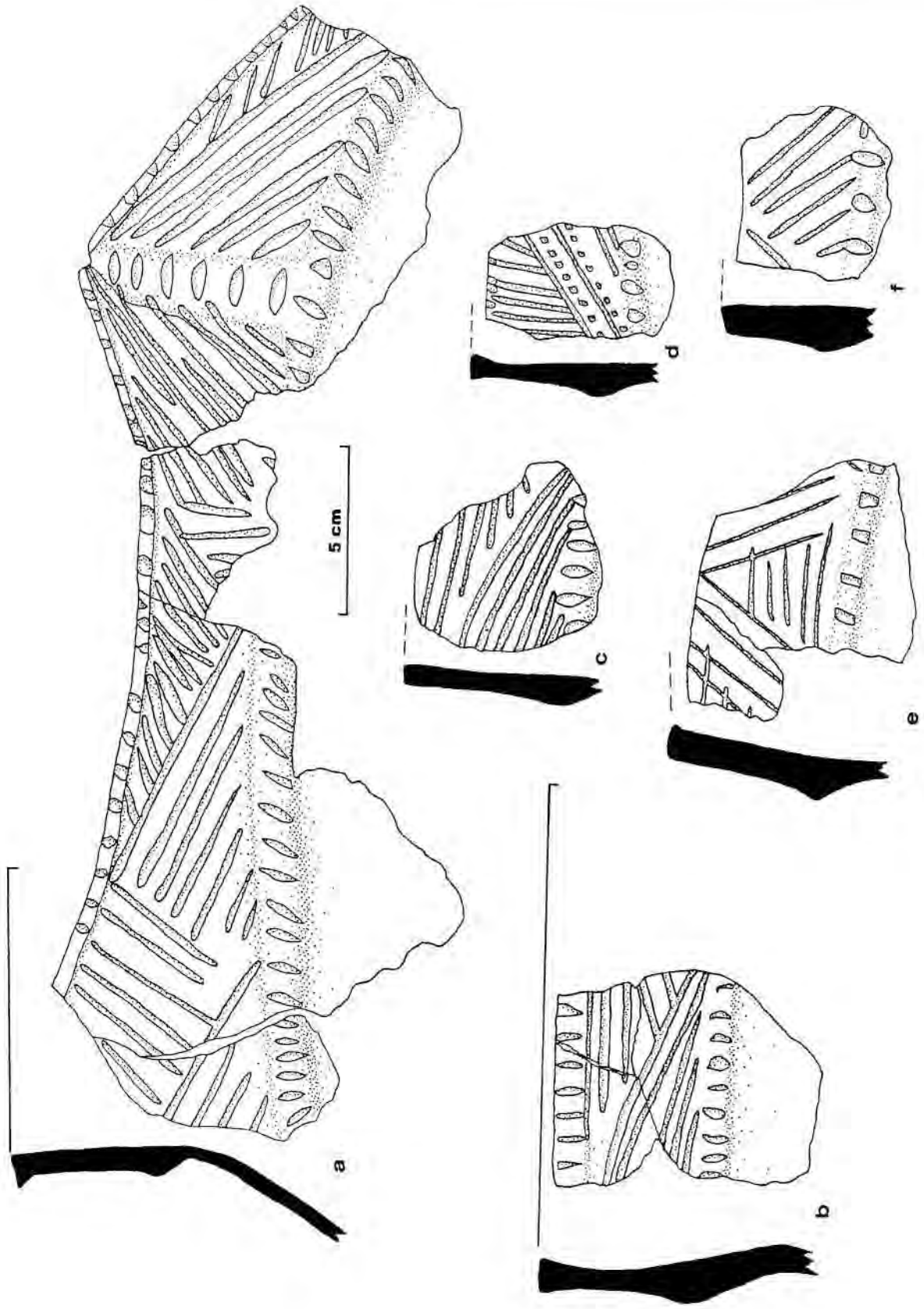

Figure 9. Sherds of Wagoner-Syracuse Incised from Vaillancourt.

might well provide a means to study ethnogenesis and the development of Oneida identity in the archaeological record.

However, the most culturally informative ceramic decoration at Vaillancourt is not incised but rather applied. A notable and previously unknown example of design in relief is the Corn-ear pottery type recognizable by a series of raised, vertically oriented ridges applied around a vessel's exterior rim (Figure 10e-h). Each ridge is indented with horizontal lines, slashes, or punctuates most frequently lined up in a single column resembling the rungs of a ladder. Obviously, the type derives its name from the fact that it may "represent ears of corn, the rows of transverse linear impressions being intended to represent the kernels" (Wintemberg 1936:113). The design or motif, in other words, is widely, although informally, visualized as naturalistic.

The corn-ear is considered diagnostic of the late-period St. Lawrence Iroquoian region, especially the clusters of sites around Prescott, Summerstown, and Montreal—Chapdelaine's Hochelaga province (1990, 2004:65,68-70). Nevertheless, at Vaillancourt the corn-ear appears to be part of the Oneida ceramic assemblage because it looms large in a small sample (6 rimsherds, 4 of them classifiable) and is physically indistinguishable from other local pottery. Now, therefore, the corn-ear seems autochthonously Iroquois as well as St. Lawrence Iroquoian.[7] One of the classified corn-ears derives from the primary deposit in Pit 1 near House I.

The vertical ridges of Vaillancourt corn-ears may be more widely spaced than is typical of their St. Lawrence Iroquoian counterparts. Further, the Vaillancourt examples may have more incised decoration in the interstices between columns (see Pendergast 1968: Pl. II, #s1,9; Pendergast and Trigger 1972: Pl. I, #s 7-9; Wintemberg 1936: Pl. V). The Oneida examples possess either one or two columns of the vertically stacked hashmarks. The two-column format more realistically evokes kernels on a cob (Figures 10f, 11a). The single-column format, on the other hand, resembles a form of effigy called the "ladder."

The ladder effigy consists of a vertically oriented ridge with ladder-like markings at or below a castellation. The raised ridge results from pinching the clay together or from application of a clay strip to the vessel's surface. The ladder's rungs are created by "several short horizontal markings which are cut, stamped or gouged into the thickened area, and are lined up vertically one above the other from the top to the bottom of the effigy" (Wray et al. 1987:79). This effigy appears to be characteristic of the Seneca area and the northern zone of the Niagara Frontier in western New York, and possibly the Neutral region in southwestern Ontario (Fitzgerald 2001:43; White 1961:89; Wray et al. 1991:273-274, 499, 508).

The ladder effigy rarely occurs in the Eastern Iroquois area although Vaillancourt has so far produced one example (Figure 11e; Wonderley 2002: Figure 13c) and a second ladder-like effigy, both probably from the same deposit (Pit 1 north of House I) that yielded a corn-ear rim. The second specimen features a column of horizontal indentations created on an outward-projecting seam below a castellation (Figure 9a). Additionally, there are ladder-like strips which are not featured, by themselves, as the main effigy design. Instead, they are deployed to embellish effigy faces.

Whatever Mohawk affinities are manifest in incised design, the applied decoration at Vaillancourt is oriented toward Onondaga in the sense that potters of these two regions shared the same preference for effigy faces. The Vaillancourt examples occur at or under castellations as appliqués—separate pieces added to the vessel fabric, their features rendered by incising, gouging, and modeling. Ranging in height from 1.6 to 3.7 cm (n = 6), all appear to be human-like visages. They are, therefore, relatively realistic in conception even though most eyes are indicated by means of two (rather than one) horizontally parallel incisions.

One would have to guess effigy faces were popular at Vaillancourt inasmuch as our small sample of classifiable rimsherds includes two examples that occur on the types called Onondaga Triangular and Richmond Incised (Figure 8a-b). A complete Vaillancourt pot of the latter type is illustrated in Figure 6. One of the classifiable rims derives from a possible primary deposit in the northern third of House I. The feature called "Post Mold 3" was a pit about 30 cm in diameter (Figure 4) containing plentiful cultural material—a smaller version, perhaps, of the presumed storage-refuse pits near House VIII.

Several Vaillancourt faces are combined with hash-marked appliqué strips in one of two ways. In three instances, strips added to faces apparently represent post-cranial body parts (Figures 10p-q; Wonderley 2002: Figure 6g). At present, these constitute the earliest evidence for full-figure depiction in Oneida effigy art (Figure 11i-j).

Alternatively, an appliqué strip may form an arch-like framing device for an effigy face (two examples, one illustrated in Figure 11h). This suggests the linear appliqués were considered to be more than naturalistic depictions of human-like limbs, that they were meaningful in their own right. The occasional effigy status of the applied strip implies much the same thing. As ladder effigy, the hash-marked band carried enough conceptual weight to occupy the vessel space normally reserved for a face—it substituted or stood in for the humanoid depiction. What did the appliqué ribbon mean?

[7]Bradley (1987:215-216, note 15) indicates the corn-ear occasionally occurs on Onondaga sites of the late Garoga-early Protohistoric periods. He regards the motif as a northern trait that did not survive in the Onondaga tradition

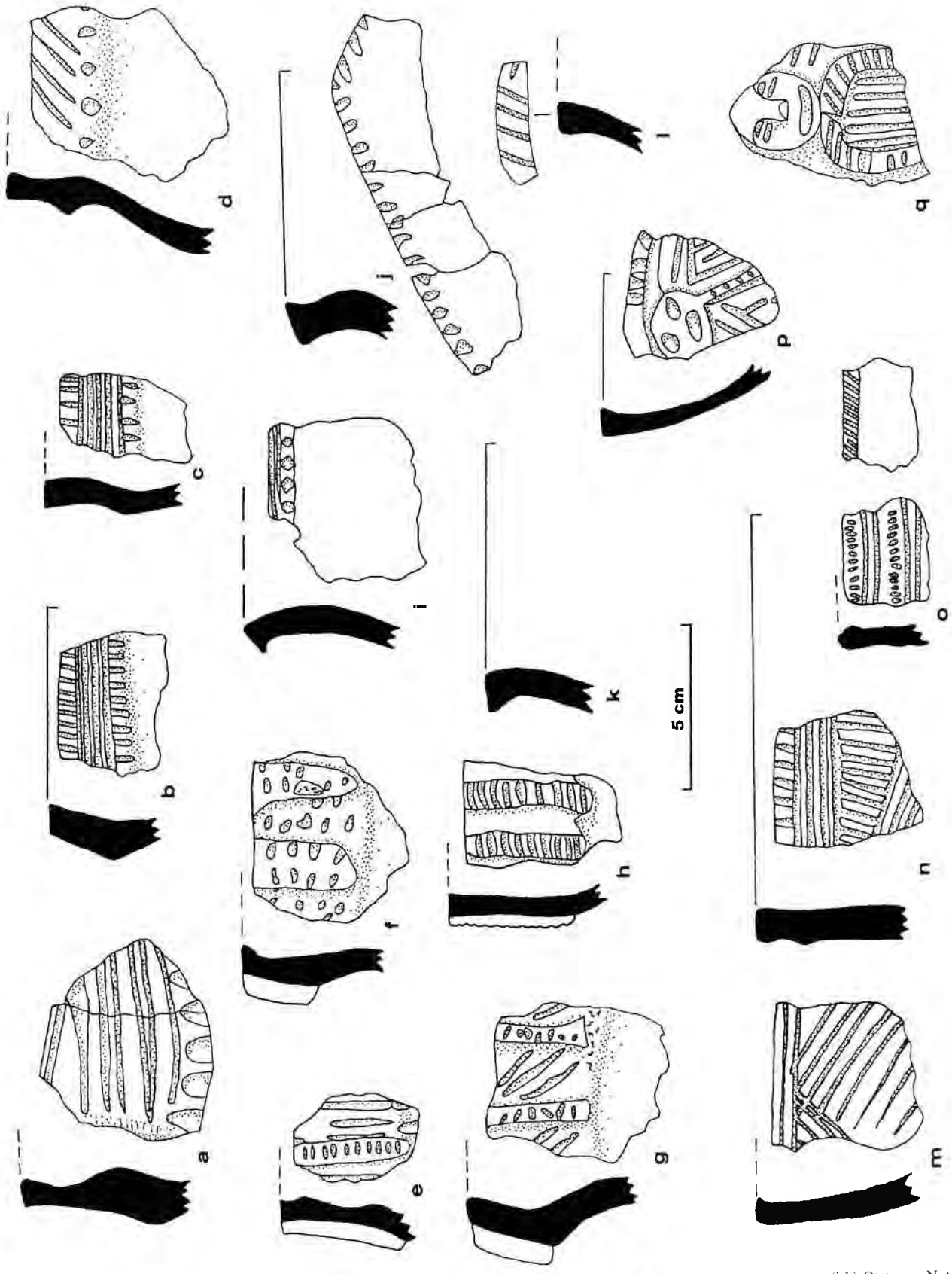

Figure 10. Miscellaneous sherds from Vaillancourt. (a) Untyped; (b-c) Warminster Horizontal; (d) Lawson Incised; (e-h) corn-ear; (i-k) Otstungo Notched; (l) Rice Diagonal; (m-q) unclassified.

The presence of the corn-ear may provide an important clue about the symbolic content of applied decoration. A corn-ear's central element—the repeating column of the circumferential design—is identical in appearance to the ladder effigy and to the hash-marked appliqué ribbon. Since they all look the same, they are likely to be similar in meaning. The meaning of one should logically attach to the others.

Corn-ears look like corn. Corn is surely the most reasonable guess for what long-ago Iroquoians intended to depict because that was the mainstay of their diet and the food chiefly cooked in these ceramic pots (Wonderley 2002). Vaillancourt potters seemingly emphasized the corn referent—first, by ensuring that some ceramic corn-ears resembled ears of corn; and second, by repeating the design in three ways (around vessel mouths, at vessel castellations and as accoutrements to effigy faces). I am suggesting, therefore, that the corn-ear, the ladder motif, and the appliqué band all connoted corn.

In sum, new information about the applied decorative program on Vaillancourt pottery clarifies the evolution of the Oneida-Onondaga effigy tradition and may offer important leads for research into ancient Oneida beliefs. The newly discovered corn-ear type also provides evidence for contacts with the Hochelaga province of the St. Lawrence Iroquoians some 140 mi (225 km) to the north.

Discussion and Summary

Artifact collectors have been active at the Vaillancourt Site throughout the twentieth century. Scarcely any information was recorded and, with the exception of a collection sold to a college museum, few artifacts are known which can be attributed to this site. In the 1960s, progress was made toward describing the site and some of its artifacts. In the 1990s, Chenango Chapter members excavated a longhouse and uncovered parts of six or seven others.

Since acquiring the site in 2003, the Oneida Indian Nation has acted to preserve both the site and its artifacts. The Oneidas have also sponsored research to better understand the place of Vaillancourt in the Oneida past. To date, studies have addressed three subjects about which little has been known: dating, bones, and pottery.

Dating Vaillancourt is partly a matter of reconciling the Oneida picture with what has been reported from neighboring regions since Pratt offered his comparisons in 1976. Complementing efforts to update Vaillancourt in a comparative sense, radiocarbon readings were obtained on samples of wood charcoal from two primary deposits. Both comparative and chronometric evidence suggest the site was occupied during the second quarter of the European sixteenth century. Now, with an anchor in time, the earlier portion of the sequence can be more accurately assessed. Future study of pottery collar heights and projectile point length-to-width ratios may clarify temporal relationships of sites preceding Vaillancourt.

Keck's work with the site's faunal remains has yielded perhaps the widest-ranging set of identifications yet obtained from the Oneida region and elucidated some of the subsistence practices of Vaillancourt's Oneidas. Particularly notable is a large quantity of fish, a finding that underscores the importance of that food to the Oneida way of life. Further research on seashells may help to explicate the nature of long-distance connections which delivered marine material to Vaillancourt from the Atlantic coast.

Pottery is generally regarded as the most fruitful source of cultural information. While entering information about the larger rimsherds into Engelbrecht's recording system, I tried to be attentive to stylistic and conceptual clues left by Oneida potters. The incised decoration at Vaillancourt comprises a mix of triangles and oblique lines seemingly more Mohawk than Onondaga in character. The applied decoration, in contrast, belongs to a tradition of humanoid effigies shared with the Onondagas.

At Vaillancourt, we seem to see the effigy face in the process of becoming a full-figure depiction through the addition of hash-marked appliqué ribbons. At the same moment in time, the ladder effigy and the corn-ear pottery type also were present and probably contributed to a new iconographic synthesis in Vaillancourt ceramics. These plastic elements offer insight into ancient Oneida beliefs. Perhaps they also furnish an entrée into a cultural logic of the past. Reasoning from circumstances of identical appearance and contemporaneous occurrence, from a logic of equivalence, and from the assumption that cultural meaning is likely to be appropriate to its social context, I conclude that Vaillancourt's applied decoration conveyed something about maize.

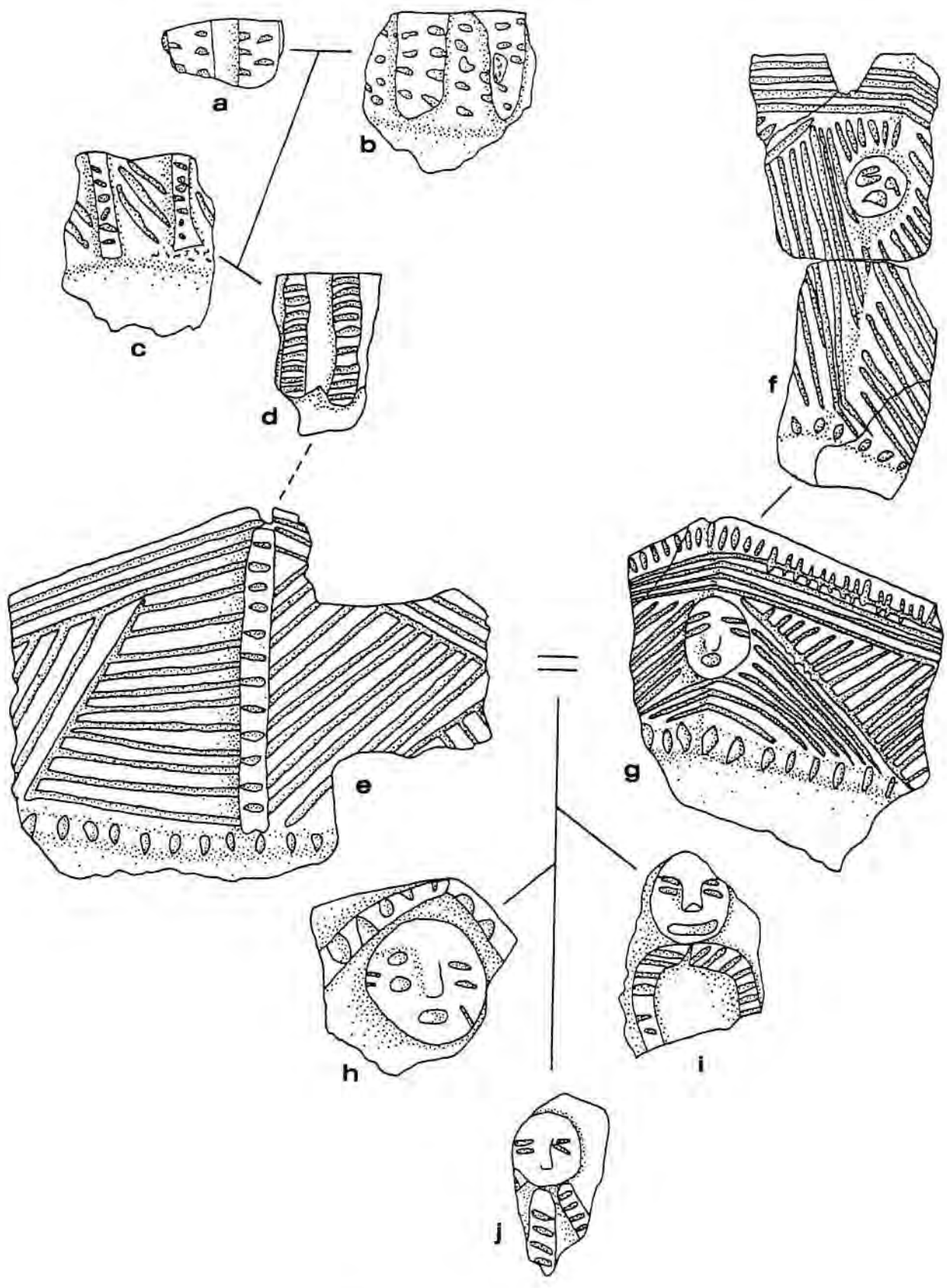

Figure 11. A chart of suggested ceramic iconography at Vaillancourt

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Late Archaic Animal Bones from the Cole Gravel Pit Site, Livingston County, New York

T. Cregg Madrigal, New Jersey Dept. of Environmental Protection, Division of Water Quality, BPD & TS, PO Box 425, Trenton, NJ 08625-0425

The Late Archaic Cole Gravel Pit Site in Livingston County, New York, was excavated between 1966 and 1970. A total of 16,180 animal bones from almost 300 features were studied, resulting in the identification of 53 different vertebrate taxa. Taphonomic analysis indicates that carnivore scavenging of some bones occurred after the bones were discarded by humans. Three of the most abundant taxa at the site are tree squirrels (primarily gray squirrels, Sciurus carolinensis*), white-tailed deer (*Odocoileus virginianus*), and passenger pigeon (*Ectopistes migratorius*). Several lines of evidence indicate that the site was occupied for more than one season, but diet would have varied seasonally, with different animals targeted as they became most abundant or most efficiently captured.*

Introduction

Late Archaic sites with preserved vertebrate faunal remains are rare in the Northeastern United States. One exception is the Cole Gravel Pit Site, which was excavated by the Rochester Museum of Arts and Sciences, now the Rochester Museum & Science Center (RMSC), between 1966 and 1970. Preliminary reports on the archaeology (Hayes 1966; Hayes and Bergs 1969) were followed by a study of the faunal remains (Brown et al. 1973). The animal bones from this site have been re-analyzed in order to address research questions relating to Late Archaic subsistence in New York (Madrigal 1999, 2001).

The Cole Gravel Pit Site and Its Excavation

The Cole Gravel Pit Site (Hne 17-1), sometimes also known as Cole Quarry or Farrell Farm, is located in Caledonia Township, Livingston County, New York [42.977 Lat, 77.739 Long], on a terrace on the west bank of the Genesee River, about 18 m above the floodplain and just north of Dugan Creek (Figure 1). The Farrell Site (Hne 16-1), a prehistoric Iroquois site, is located to the east of the Cole Gravel Pit Site (Hayes and Prisch 1973) and a Late Woodland or Iroquois ossuary was excavated to the north of Cole (Wray 1964, 1965). Excavation at the Cole Gravel Pit was undertaken following the recognition of pit features during commercial gravel stripping. The RMSC began salvage excavations in 1966 (Brown et al. 1973; Hayes 1966; Hayes and Bergs 1969) RMSC staff conducted three days of excavation in March of 1966, mapping 54 features and excavating 6 of them (Hayes 1966). The majority of features were excavated in July 1967 and July 1968, although a small number of features were excavated at other times during those two years. Preliminary results of these excavations were published by Hayes and Bergs (1969). In 1969, four features were excavated and several test units, including three 5 x 5 ft (1.5 x 1.5 m) units and at least three 1 ft (0.3 m) wide trenches were put in along a road created by the gravel company. Finally, at least two pit features were excavated during 1970.

Features were identified and excavated after construction equipment had removed up to 60 cm of topsoil and gravel in preparation for gravel quarrying (Hayes 1966). After features were uncovered by the bulldozers, excavation was conducted with shovels and trowels. In most cases, soil was screened through ¼ in (6.4 mm) mesh, but because several different volunteers participated in the excavations, not always under the direct supervision of professional archaeologists, there is some variation in excavation techniques used. In many cases, pits were excavated by natural stratigraphy, although in some cases, arbitrary levels cross-cut natural levels.

Two radiocarbon dates obtained from Cole Gravel Pit date to the Late Archaic period (Hayes and Bergs 1969). The first sample, from a charcoal-bearing layer at a depth of 10.2-17.8 cm in Feature 70, Level B, returned a date of 3890 ±120 b.p. (Y-2346). The second sample, consisting of seeds or nuts and charcoal in a gray ash layer located between dark charcoal-bearing layers in Feature 72, Level H, returned a date of 3980 ±160 (Y-2345). These dates, in conjunction with the presence of Lamoka or Lamoka-like points, beveled adzes, and other artifacts at the site indicate affinities to the Lamoka Phase.

Based on records at the RMSC, over 16,000 pieces of lithic debitage, 1,100 gm of shell, and 70 gm of charcoal were recovered from the site. The majority of the debitage is reported to represent the "final stages of tool manufacture," as opposed to primary or secondary processing (Hayes and Bergs 1969:4). The following artifact counts and descriptions are derived from Hayes and Berg's 1969 report and do

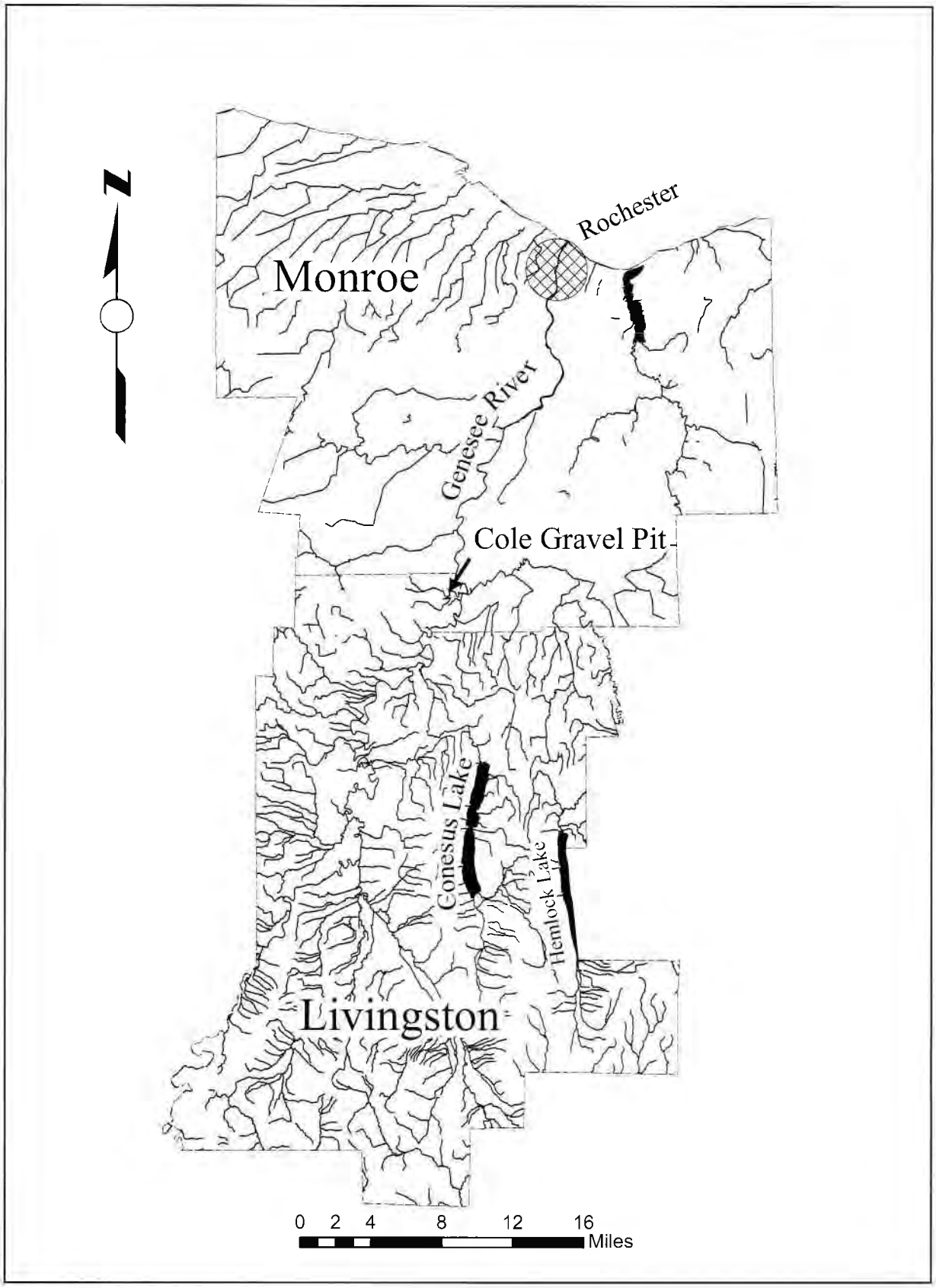

Figure 1. Map of Livingston and Monroe counties showing location of the Cole Gravel Pit Site

not include artifacts excavated in 1970. All flaked lithic artifacts, including over 100 projectile points, are made from Onondaga chert. These resemble both Lamoka points and Normanskill points, with side-notched points more common than stemmed points. Four large, trianguloid side-notched points were found, as well as knives, drills, scrapers, blanks, cores, gravers, chisels, and spokeshaves (Hayes and Bergs 1969). Groundstone tools, primarily made of sandstone, include mullers, milling stones, pitted stones, hammerstones, and two choppers. Nine beveled adzes constructed from gabbro, quartzite, or sedimentary rocks, and two ground slate objects were also found (Hayes and Bergs 1969:8).

Over 100 modified bone artifacts were recovered, including 53 awls made from mammal and bird bone, two bone tubes, eleven needles, nine gouges, two fishhooks, five scapula scrapers, three possible harpoons, and worked rodent incisors. Possible decorative or ritual-use worked bone include turtle shell discs, a drilled canine tooth, two modified deer styliform (accessory metapodial) bones, and a modified wolf mandible. Antler artifacts include eight flakers and two possible chisel handles. In addition, some modified mussel shells were also found (Hayes and Bergs 1969:9).

Human remains from Cole Gravel Pit include 13 adults (6 male, 4 female, 3 indeterminate), 2 subadults, and 1 set of cremated remains (Hayes and Bergs 1969; Pfeiffer 1977, 1979). The skeletons are described as gracile with heavy tooth wear and evidence of arthritic lipping on both young and old adults (Pfeiffer 1977).

Features excavated at Cole Gravel Pit comprise 280 pits or surface stains numbered in the RMSC laboratory from 1 to 281 (Pit 229 is a duplicate record and is not used in this study), and 16 additional pits, which I numbered from 985 to 1001. Feature number 994 was assigned to a feature later found to already have an RMSC feature number, so is not used. These latter features include 12 pits excavated independently by George Hamell and four pits excavated by other people but not numbered in the same series as other pits from the site. For example, the field notes for Feature 989 were labeled "Feature 3, south side of road," and Feature 990, excavated at a different time, was labeled "Feature 3, north side of road."

For this study, all original profiles and field notes, on file at the RMSC, were examined and each feature was coded for several variables, including surface diameter, depth, bottom diameter, and general shape. Of the 296 features excavated, 69 are surface stains or shallow concentrations of dark soil that are interpreted as completely destroyed pits, or pit fill dragged across the site by a bulldozer. The remaining 227 features include 189 pits or basins, 16 irregularly shaped features, some of which may be tree roots, and 22 features with incomplete field notes for which shape could not be determined. Features 1 through 6 have been previously described by Hayes (1966), who proposed that they were originally used for food storage, with some possibly also used as cooking ovens.

Forty-five pits have what is sometimes described in the field notes as a clay lining that covers the walls and floor, or the walls only (n=4), of the pit. These pits are circular to oval in plan view, with an average width of 109.5 cm and an average depth of 61.7 cm. The "clay lining" appears to be the result of *in situ* burning. It is described in the field notes most commonly as red, reddish, reddened burnt soil, red sandy clay, or orange soil, though some are described as yellow or tan. In two instances, complete halves of mussels are found in the lining, and some linings contain unmodified rocks or cobbles. The lining ranges from 5 to 30 cm thick, but most are described as between 10 and 20 cm thick. The fill is usually dark organic soil. Half of these pits contain charcoal flecks or streaks, and at least 17 contain cobbles or fire-cracked rock. Charcoal and ash lenses were also recorded in some instances. The lined pits are significantly deeper (median for lined pits = 60.96 cm; for unlined pits 43.18 cm; U=5326; p=.0001) than all other pits for which depth was recorded (n=167). These features are interpreted as cooking pits or earth ovens. Various ethnographic, ethnohistoric, and ethnoarchaeological accounts describe the use of similar pits to cook plant foods such as nuts, and animal material, especially large packages of meat that have a high fat content (Wandsnider 1997). The prolonged heating may result in the surrounding soil becoming fire-reddened and hardened.

Four pits were identified as undercut. These have an average depth of 102.4 cm with a range of 66 to 152 cm. The fill includes fire-cracked rock, ash lenses, and in at least three cases, reddened soil. The relatively narrow opening and great depth of these pits would seem to make them appropriate for food storage. Eight other pits have depths greater than 100 cm, and may also have been used for food storage.

The clay-lined pits could have been re-used several times before being abandoned and filled with refuse. Five pits at Cole show evidence of possible re-use. Feature 222 has a thin layer of ash between two reddened clay levels. Feature 246 has reddened clay along the sides that does not extend to the bottom of the pit. A discontinuous layer of red clay extends across the feature 35 to 41 cm above the bottom. Beneath this clay layer, a large mortar was found resting against the bottom wall of the pit. The presence of large, heavy mortars or other large groundstone tools in the bottom of some of these pits suggests a secondary use as caches, which may have been used seasonally. Feature 276 contained a human burial found lying on top of or partially

in the clay lining. Two other clay-lined pits contained partial or complete dog burials.

Methods of Faunal Bone Analysis

Faunal remains were identified to the finest taxonomic level possible using modern comparative osteological material. Bones that are tentatively identified to a certain genus or species were given a "cf." designation. The "cf." identifications for each taxa are listed separately in the initial summary table (Table 1), but are combined with the more firmly identified specimens in the text and in subsequent tables.

All minimally identifiable bones, including medium mammal long bone and rib fragments, but excluding all other unidentified long bone and rib fragments, were examined for bone modification marks using a 10x handlens and strong incandescent light in order to maximize the recognition of inconspicuous marks. Modification marks identified include percussion marks, tooth marks, and cut marks. The number of percussion and carnivore notches present, their morphology, and association with modification marks were recorded. Rodent tooth marks, root etching, and trampling were recorded as present or absent. Burned bones were recorded as carbonized (burned black), calcined (burned white), or both.

Species abundances and skeletal part profiles were quantified using Number of Identified Specimens (NISP), Minimum Number of Individuals (MNI), Minimum Number of Elements (MNE), and Minimal Animal Units (MAU). NISP and MNI are most useful for studying taxonomic abundance, while NISP, MNE, and MAU provide additional information on within-taxon variation in element abundances. MNI was determined based on element, side, epiphyseal fusion, and in some cases, size. MNE is similar to MNI, but is determined for each element or for each segment of a longbone (proximal, distal, or shaft), without regard to side. For example, an assemblage with five left distal humeri and four right distal humeri would have an MNI of five, but an MNE of nine.

Table 1. Number of taxa present for each Class at Cole Gravel Pit Site.

Class	Number of Taxa
Fish	7
Amphibians	2
Reptiles	8
Birds	16
Mammals	20
Total number of taxa	53

MAU is calculated by dividing the MNE for each element by the number of that element in a single carcass. For example, humerus and other long bones would be divided by two, because each animal has a left and a right of each long bone, but deer first phalanx MNE would be divided by eight, because each of the four limbs has two first phalanges.

Tooth eruption and wear of deer teeth were recorded following criteria in Severinghaus (1949), which is based on examination of modern known-age deer in upstate New York. Tooth eruption criteria are useful for ageing deer less than two years old and also can be used to determine season of death. For older animals, age can be less precisely estimated by studying tooth wear.

Results of Faunal Bone Analysis

In the early 1970s, the faunal remains from Cole were sent to Dr. Stanley Olsen, then of Florida State University. Faunal analysis was conducted by 22 students for a college class under the supervision of Olsen (Brown et al. 1973: 26). This earlier study identified 2,865 specimens as to taxon and reported MNI and NISP values for the entire assemblage (not by feature), but did not provide any quantitative data on skeletal part profiles, age profiles, bone modification, fracture patterns, or spatial distribution. The analysts concluded that there was not evidence of long-term occupation, and suggested that the presence of certain fauna, including woodchuck and migratory birds, indicated a warm-weather occupation (Brown et al. 1973).

The faunal assemblage I analyzed consisted of 16,180 bones. The previous study apparently analyzed approximately one-third fewer bones. Brown and colleagues do not list the total number of bones studied, but a figure summarizing burning and other bone modification indicates 10,403 specimens were examined (Brown et al. 1973). Of the 16,180 bones I studied, 8,174, or 50.5%, were identified at least to the level of Class (Table 1). Brown and colleagues identified 2,865 bones beyond the level of Class, and another 2,414 bones were apparently only identified to the level of Class (Brown et al. 1973:38). It is possible that bones from some of the features that I studied may not have been examined by the Florida State students. Other bones may have become more fragmented between the time of the first study and my analysis.

The following taxa were identified in the current study, but not by the earlier Florida State analysis: *Lepomis* sp. (bluegill or similar sunfish), minnow, perch, temperate bass, bog turtle, wood duck, Canada goose, snow goose, hooded merganser, possible bald eagle, woodcock, northern flicker, pileated woodpecker, fox, northern flying squirrel, and meadow vole. Several species identified in the first study

could not be confirmed by my analysis: redhorse sucker, black crappie, mud turtle, gadwall, great horned owl, screech owl, common loon, bobwhite, mourning dove, common crow, wolf, fisher or marten (*Martes* sp.), mountain lion, deer mouse, and eastern woodrat. There are some ambiguities in the previous report. For example, black crappie (*Pomoxis nigromaculatus*) is in Brown and colleagues' taxonomic listing (Brown et al. 1973:30), but neither it nor the family Centrarchidae is in their table of NISP and MNI. Likewise, it is unclear from the original report whether the catastomid genus *Moxostoma* (redhorse suckers) was identified, while in this study I identified five specimens to the family Catastomidae, but none to genus.

At least two of the previous species identifications appear to be incorrect. I compared all turtle bones from Cole with modern specimens of mud turtle (*Kinosternon subrubrum*) and found no matches. Cole Gravel Pit is outside the modern range of the mud turtle, which is found in the southeast and Middle Atlantic region, as far north as Long Island, New York (Ernst et al. 1994). Cole Gravel Pit is also outside the modern range of woodrat, which is found as far north as Pennsylvania and southern New York. Steadman and colleagues (1993) have identified woodrat (which they attribute to *N. magister*, Allegheny woodrat) from Joralemon's Backdoor Cave in Albany County, New York. This represents a range extension for the species, which had previously been identified from archaeological sites in the Lower Hudson Valley (Steadman et al. 1993). Brown and colleagues (1973) identified 31 bones from Cole as woodrat, including five immature ones. I compared all woodrat-sized specimens to modern woodrat comparative material and found no matches. Woodrat morphology is relatively easy to distinguish from sciurids and muskrat, the only other rodents of roughly similar size present in the assemblage.

There are also many differences in the number of specimens identified per species. For example, I identified a minimum of at least 67 passenger pigeon individuals from 414 bones (including cf. identifications) while Brown and colleagues identified only 50 individuals from 343 specimens. In contrast, Brown and colleagues identified 292 box turtle (*Terrapene carolina* and *Terrapene* sp.) specimens from at lesst five individuals, while my study identified at least 12 individuals from only 104 specimens. Because the first study of the Cole fauna was conducted by undergraduate students who were learning faunal analysis, it is likely that there was a great degree of variation in the skill and accuracy of identifications. Unfortunately, the individual bones were not labeled, so it is impossible to examine the exact specimens that were assigned to these taxa, and I cannot say with certainty whether or not they are actually present in the assemblage. All specimens that I identified are bagged with labels and their individual catalog numbers, so that future researchers will be able to independently confirm or refute my identifications.

Fifty-three different vertebrate taxa (including cf. identifications) were identified in the present study (Table 2). Mammals are the most common class, comprising 20 taxa and accounting for over half (n=4,480) of the identified bones, followed by bird and fish, with reptiles and amphibians much less common.

Of the 296 features excavated, 176 contained animal bone. The average number of bones found per pit feature is 90.9 (s.d. = 230.7), although most features had no more than 50 bones. The number of bones per feature, which ranged from one to 2,525 (Feature 77), is significantly and positively correlated with pit depth ($r=0.42$; $p<0.001$). Additional faunal remains include 260 fragments found in surface and unprovenienced contexts (combined in context 1002), and two bones from excavation unit S100 W65 (Context 1003).

Based on NISP, domestic dog is the most abundant species. This, however, is due to the presence of three highly fragmented partial burials. These include 838 dog bone fragments, primarily small longbone or axial fragments, from Feature 226. Field notes describe an articulated dog skeleton with a fragmented cranium oriented with its head to the north. An additional 371 dog bone fragments, including an atlas, teeth, and cranial fragments, were recovered from Feature 224. The dog cranium was found on its left side facing east-northeast at a depth of 18 cm. A large quartzite cobble was on top of the skull. Finally, a canid premaxilla and upper third and fourth premolars were found in Feature 179.

Aside from dog, the most abundant species is tree squirrel (*Sciurus* sp.), represented by 786 bones. Five of these bones could be definitively identified as gray squirrel (*S. carolinensis*) based on the presence of a vestigial upper third premolar. All but two of the other squirrel bones are, based on size, also from gray squirrel. The two exceptions are assigned to fox squirrel due to their larger size.

Deer is the next most common species, consisting of 691 specimens. An additional 109 specimens, mainly antler fragments, were identified only as cervid. The next most abundant species are birds: passenger pigeon, with 414 specimens, and turkey, represented by 136 bones. There are 104 box turtle specimens, mostly carapace and plastron fragments, while 79 bones are identified as southern flying squirrel. An additional three bones are assigned to northern flying squirrel based on their larger size, which matched that of modern comparative specimens.

Based on MNI, passenger pigeon is the most abundant animal, with an MNI of 67. Pigeon is followed by tree squirrel, represented by at least 40 individuals, deer (MNI=20), chipmunk (MNI=14), southern flying squirrel

Table 2. NISP and MNI of taxa from the Cole Gravel Pit Site.

Class	Taxa	Common Name	NISP	MMNI
Pisces	Cyprinidae	minnows	2	1
	Catostomidae	suckers	4	1
	Catostomidae	cf. suckers	1	-
	Ameiurus nebulosus	brown bullhead	2	2
	cf. *A. nebulosus*	cf. brown bullhead	2	-
	Ameiurus sp.	bullhead catfish	21	5
	Ictalurus punctatus	channel catfish	2	1
	Ictaluridae	catfish	15	4
	Morone sp.	temperate bass	5	3
	Lepomis sp.	sunfish	2	1
	Centrarchidae	sunfish	6	3
	Percidae	perches	1	1
		fish	1174	-
Amphibia	*Bufo* sp.	toads	10	2
	cf. *Bufo* sp.	cf. toads	2	-
	Rana sp.	true frog	11	5
	cf. *Rana* sp.	cf. true frog	8	-
	Anura	frog or toad	33	5
Reptilia	*Sternotherus odoratus*	common musk turtle	2	1
	Chelydra serpentina	snapping turtle	10	2
	Chrysemys picta	painted turtle	4	2
	cf. *C. picta*	cf. painted turtle	1	-
	Clemmys guttata	spotted turtle	8	4
	Glyptemys muhlenbergii	bog turtle	6	4
	cf. *G. muhlenbergii*	cf. bog turtle	2	-
	Clemmys/Glyptemys sp.	bog or spotted turtle	14	-
	Terrapene carolina	common box turtle	95	12
	cf. *T. carolina*	cf. common box turtle	9	-
	Trionyx spiniferus	spiny softshell turtle	3	1
	Testudines	Turtle	384	-
	Squamata	snakes	2	1
	Colubridae	colubrid snake	164	1
Aves	*Ardea herodias*	great blue heron	1	1
	cf. *A. herodias*	cf. great blue heron	1	-
	Aix sponsa	wood duck	2	1
	Anas platyrhyncos /rubripes	mallard or black duck	12	3
	cf. *A. platyrhyncos /rubripes*	cf. mallard or black duck	2	-
	Branta canadensis	Canada goose	3	1
	Chen caerulescens	snow goose	3	1
	Lophodytes cucullatus	hooded merganser	1	1
		duck, goose, or swan	1	-
		goose or swan	3	1
		medium duck	23	4
		small duck	5	2
	Buteo jamaicensis	red tailed hawk	1	1
	cf. *Haliaeetus leucocephalus*	cf. bald eagle	1	1

	Bonasa umbellus	ruffed grouse	19	3
	cf. *B. umbellus*	cf. ruffed grouse	6	-
	Meleagris gallopavo	turkey	126	12
	cf. *M. gallopavo*	cf. turkey	10	-
	Scolopax minor	American woodcock	1	1
	Ectopistes migratorius	passenger pigeon	379	67
	cf. *E. migratorius*	cf. passenger pigeon	35	-
	Strigiformes	owls	1	-
	Strix varia	barred owl	2	1
	Colaptes auratus	northern flicker	2	1
	Dryocopus pileatus	pileated woodpecker	1	1
	Passeriformes	perching birds	1	-
	Turdus migratorius	American robin	1	1
		bird	892	-
		large bird	37	-
		medium bird	102	-
		small bird	15	-
Mammalia	*Vulpes/Urocyon*	red or gray fox	3	1
	Canis familiaris	dog	867	3
	Canis cf. *familiaris*	cf. dog	345	-
	Canis sp.	canid	4	-
	Ursus americanus	black bear	36	2
	cf. *U. americanus*	cf. black bear	6	-
	Procyon lotor	raccoon	40	10
	cf. *P. lotor*	cf. raccoon	6	-
	Lutra canadensis	river otter	2	1
	Mephitis mephitis	striped skunk	4	1
	Lynx rufus	bobcat	1	1
	Carnivora	carnivore	8	-
	Carnivora	small carnivore	2	-
	Cervus canadensis	wapiti	8	2
	cf. *C. canadensis*	cf. wapiti	5	-
	Odocoileus virginianus	white tailed deer	490	20
	cf. *O. virginianus*	cf. white tailed deer	201	-
	Cervidae	cervid	109	-
	Glaucomys sabrinus	northern flying squirrel	3	1
	Glaucomys volans	southern flying squirrel	77	13
	cf. *G. volans*	cf. southern flying squirrel	2	-
	Marmota monax	woodchuck	33	9
	cf. *M. monax*	cf. woodchuck	7	-
	Sciurus carolinensis	gray squirrel	5	2
	Sciurus niger	fox squirrel	2	1
	Sciurus sp.	tree squirrel	666	40
	cf. *Sciurus* sp.	cf. tree squirrel	113	-
	Tamias striatus	eastern chipmunk	66	14
	cf. *T. striatus*	cf. eastern chipmunk	4	-
	Tamiasciurus hudsonicus	red squirrel	25	5
	cf. *T. hudsonicus*	cf. red squirrel	2	-
	Castor canadensis	beaver	18	2
	cf. *C. canadensis*	cf. beaver	2	-

Peromyscus leucopus	white footed mouse	1	1
Microtus cf. *pennsylvanicus*	cf. meadow vole	3	1
Ondatra zibethicus	muskrat	11	2
cf. *O. zibethicus*	cf. muskrat	1	-
Muridae	vole or lemming	2	
Muridae	rat, mouse, or vole	3	
Erethizon dorsatum	porcupine	1	
Rodentia	rodent	72	
	large mammal	27	
	medium mammal	729	
	small mammal	148	
	very small mammal	63	
	indet. mammal	257	
Total Identifiable		8174	
Not Identifiable		8006	
Grand Total		16180	299

(MNI=13), turkey (MNI=12), box turtle (MNI=12), raccoon (MNI= 10), and woodchuck (MNI=9).

Deer is found in 61% of the 178 contexts that contained animal bone, squirrel in 49%, and passenger pigeon in 48%. The next most ubiquitous taxa are turkey and box turtle, found in only 25% and 24%, respectively, of all contexts. Not surprisingly, ubiquity is highly correlated with the NISP of each taxa (r_p=0.91): the most abundant species are also the most ubiquitous (with the exception of dog, which is represented by partial burials).

Regardless of whether ubiquity, MNI, or NISP is used, the three most abundant species are squirrels, deer, and passenger pigeon. Each of these taxa are discussed in greater detail below.

Taphonomy

All but two of the pit features were discovered after large earth-moving machinery was used to remove the topsoil from the area. The upper levels of features may have been truncated by this, but the exact amount of feature fill and bones lost cannot be assessed. Bulldozers may also have fractured bones from the upper levels, and, in fact, bones from some features do contain a large proportion of recent, transverse fractures, where the fracture surface is a much lighter color than the rest of the bone.

There is very little evidence for any significant diagenetic alteration of bone surfaces. Root etching is found on only 2.3% of all bones. It is found in 45 different pits, in most cases with only one or two bones in a pit having any root etching. Fewer than 2% of the bones examined from Cole showed any signs of weathering. This would suggest that bones were deposited in the features relatively rapidly, although the rate of weathering can vary greatly depending on microenvironmental conditions (Behrensmeyer 1978; Lyman and Fox 1989). Additional support for the relatively rapid burial of the bones comes from the lack of evidence for trampling, with less than one percent of examined bones having trample marks. Rodent gnawing, found on only five bones, is also very rare. In sum, it appears that once nutrients were removed from the bones by humans, carnivores, or other animals, the bones were rapidly deposited in the open pits and covered.

It is likely that the representation of small animals has been affected by the size of the mesh used during screening (Payne 1972; Shaffer 1992). Insectivores and smaller rodents such as mice would not be expected to be recovered using only ¼ in screens, and therefore their rarity or absence cannot be construed as definitive proof that they were not present in the archaeological deposits. Shaffer's (1992) experimental study shows that mandibles, one of the most diagnostic elements in small mammals, are likely to be recovered for all mammals with a live weight greater than about 71 gm. Among sciurids, this would include northern flying squirrel, red squirrel, gray squirrel, fox squirrel, and woodchuck. The lower end of the live weight range of both chipmunks and southern flying squirrels is slightly less than 71 gm, although both taxa are fairly common at Cole.

In general, differential representation of elements from animals approximately chipmunk size or larger cannot be explained solely by excavation techniques. Fragmentation of small animal elements could, however, result in the loss of these broken bones during excavation, even if they were preserved in the archaeological deposit. This may affect the relative proportion of different elements identified for each taxa, but it most likely does not affect interpretation of the

relative abundance of sciurids and larger animals

Amphibian, small bird, and small fish remains, all of which are present in small numbers at Cole, may also be underrepresented due to excavation techniques While catfish are the most common identified fish at Cole, sunfish or other smaller-bodied fish may have been equally or more important. In Pit 77, soil from one-half of excavation level C was waterscreened through very fine mesh because a large number of fish bones were seen during excavation. Of the 1,094 bones recovered from Level C, 32.3% are fish, primarily small rib and vertebrate fragments, and 64.1%, although classified as unidentifiable, are most likely also fish axial fragments. Fish bones, however, are also abundant in levels A and B of pit 77, which were not waterscreened, suggesting that the abundance of fish bones in Pit 77 represents a real difference from other pits at Cole.

Squirrels

Tree squirrels identified at Cole Gravel Pit include red squirrel, gray squirrel, and fox squirrel. Both northern and southern flying squirrel were also identified. Red squirrel (*Tamiasciurus hudsonicus*) is the smallest of the three tree squirrels in New York and is found mainly in coniferous forests, but also among northern hardwoods. Eleven of the 27 red squirrel bones identified were found in feature 62, but the remaining 16 bones were spread among 11 other features. Only two bones could be assigned to fox squirrel (*Sciurus niger*), the largest of the three species of tree squirrels. Five bones could be definitively identified as gray squirrel (*S. carolinensis*). The remaining 779 are identified only as tree squirrel (*Sciurus* sp.), but, based on size, are almost certainly from gray squirrel.

While tree squirrel long bones and mandibles are abundant in the Cole assemblages, other smaller elements, including clavicles, ribs, and metapodials, that might be expected to pass through ¼ in mesh are also common (Table 3). Very small elements attributed to squirrel are limited to two calcanea and three first phalanges. It appears, therefore, that the use of ¼ in screens during excavation did have an effect on the recovery of squirrel bones, but it is not as severe as Shaffer's (1992) experiment would suggest. Element representation suggests that entire squirrel carcasses were deposited on the site, as indicated by the relative abundance of larger bones from the cranium, axial skeleton, and upper and lower long bones. The smallest bones, podials and phalanges, do appear to be underrepresented, although some metapodials and phalanges, identified only as small or very small mammal, were recovered.

Small animals are preyed upon by a great many animals, including not only humans but also carnivores.

Table 3. Tree squirrel (*Sciurus* sp. and cf. *Sciurus*) NISP and MNE, by element, and summary of bones with modification marks. "Carnivore" includes all types of carnivore modification. Totals include one femur and one ulna identified as *Sciurus niger*, and five maxillae identified as *S. carolinensis*.

	Element	NISP	MNE	Carnivore	Stone Tool
Forelimb	Scapula	12	10		
	Humerus	68	45	17	2
	Radius	73	51	4	1
	Ulna	80	49	4	
	Metacarpal	1	1		
Hindlimb	Femur	56	32	5	4
	Tibia	66	60	4	1
	Fibula	20	18		
	Metatarsal	5	2		
	Calcaneum	2	2		
Appendicular	Metapodial	37	3	1	
	First phalanx	3	1		
Axial	Clavicle	30	29		
	Innominate	35	27	2	
	Caudal	1	1		
	Rib	75	3		
Cranial	Mandible	60	52	3	4
	Lower incisor	33	33		
	Maxilla	7	5		
	Premaxilla	24	23		1
	Upper incisor	49	46		
	Auditory bulla	1	1		
	Frontal	8	8		1
	Nasal	9	9		
	Parietal	20	19		1
	Temporal	3	3		
	Zygomatic	4	4		
	Cranial	1			
	Other teeth	3			
	Total	786	537	40	15

raptors, other birds, and snakes. Dogs and other carnivores tend to destroy small animal bones that they swallow (Andrews 1990; Payne and Munson 1985). Distinguishing the effect of all these different actors on the patterning of small animal remains at Cole can be difficult.

There is some evidence for differential destruction of tree squirrel elements at Cole Among squirrel humeri, there are 42 bones that preserved the distal epiphysis or distal near-epiphysis segment, but only seven bones that preserve

the less-dense proximal epiphysis or near-epiphyseal segment (an additional five bones are complete). Humerus shaft fragments are also more common than proximal epiphyses. Similar patterns are seen in squirrel radii, femora, and ulnae.

Acid etching is found on 26 specimens, including 12 humeri. This is most likely evidence of digestion by carnivores, although it is conceivable that the damage could also be due to human consumption. Only 5.1% of squirrel bones have any carnivore marks. This low frequency of carnivore modification seems to indicate that carnivores were not a major consumer of squirrels on site. This may be because there were relatively few dogs on site; dogs were tethered or otherwise restricted from easy access to all discarded bones; or there were abundant other preferred foods available to dogs. It must be kept in mind, however, that Payne and Munson's (1985) research demonstrated that domestic dogs can destroy all squirrel bones, so that an unknown number of squirrels could have been eaten by dogs, leaving no trace in the archaeological record.

Bone modification marks also provide evidence of human use of squirrels. Thirteen tree squirrel bones have stone tool cut marks, and a single scrape mark was found on a parietal. About half of all cut marks are on mandibles or crania. Two of the mandible marks and the premaxilla cut mark are located anteriorly, indicating the final cuts to separate the skin from the body. Two other mandibles have cut marks on the ventral surface of the dentary, possibly also related to skinning, and the third has a cut mark on the ascending ramus. The cut marks on the long bones are located on the shafts, and are more likely indicative of defleshing than disarticulation. No modification marks were identified on any of the red squirrel bones. Given the small size of squirrels, very little butchering would be expected after skinning.

In contrast to tree squirrels, flying squirrels seem an unlikely and inefficient food source for humans because they are very small, arboreal, and nocturnal. In addition, their fur is very fragile and is not suitable for use as clothing (Wells-Gosling 1985). When found in caves or rockshelters with archaeological materials, flying squirrel remains are often attributed to owl pellets (e.g., Guilday and Parmalee 1965); they are, for example, a favored prey of barred owls (Klippel et al. 1987) and spotted owls (Wells-Gosling 1985). Cole, however, is an open-air site, and all flying squirrel remains were found in pit feature fill, which makes it unlikely that owls are to blame for their presence. As arboreal creatures, it is also unlikely that flying squirrels would be accidentally trapped in open pit features. While almost half of the 82 bones came from a single pit (38 bones [46.3%] in pit 62), flying squirrels are found in 20 features, and at least 14 individuals are represented.

Although there are no cut marks on any flying squirrel bones, the use of flying squirrels as food or for other purposes by the occupants of the site cannot be ruled out. Stahl (1982) has demonstrated that a high proportion of small rodent body weight is edible meat, with 50.1 gm of edible tissue (flesh plus viscera) on a single southern flying squirrel from Illinois. Sobolik's (1993) review of human coprolites from North American archaeological sites demonstrates that very small vertebrates were, at least on occasion, eaten. Unfortunately, coprolite evidence is scarce and widely scattered, with no data from the Northeast, and cannot be used to argue how frequent small animal use was. Unless a mass capture hunting technique was used, very small animals are unlikely to be a food resource that is efficient to exploit.

Some hunters reportedly would sometimes catch flying squirrels by pounding on trees during the day to drive out lethargic flying squirrels, which were then easy to catch (Wells-Gosling 1985:66). Alternatively, there are many modern reports that flying squirrels have a fondness for meat and are often accidentally captured in traps set out for larger mammals (Wells-Gosling 1985). Perhaps flying squirrels were unintentionally captured in traps set out by Late Archaic hunter-gatherers and subsequently brought back to the camp site.

White-Tailed Deer

In addition to the 691 bones identified as white-tailed deer, an additional 109 specimens, primarily antler fragments, were identified only as cervid, and 729 specimens (primarily long bone shaft fragments, but also including vertebrae and rib fragments) were identified as medium-sized mammal. Virtually all of these specimens are almost certainly from deer, and are included with deer bones in Table 4.

The relative abundances of deer long bone epiphyses are strongly correlated (r_p=0.51; p=.064) with bone density (Lyman 1984), but deer long bone shaft abundances are negatively and insignificantly correlated (r_p=-0.33; p=.476) with density. This suggests that long bone epiphyses have been affected by carnivore ravaging or other density-mediated attrition, and therefore underestimate the original element abundances, but long bone shafts have not been affected and should more accurately represent the relative abundances of long bones discarded on site by humans (Madrigal and Holt 2002; Marean and Spencer 1991; Marean et al. 1992).

Epiphyseal:shaft ratios were calculated based on the NISP of deer and medium mammal long bones. The total number of proximal and distal epiphyses were divided by the total number of shafts and near-epiphyseal fragments for each element, resulting in an epiphysis:shaft ratio of 0.11 (95

Table 4. Deer and medium mammal NISP and MNE. px=proximal, sh=shaft, di=distal. Rib, cervical, thoracic, and lumbar values are for medium mammals.

Element	NISP	MNE
Scapula	20	12
Humerus, px	0	0
Humerus, di	32	26
Humerus, sh	56	30
Radius, px	11	9
Radius, di	2	2
Radius, sh	34	7
Ulna, px	10	10
Ulna, di	0	0
Ulna, sh	7	4
Metacarpal, px	5	5
Metacarpal, di	0	0
Metacarpal, sh	29	3
all carpals	2	1
Femur, px	4	3
Femur, di	1	1
Femur, sh	45	16
Tibia, px	6	6
Tibia, di	11	10
Tibia, sh	40	16
Metatarsal, px	3	3
Metatarsal, di	2	2
Metatarsal, sh	16	2
Patella	0	0
Astragalus	13	13
Calcaneum	6	3
other tarsals	3	2
First phalanx	16	12
Second phalanx	9	6
Third phalanx	4	4
First accessory phalanx	1	1
Innominate	19	8
Atlas	5	3
Axis	1	1
Mandible	18	11
Cranial	6	5
Rib	31	5
Cervical	11	3
Thoracic	7	3
Lumbar	7	3

epiphyses and 886 shafts), which is comparable to that obtained in experimental assemblages in which long bones with high marrow and bone grease yields were hammerstone-broken for marrow extraction by humans and then made available to carnivores. The ratio is much lower than that found in hammerstone-broken assemblages that were not scavenged by carnivores (Blumenschine and Marean 1993). Epiphysis:shaft ratios of deer and medium mammal long bones therefore provide additional evidence for carnivore scavenging of deer bones from which meat and marrow had been removed by humans.

The most definitive evidence for carnivore involvement in the patterning of the Cole faunal assemblage comes from tooth-marking on deer bones. Table 5 shows the frequency of tooth-marking by element segment for deer and medium mammal long bones from Cole. While 24.7% of long bone epiphyses from Cole have at least one carnivore tooth mark, only 9.4% of deer and 6.9% of combined deer and medium mammal long bone shaft fragments are similarly marked. Tooth marking on near-epiphyseal segments is slightly less common than on epiphyses. Frequencies of tooth-marking on shafts is comparable to that found in human- followed by carnivore-simulated sites (Blumenschine 1988), and much lower than that found in carnivore-only assemblages. The tooth mark frequencies at Cole are consistent with the human followed by carnivore sequence demonstrated in modern simulated sites, and clearly much lower than tooth mark frequencies observed in modern experimental assemblages modified only by carnivores, particularly in the frequency of tooth marking on shafts (Blumenschine 1988; Madrigal 1999).

Cooking of bones may have reduced the attractiveness of epiphyses to scavenging dogs by leaching out some of the bone grease, although long bones do not seem to have been processed specifically for bone grease. Carnivore tooth marks are also found on tarsals, cranial bones, and axial bones (Table 6). Aside from elements represented by only a single bone, tooth mark frequency is highest on calcanea, innominates, and scapulae. Tooth mark frequencies for bones of the forelimb are slightly lower than for those of the hindlimb. Only a single carnivore tooth notch was found, which is not surprising given the argument that long bones were fractured by humans, not dogs. Acid etching from digestion is found on only four deer bones, while generalized gnawing damage was identified on 19 specimens.

A summary of stone tool cut marks, percussion marks, and carnivore tooth marks on deer bones is presented in Table 6. Cut marks were identified on 64 deer bones. Of the 18 humerus fragments with cut marks, 14 are located near the distal epiphysis or on the distal shaft. Two of these bones also have cut marks on the distal condyles. The remaining four cut-marked humeri are all shaft fragments. Only three radii and two ulnae have cut marks, and all are located on the midshaft. Cut marks are found on the shafts of five femora and near the distal epiphysis of a sixth femur. Six tibiae

Table 5. Carnivore marks on deer and medium mammal long bones (humerus, radius, ulna, metacarpal, femur, tibia, metatarsal, indet. metapodial, and indet long bone). TM = number of bones with at least one carnivore tooth mark/total number of bones examined. Totals do not include specimens with surfaces in poor condition or obscured by matrix (surface, matrix, or weather coded as >2). Elements coded as "distal shaft" or "proximal shaft" were counted twice, once as an epiphysis and once as a shaft, but tooth marks were only counted once, based on their location on the element.

	Deer		Medium Mammal		Combined	
Segment	**TM**	**Percent**	**TM**	Percent	**TM**	**Percent**
Epiphysis	19/77	24.7%	0/0	0.0%	19/77	24.7%
Near-Epiphysis	10/56	17.9%	13/78	16.6%	23/134	17.2%
Shaft	16/170	9.4%	26/437	5.9%	42/607	6.9%

Table 6. Deer bones with modification marks. Only those elements with at least one mark are included. Carnivore includes tooth marks and generalized gnawing; does not include acid etching or tooth notch. For percussion marks, mark=number of bones with at least one percussion mark (percussion pit, groove, or striation). Notch=number of bones with percussion notch. Some specimens have both marks and notches.

	Carnivore		Percussion				Cut		
Element	**N**	**Percent**	**Mark**	**Percent**	**Notch**	**Percent**	**N**	**Percent**	**NISP**
Metapodial	5	17.2%	2	6.9%	-	-	4	13.8%	29
First phalanx			1	6.3%	1	6.3%			16
Second phalanx			1	11.9%	-	-			9
Third phalanx							1	25.0%	4
Antler							2	40.0%	5
Frontal							2	40.0%	5
Occipital	1	100.0%							1
Mandible	2	11.1%	3	16.7%	2	11.1%			18
Humerus	10	12.0%	2	2.4%	6	7.2%	18	21.7%	83
Metacarpal	4	12.1%	3	9.1%	2	6.1%	7	21.2%	33
Radius	4	8.5%	4	8.5%	4	8.5%	3	6.4%	47
Scapula	6	30.0%	2	10.0%	-		3	15.0%	20
Ulna	2	11.8%	1	5.9%	1	5.9%	2	11.8%	17
Astragalus	1	7.7%					4	30.8%	13
Calcaneum	3	50.0%	1	16.7%	-				6
Femur	8	16.0%	7	14.0%	4	8.0%	6	12.0%	50
Metatarsal	1	4.8%	-		2	9.5%	2	9.5%	21
Tibia	9	15.8%	8	14.0%	-		6	10.5%	57
Innominate	8	42.1%					3	15.8%	19
Atlas							1	20.0%	5
Axis	1	100.0%							1
Total	65	14.2%	35	7.7%	22	4.8%	64	14.0%	457

have cut marks located on the shaft, as do two metatarsal shafts.

Percussion marks are found on 35 deer bones and percussion notches are found on 22 specimens (Table 6), including a femur shaft with three notches, two humeri and one metacarpal each with two adjacent notches, and an otherwise complete first phalanx with an opening in the midshaft next to a notch with an incipient flake attached.

Four bones have scrape marks. One third phalanx retains the proximal epiphysis and part of the shaft, but the

distal epiphysis and about half of the shaft have been chopped off to expose the marrow cavity. An atlas has a series of chop marks on the dorsal and ventral surface near the anterior articulation. These are presumably the result of separating the head from the vertebral column. Several cut marks are also present on the ventral surface of this bone near the chop marks.

Deer skeletal element abundances do not provide evidence for selective transport of high-yield body parts by humans. There is a strong negative correlation between long bone (femur, tibia, humerus, radius) and scapula MAU and experimentally derived deer meat return rate, but a weak positive correlation with meat gross yield (Madrigal and Holt 2002).

In contrast, there are strong positive correlations between both marrow gross yield and return rate and element abundance (Madrigal and Holt 2002). In other words, long bones with high marrow return rates are more abundant than low return rate bones at Cole. This is true even though other evidence supports the argument that complete deer carcasses were returned to the site. If lower-yielding marrow bones were less likely to be hammerstone-fractured, then these complete bones may have been scavenged by carnivores. This may have resulted in the reduction of low-ranked bones to unidentifiable fragments, or to their deposition in contexts where they would not have survived archaeologically (i.e., outside of pit features).

Nine of the 11 deer mandibles from Cole could be aged based on tooth eruption and wear (Table 7). One-third of all ageable mandibles are from deer two to three years old. Although the sample size is small, the profile is similar to a prime-dominant one, with no deer younger than one year and none older that five years. Some deer mandibles were processed by humans for marrow, as percussion marks are found on three mandibles and percussion notches on two mandibles. In addition, carnivore tooth marks are found on two mandibles. It is possible that carnivores may have deleted whole fawn mandibles from the site, thereby biasing the mortality profile towards older animals (Madrigal 1994; Munson 1991).

Feature 990 (originally identified as "Feature 3, North side of Road") contained the fragmented remains of most of an immature deer. In addition to fragmented deer long bones and phalanges, the pit contained 46 rib fragments, 16 vertebral fragments, three thoracic vertebrae, and 100 other fragments that are tentatively assigned to white-tailed deer. Based on the presence of a fused proximal radius and unfused distal humerus, this deer was between two and eight months old, and most likely approximately five months old, at the time of death. Assuming a birthdate of June 1, this indicates a death in the fall, around November or December.

Table 7. Age at death of deer mandibles from Cole Gravel Pit. An additional two mandibles are from deer at least two years old. but could not be aged more precisely.

Age (years)	NISP	Percent
0-1	0	0%
1-2	2	22%
2-3	3	33%
3-4	2	22%
4-5	2	22%
Total	9	100%

No other animal bones were found in this pit, and no field notes are available for it.

Study of epiphyseal fusion of long bones from the other pits provides little additional evidence for the presence of immature deer or for season of death (Table 8) Only a single humerus with an unfused distal epiphysis in Feature 66 provides unambiguous evidence of a deer less than eight months old, indicating a June-January death. A second distal near-epiphyseal humerus fragment from Feature 56 may also be from an immature deer, but lack of epiphyseal fusion could not be confirmed. Two unfused first phalanxes (Features 213 and 278) indicate deer less than one year old, but are not useful for estimating season of death.

Table 8. Epiphyseal fusion of deer bones. Element epiphyses are arranged in order of increasing minimum age of fusion. px=proximal; di=distal. Total is the total number of specimens with data on epiphyseal fusion. Does not include the remains of a single immature deer from context 990 that was approximately five months old at time of death (range: 2 8 months).

Element	Total	Percent Fused	Minimum Age
Radius, px	9	100.0%	2-5 mo
Humerus, di	24	95.8%	2-8 mo
2nd Phalanx, px	3	100.0%	5-8 mo
1st Phalanx, px	5	60.0%	11 mo
Tibia, di	11	90.9%	17 mo
Ulna, px	2	0.0%	20 mo
Femur, px	5	20.0%	20 mo
All Metapodials, di	7	42.9%	20-23 mo
Radius, di	2	0.0%	20-29 mo
Femur, di	2	50.0%	23-29 mo
Tibia, di	5	40.0%	23-29 mo

A complete antler found in Feature 5 was attached to a pedicle. This antler is completely calcified, indicating a late summer to early winter death. Five deer frontal bone fragments were found in five different pits. All are from males, as indicated by the presence of a pedicle, but none retain the antlers. Erosion of the pedicle makes it difficult to determine if antlers were attached at the time of death, but two (Features 95 and 225) appear to have had shed antlers, indicating a winter death, and one (Feature 279) may have had an attached antler, indicating a spring to fall/early winter death. The absence of female frontals is not necessarily indicative of the ratio of females present in the entire assemblage, as the lack of antlers in females makes the frontal less resistant to destruction than male frontals.

Passenger Pigeon

Remains of the extinct passenger pigeon are very common at Cole, with bones of the pectoral girdle, especially the coracoid, most common (Table 9). Despite the relatively small size of individual pigeons, these migratory birds were likely a very important component of the diet.

Ericson (1987) has suggested that bird hindlimbs tend to be more common than forelimbs in archaeological assemblages, while the opposite is true of natural deposits. It is more likely, however, that element survival is related to bone density and disarticulation sequence (Livingston 1989, but see Bovy 2002). Wing bones of strong fliers most likely have a higher density than leg bones, while terrestrial birds and highly aquatic birds most likely have denser leg bones. Some evidence also indicates that hindlimbs disarticulate from the innominate before the forelimbs disarticulate from the pectoral girdle (Lyman 1994:446-447). As passenger pigeons were strong, fast, agile, and highly migratory (Schorger 1973), their wing bones are expected to have been more dense than leg bones. It is therefore interesting that humeri are less common than tibiotarsi, although coracoids and other pectoral bones are very abundant. Bird axial bones are very uncommon at Cole, and none could be identified as passenger pigeon.

Given their relatively small size, pigeons were unlikely to be disarticulated before being transported to a base camp. The differential representation of elements at Cole may reflect processing techniques and other taphonomic processes. Only four bones from Cole have tool marks and five bones have tooth punctures. An additional five pigeon bones have light acid etching from carnivore digestion.

Four pigeon tibiotarsi and several pigeon-sized long bone shafts have medullary bone deposits, a bone tissue that is deposited in bones by breeding females (Rick 1975; Van Neer et al. 2002). Its presence indicates death in the very early spring, from before to shortly after eggs were laid. Twenty-two bones from immature pigeons indicate a slightly later spring death for some birds. Outside of the spring nesting area adults can be more difficult to catch, as they are more dispersed, travel in forests, and are very fast and agile. Adults may be taken when they gather at feeding locations during the day, or during the fall migration, when they again gather in large groups. Behavioral and ethnohistoric information on pigeons combined with the presence of both medullary bone and immature birds indicates exploitation of passenger pigeons over an extended period of time in the spring (Madrigal 1999, 2001). Most likely this took the form of limited hunting of adult birds in very early spring followed by the heavy use of squabs over a short period of time before the immature birds fledged.

Table 9. Passenger pigeon bones from Cole Gravel Pit.

Element	NISP	MNE
Coracoid	154	117
Furculum	7	6
Scapula	73	68
Sternum	46	24
Femur	13	9
Tarsometatarsus	4	3
Tibiotarsus	47	41
Carpometacarpus	8	7
Humerus	29	21
Radius	22	21
Ulna	11	9
Total	414	326

Seasonality

Faunal remains from Cole Gravel Pit Site are consistent with multi-seasonal occupation (Madrigal 2001). Medullary bone deposits in passenger pigeon bones provide reliable evidence for the killing of adult females in March and April and immature bones indicate that pigeons were also killed in April or May, and perhaps throughout the summer. Medullary bone also indicates that at least some turkey were killed during the spring. White-tailed deer tooth eruption, cementum, and antler development provide additional evidence for spring and winter/spring occupation (Madrigal 1999; 2001). All these animals were probably transported to the site after being killed elsewhere. Spotted and bog turtle bones are thought to represent natural deaths and indicate an April to June death (although they could potentially represent September deaths).

Evidence for summer occupation is present but more limited. Deer tooth eruption and epiphyseal fusion provide good evidence for summer occupation. A single woodchuck incisor at Cole indicates a June or July death. Less precise indicators of warm weather occupation include frogs, toads, most turtles, catfish, and sunfish. Attribution of these species to late spring or summer is based mainly on when they would be most active, most abundant, or most efficiently exploited.

Deer tooth eruption profiles and epiphyseal fusion also provide evidence for fall occupation, as do the presence of migratory ducks and geese (although these birds potentially could also have been taken during the spring migration). Most woodchucks were probably killed in the autumn when they are both active above ground and in prime condition with high fat content. Some deer teeth indicate winter deaths, but few other taxa can be attributed with certainty to winter kills. Hibernating bears and overwintering snapping turtles may both have been preferentially hunted during the winter.

Discussion

The impression obtained from studying the Cole Gravel Pit faunal assemblage is that Late Archaic subsistence was not in any way marginal. Overall, the faunal remains from Cole indicate an emphasis on terrestrial fauna, especially those associated with deciduous forests. Wetland animals, such as bog turtles, are present, but the most common reptile, box turtle, is a terrestrial species. Aquatic mammals, such as muskrat and beaver, are relatively uncommon, especially compared to the abundance of deer and squirrel. The dominance of gray squirrel over fox squirrel further argues for dense forest cover. Likewise, the most common birds, passenger pigeon and turkey, as well as ruffed grouse, woodcock, and several other birds identified at the site, are found in forests. Aquatic waterfowl, namely ducks and geese, are present, but not nearly as abundant.

Fish comprise only a small proportion of the identified faunal remains. Identified fish species are associated with slow-moving streams and lakes. Fishing appears to have been focused on the use of catfish, specifically the brown bullhead, which may have been obtained from Dugan Creek adjacent to the site or from the Genesee River. The apparent dominance of catfish could, however, be an artifact of archaeological recovery techniques, as smaller-sized fishes, like sunfish, may be underrepresented because no systematic flotation analysis was conducted.

Most of the very small animals, including toads, frogs, musk turtle, spotted turtle, bog turtle, snake, mice, and voles, most likely were either accidentally trapped in pits or brought to the site as stomach contents of larger prey. Explaining the presence of chipmunk and flying squirrel is less easy. The very small chipmunk, which is terrestrial and fossorial, may also represent intrusive natural deaths, but the flying squirrel is arboreal and nocturnal, meaning it is unlikely to enter pit feature fill through natural means. Flying squirrels provide very little meat or usable fur, but they might have been captured accidentally in traps, or they may have served some unknown, non-subsistence-related purpose.

Small to medium-sized animals were most likely obtained using a variety of techniques, including individual hunting, snares, and traps. The most direct evidence of human use of these species is the cut marks and percussion marks found on many of their bones. At Cole Gravel Pit, cut or percussion marks were found on passenger pigeon, turkey, duck, ruffed grouse, canids, tree squirrel, beaver, woodchuck, skunk, muskrat, bear, deer, and elk bones. Many of the bones from these species also have some evidence of carnivore modification. It may be that dogs scavenged human leftovers, or may have hunted some small animals themselves.

It appears that entire deer carcasses were transported and processed for both meat and marrow, but there is little evidence for bone grease extraction. The lack of evidence for selective transport or bulk processing argues against communal hunting and bulk storage of most animal products. Aside from deer, the only other large animals are black bear and wapiti, both of which are uncommon.

Discarded animal bones were scavenged by carnivores, most likely domestic dogs, who further modified the bones, but bone debris apparently was deposited in the numerous pit features relatively rapidly, as there is virtually no evidence of weathering or trampling.

Several lines of evidence indicate that the site was occupied for multiple seasons (Madrigal 2001). Diet, however, varied seasonally, with different animals targeted as they became most abundant or were most efficiently captured. A specialized diet in which only a few species are included in the optimal diet is expected in rich environments where high-ranked prey are so abundant that there is no need to procure prey with lower return rates. That appears to be the case, at least during certain seasons, at Cole Gravel Pit. From autumn through spring, Late Archaic hunter-gatherers in central New York appear to have been highly specialized, focusing on abundant animals with high-return rates. These included aggregations of deer in the winter and passenger pigeons in the spring. Other migratory birds may also have been targeted in the fall, although very few duck or goose bones were found at the site. The role of fish in hunter-gatherers' seasonal subsistence round is not clear. Fish may have

been taken in large numbers during spawning, or taken in lesser amounts more or less year-round. From late spring to fall, diet breadth appear to have widened, as no single animal dominated the diet.

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Late Woodland and Historic Period Activity on Lake George, Pilot Knob, New York: The Bay Site (Bln 1-3)

Ronald F. Kingsley, Schenectady County Community College, Van Epps Hartley Chapter, NYSAA
Harvey J. Alexander, College of Ste. Rose, Van Epps Hartley Chapter, NYSAA
Fred S. Stevens, Iroquois Indian Museum, Van Epps Hartley Chapter, NYSAA

Published accounts of prehistoric occupation around Lake George are sparse, thus limiting the understanding of this key waterway in the North Country of New York State. This investigation is concerned with a small but diverse body of evidence found on a YMCA camp on the east side of Lake George. The evidence suggests that the site was occupied for short periods of time spanning late Woodland and into the historic period.

Preface

The majestic scenery and waters in the Adirondacks of upstate New York on Lake George have been appreciated for their beauty and used for recreation since the nineteenth century. This 32 mile long lake is one of a chain of waterways that link lower New York to Canada (Figure 1).

The Hudson-Champlain Valley corridor includes the Hudson River, Lake George, Lake Champlain, and the Richelieu River. Prior to the nineteenth century this north-south waterway served as an important route for explorers, fur traders, settlers, and soldiers. The shoreline of the waterways would have offered travelers excellent locations for temporary respite, hidden from potential enemies. The coincidence of native pottery with European trade goods, particularly glass beads, have offered researchers a means to chronologically assess and determine early trade networks in the northeast (Ritchie 1954:70). In more recent years entrepreneurs have exploited the resources for economic development, tourism and recreation (Bellico 1992; Astmann et al. 2000). Only a few sites of historical importance, along Lake George, such as Fort William Henry, and the Weinman Site on Assembly Point, have been reported or investigated (Funk 1976: 9-22; Baker and Rieth 2000: 45-61). This article addresses the discovery of a multi-component site that contains a range of artifacts from Late Woodland to the mid-nineteenth century. The site is located on Pilot Knob, along the east shore of Lake George. The investigators hope that these findings will contribute to a better understanding of the historical importance of the waterway.

Overview of the Waterway's Historical Background

Baker and Rieth (2000:48-50) located, reviewed, and summarized published studies on prehistoric activities over nearly a half century as part of their 1995 cemetery excavation at Fort William Henry on the southern end of Lake George. They recognize that the prehistory of the lake "is poorly known compared to other regions of the Northeast." While very few prehistoric sites have been documented and published, current belief among researchers is that the Lake George region was not unlike the upper Hudson Valley in

Figure 1. Map of Lake George, New York

that it included all the major cultural traditions (Ritchie 1957; Ritchie and Funk 1973; Ritchie and Funk 1976; Ritchie 1994; Starbuck 2002:83-95). Baker and Rieth (2000) found that single and multi-component sites in the Lake George region reflect the diverse traditions from Paleo-Indian through Late Woodland. They also provide a review of Lake George archaeology.

Late Woodland sites, though inadequately reported in the literature, are believed to be prevalent along Lake George and Lake Champlain shorelines. Owasco culture, a recognized tradition in northeast New York, is believed to have been the predecessor of the subsequent historic period occupants, the Mohican (Mahican) and Iroquois.

The extent and location of European exploration, fur trade and fishing during the fifteenth and sixteenth centuries, are believed to have been mainly coastal. However, within inland areas, namely the Lake Champlain and Hudson corridor, the lands were highly contested among the native people, not only for subsistence but also for the emerging trade with Europeans. Brasser (1978b:198) places the boundary between Mohawk and Mohican territory north as far as Lake Champlain and along the eastern shore of Lake George at the time of exploration and early trade. This region probably served as a buffer zone or hunting ground before the arrival of the European traders (Hill 1929:7). Trigger (1978:345) suggests that by the middle of the seventeenth century, the waterway of Lake Champlain-Lake George had become a major passageway for fur raids by the southern Iroquois into the St. Lawrence Valley.

In 1604 Samuel de Champlain, at the request of his Indian Algonquian allies, encountered a group of Mohawk Indians for a show of power. The location of this event is undocumented and believed to have taken place somewhere along the west side of Lake Champlain between Crown Point and Ticonderoga. According to Champlain's records, an undetermined number of Iroquois Mohawk Indians were killed and wounded. This event created a hatred for the French among the Mohawk. At this time, Champlain and other Frenchmen were making known French interest in colonization and claims in the New World for economic reasons as were the English and Dutch. In 1609 Henry Hudson explored inland by sailing north part way up the river that bears his name. Here he interacted and traded with another group of Indian inhabitants known as the Mohicans.

He would eventually establish a trading post for the Dutch at Fort Orange/Nassau. European trade goods (metal utensils and tools, glass beads, weapons, etc.) were traded for furs. Commerce gradually became established with members of the native population who were engaged at this time in both horticulture and hunting subsistence practices (Brasser 1978a:78-88). The prevalence and style of glass trade beads vary over time and location, suggesting changing preferences of native populations in a competitive, market driven economy involving the French, Dutch, and English in the Northeast.

In 1624 the Mohawk signed a peace treaty with the French and their Algonquian allies in order to subdue their commercial competitors, the Mohicans (Dunn 1994). The ensuing conflict forced the Mohicans to move their territorial rights east of the Hudson River (Trigger 1971:344-349; 1978:279). Subsequent to this conflict, both traded with the Dutch at Fort Orange, which had become a major trading outpost in the upper Hudson Valley (Huey 1983:83-110; Huey 1988; Venema 2003).

During the eighteenth century, the Lake George Region was the location of military activity, first between the French and English during the French and Indian War, and later between the English and American colonists during the American Revolution. Lake Champlain and Lake George served as the primary means of travel between the two regions. During the first of these wars, the lakes served combatants as a passageway north and south from their settlements at Crown Point (Fort St. Frederic) and Ticonderoga (Fort Carillon) on Lake Champlain, to the southern end of Lake George (Fort William Henry and Fort Gage) where the English had established military outposts (Kingsley and Alexander 2005; Starbuck 1999). Shortly after the French and Indian War, much of the land along and inland from these lakes was surveyed. Grants and patents were made to officers and soldiers who served Great Britain in the war. A section of land situated along the east side of Lake George, within present day Washington County and the Town of Fort Ann, is the Artillery Patent. It includes the Lake George Tract in which the study area is located and is the subject of this investigation. The Patent was granted to Joseph Walton and twenty-three other British officers, 24 October 1764, and contained 2400 acres (Johnson [1878] 1991:301).

By the late eighteenth century, after the English built and occupied Fort Crown Point on Lake Champlain, it was accidentally destroyed by fire in 1771. They also occupied Fort Ticonderoga or Carillon, located at the outlet of the La Chute River that flows from the northern end of Lake George into Lake Champlain. Lake George continued to be an important waterway in Burgoyne's 1777 campaign during the Revolutionary War.

Following the Revolutionary War, many parcels of land along the lakes, formerly granted to British officers and soldiers, were confiscated. Washington County was settled largely by New Englanders, the Scotch, and a few from other European countries. Fort Ann is one of seventeen townships that compose Washington County. The Township of Fort

Ann is situated on the west side of Washington County in the northern section. Tracts were surveyed and parcels were regranted or sold, thereby expanding the county's population. During the years 1811 and 1812, the Lake George Tract, which includes the towns of Fort Ann, Queensbury, and Putnam, was surveyed (New York State Archives 1859; French 1860:681).

Washington County was formed in 1784 from the former Charlotte County, which encompassed parts of New York and present day Vermont, and a section of Albany County. It is bounded on the north and east by Vermont, on the south by Rensselaer County, and on the west by Saratoga and Warren Counties. In 1813 Warren County was formed, reducing the size of Washington County. In Fort Ann Township, the location of the study area, are the Palmertown Mountains. They extend along the eastern shore of Lake George (western area of the county) and are in the central section of the township. The eastern part of the township contains the Fort Ann Mountains. Numerous ponds and streams are nestled within valleys. The soil in the mountainous region is hard and sterile, while in other areas it is varied with sand, gravels, and clay (French 1860:681; Johnson 1878:301). Wildlife continues to inhabit undeveloped areas.

Description and History of the Study Area

The community of Pilot Knob is situated on the east side of Lake George, Washington County, approximately ten miles north from Dunham's Bay. The location supports a year round community which includes a popular outdoor education center and Schenectady YMCA camp (Camp Chingachgook). Two mountains, Buck Mountain and Pilot Knob, in the Palmerton range, are situated east and adjacent to the study area. The lake region is characterized by steep slopes and rocky outcroppings that make most areas along the lake unsuitable for agriculture. Today large sections of the lakefront are developed for recreational and residential use. Historically, the land was composed of typical Adirondack mixed forest. During the mid-nineteenth century large areas of the Adirondack Park were deforested but have since regenerated (Terrie 1990:10). Soil in this area has been designated as Hollis-Charlton Association by the USDA Soil Conservation Service. This type of soil, formed from glacial till, is a moderately coarse texture loam comprised of syenite and granite gneiss (USDA 1975:7, 16).

Land that had been surveyed following the end of the French and Indian War along the southern end of the east side of Lake George began to be conferred as royal patents by the order of King George III. Documentary research located two adjacent patents that had been conferred on 16 July 1774, south of the study area along the lake—one to Hugh McNab and the other to Hugh Morrison (O'Callaghan 1864). Both were non-commissioned officers. McNab was in the Eighteenth Regiment of Foot and Morrison was in the Royal Highland Regiment. Their lots were identified in an early nineteenth-century survey of the Lake George Tract as #42 and #35, respectively, both located south of the study area. The survey of the Tract, completed in 1812, made lots available for settlement.

According to the New York State Census Reports, the Norman Phelps family, were residents of Fort Ann, Washington County for several generations (U.S. Federal Census 1790-1880; New York Census 1790-1890). They were among the families who acquired land along the lake. The Phelps property consisted of two adjacent shoreline lots, #53 and #54 (Figure 2). They were conveyed by the State of New York to two of Norman Phelps' sons, John and Samuel. Lot #54 was deeded to John Phelps on 2 January 1845 and Lot #53 to Samuel Phelps on 1 October 1853 (Washington County Clerk's Office 1922, Deed Book 178:232-234; Davis 1994:II, 50). In the field notes of surveyor, Silas Kellogg, he describes both lots as being along the easterly shore. Lot #53 is 124 acres and is a middling lot, with an estimated value of 65 cents per acre, containing timber Beech, Birch, Hemlock and Pine; whereas Lot #54 is 270 acres, very poor and rocky with Pine, Cedar, Beech, Maple and Birch trees, valued only at 20 cents per acre (New York State Archives 1813: 61-62). The study area and the location of the Phelps farm were on Lot #53. Within the lot is a small stream named Butternut Brook. It drains and empties into the lake within a marshy area. A small narrow island is situated off the shore of Lot #54, which bears the name of the Phelps family. The undeveloped state land near the shore is steep, rocky and unfit for agriculture.

The Phelps' built a farmhouse and barn on a hill east of the present day lake road (Figure 3). According to David Davis, the Phelps cleared a road south from the farmhouse for the passage of wagons intersecting the lake road. In 1869 an access road north and a bridge across Butternut Brook to Point Comfort and Camp Andrews are believed to have been constructed by John Andrews (Phelps Bertsch 1994: II, 50-51). The road along the side of a sandy bay crosses over the edge of the swamp and marsh created by the creek (Figure 4).

By 1914 the Schenectady YMCA and Boy Scouts were jointly utilizing the property as a camp for boys before it was eventually operated solely by the YMCA (Painter 1994: I, 29, 33). Both farm buildings were torn down for the building of Rotary Hall in 1921, a dining and activity center. Other buildings and a dock were added to accommodate a development of the program at what would be named Camp

Figure 2. Section of Lake George Tract Survey Map showing the location of Lots #53 and #54 owned by the Phelps Family.

Figure 3. Photo of Phelps Farmhouse, c 1912 Courtesy of Camp Chingachgook Archives, and Steve Draper

Chingachgook. A portion of the Phelps farm road can still be seen leading just south of the former farmhouse toward the road. For the past half century, or more, a large open area of sandy-silty soil along the shoreline and on the west side of the dirt right-of-way have served as a baseball field and miscellaneous game area. The southern boundary of the field was once lined with tents on platforms for the Intermediate campers (ages 11-13). A stone ridge between the roadway and the lakeshore toward the north provided a location for tent platforms of Senior campers (ages 14-16) (Figure. 5).

Over the past 50 years, some camp buildings have been removed and replaced by new buildings, including a new Rotary lodge to replace the former one on the same site. Other buildings have been added, cabins have replaced tents, and a second pier dock was erected to accommodate an expanded water recreational program. Presently the 200-acre camp functions as a year round outdoor education center and conference center under the same name, except for the summer months when it is a co-educational camp for children and youth.

A shallow, sandy bay at the northern end of the YMCA camp property on the south, referred to as "Beginner's Bay," (called the Bay Site in this paper) adjoins with a recently developed small town bathing beach along the west side of the dirt road and connects to the north at Camp Andrews. The point, the focus of our investigation, consists mainly of bedrock and forms the southern end of the bay on the Y-camp property. This was the location of a small, wood-sided structure with a canvas roof. This simple shelter, known as the "Leap Inn," served as the gathering place for the Waterfront staff. It was on this point of land that evidence of a prehistoric Indian site was first found (Figures 5 and 6).

The Investigation of the Bay Site, Bln 1-3

The investigation of the site on the southern side of the sandy bay was initiated during the summer of 1956, after numerous chert flakes were noted on the surface of pockets of soil covering the bedrock that form
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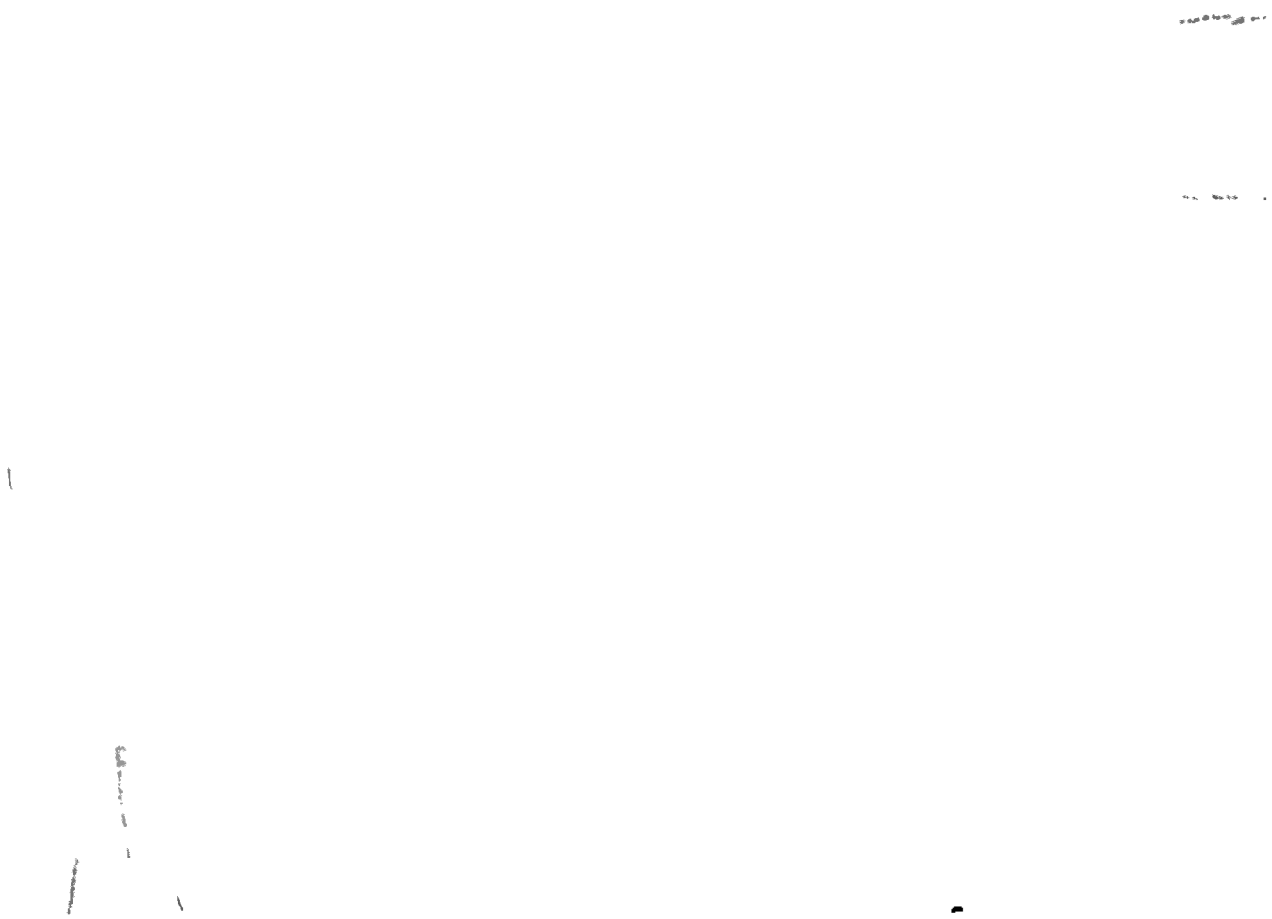

Figure 4. Portion of 1880 Seneca Ray Stoddard's Survey Map of Lake George (published in 1885) showing the road within the study area

Stage I. Surface Survey

Methodology

Shoreline Study Area. With permission of the camp director, Donald Shellenberger, a surface survey of the camp grounds was first conducted on the west side of the dirt right-of-way road that extended through camp to the shoreline of the sandy bay that defined the camp's northern boundary. The objective of the survey was to locate and map the distribution of chert flakes and artifacts found in the Intermediate and Senior camp areas. Camper participants reported and discussed their findings.

Farmhouse Study Area. Secondary to the study of the shoreline area, another survey was planned and undertaken, that being the location of the former Phelps farmhouse. Here the intent was to locate any remaining foundation and surface artifacts of the occupation. Finds from the foundation were exhibited at Rotary Hall for campers to see.

Findings

Shoreline Area. The Intermediate Camp contained some Onondaga and Fort Ann chert flakes, particularly around the baseball diamond. Camp property along the south side of the bay showed a greater density of chert in pockets of soil that were scattered among areas of exposed bedrock. The soil within these pockets rarely exceeded nine inches. Near the roadbed to the east it is deeper but contains evidence of fill along the shoulder of the dirt road. Only a few trees, mostly cedars, grew on the point, along the southern section of the area, away from the inlet forming the bay.

Farmhouse Area. The area south and west, adjacent to Rotary Hall, revealed a partial line of foundation stones, a

Figure 5. Camp Chingachgook, Schenectady YMCA, prior to 1950. The site is located within the lower left quadrant and shows two campers around a fire. Personal Collection, Ronald Kingsley

ocation between the front door and the drinking fountain No artifacts were noted on the surface. Some scraping was done that produced a few eighteenth- and nineteenth-century artifacts. No artifacts associated with Native Americans were found. Nearly five decades later, a small area between the south side of the Hall and the Headquarters shed to the south, was excavated by Joseph Jolly, the senior camp director with training and experience in archaeology (personal communication, 2001). He indicated that he had found only a few artifacts, mainly pottery and pipe stem sections, and no Native American artifacts.

Stage II. Subsurface Testing of the Shoreline Area.

In 1956, a plan was made to dig a series of two-ft squares where surface soil was still present. Campers worked in two teams of four, taking turns at the tasks. The existence of soil and chert flakes determined where test squares would be dug. Where trees grew, roots extended like a net upon the bedrock. When they were encountered, the soil around them was removed and screened but no attempt was made to cut or remove any roots.

The camper participants also examined the sandy bottom of the bay up to waist height, approximately 15 ft from the shore. The procedure involved attempting to locate objects by gently brushing the surface of the sand. All finds were recorded for their location and approximate depth.

Soil Description

Three layers of soil were identified: (A) the topsoil layer, approximately 1 in thick, covered by sod, was found to contain rocks and chert chippage and quartzite; (B) a black

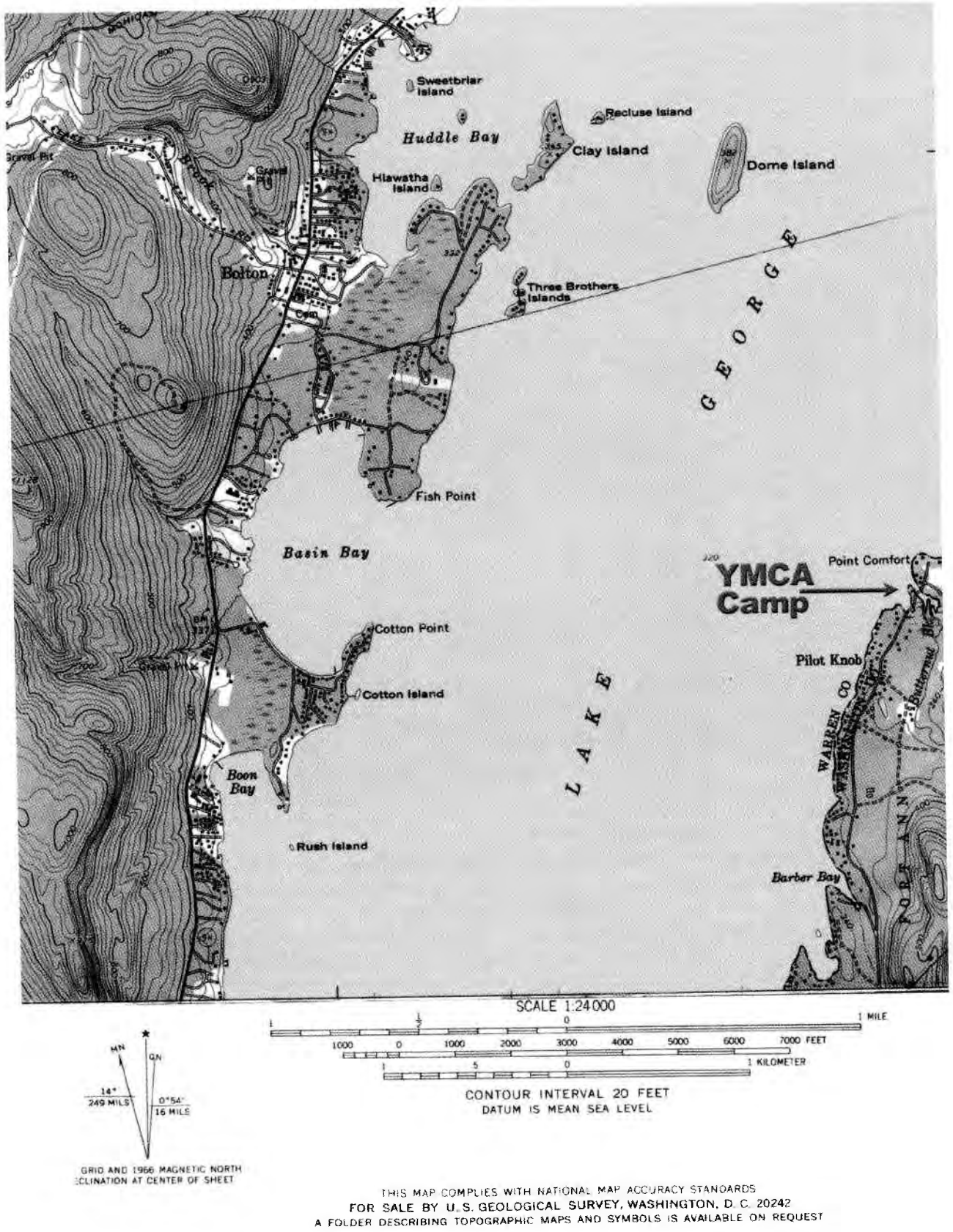

Figure 6. Section of USGS 7.5 Minute Series, Bolton Landing, N.Y. Quadrangle, 1966 showing the lakeshore development, part of camp, and location of the Bay Site.

Figure 7. Photo of Bay Site looking south

to brown, sandy loam, in some places containing small rocks, tan, brown, black, and gray chert chippage, snail shells, and charcoal of variable sizes. Black stained soil was present at two locations, squares #1-#4, and #11. The black soil was associated with charcoal, most likely generated by campfires which could have had their origin over more than half a millennium. Underneath was a deposit of yellow sand, resting on bedrock, generally an inch or two. The depth of the soil, varied in depth from 4 to 9 in.

Findings along the Shoreline

Softball Diamond Area

Surface findings were located at the northeast corner of the diamond, behind home base. Finds discovered by campers, and in our collection, include: 1 rib bone and 2 unidentified long bone fragments, 7 chert flakes (2-dark tan; 5-gray), 1 quartzite fragment, and 1 incomplete, untyped black chert side section projectile.

Bay Site Area

Land Section. Thirteen 2 ft x 2 ft test squares were dug. Squares #1 through #9 were located on the north, east and west of the "Leap Inn" (Figure 7). Four squares were dug along the sides of the camp's drive to the bay, #10-#13) on the east and #13 on the west. One (#14) was located southwest of #9 (Figure 8).

The following artifacts were recovered in July 1956:

Squares 1-4[1] Several glass seed beads (red, blue, & white), one faceted amethyst colored glass bead, one undrilled wampum (shell) bead, all found at varying depths, from 1 to 7 in. Throughout the soil, darkened by charcoal, were numerous chippings, three corner fragments of projectiles (two chert and one quartzite). Two pottery fragments were uncovered at about 4 in, both plain bodysherds.

Square 3[2] One melted green glass bead (?)

[1] Field notes do not distinguish from which of the squares individual artifacts proceed

[2] Specific unit provenience of the green glass bead

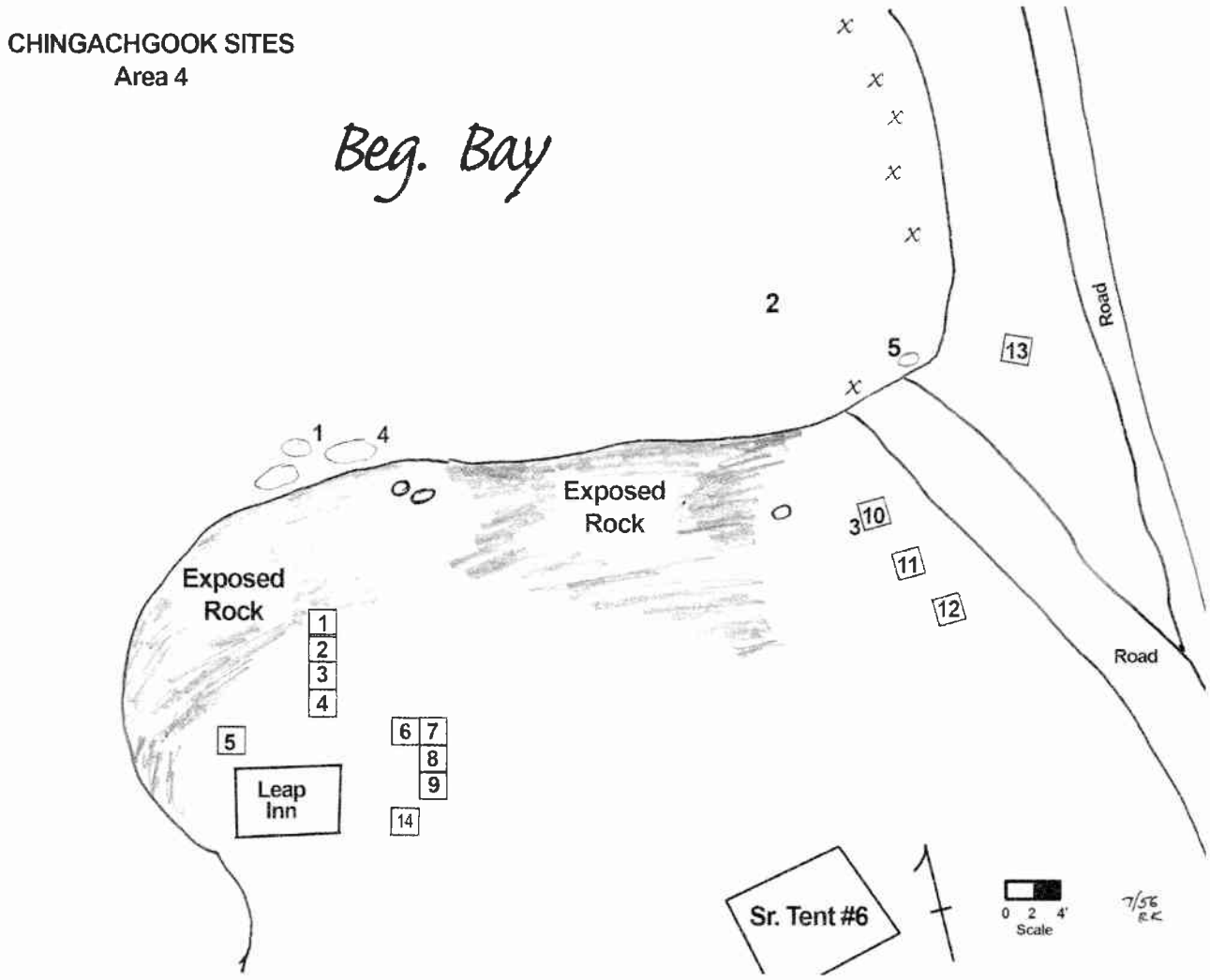

Figure 8. Hand drawn field sketch of Bay Site showing the approximate location of test squares (Kingsley 7/1956).

Square 5 No findings. Soil was powdery and red-orange color.

Squares 6-9 Two broken projectiles (one quartzite and the other Fort Ann chert) and two plain body pottery fragments.

Square 10. One quartzite Levanna point at 4 in depth; several glass seed beads (red, white, and blue) at varying depths from surface to 9 in.

Square 11. Large amount of charcoal located from the surface to 5 in. Three sections of iron chain uncovered at 3 in that were embedded in charcoal; several trade beads found at varying depths.

Square 12. No findings.

Square 13. No findings.

Square 14. No findings.

In addition, twenty-one fragments of lithic material from the above units are in the collection. They are identified as Fort Ann and Onondaga cherts, and quartzite.

Water Section. The bottom of the bay, up to a depth of about 2 ft, was examined visually. The sandy bottom was swept by hand to uncover any apparent artifacts. Particular attention was paid to the eroding shoreline. Five artifacts were retrieved, along with a scattering of several small chert flakes. Two projectiles, a Madison projectile with a missing corner (Onondaga chert) and a complete Levanna point (quartzite), were found near a cluster of three large rocks. At the same location the tip end of a drill point was also recovered. A four-inch ovate knife (Onondaga chert) was located

under the edge of a stump. A honey colored gunflint was found 15 ft from the shore. A section of a charred timber and a chain link, likely nineteenth century, were located in the sand on the northeast side of the outlet into the bay next to the camp road spur.

Other Studies of the Bay Site

Outdoor Education Dig

The peninsula of the Bay Site was dug by sixth grade students over a period (1972-84) under the supervision of their now retired teacher, Erwin Nichols (personal communication, George Painter, 1996; personal communication, Erwin Nichols, 2000). While the collection and his notes have been lost, he reported that his class had found Levanna projectiles, some cord and line marked pottery, modern nails on the surface, some charcoal, and two 1860s coins (a three and a five cent piece). Fortunately a few artifacts from the study had been left at camp for a display board. The board was found in storage and the artifacts were removed and kept for study in 2000. They include a Madison projectile (quartzite), the incomplete side of a projectile (brown chert), (3) scrapers (Fort Ann chert, Onondaga chert), a kaolin clay pipe stem fragment (4/64 in bore), chippage (4) tertiary flakes (Onondaga chert), (4) secondary flake (one jasper, 3 Onondaga chert), (1) unburned anthracite, and (2) knife cut rib bone sections. Four collar and rim sherd sections are in the collection. We assign three to the Oak Hill and one to the Early Chance horizon. These appear in Figure 9 along with one representative plain body section.

Field Visit

In August 1996, the shoreline was examined during a field visit. A broken section of a pestle and a worked flake of Onondaga chert were found on the surface by the shoreline of the swimming dock area.

Field Visit and Testing

In July 2000, Erwin Nichols accompanied one of the authors (Ronald Kingsley) on a visit to the site and identified where he recalled that finds had been made. A 2 ft x 2 ft test square was dug where he had found some pottery. This was near the three rock cluster, previously mentioned, by the edge of the water. The sandy loam soil had a Munsell of 10YR2/1 (black), and the 7 in of soil rested on an irregular bedrock surface. Only modern period debris (foil, glass, nail) were found.

Underwater Study

In 2000, Joseph Zarzynski, executive director with Bateaux Below, Inc., and volunteers participated in an examination of the bay for artifacts. No prehistoric or colonial period artifacts were found during their visual and metal detection survey of the sandy surface.

Field Visit and Testing

In April 2006, another examination was conducted of the Bay Site to determine the extent of any residual evidence of the former occupations. This consisted of a surface examination of the shoreline region along the west side of the town road and sections of Butternut Brook. Also, five shovel tests were dug on the site in order to determine any residual subsurface evidence to a depth of 6 in, where compacted broken rock was encountered. Only five flakes were found on the surface at the site and none in the area of the former baseball diamond. Three chert flakes were found clustered together at one location, one near the shoreline and another was uncovered in the topsoil during shovel testing. One quartzite flake was found in the water section by the large rocks. Topsoil ranged from 2 to 4 in.

Butternut Brook and its outlet were viewed from the shoreline and upcreek. The creekbed varies in width by location. However the shallow channel suggests a slow flow of water draining Buck and Pilot Knob mountains from the west. The present day outlet of the brook is within a swampy region. The public road crosses the brook and contributes to the wetland formation. The status of the delta, prior to the construction of the road in the late 1800s, is unknown. However the natural feature undoubtedly offered native inhabitants and/or travelers a source of fish and small game. The sandy and shallow coves provided by the creek would offer an ideal location for landing canoes and other small watercraft.

Discussion and Interpretation

The Bay Site is a multi-component site that represents at least three occupational time periods. This site has yielded a collection of artifacts that are few in number but encompass a broad period of time. Based on cultural material evidence, the earliest occupation occurred during the late Woodland Period, characterized by the presence of Levanna and Madison projectiles, as well as Early Chance and Oak Hill Horizon pottery. The site appears to have been used during the eighteenth century as evidenced by glass trade beads, a kaolin pipe, and a gunflint. Later in the nineteenth century, the location was part of a farm as indicated in documents and the recovery of coins and other artifacts.

The Late Woodland Occupation

This period in the cultural development of non-European

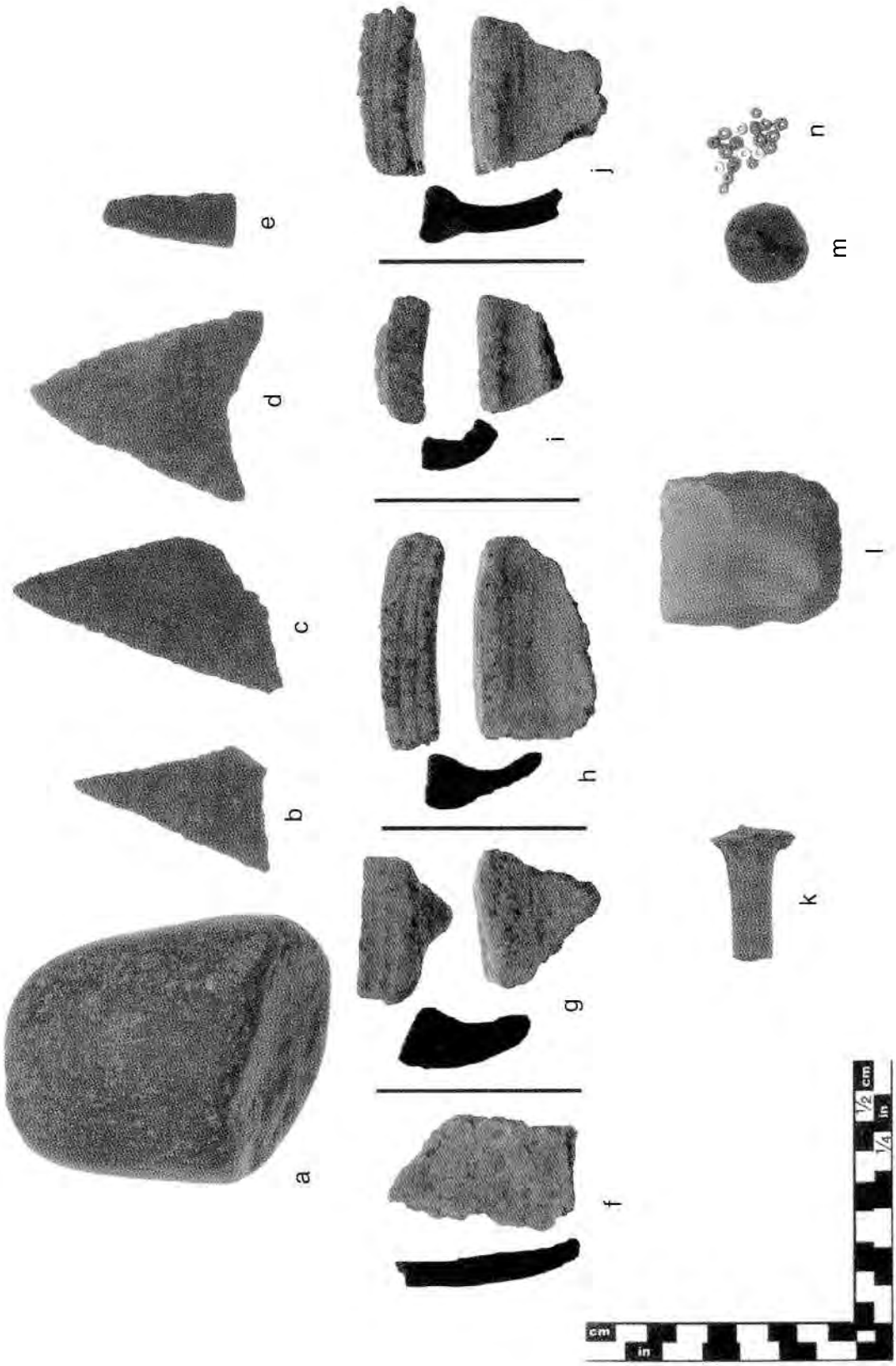

Figure 9. Selected artifacts from Camp Chingachgook. Top row: a. broken pestle, b.-d. Madison and Levanna projectiles, e. drill point; middle row: f. profile and plain body, g-j. profile, rim and collar views of Early Chance (second from the right) and Oak Hill pottery; bottom row: k. kaolin pipe stem, l. honey color gunflint, m. amethyst faceted glass bead, n. red, white and blue glass seed beads.

peoples in New York State is recognized to embrace the late Owasco culture populations (Oak Hill and Chance Horizons), approximately 900 A.D.-1400 A.D., and the subsequent emerging Iroquoian/Mohican traditions or cultures. Archaeologists have subdivided each culture into phases based on time and life-ways of the early inhabitants, to illustrate the cultural sequence within distinct geographical areas of the state (Ritchie and Funk 1973:iv). These populations existed as a continuum through time and space (Ritchie 1980: 272). Ceramic criteria are usually employed to identify changes because of their abundance on Woodland sites (Lenig 2000). Ritchie (1952:13-18) states that there are resemblances within earlier Owasco phases and the Chance Horizon phase "in morphology, design motif, and technique." Chance phase pottery, when compared to other Owasco pottery, usually has smooth bodies (97%), replacing checks, stamped and cord designs. Chance pottery has punctuated neck plats that are single, and are widely separated. They have vertical or obliquely placed lines for neck and shoulder decoration. The Oak Hill horizon (1300-1390) emerges, as incising replaces cord impressing to produce designs (Ritchie 1980: 302 [citing Lenig, 1965]). Late prehistoric Iroquois pottery has incised linear patterns with oblique lines and chevrons; pottery is coarser than that of the Chance phase. The bodies of both are smooth (Ritchie 1980:320).

Pottery was made by the paddle and anvil method. Grit tempered paste used by the native potters becomes finer over time. The interior was smooth and the exterior had fabric-impress and check-stamped later. Lips were flat, wide or thickened (early), and later became splayed outward. The rims were slightly everted. Decorations are present on the shoulder, rim and collar (Ritchie 1980: 290-291).

Texture, temper, color and thickness of pottery are helpful for the reconstruction of the prehistory of the site. However at the Bay Site only seven sherds exist in the collection. Although limited in number, they offer a sample of others that may have been recovered but are now lost. Three of the seven are plain body sherds and the remaining four include rim, neck and shoulder sherds. The pottery is grit and has a fine grit. Decoration includes incising and punching. Three sherds are incised with two parallel lines encircling the rim; two of these are plain sided and one has a cord impressed pattern. The remaining sherd is incised across the lip, and has vertical punctation marks under the rim. These patterns are indicative of Early Chance and Oak Hill Horizons (Lenig 1965:7.10, 23, 25-26; personal communication, Wayne Lenig, May 2006; personal communication, Christina Rieth, April 2006).

According to Ritchie (1952:13-18) Chance Horizon sites have been identified only south of the Mohawk River. Numerous other sites that contain Chance Horizon pottery have been reexamined since Ritchie's work. They are located north of the Mohawk River and into the southern Adirondacks. These are located on high, well drained ground. Two of five identified Chance sites are located near large bodies of water. Ritchie adds that they are characterized by small, shallow middens and this condition reflects small populations. Late Woodland sites have been reported in neighboring Vermont along Lake Champlain to the north and the Connecticut River Valley (Thomas 1994: 84; Kingsley 1997:62).

Lake George is an oligotrophic body of water that would not have contained the andronomous and/or coarse fish favored by Late Woodland cultures. If fishing occurred, it would most likely have been along the creek that flows into the lake. However the outlet of the creek would likely have offered an abundant source of animals, as well as egress into the interior. The location also offered an ideal overnight campsite for traffic moving along the interconnecting waterways between Canada, the Hudson River and subsequently the Atlantic Ocean. In addition, the Connecticut River Valley and its water networks would have been accessible via an overland route.

The shoreline, as it exists today, is undoubtedly different than it was prior to the construction of the road by the Phelps' family during the mid-nineteenth century. The shallow bay and Buttermut Creek offered opportunities for seasonal net fishing in addition to hunting game and gathering plant food (nuts, tubers, berries, etc.). The limited number of artifacts makes it difficult to speculate on the extent of subsistence activities. We would speculate that the setting may have been used as a convenient way station among the waterways of the region.

Lithic material is local, with the exception of one jasper flake that is generally viewed as being from Pennsylvania (personal communication, Wayne Lenig and Fred Stevens, May 2006; personal communication, Christina Reith, April 2006). Native stone materials, made and used by the Indians, include Eastern Onondaga chert, Fort Ann chert, quartzite, and a type of sedimentary chert.

Projectiles on Owasco sites are usually triangular and chiefly have a broad, concave base (Levanna) (Ritchie 1952:13-18). "The principle modifications of latter Owasco times are a decrease in size and a shift toward an isosceles shape, both trends which ultimately transpose the point from the Levanna type of the Owasco to the Madison type of the Iroquois." Both types, which were found on this site, have a wide distribution (Ritchie 1965: 275-6; 1980:277-278).

In addition to the projectiles, mentioned above, stone materials were present as secondary and tertiary flakes, a broken drill, an incomplete pestle and an ovate knife on the

Bay Site. The collection of stone tools on this site does not include evidence of cultivation (hoes or cache pits). The very shallow soil on bedrock would have made both cultivation and the construction of a palisade problematical. Most Owasco villages were one to three acres, located away from large bodies of water and on high ground (Ritchie 1965:280). Campsites, on the other hand, are much smaller and commonly located on the margins of marshes, lakes and rivers for their accessibility for fishing and hunting (Ritchie 1980:274). A broken pestle that exhibits some wear was recovered, suggesting possible use for grinding of local nuts or transported corn.

Flint endscrapers (round, ovate, and trianguloid) were employed for the preparation of skins and hides. Chipped flint drills were used for textiles and baskets (Ritchie 1980: 287-290).

While waterways offer routes for travel and trade, the Owasco people apparently had little interest or activity in trade. They were provincial, self sufficient and locally oriented. Ritchie believed that, in the late prehistoric phase of development, Owasco culture was common to both Algonquian and Iroquois speaking people (Ritchie 1980: 294, 300). The Oak Hill phase is more or less arbitrary and is considered nascent Iroquois Culture. Fenton, cited by Ritchie, believed that Iroquois was intrusive upon Algonquian speaking and hunting groups. Iroquois maize economy and settlement in Owasco and Pickering phases at 1100 A.D. resulted in the Oak Hill phase (Ritchie 1980:300).

Late Prehistoric Iroquois sites contain various tools for hunting and fishing. In addition to Madison points, other artifacts include ovate or willow shaped knives; however flint drills and scrapers are less common (Ritchie 1980:320).

Eighteenth-Century Occupation.

The peninsula was the source of a number of European-made or influenced artifacts. A multi-faceted amethyst bead of early eighteenth-century manufacture was found (Rumrill 1991:38-42). Given its size and shape, this bead could have been from a rosary. Within the same location of test squares several red, white and blue tumbled seed beads, common within the same time period, were also found. Most helpful to bead identification and chronology were James Bradley and Wayne Lenig (personal communications 2006). The amethyst bead shows slight melting on one side and subsequent development of a groove along the melted side.

A section of kaolin pipe stem was discovered on the peninsula by the Outdoor Education students (Nichols, personal communication 2000). It has a bore diameter of 4/64 in, found throughout the eighteenth century, but most commonly from 1750 to 1800 (Harrington 1978:64).

A honey colored gunflint was recovered within the shallow bay approximately 20 ft from the shore of the peninsula. This type of flint has its origin in Europe, commonly associated with France, and has been found at many sites in North America. It is believed to date as early as A.D. 1675 (Hamilton 1960:74; Woodall, et al. 1997: 25). These flints were favored by Europeans, and are common on British, American and French sites up to the end of the American Revolution and well into the nineteenth century (Kenmotsu 1990:96).

Nineteenth-Century Occupation.

This location has continued to be in use up to the present. Nineteenth-century artifacts have been recovered from the site. They include the two dated coins, found and reported by Nichols, which coincide with the Phelps family residency. Also found were some chain links and areas of darkened soil embedded with some charcoal which are probably from this period, and/or that of the twentieth-century camping program.

Conclusions

The diverse assemblage of artifacts leads us to believe that, prior to the twentieth century, at least three periods of human activity (Late Woodland, early eighteenth century, and nineteenth-century Phelps farm) occurred on the Bay Site. The bay would have and still does offer an ideal landing area. Prior to the nineteenth century, people would have been able to hunt, gather and fish in the shallow bay, and/or the location may have simply served as an overnight campsite. Today the bay continues to be used for boating, swimming and other recreational activities by campers and local residents.

Stone tools and pottery made by prehistoric people offer two sources of evidence for identifying native cultural sequences. Both Levanna and Madison projectile points are present within the assemblage, suggesting a possible range for occupancy within the Late Woodland from as early as 700 A.D. and into the early 1600s. Almost all lithic material, artifacts and debitage, are common locally. The single exception is one jasper flake. The other lithics are Onondaga chert, Fort Ann chert and quartzite. The vast majority of the flakes are small size (tertiary stage) reflecting a finishing stage of tool knapping. Other tools include an ovate knife, incomplete drill stem, scrapers, and a broken pestle. No netsinkers or bone hooks were found on the land or in the water. Stone tools greatly prevail in proportion to the number of pottery sherds. The preponderance of lithic material leads us to believe that this location served prehistoric inhabitants as a very short term camp for seasonal hunting,

travel and/or warfare.

The very thin soil layer prohibits a clear stratigraphic analysis that would allow a separation between the prehistoric and contact period artifacts. No metal points are among the present assemblage, thus implying that our European trade materials are from a later time. It is a moot point as to which peoples these European-made artifacts belonged.

Ritchie (1949:188f; 1952:28) suggests that the Late Owasco cultural group was ancestral to the historic Munsee. Therefore the possibility exists that at least some of these artifacts were made by people of Mohican [Munsee] origin. The site falls within territory inhabited by Mohicans prior to the seventeenth century (Brasser 1978b:198). However conflicts between Mohawk and Mohican prior to European contact rendered this area a "no-mans land" until the Iroquois succeeded in displacing the Mohicans by the mid-seventeenth century (Ritchie (1952:28). This situation would then increase the probability that this site would have been a favored overnight wayside camp, given the density and nature of the material.

The evidence gathered at the Bay Site, although limited, is provocative. While we may never know specific dates or identities, this site offers historians and archaeologists a link to understanding early events surrounding the waterway in the Adirondacks. Sites in the region are rapidly becoming lost to development. However an unknown number of sites have been discovered but not yet reported. The contents of private collections would make an invaluable contribution to understanding the lake history. The information could be channeled through local chapters of NYSAA, such as the Van Epps Hartley Chapter, whose members might, in turn, catalogue and report any findings for posterity, without disrupting personal collections.

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A Defense of and Added Evidence Bolstering the Abbott Complex of Coastal New York

Edward J. Kaeser, Metropolitan Chapter, NYSAA

More than four decades ago the association of two morphologically distinct projectile points made of exotic stone and an aberrant group of zone-decorated ceramic vessels in coastal New York sites were thought to be either: 1) integral elements of the indigenous coastal New York Windsor material culture; or 2) acquired trade items. A survey of known Middle Woodland period Windsor components led the writer to conclude that these materials were not the result of trade relations, but rather, that of the actual cohabitation of the indigenous Windsor culture people and a migrating group whose homeland was based in the Delaware River Valley. This interpretation was proposed in the hope that these new data would encourage a broad areal study; however, this interpretation was sharply criticized and challenged. The following represents a rebuttal of those criticisms.

Introduction

During the 1960s, I investigated the temporal and spatial position of stemmed and lanceolate, "Steubenville-like" bifaces and their archaeological association with zone-decorated and net-impressed ceramics on sites in coastal New York, parts of the Delaware Valley, and several counties of Pennsylvania (Figure 1). Based on this research, I proposed a new cultural phase for the Middle Woodland in coastal New York. I called this culture the Abbott Complex because of the strong presence of Abbott tradition ceramics and "Steubenville-like" projectile points (Figure 1). Characteristic lithic traits of the proposed Abbott Complex assemblage included "Steubenville-like" lanceolate and stemmed points, damaged points reworked into scrapers and drills, three-quarter grooved stone axes, and a variety of rough stone tools (see Kaeser 1968:23, Table 3). Since they are a defining component of the Abbott Complex, I also proposed a new nomenclature for the "Steubenville-like" points, as a means of disassociating the bifaces morphologically, chronologically, and culturally from any previous Archaic period designation. The name Cony Stemmed and Cony Lanceolate, a purely utilitarian acronym for Coastal New York, was assigned to them (Kaeser 1968:24).

Because of the unique morphology of the projectile points and the associated pottery type, it was hoped that they might be provisionally utilized as diagnostic traits identifying a Middle Woodland period culture complex in coastal New York and possibly elsewhere (Kaeser 1968:8-26). This paper included the results of a physicochemical analysis of argillite, the most common lithic material used in the manufacture of the points. Coastal New York samples were found to be virtually identical to those of western New Jersey and adjacent Bucks County, Pennsylvania (Veniuto 1967:21-29). These data were considered valuable in the determination of a probable home range of the cultural group who, through migration, trade, or actual relationship, transported the finished points and contextually associated net-impressed and zone-decorated ceramics identified as the Abbott Complex, into coastal New York.

A similar interpretive approach was used in a follow-up paper, which summed up the Middle Woodland period culture sequence of western coastal New York (Kaeser 1972) and provided the following:

> 1) The diagnostic lithic and ceramic traits basic to Coastal New York's Windsor Complex and the Abbott Complex;
>
> 2) The use of Cony as a designation for the distinctive stemmed and lanceolate bifaces formerly defined as "Steubenvilles;"
>
> 3) A chronology for the New York Abbott Complex material culture assemblage within the Windsor Middle Woodland period coastal sequence:
>
> 4) A presentation of the geographical distribution of Abbott Complex components within Coastal New York, along with inferential evidence for cultural linkages with adjoining areas (Kaeser1972:11-15).

Since 1968 I have continued my efforts to refine the traits that define the Abbott Complex. Two additional traits have been identified: the Cony knife and mica tempered pottery. Since the Abbott complex was first defined, I have added another diagnostic lithic form to the Abbott Complex trait list, the Cony knife. These knives are of isosceles triangular form, and like the lanceolate and stemmed points with which they are found, are made predominantly of argillite

Figure 1. Typical coastal New York Cony projectile point specimens: 1. Cony lanceolate argillite; 2. Cony stemmed, argillite; 3. Abbott Zoned Punctate sherds, restored

(For a more detailed description, see Kaeser 2002:56-59). The Cony knife was recovered at the Oakland Lake Site (Kaeser 1974:1-29), the Bird Rock site (Kaeser 2004:53-60), and in a seven county, coastal New York sample of 50 specimens drawn from the Museum of The American Indian, Heye Foundation collection.

The Problem

Without any knowledge that Dr. Robert Funk and I had a common interest in the cultural and temporal provenience of "Steubenvilles," I researched the problem in coastal New York. Funk did so in upstate New York's Hudson Valley. Our reports on the results of this research were published simultaneously in NYSAA's *The Bulletin* (Funk 1968:1-7; Kaeser 1968:8-26). Funk's paper introduced the nomenclature Fox Creek Stemmed and Fox Creek Lanceolate, while I designated the points as Cony Stemmed and Cony Lanceolate. Both of us placed the morphologically common bifaces within the Middle Woodland period.

Later on, in 1976, Funk published his synthesis on Hudson Valley prehistory in which he formally expanded his definition of the Fox Creek Phase to include coastal New York and southeastern New England, stating that "...the Fox Creek phase was the dominant expression in eastern New York during the fourth and fifth centuries" (Funk 1976:292). He dismissed the Abbott Complex as "unsatisfactory" (Funk 1976:293) on several counts relating to the Abbott Farm excavations of 1936-1941 in New Jersey (Cross 1956 vol. 2).

> 1) "...no significant patterns of depth distribution were discerned in pottery or projectile points, despite the apparent physical stratification" (Funk 1976:293);
>
> 2) Cross illustrates a wide variety of projectile point types without significant stratigraphic separation (Funk 1976:293);

3) "The various Middle Woodland ceramic types were intermixed with Late Woodland types in all the 'humus' zones" (Funk 1976:293).

Thus, according to Funk, "...there would seem to be little basis for predicating a complex on the evidence from this site" (Funk 1976:293).

In reply to those points, I would argue that Cross's Abbott Farm site report (Cross 1956) makes it quite clear that the cultural deposits at Abbott Farm were highly disturbed. Years of collectors' disturbance, extensive geological test pitting, plowing, prehistoric human and natural depositional disturbances and slope wash from the site's bluff added to the stratigraphic confusion. Official archaeological work began in 1936 by the Indian Site Survey federally funded under the W.P.A. In addition, evidence of plowing, prehistoric human and natural depositional disturbances, and slope wash from the site's bluff, added to stratigraphic confusion. The sand layers in which most cultural material occurred was believed deposited onto the site by flood waters of the Delaware River or by changes in the course of a tributary. As Funk observed, there was physical stratigraphy at Abbott Farm; however, this separation of soils and gravels had little to do with the site's sequence of aboriginal occupations.

As examples of this non-uniformity and artifact mixing: first fragments of possible Paleo-Indian fluted points were found in stratigraphic association with ten Middle Woodland period net-impressed potsherds. Second, bifurcate base points recognized in the literature as Early Archaic diagnostics and normally expected to be found at the lowest stratigraphic level, were recovered from the surface downward in association with Late Woodland period Levanna and Madison points. Adding to the stratigraphic confusion was the odd vertical distribution and contextual association of ceramics discovered within the same excavation. Mixed within five of the excavation pits at the site were Early Woodland period Vinette 1, Modified Vinette Net-Impressed (similar to Middle Woodland Windsor North Beach Net-Impressed). Abbott Zoned Incised, Abbott Zoned Dentate, Abbott Zoned Net-Impressed, and Late Woodland period East River Cord Marked sherds. In short, the mixing of cultural materials cited in the Abbott Farm site report suggest that caution should be used in interpreting the site's stratification.

On the plus side, besides providing a primary means of determining the geographical distributions of the cultural material under investigation in this study, Cross' report on the Abbott Farm contained the first available descriptive catalogue of a pottery series and lithic artifacts morphologically comparable to those occurring on coastal New York sites (Cross 1956). While Cony projectile points and Abbott zone-decorated pottery were recovered in quantity at Abbott Farm and in substantial numbers in coastal New York, no inference was made by Cross or myself intimating that this assemblage constituted the defining assemblage of a cultural entity in New Jersey or in coastal New York. Just as I labeled the so-called "Steubenville" points as Cony so that they might be recognized morphologically wherever collected, my adoption of the term Abbott Complex was based on the nomenclature given the Abbott ceramic series by Cross and archaeological evidence of similar vessels and argillite point types found in context at coastal New York sites.

Thus, I would suggest that the validity of my use of the Abbott Farm diagnostic complex in reference to Middle Woodland coastal New York sites has been misinterpreted. Furthermore, I believe that my overall theory as to the intrusion of a migrating group from the Delaware River Valley into coastal New York sites during the Middle Woodland has been underestimated and devalued.

The Evidence

To test the hypothesis that Cony points and Abbott tradition ceramics were part of a Middle Woodland, coastal New York assemblage, more that two dozen sites in Pelham Bay Park, Bronx County, were examined. These included three excavated sites: the Milo Rock Site (Lopez 1958:127-42); the Cherry Orchard Rock Site (Kaeser 1965:10-19); and the Archery Range Ossuary Site (Kaeser 1970:9-34). All three were Late Woodland period (East River tradition) sites, and none produced evidence of Cony points or Abbott ceramics.

Twenty-three additional sites had undergone salvage recovery efforts (Kaeser 1968:15, Table 1). Although these sites were disturbed, they retained sufficient integrity to document the sequential evidence of occupation. All were multi-component. Seven produced distinctive Bowmans Brook and Clasons Point phase ceramics and triangular projectile points typical of the Late Woodland, East River tradition (Ritchie 1965:xxx-xxxi; 268-72), but no evidence of Cony points or Abbott tradition ceramics. This negative evidence strengthened the argument that Cony points and Abbott ceramics were not Late Woodland traits. By contrast, three of the sites that produced Early to Middle Woodland Windsor tradition ceramics also produced Cony points. Thirteen of the sites produced both Middle Woodland Windsor ceramics and Abbott Zoned wares. Cony points were recovered from five of these sites. On several, the uppermost level of midden contained Late Woodland period, East River tradition pottery and lithics. In sum, the twenty-six sites examined in the Pelham Bay Park area provide convincing evidence that Cony points and Abbott Zoned

ceramics can be dated to the Middle Woodland period in coastal New York, and the fact that these aberrant ceramics and points occur together in coastal New York sites suggests the possibility of a new group of people in the region.

During this same period, William Ritchie conducted excavations on a series of similar, stratified shell midden sites on Martha's Vineyard, Dukes County, Massachusetts. His initial findings published in 1969 provide an important comparison with the Pelham Bay sites. Most important was the Cunningham Site where he documented the distribution of "Steubenville–like" points well into southern New England. He noted that five"Steubenville-Stemmed" points were found in Stratum 3 at the Cunningham Site; all were made of local felsite and associated with a wide range of grit and shell tempered ceramics. No zone-decorated pottery, argillite, or other Abbott Complex traits were reported (Ritchie 1969:109-112). Most significant, Stratum 3 at Cunningham yielded a C^{14} date of A.D. 400 ± 80 (or 1550 B.P.), clearly associating "Steubenville-like" stemmed points with the Middle Woodland period for the first time (Ritchie 1969:122-23). A more recent study has documented the widespread distribution of these points throughout southern New England (Moore 1997).

Ceramics

To correct Funk's assertion that cord-marking was not mentioned by me and that it was a minor type at Abbott Farm (Funk 1968:293), exterior cord-marked sherds composed over 27% of the total identifiable sherd collection (28,911) at Abbott Farm. At the Oakland Lake site, Queens County, New York, where stratigraphy seemed intact, exterior cord-marked was the dominant ceramic treatment representing 35% of the total collection of 1,064 identified sherd recoveries (Kaeser 1974:7, Table 1, Figure 2, 9). At the Morris Estate Club Site, Bronx County, New York (Kaeser 1963:13-20), and Oakland Lake Site (Kaeser 1974:1-29), viable evidence of soil and cultural stratigraphy was presented. Although Morris Estates' yield of cultural material was small, it produced evidence to clarify the questioned stratigraphic sequence of the cultural assemblage recorded at the Pelham Boulder Site excavated in the early 1950s (Lopez 1956).

It is also apparent that the value of temper in ceramic typological identification has been underestimated, overlooked or ignored in many reports emanating from northern New York State. Temper has proven to be one of the more useful technical features by which to identify pottery and often affords clues to the source of manufacture (i.e., Muscovite mica) and can indicate the relationship between types. Pottery made in widely separated places and in different time periods can appear indistinguishable in surface appearance, while differences in temper can show up in the paste. If an x-ray diffraction analysis could be made of zone-decorated vessel sherds recovered from upstate and coastal New York, it might also be possible to match the fingerprints of the clays, especially the impurities in it, to determine the clay sources utilized by the aboriginal potters and possibly aid in discerning prehistoric routes of trade and cultural influence among peoples of different cultural compositions.

Of special note, shell temper is found to be a minor ceramic aplastic in all western coastal New York Woodland period culture phases. Shell temper, however, gains in favor during the Middle Woodland period, coinciding with the introduction of the Abbott ceramic series into coastal New York. At the Oakland Lake Site, all 243 specimens of Abbott Zoned Net Impressed were shell tempered; by contrast, of 85 Windsor North Beach Net Marked specimens recovered, only 2 were shell tempered. The Oakland Lake Site recoveries are comparable to the 1930s Abbott Farm Site potsherd temper-type inventory which totaled 29,585 specimens. For Net impressed specimens (total of 9,536): 32% were shell tempered; 27% were leached, probably shell; 47% were crushed quartz and Muscovite mica. The 215 Abbott Zoned Net Impressed specimens were tempered with shell and grit in near equal proportions. Of 1,455 Abbott Zoned Incised specimens, 20% were shell tempered, 60% leached, and the remainder, grit tempered.

The ceramic type Abbott Zone Dentate is typically tempered with crushed quartz and Muscovite mica. Mica is extremely rare as a ceramic temper or found in its raw state on Middle Woodland period sites in the Mid-Atlantic region. This material used as an aggregate in Abbott Zoned Dentate vessel manufacture at the Abbott Farm site and in coastal New York specimens, was presumably procured from southern Pennsylvania sources and has been recovered from storage caches at Abbott Farm and in a Windsor North Beach phase context at the Morris Estate Club site, Bronx County, New York (Kaeser 1963:13-20). The significance of the Abbott potters' traditional use of shell temper is even more striking when the distance involved in collecting the raw shell and the effort of its transportation to the Abbott Farm Site is considered. If the shell temper is identifiable as a fresh water species, then the effort of transportation is almost completely eliminated.

Funk also states that, "...the presence of early Windsor ceramics in addition to Abbott types on the components described by Kaeser clearly sets the coastal New York manifestations apart from the Abbott series (Funk 1976:293)." With this statement I fully agree. Funk's non-acceptance of an Abbott Complex based on coastal New York's archaeo-

logical presence of coincidental indigenous Windsor, and aberrant Abbott ceramics, does not discount, but actually complements my hypothesis that the Abbott Complex was not a phase or off-shoot of any indigenous Windsor group who occupied coastal New York. The evidence adds up to a Middle Woodland period complex that produced distinctive ceramics and lithics, characterizing a separate culture entity, distinguishable from all others occupying the region.

Argillite and Jasper

Of a total of 334 Cony points selected in a survey of the Museum of the American Indian, Heye Foundation collection, representing specimens from all seven counties of coastal New York, 206 were made of argillite, and 128 of jasper and locally obtainable stone. It is evident that Fox Creek-Cony points were manufactured in accordance with a fixed set of standards regardless of the material available. Funk notes that local flints predominate in the manufacture of Fox Creek points in upstate New York, and argillite from the lower Delaware Valley and jasper also occurs. The jasper he cites probably derived from quarries at Vera Cruz, Macungie, or Durham in Bucks and Lehigh Counties of Pennsylvania. The latter bit of data leads the researcher toward a southern source for these exotic lithics, thus provoking the question, why would it be necessary to transport argillite and jasper over such long distances when fine quality flints were readily available?

Likely explanations for the archaeological presence of the argillite and jasper points in New York would be either their transport into the region as finished implements by a migrant group, or as articles of trade brought in from a distant source. The migrant theory is most easily envisioned. If the migrants established themselves in upstate and coastal New York for an extended period of time, their distinctive tools would, of necessity, through loss or breakage, be replaced using local materials, thus continuing their role in the manufacture of these items. A resort to the use of local flint material applies to a lesser extent on coastal New York component sites where the source of argillite and jasper is not constant.

The Fox Creek Phase

The Fredenburg Site, Otsego County, New York and the Westheimer Site, Schoharie County, New York provided the data for the identification and elucidation of a Fox Creek phase by Funk (Funk 1976:290). At Westheimer, his type component of the Fox Creek phase, Stratum 3, presented the centers of aboriginal activity such as hearths, debitage and refuse. Just as the Pelham Boulder Site excavation in coastal New York indicated an Archaic to Late Woodland sequence of occupations within a homogeneous appearing midden stratum, the Westheimer features might conceivably mark a single season's habitation, or sequential human occupations, causing sub-surface mixing and stratigraphic intrusions spanning centuries. Artifacts contained within a pit are not necessarily the manifestation of a single component. This phenomenon was clearly seen at Abbott Farm. Pits left by previous occupants can be incompletely eradicated by natural slumpage and normal soil accretion. Reoccupation of the site could introduce new cultural materials and that of much earlier occupants into the feature.

The lithic artifact inventory at Westheimer, Stratum 3, lists Petalis Blades, Green Points, Fox Creek Stemmed Points, two Fox Creek Lanceolates, untyped side notched and stemmed points, miscellaneous scrapers, drills and "rough stone tools." Seven of the eight untyped projectile point forms illustrated (Funk 1976:Plate 4, Fig. 27-29, 31-34), can be provisionally identified and assigned chronologically: five Archaic and two Middle Woodland (Fogelman 1988). Pottery recoveries from Westheimer, Stratum 3 are a typological mixture of net marked, zone incised, cord-marked, dentate stamped and rocker stamped.

Another site inferred by Funk as a Fox Creek component, the Fredenburg Site (Hesse 1968:27-32) excavation profile (Plate 1:28), illustrates an almost identical shallow midden situation commonly encountered at coastal New York shoreline sites which, through the centuries, have been altered by natural agencies and human intrusions. Within a 28 in deep pit, Feature E, eight Fox Creek stemmed points and 184 potsherds of net-impressed type, and miscellaneous lithic tools were recovered. These artifacts, if confined within a pit, can only be provisionally evinced as a contextual assemblage, and do not constitute a closed or single component site designation worthy of a identification as the "Fox Creek phase." Though the evidence set forth was suggestive, the hypothesis postulated from it is tentative and should be stated as such.

Also recovered within Fredenburg's approximate 30 ft cultural zone, in a 9 in to 12 in thick midden stratum through which the pit Feature E intruded, were unclassified dentate and plain potsherds and untyped projectile points of probable Archaic provenience, listed as follows:

- 12 constricted stemmed points
- 16 expanded stemmed points
- 4 side notched points
- 12 basal point fragments

Neither Funk nor I can be faulted for our efforts to assign the previously termed "Steubenville" points to a more acceptable Middle Woodland period. Whether Funk's Fox Creek Stemmed Lanceolate was accepted or my Cony

Stemmed-Cony Lanceolate morphology was rejected too readily is not debated here. It is evident that Fox Creek as a name for the bifaces has been generally accepted, although in my opinion this is unsupported by archaeological evidence, and has been too generally adopted in recent site reports and on collection labels.

Conclusions

Archaeological excavations examined throughout New York State, to my knowledge, show no technological material or cultural development within the Middle Woodland period that produced pottery that even vaguely compares technologically or aesthetically with Abbott zone-decorated wares. Such a transition, if actual, was not gradual, but quite abrupt.

Neither can the adoption of the comparatively cumbersome Fox Creek-Cony stemmed or lanceolate points be interpreted as being more efficient to produce, or as being transitional "descendents" of Early to Middle Woodland period bifaces such as Adena, Calvert, Jacks Reef Corner Notched, Meadowood, Rossville, Erb Basal Notched or the late Middle Woodland period diagnostic, Jacks Reef Pentagonal point.

Wherever the Fox Creek-Cony points and zone-decorated pottery are found in New York, they have been readily seen as aberrations, showing no convincing cultural link, recognizable influence, or continuity in form when compared to the manufactures of the indigenous inhabitants. If this observation is valid, then the question arises, who were the progenitors of Funk's Fox Creek Phase and from whence did these people come?

The evidence presented here from coastal New York archaeological excavations and collection surveys prompts the definition of the Abbott Complex as the manifestation of a distinct cultural entity. Although Abbott material traits are few, they are distinguishable from site to site and can be considered as Middle Woodland period horizon markers for coastal New York and where evident within the Mid-Atlantic states.

As yet, no evidence of conflict has been recorded archaeologically at any Middle Woodland period site known to the writer. This suggests a plausible hypothesis of a common interactive lifestyle whereby shellfish collecting sites were mutually shared or alternatively occupied by Windsor and Abbott groups. No evidence is available to suggest that the immigrant Abbott people dominated, absorbed, transformed or replaced the locals or the other way around.

Since there is no recognizable evidence to imply that remnants of the Windsor or Abbott cultures survived into the early Historic period, it is thought that the Windsor-Abbott dual mode of site occupation continued until the Late Woodland period entry of the East River Complex into coastal New York. Archaeology demonstrates that East River people established themselves on many of their Windsor-Abbott predecessors' shellfish collecting stations, occupying them through the late Woodland and Historic periods. The new occupants, like their Windsor predecessors, took advantage of the bay and tidal marsh resources and possibly those of the inland forest during their seasonal collecting and hunting rounds.

The interpretive nature of archaeology can generate divergent explanations based on the same or similar data. Since Dr. Funk and I worked on the same problem, albeit from different directions, it is not surprising that we each came up with different interpretations. Without question, there is a significant overlap in the proposed traits for the Middle Woodland Abbott and Fox Creek complexes. However, there also appear to be important differences between the coastal manifestations and those of the interior. My concern is that, with the general acceptance of Funk's Fox Creek terminology and its use in describing all Middle Woodland period sites in the region, these important differences may be obscured or lost.

Acknowledgements

Professionals and avocationals involved in coastal New York archaeology have been guided by the contributions of Carlyle S. Smith in coastal New York (1950) and Dorothy Cross in New Jersey (1956). Their research has resulted in a wealth of primary sources never before accessible to regional prehistorians or the general public.

Despite shortcomings in establishing a perfect cultural chronology for the Mid-Atlantic region, a near impossibility in the discipline, they dissected the chaos of artifact collections often *sans* context, the aid of computers, staffs of technicians, or the dating methods accessible today. They produced the seminal, landmark papers that have in large part survived the decades and become the research classics of coastal New York archaeology.

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A Late Woodland Double Indian Burial at College Point, New York

Ralph S. Solecki, Metropolitan Chapter, NYSAA, Columbia University, New York

A double prehistoric Indian burial dating from the Late Woodland period was found at Graham Court in College Point in 1934. It was one of several prehistoric Indian burials reportedly uncovered by workmen and chance collectors. No record of these reported findings has been found. The burial pit appears to have had prior uses as a fire pit and a storage pit, as well as a final trash pit. The burials were found in the upper layer. it is possible that the pit saw intermittent, possibly seasonal, use.

This is a report on a double Indian burial which I excavated in 1934. The site was at Graham Court, College Point, New York (Figure 1). The burial, in what had been a storage pit (Figure 2), in addition to the skeletons, yielded some interesting finds, including two ceramic vessels. One of them is illustrated by Carlyle S. Smith (1950) in his publication. The circumstances and the context of the finds, however, were never described. I had written a report for my own record which I had shelved among other papers up to this time.

Finds of Indian burials in New York City are very few, and usually poorly documented (Cantwell and Wall 2001:96-97). The excavations of burials at Throgs Neck and Clasons Point, across the East River in the Bronx from College Point (Skinner 1919), and later by E. Kaeser (1970) in Pelham Bay Park yield much in the way of comparative data with the apparently contemporary Graham Court burials.

Site Description

The site is located in a part of the town of College Point, Queens, identified as Graham Court, an east-west street dead-ending on the eastern shore of Flushing Bay. North Beach Airport, now LaGuardia Airport, is a mile away across Flushing Bay to the west. From College Point to Clason's Point across the East River, really a strait or an arm of the Long Island Sound, is over two-thirds of a mile away. The area was lightly wooded with either a second or tertiary growth of trees. and an unobstructed view of the bay. The site was on a bluff rising steeply about 20 ft above the sandy shore (Figure 3). The bluff showed heavy erosion. There was a thin scatter of marine shells sprinkled in the top few inches of the bluff. The property was once part of the old E. Platt Stratton estate situated on old 8th Avenue, now 25th Avenue (New Series Atlas of the Borough of Queens, City of New York, V. 3, 1926). Nearby, to the west of the Stratton estate, was the residence of Captain J.Graham, just south of 9th Avenue (now 25th Road).

Archaeological Investigations

My investigations were limited to occasional week-end day inspections, and could be called salvage archaeology. I was then 16 years old, but had four years of experience researching local archaeology. My resources were very limited. I had to use public transport for distances longer than a bike ride. The investigations at College Point spanned five years between 1932 and 1937, when the Graham Court site was closed for building operations. A nursing home was built on the site. I had originally learned of the College Point Site through the works of Bolton (1922), and Parker (1922), who mention it as one of the archaeological sites in Queens County. Parker (1922:672) mentions that there was an Indian village and a burial site on the E. Platt Stratton estate. Skeletons were found in 1861 during foundation excavations for Knickerbocker Hall. On his map he shows archaeological remains along the shore at College Point, extending down to the mouth of the Flushing Creek. This was very promising, except that with the rapid construction activity in the area, the information was probably well out of date.

My first visit to the College Point Site was in 1932. This visit and subsequent ones in 1933 were mainly surface surveys. The scope of my surveys and test excavations also took in the area in the vicinity of Graham Court and all along the beach line. I had first concentrated on investigations in 1932 in the southern part of College Point in an area called Grantville, the home of Mathew Schreiner, who was likewise interested in local prehistory. He became our friend in the field for many years up to the time of his death.

I was prompted to make further investigations at College Point in 1934 by a newspaper report. There was a sensational piece in the New York Daily News (March 29, 1934) of the find of a human skeleton at Graham Court. It was made by some Civilian Works Administration workers.

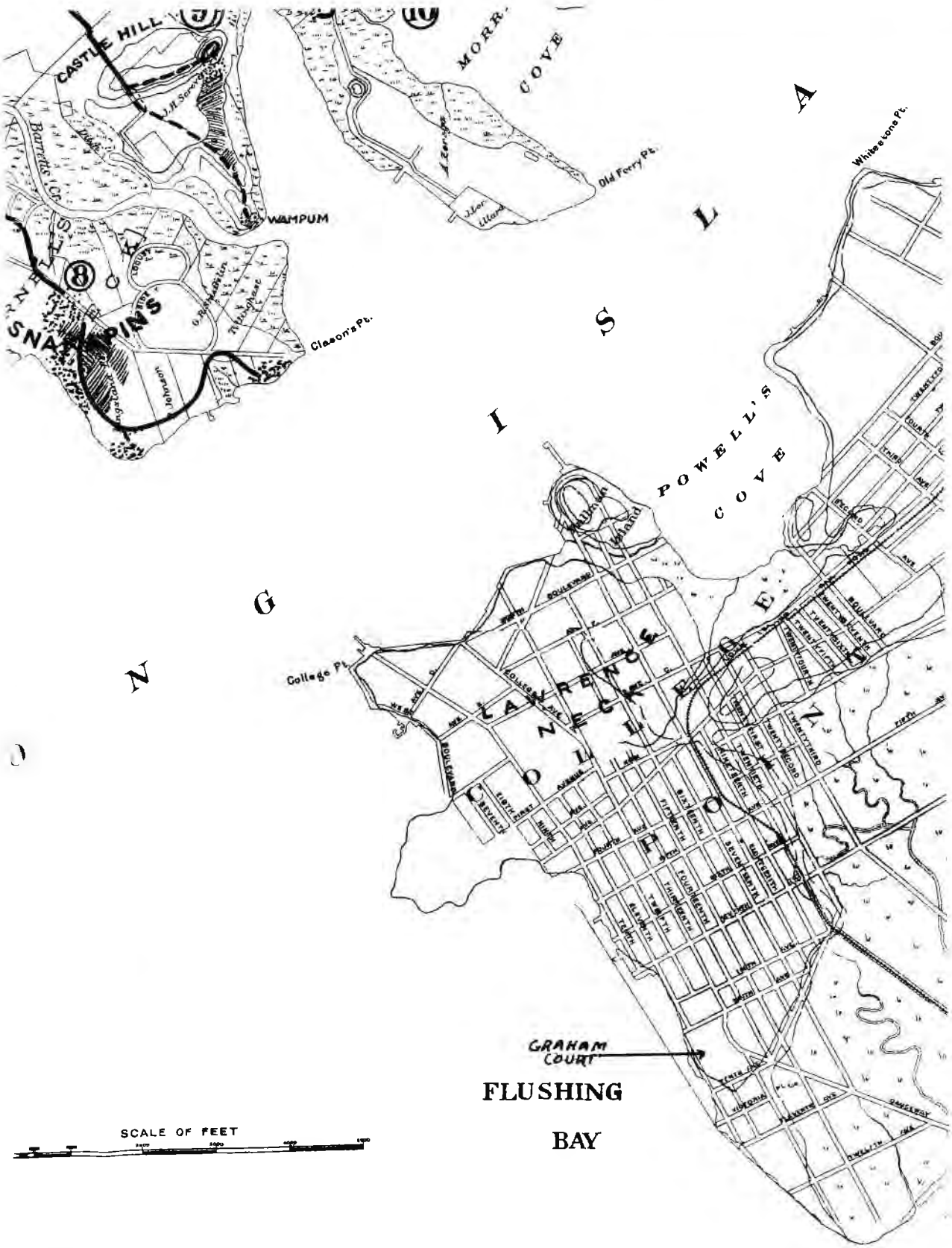

Figure 1. Map showing the location of the College Point burial site at Graham Court (After Bolton 1922)

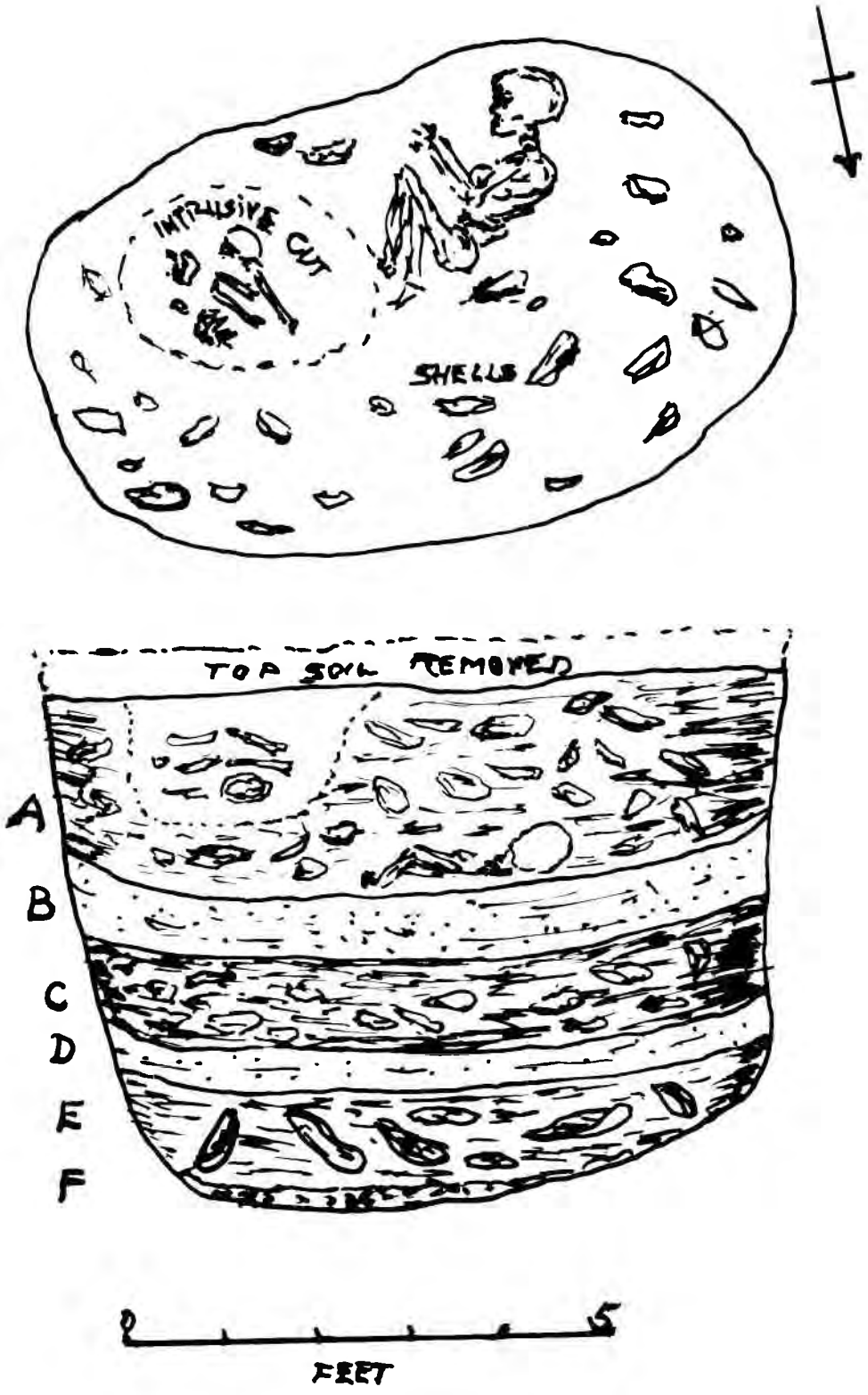

Figure 2. The burial pit at Graham Court (drawn by the author).

...e 3. The steep bank facing Flushing Bay at College Point The burial site is a few yards in from the rim of the bank (photo by the author)

...ppeared that in grading Graham Court (26th Street) ... ...een 121st and 122nd Streets, the workers encountered a ...rming human skeleton. The police were called in, and ... ...es from Flushing came to the scene to take charge of ... ...eletal remains. These were taken to the Queensboro ... ...gue We can only imagine what became of them after ... The author of the newspaper article speculated that the ... ...eletal remains might have been that of a slave, because the ... ...er of the property, Captain J. Graham, was thought to be ... ...e runner. There was nothing left to be seen at the site ... ...ept for some scattered marine shells, some disturbed ... ...and the remains of a brick construction which may ... ...e been a wine cellar.

...subsequent visit the same year to the Graham Court ... ...as more productive. The topsoil had been skimmed ... ...from the surface, down to the sterile loam, revealing ... ...f shell pits. I later learned that the topsoil from this ... ...was trucked out to the Flushing Meadows for the ... ...ds of the 1939 World's Fair Grounds. With a home- ... ...colleague, Stanley Wisniewski (Figure 4), from ... ...Queens, I explored a number of shell pits and ... ...dark oval areas, possibly "wigwam" sites at Graham ... ...1934. He also helped with the excavation of the ... ...the last day of the work.

Later the same year, on one of my inspections on August 5, 1934 of the Graham Court site, I noted what appeared to be the top of a disturbed shell pit (Figure 5). It was about 365 ft west of 112th Avenue (the old College Point Causeway), in line with Graham Court (Figure 1). The surface of the shell pit showed signs that it had already been shovel tested by someone. Marine shells from the pit had been thrown out of the shallow excavation. I initially assumed that the person had partially excavated the contents of the pit, and then filled it in again. This appeared to be discouraging. But I thought a record of the pit's existence should be made. In order to check its measurements, I began to clean out the disturbed fill. Some loose bones, the toe bones of a human skeleton turned up in my clearing work. Continuing with the excavation, more loose bones, those of an adult human skeleton were found. The shell pit was roughly oval in shape, measuring about 8 ft long and 5 ft wide in maximum dimensions. When finally excavated, the pit bottom was reached at a depth of 5 ft 3 in (Figure 2).

It soon became apparent that only the first two feet of the pit contents had been disturbed. In my cleaning operations, I was surprised to come upon several human bones scattered throughout the disturbed soil. These were apparently uncovered by the unknown excavator, who for some

Figure 4. Stanley Wisniewski excavating in the base of the burial pit in 1934 (photo by the author).

Figure 5. Marks of an exploratory cut into the top of the burial pit by unknown persons (photo by the author).

reason appeared to have quit his explorations, possibly because he realized that he had stumbled upon human skeletal remains. Putting these bones carefully aside, I enlarged the pit by excavating into the undisturbed side at the northern end of the pit. There I recovered two large potsherds, which later proved to be the major portion of the vessel (Figure 6) illustrated in Smith's (1950 Plate 8, Figure 9) publication.

In another part of the pit which seemed to be untouched, I exposed the leg bones of a second adult human skeleton. It lay about 23 in from the pit surface (Figure 2). The skeleton was complete. It lay in a flexed or fetal position on its right side. The feet and legs were drawn up close to the chest, and the hands were in its lap. The face of the skull was to the southeast. It was crushed, probably due to the weight of the bulldozer in doing its work of stripping away the valuable topsoil. The teeth and jaws were in good condition, probably belonging to a young mature adult. The sex was not determined. No obvious caries were noted on the teeth. A potsherd of the same vessel recovered earlier was found about 8 in below the leg bones. It probably had nothing to do with the burial.

In enlarging the pit deposits closer to the pit surface, I found the disturbed bones of what I assumed to be the rest of the first human skeleton. They were found mixed together in the earth with marine shells and stones in a confusion of material. Parts of the cranium, broken jaw bones, teeth, and other bones were found scattered in the fill of the badly disturbed portion of the pit. No more pieces were found of the large pottery vessel. It is possible that the original excavator of the pit had collected the missing parts and then quit work. However, pieces of the smaller undecorated pottery vessel or cup were found on the same level with the larger vessel.

On further excavation in depth, it was discovered that the burials had been laid together in the top layer of the layers distinguished in the pit (Figure 2). The sediment in layer (A) was a dark brown mixed earth. Its contents included marine shells, many of which were oyster and clam shells. The layer was about a foot thick. The artifacts recovered from it included: pieces of two broken clay vessels, a mica schist notched pebble (netsinker?), and four ordinary waterstones. The next layer (B) consisted of a covering or lens of sterile yellow loam, similar in nature to the subsoil of the area, about 8 in thick. From its appearance, I had thought I had reached the base of the pit. However, a test probe revealed that there was another culture layer or deposit under the loam. This layer (C) was black with charcoal fragments and ashes. Ceramics of different type than those found in layer A were recovered. Seven cut bird bone beads measuring about 1.5 in long and about 0.25 in in diameter. Large bored or holed aboriginal clay pipe stems measuring about 1.75 in long, two other fragments of an aboriginal pipe bowl with a stamped decoration, and four grey chert flakes were recovered from Layer C. In the same layer was found a stone of mica schist which had opposed notches. This was probably a netsinker. Non-cultural materials included two jawbones of a large carnivorous animal such as a wolf, a crab claw, and a fragment of what looked like charred corn were also found in the same layer. The third layer (D) in the pit, like Layer B, consisted of the same yellow sterile sediment about 3 inches thick. Again, I thought that this surely was the base of the pit, because the soil color and texture matched the color and texture of the pit walls. Just to be certain, I put a test probe into the yellow sediment, discovering that there was still another cultural horizon (Layer E) below the yellow loam. In Layer E, which was about a foot thick, were found thickly packed together numerous marine shells, consisting mainly of large oyster shells, hard clam shells, mussel shells and others not identified in the field. The columellae of some whelk shells were also recovered. I thought that the whelks, like the clams, had been broken open for the food and not for wampum manufacture. Among the artifactual remains were several potsherds, animal bones, stone flakes, as well as two limonite concretions which may have been "paint stones." The next layer (F) proved to be composed of burned red earth and stones. Evidently this was the true bottom of the pit, which was somewhat incurvate at the base. Layer F was several inches thick. A test through the base of this layer yielded only sterile yellow loam. Evidently this was the true bottom of the burial pit.

It is likely that the two lenses of sterile yellow loam (Layers B and D) evidence abandonment of the pit, and that the loam came from the sides of the pit as cave-ins. The other alternative was that the yellow loam was purposefully thrown in as a cover over garbage debris. In the first case, it may be suggested that a natural fill of yellow loam accumulated in the pit at the end of a seasonal round of occupation. In the second alternative, two purposeful fills of yellow loam, may be reflective of a desire for a more sanitary condition of the site. This is considered as a remote possibility. The evidence of fire at the base of the pit (Layer F) may have been the result of the cleaning of camp hearths, in which ashes and charcoal were dumped into the hole. Alternatively, the fire remains could have been the result of a deliberate burning at the base of the pit. This was done in order to dry out and solidify the sides and base of the pit in order to use it for food storage (Kraft 1986:139.141: Figure 34c) or cache pit (Ritchie 1944:64. Figs.1. 2). As to what may have been stored in the pit, we may suggest corn. We have evidence in the form of a charred corn kernel found in the pit.

Unfortunately, no study of the physical remains from the burial pit was made. We have lost track of what became

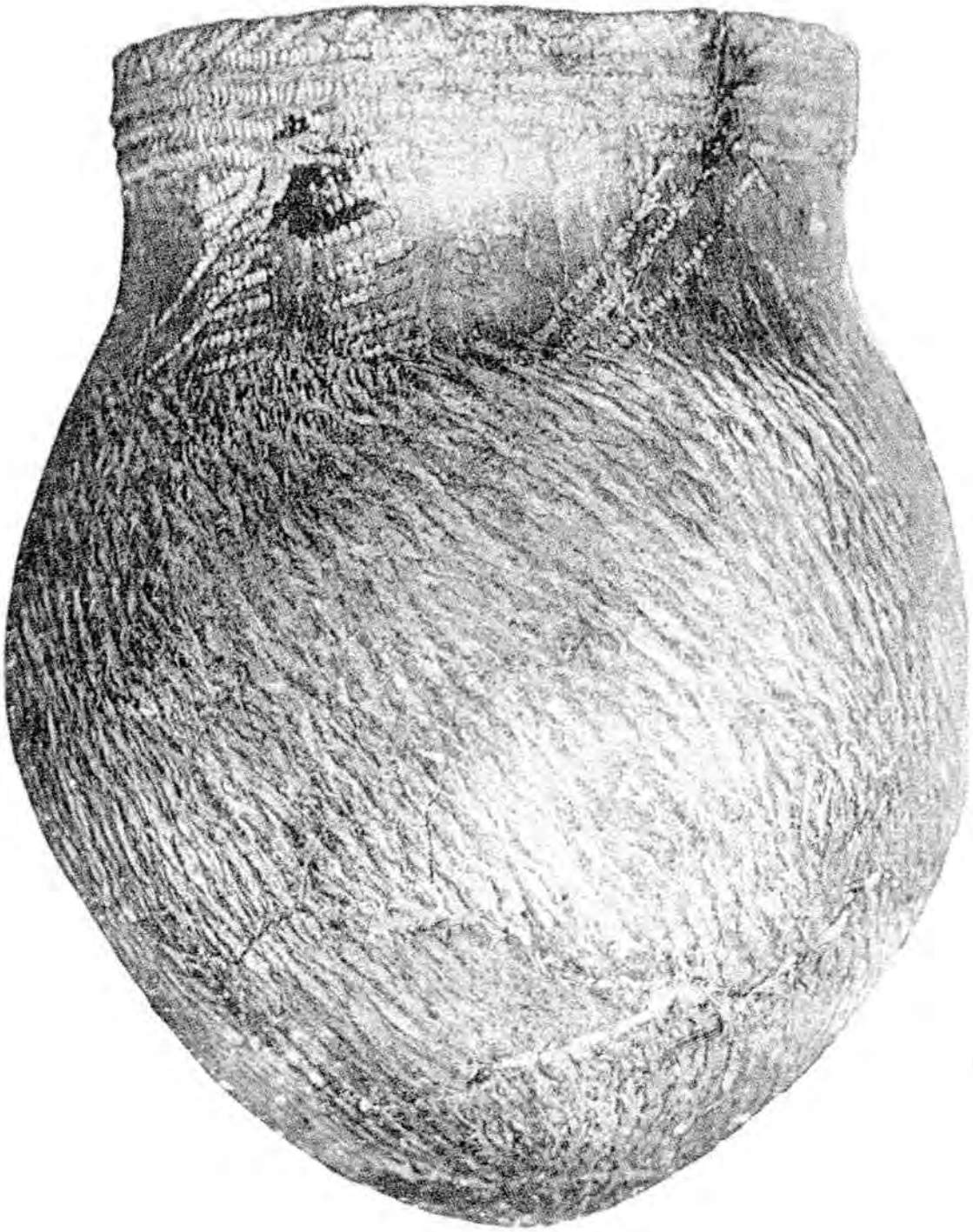

Figure 6. The Late Woodland vessel recovered from the pit (photo by Carlyle Smith).

of the human skeletal remains. Perhaps we could not keep them anyway, because of NAGPRA. I recently tried to deposit some Indian skeletal remains with a couple local museums, but was told that they could not accept them, evidently because of the prohibition. We can only guess how many Indian skeletons were found on the E. Stratton estate.

As with the Indians in the Bronx, the Graham Court deceased were apparently buried without any rituals or burial goods accompanying them. This is one of the hallmarks of the Late Woodland period. As Ritchie (1980:172) comments on the Clasons Point burials, the flexed corpses of the dead were simply placed for burial in a "convenient" storage or cooking pit. It may be significant that the College Point burials were placed in the upper part of the pit, as a secondary use of the feature.

From the character of the artifactual remains and the circumstances of the burials, we are fairly certain that the burials were made during Late Woodland times. Notable among the distinguishing traits for this period are the bone awls, the ceramics, the presence of the corn and the absence of burial goods, and the method of burials in the flexed position.

The corn evidence shows that the occupants of the site practiced some form of agriculture as part of the food economy. This may have been the beginning of the subordination of their sole dependence upon hunting and fishing activities in favor of agriculture.

A number of the artifacts from College Point, along with other Long Island artifacts, were put on display at the Flushing Library in Queens. We have an unconfirmed report that when the library was modernized, at least some of the museum material was taken over by the Queens Historical Society. Carlyle Smith (1950:175) notes that the collection had been deposited with the Rochester Museum of Arts and Sciences for "future study." When I was associated with the Smithsonian Institution, I gifted the two pottery vessels, the bone beads and other artifacts from the Graham Court, College Point grave pit to the Smithsonian National Museum (Accession Numbers 411524, 411515).

In his publication Smith (1950) identified the larger of the two vessels from the burial pit as belonging to a type he called "Van Cortland Stamped" of his "East River Ceramic Group." The type site for this pottery Smith finds in the Bronx where such ceramics were recovered in earlier archeological investigations by Skinner (1919) in the vicinity of the East River at Throgs Neck and Clason's Point. This compares quite closely Ritchie's (1980) Castle Creek Phase of the Late Owasco in upper New York State. Kraft (Figure 35c) illustrates a vessel he identifies as Oak Neck, which looks remarkably like the Graham Court vessel. These vessels belong to the prehistoric culture called Late Woodland, dating between about 1,000 A.D. and 1,600 (Kraft 1986:116). This is in agreement for the placement of the Late Woodland by Ritchie (1980:Figure 1), and this is at variance with the dating given for the Late Woodland (1,000-400 B.P.) (Cantwell and Wall 2001:93). No radiocarbon dates were obtained through our excavation; at the time of my investigations, this dating technique was not yet discovered.

The larger of the two vessels stands about 8.5 in high, with a circular mouth about 5 in in diameter. The maximum diameter of the body is about 6.5 in. and at the neck measures about 4.75 in. The vessel had a capacity of about one-half gallon. It is dark grey in color, with dark "firing" clouds. The exterior of the vessel is cord-marked and the interior is smoothed. It is grit tempered. The body is globular in shape, with a neck ending in a thickened rim. The body is marked with a cord-wrapped paddle overall in a criss-cross manner. The paddling was carried up just to the neck, which was smooth surfaced. The neck was decorated with a series of diagonal cord impressions which were evidently applied singly. These impressions extended between the body proper and the collar. The collar had a decoration of four encircling bands of diagonal cord impressions evidently applied singly on wet clay. There was space between the top of the upper encircling band and the lip of the rim. On the latter a series of diagonal single cord marks were impressed, evidently one by one. The bottom of the vessel, which carried the marks of the cord-wrapped paddle, was round. The vessel could not stand upright without support, and must have been set among supporting stones on the hearth. The vessel was broken in several large fragments. Practically all of the pieces, save for a small section near the base, were recovered.

The smaller vessel from the same burial pit was more like a cup. It measured about 4 in high, with a mouth about 2.75 in in diameter. The walls of the vessel were straight sided. The maximum diameter of the body was a little over 3 in. It was grit tempered. There was a double constriction at the rim, as if it had been pressed out from the inside against a constricting circular band. The vessel body had been roughly smoothed. The interior was smoothed. The only decoration, if we can call it that, were the constricting bands at the rim

Interpretations

What we have at Graham Court is an extraordinarily deep pit, which must have taken its diggers considerable effort to excavate with what tools they had, possibly wooden spades and large marine shells. Other pits found at the site were generally shallower, about a couple feet deep. The Graham Court pit was obviously not dug originally as a burial pit because only the top layer contained the burials. Layers C and D contained refuse debris from household use. The

bottom Layer F contained evidence of fire with burned soil, ashes, and charcoal flecks. The burned soil is positive evidence that it was an *in situ* burning. In all likelihood the pit was originally a storage or cache pit, which was later turned into a refuse pit, and finally a convenient place for the burials. Ritchie (1944:64, Figure 2) illustrates a cache pit with a secondary use for a flexed burial. There were remains of burning at the bottom of this pit, as with the Graham Court pit.

Layers B and D, the sterile loam deposits, were probably natural fills fallen from the sides. They may mark a seasonal hiatus in the site's occupation when the local Indians went on a seasonal round.

Of a number of other finds made on the Graham Court Site by other investigators, the triple Indian burial pit is most informative. A number of other pits and a dog burial, were discovered by (Lopez and Wisniewski 1958) several yards away at the Graham Court Site. Aside from this reference and Carlyle Smith's (1950) publication, we have no more pertinent information in print on the Graham Court Site.

It was learned later that William L. Calver, and Leonidas Westervelt, both members of the New York Historical Society's Field Exploration Committee, had made excavations at the site without our knowledge. Both gentlemen were our acquaintances, and were told by us about the skeletal finds at College Point. They had used a steel probing rod to locate shell pits on archaeological sites. Probing through the grassy turf near our burial pit, they found two more shell pits close by our pit, each containing a single flexed human skeleton. It is not known what became of them. Inquiry at the New York Historical Society revealed that they had never received any material or data from either Calver's or Westervelt's investigations on College Point.

Matt Schreiner left his College Point field notes with me; these contain additional data on the Graham Court Site, which will be entered in a planned future publication. There were several other investigators who explored the site, but left no known record. As to how many Indian skeletons were found on the Stratton estate in College Point, we can only hazard a guess. We know that skeletons have been found there according to reports in 1861. In the 1930-50s, we know for certain that at least five had been uncovered by us and others (Civilian Works Administration, Westervelt, and Calver).

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In Memoriam

Alexander B. Neill (1919-2004)

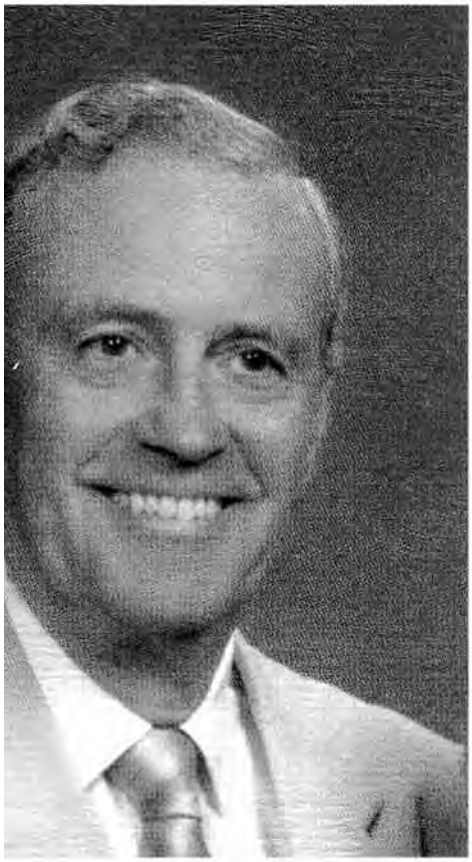

Photo taken in 1989

Alexander Bold Neill passed away on November 10, 2004 in Norwich New York. He was a member of the Chenango Chapter NYSAA, a past President and Vice President of the chapter. He was also an active participant in the Norwich "Wednesday group" devoted to exploring the archaeology of Oneida Iroquois sites in Chenango and Madison Counties. The records he left of that work, and his well-organized collections are a testament to his meticulousness and scholarship.

Alex was born in Montclair New Jersey, graduated from Montclair High School in 1937, and went on to receive B.S., M.S., and Ph.D. degrees in Organic Chemistry from Lehigh University. He was employed at Norwich Eaton Pharmaceuticals from 1951 until his retirement in 1984. He was a devoted member of the United Church of Christ - First Congregational, serving in many capacities. He also served as President of the Norwich Rotary, and was presented the Paul Harris Fellow Award for his outstanding leadership in Rotary's efforts to see that new schools were built in Peru. For many years, he was a member of the Norwich Housing Authority Board, was on the Board of the Rogers Conservation Center, and was actively involved in and supported the Boy Scouts of America. Beyond community service and archaeology, Alex's interests were many and varied; they included history, woodworking, photography, stamp collecting, theater, and travel. He was a "well-grounded person" who enjoyed getting "back to the earth."

Alex's greatest passion and love, however, were for his family—his wife of 57 years, Alice, his sons, Alex, Jr., Jonathan, Ken and Joe, and their spouses, Suzanne, Dianna, Renea, and two grandchildren, Katharine Mathews Neill and Derek Allen Neill. He was a true "gentle-man," treating all whom he met with dignity, grace, and care. He will be deeply missed by his family, friends, colleagues, and all those who were touched by his presence.

Martha L. Sempowski
and Neill family
January 24, 2007

Daniel Weiskotten (1960-2005)

...g-time friend, and member of the Beauchamp and ...ango Chapters, Daniel H. Weiskotten, died unexpect... Richmond, Virginia, May 6, 2005. At the time of his ... he was acting director of the Chesterfield Historical ...ation. While in Virginia, Dan continued his research ...ral New York history.

Born in Cazenovia in 1960, Dan spent most of his life ...tral New York. He served as the Village of Cazenovia ... man from 1983-1989. Dan began his formal higher ... tion when in his late 20's. He received his Associate's ...ee from SUNY Morrisville, a BS from SUNY Albany, ...ng in Anthropology and Public History, and a ... degree from SUNY Albany. Dan served as an ... the New York State Museum, and worked for the ... Archaeology Facility at SUNY Binghamton in ... Resource Management. He worked on CRM ...s in New York, Maryland, Delaware, and Virginia.

Prior to undertaking his formal education, Dan worked ...scaper and in the construction field. His interest in ...logy probably began as a child when he "tagged" ... as his Dad, an environmental educator, pursued an ... in the prehistoric occupants of the area. Eventually, ... developing interest in archaeology led to his ...tion of local Native American sites, as well as the ... early settlers.

During his undergraduate days, Dan worked as a crew ... at Mount Independence, Vermont (Revolutionary ... Roger's Island, Fort Edward, New York (French ... War) sites. His investigations as an avocational ...logist were as precise and accurate as his later work ...fessional. During these years, Dan was able to create ...ously accurate maps, while working singlehandedly ...me-made equipment.

Dan was the first recipient of the William M. ...mp Chapter Scholarship award. He continued to ... the scholarship fund throughout his life, often ...ing with a sack full of change to donate. In his honor, ...larship has been renamed as "The Daniel H. ...en Scholarship Fund."

Dan was very involved in the early development of the ...ango Landing Canal Boat Museum. For two ... he (through the Idyllic Foundation) supervised high school student crews in archaeological excavation or other tasks. It was here that he began the excavation of "the Mystery Foundation" and uncovered an intact, marked stoneware whiskey jug. Not being satisfied with the information available on canal dry docks, he began an independent study of the dry docks on the New York canal system. Ultimately he visited, photographed, and described 50 dry docks.

In his memory, these files, canal related books, and maps, have been given to the museum's Hager Library by his young widow, Jennifer Ley Weiskotten. Dan's work will also live on through the Cazenovia Public Library which will create a special studies collection with his many files. maps, reports, and books relating to the early history of Central New York. Much of his research can also be found on the internet at http://www.rootsweb.com/~nyccazen/

A widely respected archaeologist and meticulous researcher, Dan was happiest when in the dirt. trowel in hand, or debunking historical myths through researching primary historical documents. His early death is a great loss. His enthusiasm and devotion to scholarship will long be remembered.

Barbara and Gordon DeAngelo
January 15, 2007

NEW YORK STATE ARCHAEOLOGICAL ASSOCIATION

ADIRONDACK CHAPTER - QUEENSBURY
AURINGER-SEELEY CHAPTER – SARATOGA SPRINGS
WILLIAM M. BEAUCHAMP CHAPTER - SYRACUSE
CHENANGO CHAPTER – NORWICH
FREDERICK M. HOUGHTON CHAPTER – BUFFALO
INCORPORATED LONG ISLAND CHAPTER – SOUTHOLD
LOUIS A. BRENNAN/LOWER HUDSON CHAPTERKOTONAH
METROPOLITAN CHAPTER – NEW YORK CITY
MID-HUDSON CHAPTER – REDHOOK
LEWIS HENRY MORGAN CHAPTER – ROCHESTER
INCORPORATED ORANGE COUNTY CHAPTER –MIDDLETOWN
INCORPORATED UPPER SUSQUEHANNA CHAPTER – OTEGO
THOUSAND ISLANDS CHAPTER – PHILADELPHIA
TRIPLE CITIES CHAPTER – BINGHAMTON
VAN EPPS-HARTLEY CHAPTER – FONDA

Minutes of the General Business Meeting
NYSAA 90th Annual Meeting
Hudson Valley Resort & Spa, Kerhonkson, NY
April 28, 2006
(Approved October 2006)

Opening:

NYSAA President, Louise Basa called to order the regular meeting of the General Business meeting at 7:10 pm on April 28, 2006.

Present:

Officers Present:
***President*, Louise Basa; *Corresponding Secretary*, J. William Bouchard, *Recording Secretary*, Lori Blair; and *Treasurer*, Carolyn Weatherwax.**

Chapter Roll Call:
***Present:* Adirondack, Auringer-Seelye, William M. Beauchamp, Chenango, Frederick M. Houghton, Lewis Henry Morgan, Incorporated Long Island, Incorporated Orange County, Thousand Islands, Triple Cities, Van Epps-Hartley.**

***Absent:* Finger Lakes, Louis A. Brennan/Lower Hudson, Metropolitan, Mid-Hudson, and Incorporated Upper Susquehanna.**

A. Reports of the Officers

President: No formal report. Louise stated that this will be her last year as president.

- **While NYSAA has grown in terms of chapters (with addition of Finger Lakes Chapter), the drop in membership needs to be addressed.**

on File.

$12,974.01

$7,219.59

$17,060.02

$37,253.62

CASH RECEIPTS 2005-2006

Dues	$9,050.00
Publication Sales	236.50
ROM SALES (39)	1,573.50
Interest NOW Acct.	60.26
TOTAL RECEIPTS	$10,920.26

DISBURSEMENTS 2005-2006

Secretarial expense	$1,165.24
ESAF Dues (2006)	112.00
Ladd's Agency (Ins.)	1,046.00
Editor's expense	26.67
Treasurer's expense (04/05)	65.08
Expenses CD ROM	47.53

Web Page	150.00
Bulletin #121	1,565.17
TOTAL DISBURSEMENTS	$4,177.69

SUMMARY

TOTAL RECEIPTS 2005-2006	$10,920.26
Balance checking account 4/20/05	+ $10,317.45
TOTAL	$21,237.71
TOTAL DISBURSEMENTS 2005-2006	- $4,177.69
Balance checking account 4/12/06	$17,060.02

- Biggest change from last year was that there were more expenses because two Bulletins were printed.
- So far this year—printing not paid for yet; paid for copy editing so expenses will go up.

Corresponding Secretary: Report on File.

Recording Secretary: Minutes of the General Business Meeting were approved last year and will be published in the *Bulletin*. Copies are also available in the Secretaries' packets.

Report of the Committees

Awards and Fellowships—Peter Pratt
- They had a very satisfactory meeting and will report on it at the banquet.

Chapters and Membership—Carolyn O. Weatherwax
- No report.

Publications – William Engelbrecht
- Good sales of the CD; in the black now
- Available for the conference price of $35.00
- There is an arrangement with the RMSC – supply them for $35 and they sell them for $50. The same arrangement can be made for chapters.
- Not able to put the CD in the NYSM store.
- Louise Basa asked for volunteer to assist Bill Engelbrecht with the sale of the CDRom and stressed the need for more involvement NYSAA-wide with the sale.

4. Bulletin—Charles Hayes—report on file
- Presented by J.W. Bouchard

5. Finance—Fred Stevens—On file
- Presented by Louise Basa. Operating budget has been proposed.

6. Library- David Elliston
- Still working on the catalog.

PROGRAM FOR 2007—ADIRONDACK CHAPTER IS HOSTING

The 91th Meeting of the NYSAA will be hosted by the Adirondack Chapter. The meeting will be held on April 20, 21, & 22 at the Gideon Putnam Hotel in Saratoga.

Special Appointees

ESAF Liaison—no report

NYAC Liaison—Louise Basa
- NYAC program presented on developing historic contexts. Doug Perelli developed context of Early Woodland period in western New York with contributions by Nina Versaggi, Laurie Rush and Christina Rieth.
- Archaeology Season Poster—poster and initial calendar are on the web. Can go to website to add things to the calendar www.nyarchaeology.org. The first run was done by donation. A second printing has been requested. The posters are available at the conference registration desk to take back—everyone is encouraged to distribute to schools, libraries, etc. Chapters may contribute to the printing.

NEW BUSINESS

Amendments to By Laws
- Proposed new amendments—on file: read by J.W. Bouchard, NYSAA Corresponding Secretary.
- Amendment #1: Chapter IV. Executive Committee #7. Call for discussion. Call for vote: Passed as amended.
- Amendment #2 Chapter IV. Call for discussion Call for vote. Passed as amended

Archaeology Season

- J.W. Bouchard moved to donate $300.00 to NYAC in support of Archaeology Season, 2nd by Dan Caister. Call for discussion. Call for vote. Passed.

Secretary Business

- J.W. Bouchard requested updated chapter information for publication
- See J.W. (Bill) if you need membership cards.

Election of NYSAA Officers

- Greg Sohrweide and Dale Knapp counted the ballots. The results of the election:

President .....William Engelbrecht
Vice-President.....Sissie Pipes
Corresponding Secretary ....J.W. Bouchard
Recording Secretary .....Lori J. Blair
Treasurer .....Carolyn Weatherwax

Future Meetings

2007 – to be hosted by the Adirondack Chapter.

Adjournment:

Meeting adjourned at 7:55pm with a big "Thank you" to Louise.

Respectfully submitted. Lori J. Blair, Recording Secretary.

Past and Present NYSAA Award Recipients

The Achievement Award

- Charles M. Knoll (1958)
- Louis A. Brennan (1960)
- William A. Ritchie (1962)
- Donald M. Lenig (1963)
- Thomas Grassmann O.F.M. (1970)

Paul L. Weinman (1971)

- Robert E. Funk (1977, 1994)

Peter P. Pratt (1980)

- Herbert C. Kraft (1989)

Lorraine P. Saunders (1999)
Martha L. Sempowski (1999)
William E. Engelbrecht (2004)
Edward J. Kaeser (2006)

Theodore Whitney Commendation

Gordon C. DeAngelo (1998)
Charles F. Hayes III (1999)

Fellows of the Association

Monte Bennett
James W. Bradley

- Louis A. Brennan
- William S. Cornwell

Gordon DeAngelo
Dolores N. Elliott
William E. Engelbrecht
Lois M. Feister
Stuart J. Fiedel
Charles L. Fisher

- Robert E. Funk
- Thomas Grassmann O.F.M.
- Alfred K. Guthe
- Gilbert W. Hagerty

Charles F. Hayes III
Franklin J. Hesse
John D. Holland

- Richard E. Hosbach

Paul R. Huey

- R. Arthur Johnson

Edward J. Kaeser

- Herbert C. Kraft
- Roy Latham

Lucianne Lavin

- Donald J. Lenig

Wayne Lenig
Edward J. Lenik

- Julius Lopez

Ellis E. McDowell-Loudan

- Richard L. McCarthy

Mary Ann Niemczycki

- James F. Pendergast

Peter P. Pratt
Robert Ricklis

- William A. Ritchie

Bruce E. Rippetean

- Donald A. Rumrill
- Bert Salwen

Lorraine P. Saunders

- Harold Secor

Martha L. Sempowski
Dean R. Snow
David R. Starbuck
David W. Steadman

- Audrey J. Sublett

James A. Tuck
Stanley G. Vanderlaan
Paul L. Weinman
Thomas P. Weinman

- Marian E. White
- Theodore Whitney
- Charles F. Wray
- Gordon K. Wright

Certificate of Merit

Tim Abel
Thomas Amorosi
Roger Ashton
Charles A. Bello
Monte Bennett
Daniel M. Barber
Malcolm Booth
James W. Bradley

- Ralph Brown

Art Carver
William Davis
Gordon De Angelo
Robert DeOrio
Harold R. Decker
Elizabeth M. Dumont
Lewis Dumont

- William F. Ehlers

Dolores N. Elliott
Garry A. Elliot
Lois M. Feister
John Ferguson

- Robert E. Funk

Joan H. Geismar

- Stanford J. Gibson

Gwyneth Gillette
Robert J. Gorall
R. Michael Gramly
George R. Harnell
Elaine Herold
Franklin J. Hesse

- Richard E. Hosbach

Paul R. Huey
Vicky B. Jayne
Dale Knapp
Albert D. La France

- Kingston Larner

John R. Lee CSB
Edward J. Lenik
William D. Lipe
Kelly Lounsberry
Adrian O. Mandzy

- John H. McCashion

Ellis E. McDowell-Loudan
Dawn McMahon
Jay McMahon
Ann Morton
Brian L. Nagel
Robert Navias
Annette Nolte

- Alton J. Parker

Marie-Lorraine Pipes
Marjorie K. Pratt
Peter P. Pratt
Louis Raymond
Beulah Rice

- William H. Rice

Saul Ritterman
Lucy Sanders
William Sandy
Barbara Scully
William E. Scott

- Harold Secor

Annette Silver
Gregory Sohrweide
Mead Stapler
David W. Steadman
Marilyn C. Stewart
Kevin Storms
Tyree Tanner
Donald Thompson
Neal L. Trubowitz
Justin A. Tubiolo
George Van Sickle
Charles E. Vandrei
James P. Walsh
George R. Walters
Alvin Wanzer
Beth Wellman

- Henry P. Wemple

Roberta Wingerson
Stanley H. Wisniewski

- known deceased