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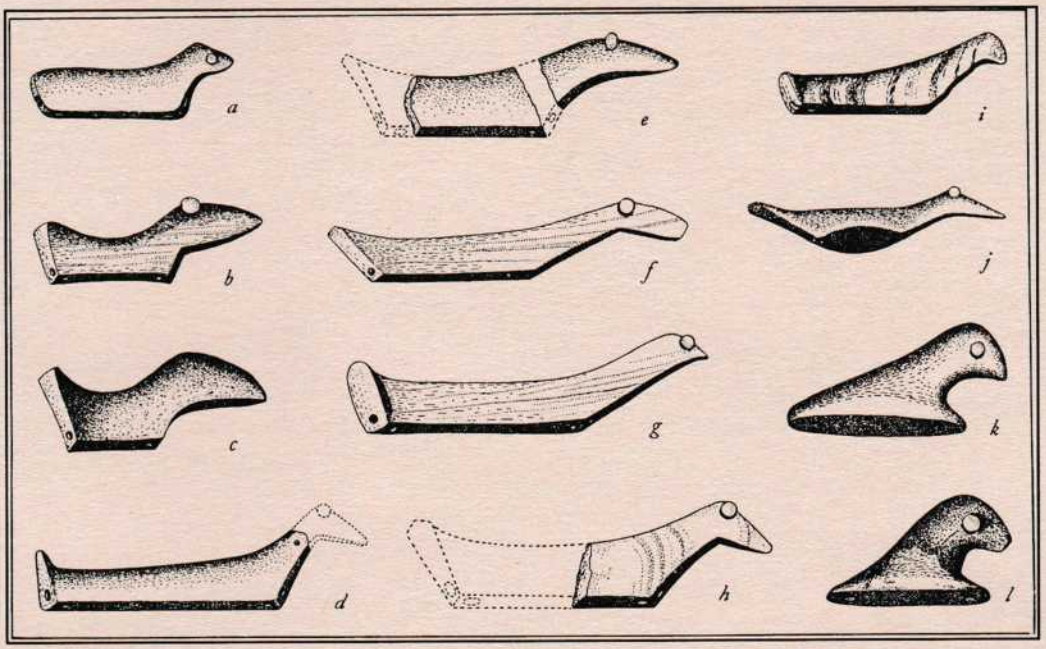

Plate illustrating the diversity of forms of birdstones (after Willoughby 1935: 107).

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Birdstones: New Inferences Based On Examples From The Area Around Waverly, New York

Dedicated to Max C. Markley and Gordon R. Willey

Marshall Joseph Becker, West Chester University, West Chester, Pennsylvania

Birdstones may be one of the least understood prehistoric artifact types in North America. Most appear to be associated with Late Archaic period cultures centered in Ohio and the eastern Great Lakes. Reappraisal of birdstone form and drilling patterns suggest their use as balance weights for atlatls, thus linking them to the "bannerstones" with which they are often associated. A review of the origins and distribution of "birdstones," with a focus on New York State, provides insights into Archaic period cultures and trade patterns in the greater Northeast. Seven examples from the area around Waverly, New York are described. This cluster derives from a region where the Susquehanna River crosses the New York—Pennsylvania border. Birdstones are rare in Pennsylvania, and their presence at this location provides insights into ancient trade activities along the Susquehanna River. Details of wider temporal and regional distributions remain to be explored.

Introduction

> Some ancient works, probably belonging to the same system with those of the Mississippi valley, and erected by the same people, occur upon the Susquehanna river, as far down [from New York] as the Valley of Wyoming in Pennsylvania. The mound-builders seem to have skirted the southern border of Lake Erie, and spread themselves, in diminished numbers, over the western part of the State of New-York, along the shores of Lake Ontario to the St. Lawrence river. They penetrated into the interior, eastward, as far as the county of Onondaga, where some slight vestiges of their works still exist. These seem to have been their limits at the north-east [Squier and Davis 1848:1, note].

One of the most interesting categories of Native American artifacts are carved and polished stone objects that have long been thought to represent sitting or nesting birds, hence the name "birdstones." Minimal attention was directed to the similarity between the distribution of birdstone finds and the distribution of mounds that were noted by Squier and Davis (1848). Cyrus Thomas's (1891) updated catalogue of these earthworks provides a valuable distribution map (Figure 1), noting that the pattern is dense in Ohio and New York, but skirts most of Pennsylvania. The same has been noted for birdstones (Townsend 1959; Becker 2009). When the term "birdstone" was first applied to these objects remains uncertain, but in 1878 a cast of one accessioned by the National Museum of Natural History (Cat. No. A32289-0) was identified as a copy of an "ornamental relic" made of striped slate. In 1892 Peet illustrated two examples under the title "Brooding Ornament" (Peet 1892:285, Figs. 26, 27), and subsequently they were commonly identified as birdstones. In fact, we still do not know if these items represent birds. Mounier (personal communication, November 2008) notes that the "pop-eyed" form, where eyes appear on stalks, does not reflect any known avian species, an observation independently noted by Mark McConaughy (personal communication, 2009). McConaughy also notes that birds with feather tufts that might be called "ears" are usually owls with completely different forms than those represented by these stone items (McConaughy 2007).

Birdstones in the Archaic Period

The foremost publication relating to birdstones is Townsend's (1959) encyclopedic review, which includes an extensive bibliography (Townsend 1959:705-714). The majority of the works referenced, however, reflect the traditional approaches used by "avocational" archaeologists, or relic-collectors. A large number of these "papers" simply note the presence of specific pieces in private collections, or offer illustrations of attractive pieces embedded within popular reports (e.g., Baker 1978:23).

Although commonly discussed in the archaeological literature at the end of the nineteenth century (e.g., Abbott 1875), Warren K. Moorehead's (1899) inquiry into the nature of bird-stones indicates that these artifacts rapidly became subjects of considerable interest. Brown (1909) offered another early compilation of information on these objects, which characteristically are elongate, with a flat bottom or base that appears to represent a bird's body. A "head" portion extends up from one end and a fan-like tail extends up at the other. Wide variations in form are known (see Townsend 1959). Mounier and others identify the upper center or back zone on the typical birdstone type as a

Figure 1. Detail of Cyrus Thomas map locating Native American "Prehistoric Works" in the region of New York and Pennsylvania. The distribution of these ancient sites closely parallels the densities of find locations of birdstones (after Thomas 1891: Plate 1, map in pocket) (Photoscan courtesy of Kathryn Mussen, Rochester Museum & Science Center).

"saddle." Holes commonly are drilled at both ends of the base, apparently to mount the item on a support. The expected "support" would be an object that is not wider than the distance between the two holes as they emerge from the base.

Other important primary publications relating to birdstones include Moorehead (1917) and Cassell (1942). Townsend (1959:231-253) provides a long discussion of the means by which these objects, with their complex curves and drilled holes, were made (see also Rowan and Ebeling 2008). Unfortunately, like Knoblock's classic 1939 publication on bannerstones, none of these works tabulate metrics, stone types, or other sets of information that might enable us to assess their use and distribution.

When considering possible fakes, such as the birdstone and "matching" bannerstone in Toledo, Ohio (Becker 1965),

comparative data do not help us to conclude that they are fraudulent. A possible "prototype" or "working model" for the reproduction Toledo bannerstone, said to be from Ohio, was first published by Peet in 1892 (his Plate VI, facing p. 273), and also was included in Gordon's later compilation of bannerstones (1916:58, Fig. 86). The proportions appear to be exactly the same. These vary only slightly from another bannerstone included by Gordon (1916:58, Fig. 85) that is said to have come from Wisconsin. Modern techniques of microscopic study and trace element analysis may be a simpler way to test my belief that the two items in Toledo were the products of a modern crafter who lived near the western end of Lake Erie and copied two objects in known collections (Becker 1965).

Examples of birdstones have been published from artifact collections throughout the northeastern quarter of the United States for more than a century (see Murray 1921:287, also Figs. 59 and 65). Townsend demonstrated that their distribution centered on Ohio, Michigan, eastern Wisconsin and Ontario, with a few examples found as far west as Minnesota (Kammerer 1943; Cassell 1943). The footed and ridge back types appear to be most common in Ontario, but few birdstones have been found in Canada beyond Ontario. In noting their distribution, Townsend (1959:309-312) indicates only the "heaviest" numbers of finds as distinct from "noticeable concentration," but his many types of data remain to be quantified.

Very few birdstones are known from New England (Fowler 1966; Figure 2). The few (n=6) said to be from Vermont (Townsend 1959:531, 672-3; Abbott 1881:354) appear to be the exceptions (but see Loring 1985). The single possible example reported from New Hampshire, for which the present location is unknown, was noted by Schoolcraft (1854, IV:175). Schoolcraft's woodcut depicts an example remarkably similar to one from Illinois (Townsend 1959:369, Pl. 128A), leading me to suspect a "relationship." The New Hampshire "example" may have been "visiting" with its owner when Schoolcraft examined it. William Turnbaugh (personal communication, January 2010) reports one intact example known from Rhode Island, along with fragments of two others. Ritchie's development of what has been called the "Archaic pattern" during the 1930s involved a number of types of polished stone tools, including bannerstones (Robinson 2008:23-24). Birdstones are characteristic of the Late Archaic period (c. 2500-1000 B.C.E.) over a wide area, but the birdstones so common in New York State where Ritchie was based are rarely found east of the Hudson River, as revealed by Townsend's review. Within the general "zone" of their use we may find sub-categories that reflect ancient cultural borders. The possibility that boat-shaped stones known from the southwestern Gulf coast states are a parallel artifact might be considered.

Functional Hypotheses

Birdstones As Flute Ornaments

In 1935 Charles Clark Willoughby suggested that these items, often represented by very rudimentary "bird" shapes, may have been intended to represent singing birds, and might have been fastened to flutes as aperture slides (see Willoughby 1935:304, Fig. 146; also Townsend 1959:47-49, Pl. 8). Comments on Willoughby's thesis are included in Townsend's extensive discourse reviewing speculations regarding possible uses of birdstones (1959:45-60; also Whitehead 1936). This thesis is worth exploring using an ethnographic perspective focused on the Northeast. A few examples of native flutes, perhaps of types on which small birdstones might have been mounted, now can be found in museum collections. Others are noted in the ethnographic literature from North America. A few accounts written by early travelers and explorers record the use of flutes among various Native American groups. In the 1630s De Vries reported seeing natives, probably Susquehannock, playing flutes (A. Myers 1912:19). Francis Daniel Pastorius (1912 [1700]:385), reporting on the Lenape at the end of the 1600s, observed that "they diverted themselves with fifes, or trumpets, in unbroken idleness ...".

Ethnographic examples of flutes demonstrate that the native tradition of flute making, and the incorporation of wooden ornaments that actually resemble birdstones, was vibrant throughout the nineteenth century. Attachments to some of these Native American flutes are of similar size and shape to smaller examples of ancient stone "birds," but were carved from wood. These may have suggested to earlier observers that at some time in the past the stone variants may have been fashioned for the same decorative purposes.

Three outstanding examples of native North American flutes can be found in the Museum für Völkerkunde, Berlin. These were published by Walter Krickeberg (1954:266-267, Fig. 63) in his survey of the North American collections there that survived the war. These three examples, illustrated with drawings, range from 58 to 65 cm in length. Each has a bird-like ornament tied to it. They reveal three different forms of "birds," each of which may reflect a type in use by three distinct cultures (Mandan, East Dakota, Cheyenne). Krickeberg makes reference to Frances Densmore's work on tone systems used for flutes, and also makes note of prehistoric stone examples, or "'Vogelsteine' (bird stones)." Densmore's contribution to studies of Native American music and musical systems are outstanding. Her survey of musical instruments in the National Museum (Densmore

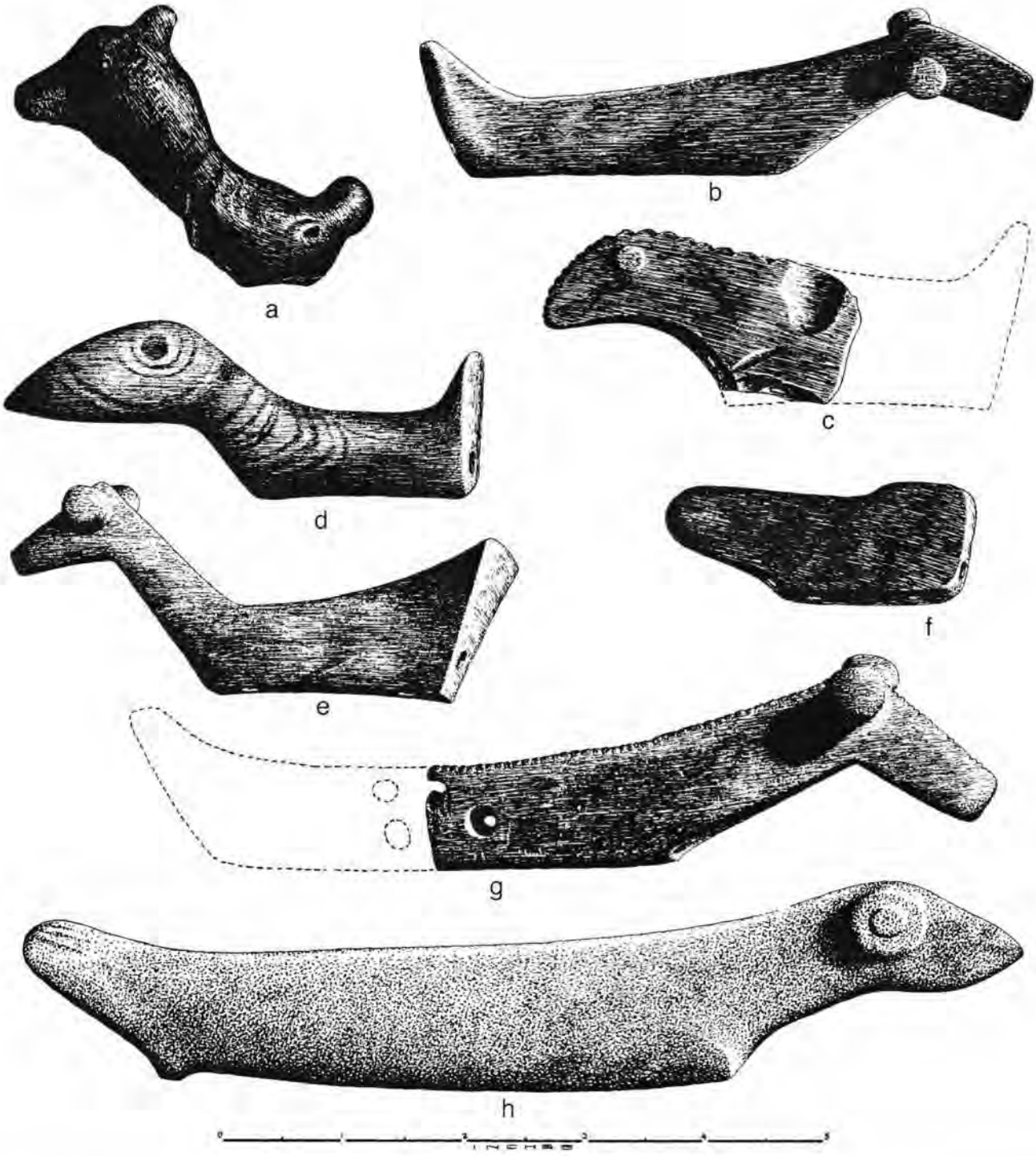

Figure 2. Plate illustrating the diversity of birdstone types within New England **a.** and **b.** not perforated. **a.** Brookfield, Mass.; **b.-d., f., h.** Narragansett Bay drainage; **e.** North River Site, Mass.; **g.** Duxbury, Mass (after Fowler 1966: 48) (Courtesy of the Massachusetts Archaeological Society) (Photoscan courtesy of Kathryn Murano, Rochester Museum & Science Center).

1927) offers basic data on the subject. The association of birdsong with flute music may be easily understood, but some cultures associate bird songs with drums (e.g., Feld 1982) or other instruments. For the ethnography of birds, readers should note Frank Speck's (1946) essay on bird nomenclature and song as recorded among an historic group living in Canada, a group that may have migrated there from northern New Jersey.

The Museum of Mankind in London holds an extremely fine Winnebago "wooden flute" (Ethno 1930.63) that measures 24 ½ in long. Under "Observations," there is a note: "Winnebago flute (109)." Also noted is "L. C. G. Clarke purchase—from Cambridge Museum." A wooden bird is fastened to this flute with a leather thong. I counted nine inlays that appear to be of lead circling the barrel, but the catalogue drawing indicates only eight. One of these lead inlays, near the far end of the bird, has a heart-shaped or spade-shaped extension. Lead inlays of this and other forms are extremely common on catlinite pipes of the historic period. The flute has three or four slots of similar size and shape at the far end. A slotted end can be seen on the bird. The near end of the tube has a small nubbin-like extension such as is used for mounting a pipe head to a shaft. How this example was played is not clear. Other historic examples of flutes may be noted. At least one example said to be "Delaware" (Lenape?) is noted by C. A. Weslager (1972), but the origin and date remain as vague as the identification. I suggest that this is a post-1800 native product, but who made it and where remains uncertain.

Among three ethnographic objects vaguely identified as "Delaware" in the Victor F. Evans Collection in the Smithsonian Institution is a wooden flute (Cat. No. 362, 062). The ball-headed club and the pipe-tomahawk that appear in the same photograph (Smithsonian Institution Negative No. 311818) do not offer clues to the specific culture, time or origin of the flute, but a plaque that is linked to the instrument reads as follows:

> Delaware Indian Flute. No one living knows how old it is. Was used when the Delaware lived in the vicinity of Fort Pitt, afterwards Pittsburgh, and presented to Richard C. Adams, representative of the Tribe in 1900 by his people [Weslager 1972:362, 409, 437; 1978:238-239].

Information with a compendium of "Delaware" legends narrated by Adams (1997:xl, Fig 4) indicates that after Adams had died these items were sold to Victor Evans. The cultural origins of the "Delaware" people who presented these items to Adams at the beginning of the twentieth century remain to be determined, but they probably were one of two "Delaware" groups then living in Oklahoma territory. Adams, a major political figure in Indian affairs, was descended from the Delaware group (Lenopi) that had lived in Indiana c. 1821 (cf. Becker 2008b). Attached to the Adams flute is a wooden element that appears to resemble a birdstone.

Another ethnographic example of a flute appears in the catalogue of the American Indian collections at the University of Nebraska State Museum. Thomas Myers (1984:54, Fig. 6) illustrates a cedar flute (79.5 cm long) with a mouthpiece made from a brass cartridge, collected from the Oglala Sioux c. 1880. The distal end of this complex instrument is carved to represent the head of a bird. The flute also incorporates paint, cotton cloth, buckskin, feathers and brass tacks. This important item, located in the Turner Collection (Cat. No. A3205), has a "birdstone-like" object tied on near the mouthpiece. Illustrations of flutes with birdstone-like objects affixed to them by both Willoughby (1935:304, reprinted in Townsend 1959:49, Plate 8; Figure 3) and Krickeberg (1954:266, Fig. 63) seem to argue strongly for this use for these objects. While most birdstones are of a size and weight that could be mounted on a flute, Townsend (1959:3) reports examples that weigh as much as "two pounds or slightly more." These larger objects certainly were not mounted on flutes. If all of these stone items were linked with music, the larger examples may have had related functions, but what they might be is not known. On the other hand the symbolic "flight" value of large examples of birdstones are replicated even in small examples.

The surviving ethnographic examples of flutes reveal that the tradition of flute making, and the incorporation of wooden ornaments that resemble birdstones, was vibrant throughout the nineteenth century. In no example of a flute, with or without a bird-like carving mounted on it, does the ornament serve as a "slide" or element producing a variable sound. Artifacts of similar size and shape to ancient stone "birds," but carved from wood, are found bound to many examples of Native American flutes, suggesting that at some time in the past the stone variants may have been fashioned for the same decorative purposes. The wooden "birds" mounted on flutes do not appear to face in any specific direction. Mounier notes that human and animal figures depicted on Hopewell effigy pipes, as well as on almost all the native made clay pipes known from the Northeast, face the smoker rather than the public, and asks if this reveals a spiritual or totemic linkage.

A second and more important reason to disassociate these objects from flutes is the pattern of drilling holes through their bases. Holes are drilled fore-and-aft at an angle, suggesting fastening across the full length of an object. To tie a birdstone to a flute, many far simpler tech-

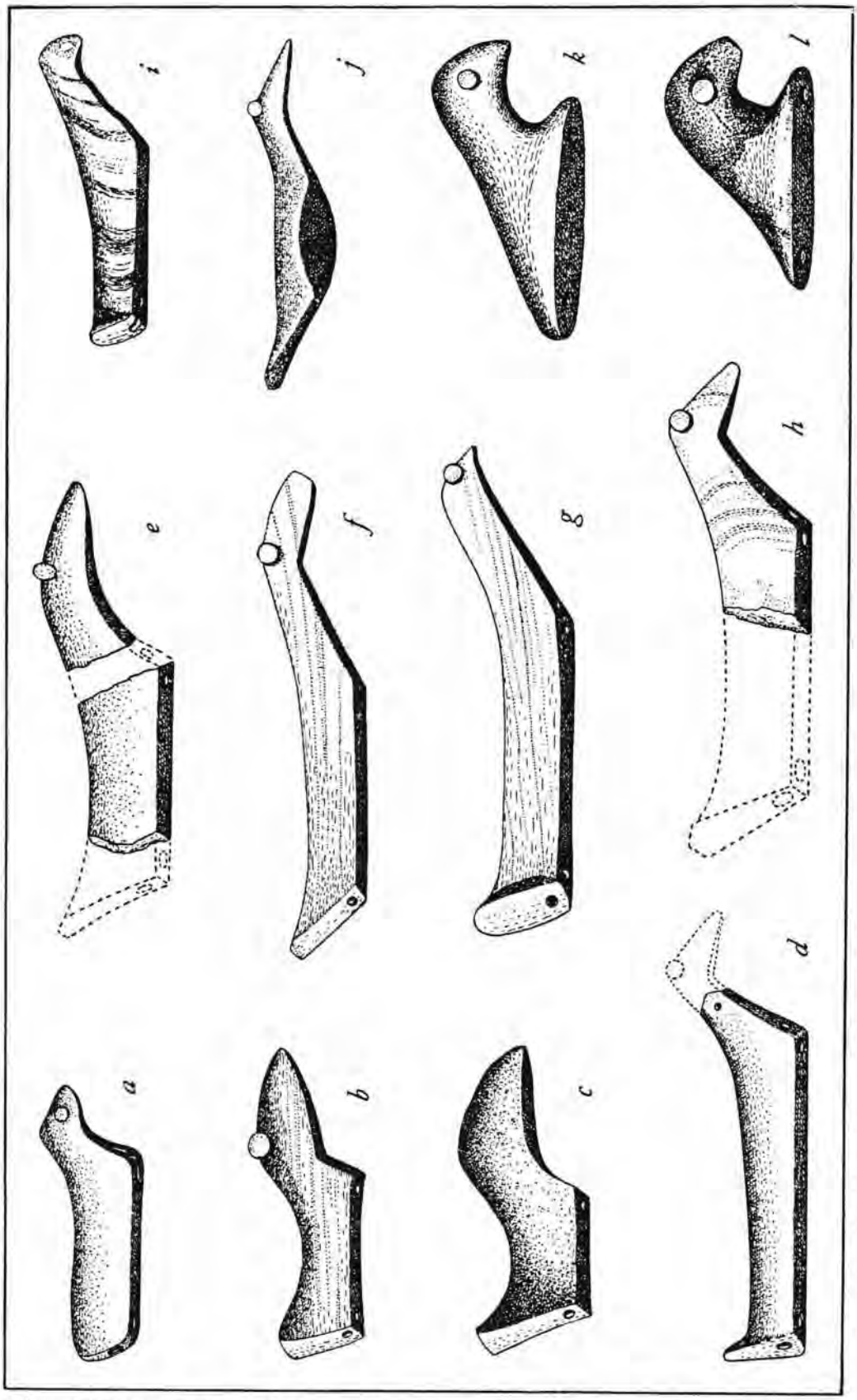

Figure 55. Bird Amulets. a, b, d, e, f, j, Connecticut: a, Lebanon; d, Colchester; e, f, Woodbury; j, East Windsor. c, k, l, Vermont; k, l, graves at Swanton. i, Westerly, R. I.; g, New Hampshire, figured by Schoolcraft; h, Newburyport, Mass. a, d, Slater Museum, Norwich; b, f, k, American Museum, New York; c, l, University of Vermont. e, j, N. L. Bull Coll.; h, i, Peabody Museum, Cambridge. (1/3.)

Figure 3. Plate illustrating the diversity of forms of birdstones. The two labeled "k" and "l" are of the "bust" type (after Willoughby 1935: 107) (Photoscan courtesy of Kathryn Murano, Rochester Museum & Science Center).

niques could have been devised, including grinding a simple groove at either end of the body that would allow it to be tied to a flat or slightly curved surface. The form and inferred functions appear to reflect two very different categories. Fastening birdstones on a flute seems improbable, but does point us toward the atlatl weight theory, in which the symbolic "flight" value is also retained. Large examples of birdstones may have had other symbolic functions.

Recognition of any association between birdstones and musical instruments, as distinct from hunting tools, would be significant. The ethnographic examples of flutes all have wooden attachments that resemble birdstones, and their possible relationship with the acoustics of these instruments has not been investigated. The role of music in any culture, and a possible symbolic association between items such as drums (see Feld 1982) or flutes and the calls of birds, would provide insights into fundamental aspects of that society. A review of the data on known ethnographic examples of flutes from the general area of the Northeast within which birdstones are known to appear may be helpful in our quest for function and meaning but any objects, bird-like or otherwise, that were mounted on flutes in the historic period are at least 1,000 years removed from the stone pieces from archaeological contexts (Ritchie 1937). If any linkage is to be postulated, then the transition from stone to wooden examples must have taken place a millennium before the known ethnographic flutes were made. Stone "birds" were only one of many characteristic artifacts of the Archaic period cultures that had conceivably morphed into the Woodland traditions that appear archaeologically by the beginning of the Christian era.

Shortly after Willoughby (1935) published his ideas associating birdstones with ancient flutes, William A. Ritchie (1937) discussed the lack of any direct linkage between the birdstones known within the state of New York and the historically known Iroquois peoples of that region. No evidence contrary to this position has emerged in the intervening 70 years, nor has any linkage been made between any historically known native peoples and the Archaic period cultures known only through archaeological research. Thus the Contact period record does not provide direct evidence for the use of these artifacts as ornaments or in any other context.

Birdstones As Atlatl Weights

Crozier (1941) made suggestions regarding possible functions of birdstones, derived from Willoughby's work (cf. E. Murray 1941), but did not include atlatl weights among them. Townsend includes several examples of birdstones that might be considered quite unusual in shape and definitely unsuited for use as flute ornaments. Some years later Ira Smith (1972) commented on a few examples of birdstones, along with "boat stones" and "bar amulets," all of which derived from the Susquehanna drainage. Lacking any useful contextual data, Smith did not attempt to infer ritual or other functions for these unusual artifacts. Smith's linkage, however, now returns us to another interpretation of function.

Markley (1942) was the first to suggest that birdstones may have served as atlatl weights. This thesis has since been discussed by a number of authors (e.g., Townsend 1959:49-50; Willey 1966:254, Fig. 5-5). Artifacts called "bannerstones" are bilaterally symmetrical polished stone items, generally with a centrally drilled hole, which are commonly considered to have functioned as balance weights for atlatls. Such weights, with drilled holes, presume that the shaft of the atlatl, or at least its distal portion, had a round cross-section. My earlier rejection of the birdstone as atlatl-weight thesis was based on the false presumption that the body or shaft of an atlatl was invariably round and unsuited to mounting birdstones. Round shafts are well suited to mounting a drilled stone as a counterweight. I neglected my own knowledge of Aztec and other atlatl types that use a flat board body.

The shafts of known Aztec examples of the sixteenth-century are flat boards about 5 cm wide that have a channel running lengthwise down the center into which the "spear" shaft rested. This same channel, at the distal end of the board, could provide a snug location into which the convex base seen on most birdstones would fit. In addition, fastening the birdstone to a flat atlatl through holes drilled in the board would explain the fore and aft drilling pattern on most birdstones. Since bannerstone types appear to vary by region, the possibility that the idea of a flat board variety of atlatl arriving up the Mississippi along with numerous other Mesoamerican cultural traits, and at an early date, is no longer as far fetched an idea as it might have seemed 50 years ago. In the 1960s, as archaeology was maturing as a science, Gordon Willey (1966, I:254, Fig. 5-5) called birdstones "Problematical polished-stone objects typical of [the] Archaic Period in the Eastern Woodlands." Willey also agreed with Markley's (1942) inference that "all probably were used as throwing-stick or atlatl weights." Regardless of any limitations on the data at that time, these two scholars offered important comments on possible functions of birdstones.

In recent years making and using atlatls has enjoyed a revival among aficionados of "primitive technology." Celine Rainville and her students at Franklin Pierce University recently reported that "the best thrower can hurl a spear about 500 ft [152 m], or even farther" (Powell 2009). This type of "experimental" archaeology considers the replication of items and their suggested uses as critical to the interpre-

tation of function; however, the use of weights, of any size or shape, has not been addressed.

As regards the functions of birdstones, there is a factor even more significant than the large size of many to discount the "flute" theory. The convex configuration of the base of most birdstones suggests that they were not mounted on a flute or any long, cylindrical item. The bases are usually slightly convex laterally rather than slightly concave as would be expected for mounting on a flute. More significantly, the two holes commonly drilled through the base of birdstones are oriented lengthwise, whereas laterally drilled holes, or no holes at all, would facilitate mounting this shape on a flute.

The Archaeological Record: Excavated Examples

Birdstones have a very high profile in the archaeological record because of the ease with which they can be recognized by non-specialists as objects of art (Townsend 2004). They also can be understood as products of extremely skilled native crafters, reflecting technological as well as artistic talents. Yet of all the birdstones "known," relatively few can be identified as from documented archaeological contexts. The review by Townsend (1959:119-229) of early literature on birdstones from documented or primary contexts reveals a great deal about those found in burials, mostly in mounds or glacial kames. Ritchie excavated 22 "graves at the Brewerton Site, all of which contained cremated bundle burials" (Townsend 1959:131). Two held a single birdstone (Ritchie 1938, 1944:156-158). Burial 6 (RMSC AR 32617) held an example with a ridged back and broken nose, while Burial 14 held a sandstone example (RMSC AR 32642) judged incomplete (see Townsend 1959:131-137 for a long review). Townsend notes that radiocarbon dating provided an age of c. 1000 B.C.E. for this cemetery (see also McNeish 1952:49-50, Ritchie 1951:54).

A bust type birdstone was found c. 1947 during "excavations" of 11 graves near Cuylerville in Livingston County, New York by Robert R. Hill (Townsend 1959:137-139, Pl. 42). Hill held this piece in his private collection (see Appendix 1). The date is discussed by McNeish (1952:48, see Townsend 1959:138). Most significant in this situation is that Burial 1, from which the bust type was recovered, was that of a child about five years of age who had the birdstone "pressed against the left side of the skull, near the base, the 'beak' pointing east" (Townsend 1959:137). Townsend was aware of Charles Abbott's interest in defining the function of birdstones (1875). Townsend (1959) suggests that Abbott began by accepting Squier and Davis's (1848) suggestion that these artifacts might have functional (husking pegs, knife handles) as well as ornamental value (Abbott 1875). Townsend suggests that Abbott soon changed his mind and, after reading "Gillman's maternity emblem conjecture" (Townsend 1959:13-14), concluded that they were women's head ornaments (Abbott 1876). Townsend traces the head ornament back to a statement by William Penn, the same vague statement that I believe caused Frank Speck to identify wampum cuffs of the Huron (Becker 2007) as women's headpieces.

The possibility that birdstones were head ornaments, perhaps worn only by females, is reinforced by other finds for which we have good records. Unfortunately, many of the graves in which birdstones have been found, such as the slate example found in 1910 at the Harrison Site (20 KZ 50; Kalamazoo County Michigan) (Cunningham 1948:10, Pl. IV, Fig. 1; see Townsend 1959:164-168, Pl. 51 for a review), were excavated long before important recovery and recording techniques were employed in those areas. Cunningham (1948:10, Pl. IV, fig. 2) states "that the slate bird stone is said to have been placed crossways on the skull." The information derived from the widow and son of Mr. Orlin Harrison, but this example is "somewhat similar" to a birdstone from a probable Glacial Kame context in east-central Indiana. Dragoo (1963:244, Fig. 26c) considers the Harrison Site (20 KZ 50) from a gravel pit within the Adena tradition. The association between this simple bar type birdstone, with no eyes, and two shell gorgets is important. Dragoo associates the Harrison Site with a supposedly Adena period Natrium Mound in Marshall County, West Virginia excavated by Ralph Solecki for the Smithsonian Institution in 1948-1949. The Natrium Mound, however, yielded a "bust" type birdstone, or the type where just the foremost part of the "bird" is represented (Dragoo 1963:146, Fig. 9). Another banded slate birdstone was found with a burial in a grave pit located 2.5 mi (4.2 km) west of Lynn in Randolph County, Indiana (Cunningham 1948; Cover, Pl. IV, Fig.2). Papworth's dissertation (1967: 88-104) notes four examples excavated from the Andrews Site near Saginaw, Michigan (cf. Beld 1991).

Stothers and Abel (1993) offer some information on ten birdstones that derive from well-controlled excavations, as well as a few other examples whose origins are reasonably well documented. The three slate birdstones, of two types, derived from three different burial features at the Williams Cemetery Site (33 Wo 7a) in northwestern Ohio; they are among the best-contextualized examples known (Stothers and Abel 1993:65). Of equal importance was the recovery of a winged bannerstone from yet another grave at this site in Ohio's Maumeee Valley.

Also summarized by Stothers and Abel (1993:34-35, 55) are the relevant data from the Hind Site in southwestern Ontario (Spence and Fox 1986). The Hind Site has become

central to understanding the Glacial Kame culture. The Hind Site revealed some 28 burial features in which 35 individuals were identified. From among these graves only two slate bar-type birdstones were recovered (Spence and Fox 1986:13). Of importance is the note that one of the burial features at the Hind Site has yielded multiple radiocarbon dates, ranging from 2620 to 925 B.C.E. (Stothers and Abel 1993:34-35). The variations suggest that use of this area over long periods of time may have resulted in intrusions of later graves into earlier ones. Converse (2003:136-137) summarizes information from the now destroyed Clifford Williams Site in Logan County, Ohio. Gravel mining revealed an estimated 80 to 90 burials, some of which were photographed *in situ*. Two birdstones were salvaged; one said to be from under the chin of a skeleton and another from "disturbed sand," but which of these is illustrated by Converse (2003:137) is not known.

Stothers and Abel (1993:39) indicate that slate "ornaments" in mortuary contexts characterize the period from c. 2500 to 1000 B.C.E., or what is generally identified as the Late Archaic period. They also suggest that bannerstones and birdstones, along with other polished artifacts, were dominant during this long epoch and actually continued into the Early Woodland period. "Most of the 'ceremonial' items are made from banded slate and are found in mortuary contexts." (Stothers and Abel 1993:43). Here and in several other publications Stothers and Abel note that the Bannerstone Site in Monroe County, Michigan (just across the border from Toledo, Ohio) yielded raw, cut, and perforated slate stock.

Not only do Stothers and Abel survey recent literature relevant to birdstones, but also (1993:78, Fig. 25B) illustrate a birdstone recovered through excavations of Burial feature 1 at the Reiger No. 1 Site and also provide a preview of important work by Donaldson and Wortner (1995). Stothers and Abel also provide general geographical contexts for many of the surface collected examples of birdstones known to be in private collections in the Ohio region (see Simons 2010 for a recent summary). What is not noted is that large numbers of birdstones, and many bannerstones, probably were plowed out of or stripped from ancient cemeteries during the nineteenth century. The considerable number of birdstones reported in the *Ohio Archaeologist* might lead one to suspect that the region to the west and south of the Great Lakes was the center of ancient production. Birdstones are known from many collections, public and private, in Pennsylvania and New York, but may be present in smaller numbers (lower density) when compared with Ohio. In fact, we simply have no reliable survey for these artifacts.

The published literature may not include all the birdstones that derive from specific excavations. Determining origins from museum catalogue data may not be possible. For example, a pop-eyed slate birdstone found in Perry County Ohio (Ohio Historical Society collection A 3369; Cat. No. A 0048/000001) is identified as coming from the Toephner Mound, but whether it was excavated or dug out of the mound, or found nearby, is not clear. For this example, as well as many others, a convoluted search of records might turn up more specific information, but useful field notes are not expected.

Birdstone Distribution in New York and Pennsylvania

Townsend's study of birdstones in New York State (1959:309-312) revealed a heavy concentration of birdstones in the western portion of the state, south of Lake Ontario. This zone does not extend as far south as the Pennsylvania border (see Appendix 1 for an inventory of New York birdstones by institution and/or collection). Townsend's "distribution" map reveals a significant scattering in the New York-Pennsylvania border area near Waverly, New York. This concentration is reinforced by recent observations by D. Twigg (2006:3) that a number of examples remain in private as well as public hands in the area near Spanish Hill.

An Important Node near Waverly, New York

Waverly, New York, as well as Sayre and Athens, Pennsylvania are located in the forks where the Chemung River meets the Susquehanna River. Of particular note in the archaeological history of New York is the pioneering work of Louise Welles Murray (1921). Murray's survey of sites in the region of the upper Susquehanna River around Athens, Pennsylvania indicated three birdstones from her target zone, a very small area along the New York-Pennsylvania border. Murray's survey offers significant information on three examples of birdstones (A-C, below), as well as valuable data relating to archaeological sites in the Waverly area (Figure 4). A total of seven examples (A-G) are now known to derive from the area surveyed by Murray. Many of these were exposed after significant flooding at these sites.

A. Susquehanna River Archaeological Center (SRAC), Waverly, New York (Figure 5)

This headless birdstone (Figure 5) was recovered from the Park Farm, which straddled the southern border of Tioga County into Bradford County, Pennsylvania. This area, described by Murray as Site 21 (Figure 4), is located just across the river from the site from which the Wolcott Collection was recovered. This birdstone fragment was in

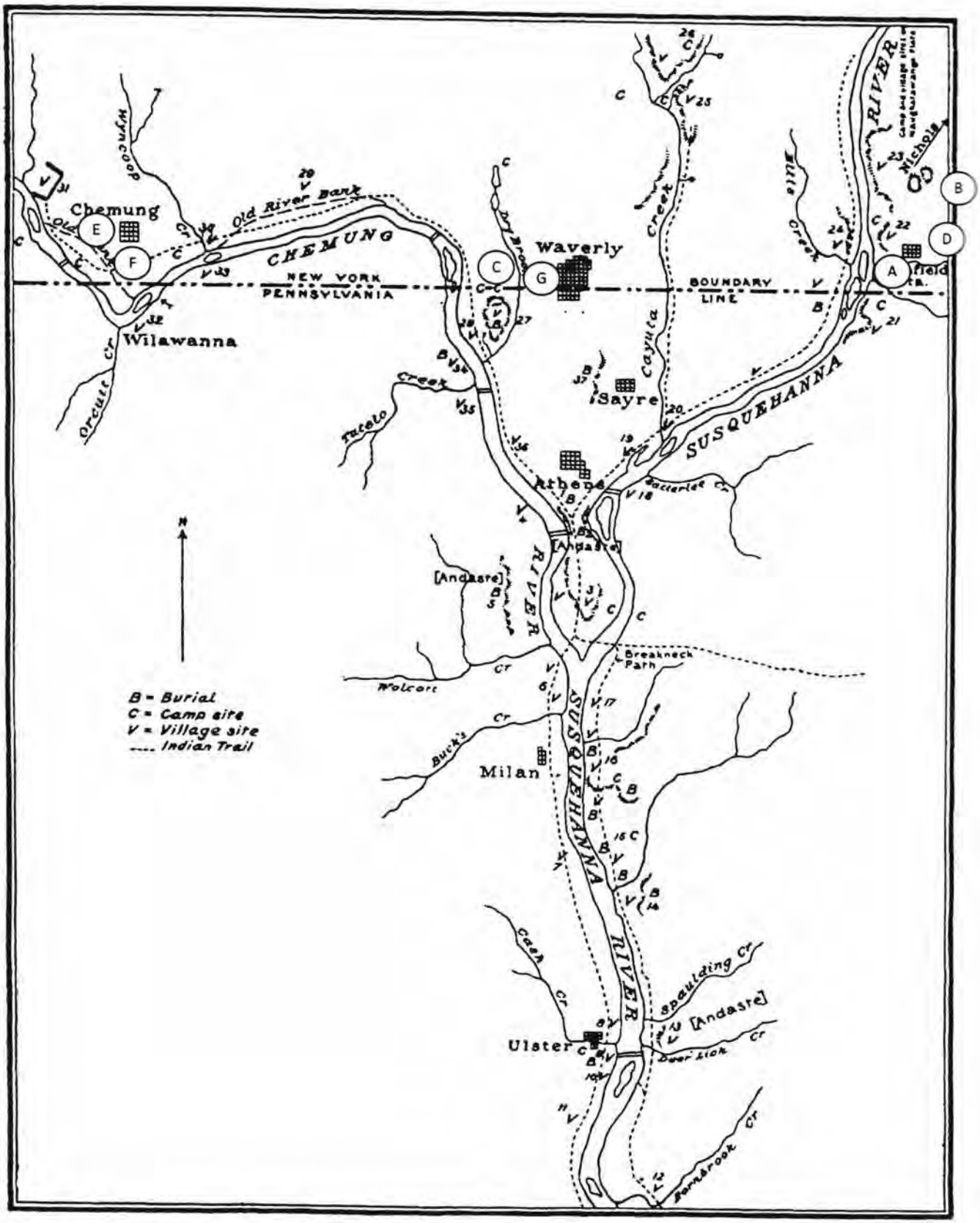

Figure 4. Distribution of the seven birdstones (A-G, see text) now known from the area of Waverly, New York. Their find spots are superimposed on Murray's sketch map, which locates archaeological sites in the region of "Teaga," now Athens, Pennsylvania (after Murray 1921: 269, Fig. 48).

Figure 5. Birdstone A: Headless example now in the collections of Susquehanna River Archaeological Center (SRAC) in Waverly, New York.

the Park and Cowles Collection when seen by Murray (1921:280, Fig. 56, upper right). Alvarado Park collected for forty years on his very large farm, which straddled the state's border near Litchfield Station, New York. Site 21 is located south of the border in Litchfield Township of Bradford County, Pennsylvania. Murray described Site 21 as representing a "village of considerable extent between the highway and the river on the Park farm" (Murray1921:281, 269). By 1921 Ellsworth Cowles also was collecting there and he appears to have found and owned "a broken bird stone showing evidence of use as a whetstone" (Murray 1921:281). This birdstone piece, from which the fore end is missing, is 8.6 cm long (3 ⅜ in) with a flat, bar-like body c. 2.2 cm (1 ⅞ in) tall, and a straight, nearly vertical tail 3.8 cm (1 ½ in) tall. Presumably a hole pierces the base beneath the tail, but the lateral hole drilled close to the broken end was for post-breakage reuse, probably as a pendant. Ellsworth Cowles willed this piece, along with all his artifacts, to his son Richard Cowles, who donated these collections to the SRAC c. 2005. This item is on display at the SRAC in Waverly New York (Cowles Collection).

B. Townsend Collection ? (See Townsend 1959:548, Pl. 222C). Also listed below (Appendix 1:Private Collection: Townsend "d." (Figure 6)

This pop-eyed birdstone (Figure 6) from a Tioga County site "at Nichols, now practically washed away" was first reported and illustrated by Murray (1921:284-285, Fig. 59; see also Townsend 1959:548, Pl. 222C; Becker 2008a:2, right figure). This example from the "Lang Collection," has a short tail, very large head, and eyes that appear oversized. Murray (1921) states that artifacts from the "Nichols group" derive from a native "village [that] was on high ground on

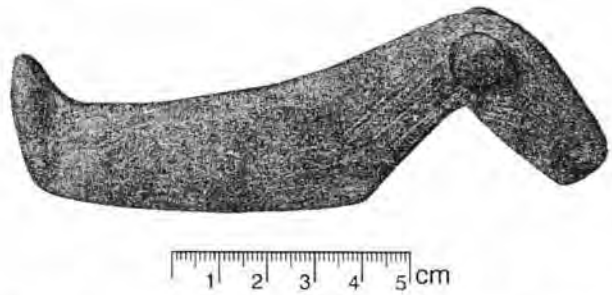

Figure 6. Birdstone B: The Lang-Thompson Birdstone. This example, found near Nichols, New York, was in the Lang Collection until 1921 (Murray 1921: 284-5, Fig. 29), then passed to Earl C. Townsend (1959: Pl. 222C; see Anon. A). Present location unknown.

the east side of the mouth of Wappasena Creek, with a burial site on the flats." This may be Maughatawanga flats. She goes on to quote Lang as saying that:

> [t]here is not a locality along these rivers where a contributing stream appears that does not bear evidence of Indian occupation, from which many valuable and interesting specimens have been taken [Murray 1921:285].

Given the impressive nature of the artifacts once in the Lang collection, I interpret this statement as indicating that lesser items, such as debitage or broken bits, were not collected. The Lang Collection no longer remains in the hands of the Lang family living in the area of the town of Nichols, which formerly had the name "Wappasena." Most of these artifacts may have been sold beyond the area around Waverly. Rumors of transfer to the Smithsonian Institution have not been confirmed, but this pop-eyed birdstone, here identified as "B," can be traced to Indiana. Townsend (1959:548, Pl. 222C) identified this example as made of a compact green sandstone and being in his own collection, but he does not indicate the route by which it arrived there (see Appendix I: Private Collections: Townsend "d"). Townsend states that it was "Found at Nichols, 10 Miles east of Waverly at the mouth of the Wappasening." Since Townsend does not cite Murray's 1921 report, his information may have come from the Lang family. While the essential find area is noted by Townsend, the additional contextual data is available only in Murray's publication. I presume that this example remains in Townsend's private collection, which he held as recently as 2004. Efforts to reach Earl C. Townsend, Jr. in December 2009 continued into 2011 without success.

C. Present location unknown! SRAC Logo Birdstone, From Shepard Hills Country Club, Waverly, New York (Figure 7).

A pop eyed (eared?) birdstone (Figure 7) first illustrated by

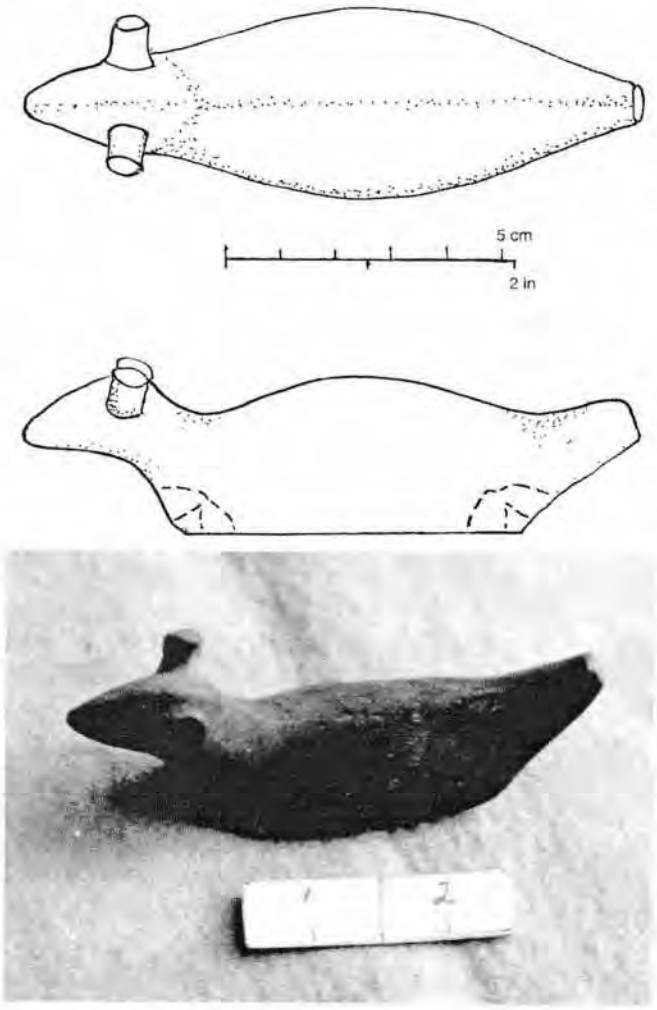

Figure 7. Birdstone C: Present location unknown. This illustration is used as the logo of SRAC (Photo courtesy of Deb Twigg of SRAC).

Murray (1921:293, 294, Fig. 65), (see also figure at upper right in Becker 2008a:1). The present location of this example is unknown, but it is now extremely well known because it is used in the logo of the Susquehanna River Archaeological Center (SRAC). This item has a pointy "tail" and "eyes" set so far back on the head as to give the impression of animal ears. The stems or stalks of these "eyes" are so long that they are almost like horns. This example was discovered on the grounds of the Shephard Hills Country Club, Waverly, Tioga County, New York, about ½ mi north of the famous Spanish Hill. The find spot, popularly called a "burial site," was identified during the construction of a sand trap for the golf course. No other information suggesting burials or artifacts is associated with this find. The workman who recovered it later sold it to Ellsworth Cowles, who subsequently resold it during the summer of 1992; it does not appear to have been inventoried by Townsend.

Murray founded the Tioga Point Museum in Athens, Pennsylvania in 1895, and tried to sustain interest in archaeology through her daughter Elsie (see E. Murray 1941), but professional concerns with that region had slackened since the war. In recent years Twigg (personal communication, October 2008) has made a significant effort to gather information about local finds of birdstones from collectors living in the same region that was surveyed by Murray. Listed below is information about four other examples of birdstones that she has documented in recent years.

D. Private Collection of Donald Hunt (2009). From Litchfield Station, near Nichols, Tioga County, New York (Figure 8)

This birdstone has been said to derive from the area identified on the Ellsworth C. Cowles map (Murray 1921) as "Litchfield Stn." Donald Hunt, a resident of Nichols, New York, reports that he found this birdstone on the surface of the ground "in the early spring of 1999." Mr. Hunt agreed to place it on exhibit at SRAC where it has been photographed. The find spot is reported as being near the edge of a high-water channel in a field located on the east side of the Susquehanna River, about 90 yd (85 m) from the river and only about 50 ft (15 m) north of the state line. This Litchfield Station birdstone is composed of a greenish gray-banded slate. The body is unusually broad, and the tail is also broad but relatively short. A dorsal ridge runs from near the end of the tail along the back and up over the head. The stem or stalk of the left pop-eye also is quite long, and the right "stalk" has been broken deep into the "skull" of the figure. A series of other scrapes and abrasions suggest plow damage.

A sketch map of the region and the sites known in 1921 (Murray 1921:185 Fig 33, also 269, Fig. 48) places the Litchfield Station Site at present Nichols, New York, to the

Figure 8. Birdstone D: Found near Litchfield, New York. In Donald Hunt's private collection.

east of Waverly, on the east side of the Susquehanna River and just north of the Pennsylvania border. In another part of the Nichols area, also along the Susquehanna, is the famous Engelbert Site that had been located on a knoll over a large gravel deposit that was being quarried in the 1960s. By 1968, the site, situated just above the floodplain, had been obliterated by mining, but not before Marian White conducted a salvage program during which at least 135 burial pits were excavated. The area had been occupied from the Archaic to the Late Woodland (c. 2000 B.C.E. to 1550 C.E.). Birdstone "D" and Birdstone "B" noted above, may have been products of Archaic period activities, but without known contexts nothing further can be said. The form is similar to birdstones from the Glacial Kame culture in Michigan (Cunningham 1948:10, Pl. IV:Fig. 1).

Note should be made that Mr. Hunt now owns a second birdstone that he states had been given to him by a collector (unnamed), but for which no provenience is known. This second example is not believed to be from the Waverly area, but no further information has been forthcoming.

E. & F. Private Collection (2009). The Lon Kouterick Collection (Figures 9 and 10)

Kouterick, who now lives in Syracuse, loaned two birdstones to SRAC for study purposes (Figures 9 and 10) (see Becker 2008a:2, left figure). Mr. Kouterick stated, when interviewed by Twigg in November of 2008, that his entire collection derived only from this "site" located on property that belonged to his family. This tract is said to be located near Chemung, in a large bend in the Chemung River known locally as "Katydid Curve." This location is about 5 mi (8 km) from Spanish Hill. The dates of these discoveries are not known. Twigg photographed these two examples for research purposes.

Example "E" is a typical birdstone with a sloping saddle and short tail (Figure 9) (Becker 2008a:2, rear of left fig.), said to have been found by the owner when he was dragging logs out of a wooded area. Recent rains left this birdstone "just laying there" (personal communication, Twigg to Becker, September 2009), but another report says that the scraping of the topsoil by these logs uncovered this birdstone. Twigg describes it as "green" in color, but it appears to me, from the photograph, to be made from banded slate.

The second birdstone (F) was said to have been discovered, along with two examples of notched points (cf. Coppock 2009), by a hired hand when he dug out a spring on the property. This example is "dumpy" in form (Figure 10) (see Becker 2008a:2, fig. left, front) and appears to be made from a green banded slate. The SRAC/Cowles collection includes a tubular pipe, or possibly a bannerstone, about 15 cm (6 in) long that appears to be of the same

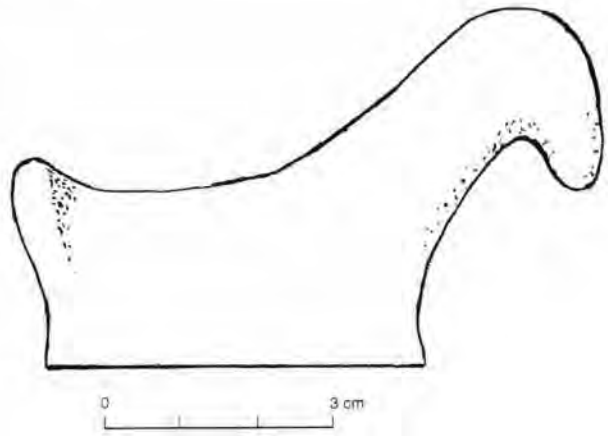

Figure 9. Birdstone E. One of two examples now in the private collection of L. Kouterick of Syracuse, New York. Estimated length 81mm. The tall base facilitated drilling.

Figure 10. Birdstone F: The second of two examples now in the private collection of L. Kouterick of Syracuse, New York. This "dumpy" form is extremely rare, with only two other similar items known. Estimated length 115 mm.

green banded slate. This "tubular pipe" was found in the area of Irwin and Painted Post, New York, at the confluence of three streams. The association of a birdstone and tubular pipe has also been reported from Pennsylvania (see Becker 2009).

Birdstone "F" appears "dumpy" because it has a large head with low eyes that seem to be "set" into shallow sockets excavated into the head. This example is quite distinct from most other known birdstones, but yet is so similar to one published by Townsend (1959:Pl. V) as to merit special note. It may even be a copy. Townsend commented regarding item "F":

> Made of faintly banded purplish slate, this oddity went unmatched until 1956 when Julius Lopez and others found the head of such a specimen in a salvage dig in the southeast corner of the Bronx, within the city limits of New York. The pictured specimen [Plate V] was collected near the village of Emmons in Otsego County, New York. Illustrated by Moorehead in *Stone Ornaments* [1917] at Fig. 216. It is one of the most unusual specimens encountered. See Plate 223, Fig. A [Townsend 1959:98].

The left side of the Otsego County birdstone owned by Townsend in 1959 is depicted (1959:551, Pl. 223A), facing the following text from page 550, under the caption "New York Elongated Pop-Eyed Birdstones of Anomalous Types."

> A—Otsego County. Highly polished reddish-brown, striated slate. Cylindrical eyes protrude ⅛ inch. The Indian who made this specimen found that he had the snout too low to admit his drill to make the front perforation and he thereupon snubbed the 'nose.' The front perforation broke out and a shallow groove around the center indicates wear from tying it to a shaft after breakage of the perforation. Each eye bears an incised design and both sides of the body carry a unique two-row, punched design from the eyes to the tail. Considerable likeness to broken head and neck portion of specimen found in 1955 in the Bronx. See Plate 68. Found prior to 1890 near Emmons by Mr. Rathbone. Illustrated at Fig. 216 of Moorehead's Stone Ornaments. Collected by Willard E. Yager of Oneonta. Author's Collection [Townsend 1959:550].

This example owned by Townsend in 1959, measures 108 mm long (4 ¼ in), and has the same type of serration along the anterior aspect, or muzzle, from the top of the head down to the tip of the "nose," as the intact example reported from the Waverly area, here listed as item "F." In his Chapter VII, "How Birdstones Were Made," Townsend (1959:236, Pl. 68) inserted data on the fragment of birdstone reported by Lopez (1957:423). Although Townsend avoided inclusion of most broken examples known, the 60 mm long Bronx fragment noted by Lopez has markings that are noteworthy. Townsend captioned Plate 68 as "Head and Neck of Reddish-Brown Slate Pop-eyed Birdstone," and offers a view from above. The top surface has the markings that Townsend found to be of note. The text of the three paragraphs offered on the subject by Townsend, here formatted slightly differently, are informative.

> This head portion was found by George Younkheere in 1955 in disturbed earth at the Schurz Site in the southeast corner of the Bronx within the city limits of New York. Note the parallel incisions running across the top of the neck which are spaced almost exactly one mm. apart. Apparently these are tool marks. It is difficult to conceive that any tool other than a metal one left these marks in material so hard. Perhaps fossil teeth or copper spikes set in rows made the marks.
>
> Note the 'X' incised on the back of the head. The balls of each eye bear a like design. This odd-shaped head which has no beak probably is related to the elaborately incised specimen from Long Island shown at Plate 10 and the one from Otsego County [New York] shown at Fig. A of Plate 223.
>
> Julius Lopez, in 'A Birdstone Fragment from New York City,' in *American Antiquity* [1957] XXII, 423, has attributed the instant specimen to the North Beach Focus, Windsor Aspect, which is said to have been coeval with the Vine Valley Aspect of central New York [Townsend 1959:236].

The fact that Townsend owned two of the birdstones known from the Waverly area (B and F) is of some interest. The rarity of these objects may have led owners to perceive their examples as anomalous, and to part with them for little money. Related to Townsend's impressive search we have only indirect evidence for his personal transactions relating to this category of artifact.

G. Susquehanna River Archaeological Center (SRAC), Waverly, New York (Figure 11)

Head only of a pop eye birdstone (Becker 2008a:3). This fragment, which measures 2.2 cm (⅞ in) across the eyes and 2.5 cm (1 in) from the tip of the nose to the break, had later been drilled to make an amulet. This example is said to have been found in the area of Waverly, New York and at some point entered the George Keeler Collection in Waverly. Mr. Keeler later gave this piece to Mr. Ellsworth Cowles, who recently donated it to SRAC, where now it is on display in their Exhibit Hall, as part of the SRAC/Cowles Collection. The many New York features of this "head" are strikingly similar to the now missing birdstone listed as C, above.

These seven examples of birdstones from a limited area near or surrounding Waverly, New York would not have excited interest had we not stepped back and examined the general distribution of Townsend's study. Twigg points out that these seven examples may be seen as deriving from two smaller areas within the zone surveyed by Murray (1921). One of these smaller areas lies within a 1 mi radius of Waverly, New York. The northern part of Spanish Hill is also located within Waverly, and thus appears at the center of this smaller area. The second area lies within a 5 mi radius of Nichols, New York, where the Engelbert Site was situated. While these two locations are generally associated with sites of the Contact period, the evidence for Late Archaic activities in each general location extends beyond the presence of birdstones.

Of particular note is the finding that these seven examples are the only birdstones known from Tioga County. The information relating to 7 birdstones known from the Waverly area, as well as an additional 9 (possibly 10) from Onondaga County that now are among the 19 at the New York State Museum (see Appendix 1), merits further attention. These numbers reflect a seemingly high incidence—a density not known beyond this particular region of New York or Pennsylvania. Quite possibly an intensive study of specific area collections in other parts of New York might generate important information about the distribution of this artifact category, but at this time these finds appear unusual and worthy of further attention.

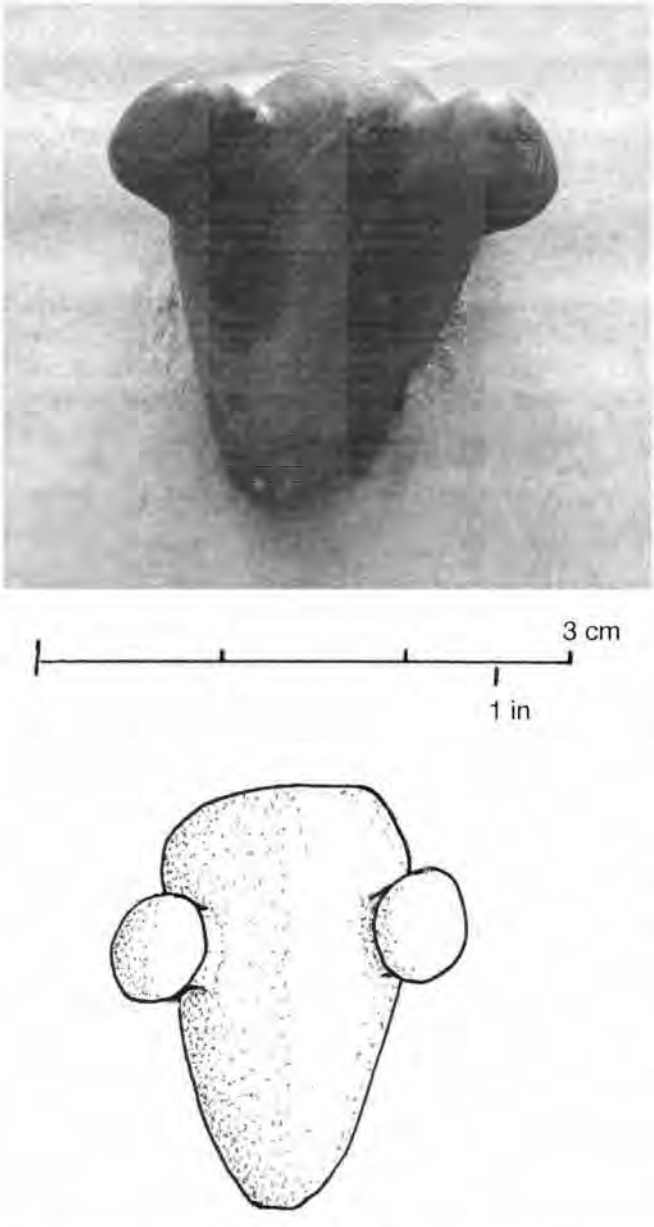

Figure 11. Birdstone G: Head fragment (only) of a pop-eyed birdstone, drilled to form a pendant. This example was donated to the collections of SRAC by Mr. Ellsworth Cowles. (Photo courtesy of Deb Twigg of SRAC).

Notes on Birdstones from Pennsylvania, New Jersey, and Points South

Despite sharing long borders with Ohio and New York, birdstones are rare in Pennsylvania, and elsewhere to the northeast (Abbott 1872; Cross 1941; Blenk 1977; Becker 2009). Becker augments the sparse data offered by Townsend, but still demonstrates that birdstones are quite unusual finds in Pennsylvania. Townsend (1959:660-665, Pls. 278-280) recorded only 23 examples of birdstones from Pennsylvania and 2 from New Jersey: 1 a "bust" type and the other a pop-eye variety. The bust type was supposedly found on the "bluffs forming the eastern bank of the Delaware River," but Townsend (1959:532) also states that it came from near Trenton and that it was "collected" [purchased?] by Charles Abbott. This confusion seems to characterize the limited data on birdstones from New Jersey (Mounier 2003).

The precise distribution and types of birdstones in Pennsylvania remains to be studied. Of note is Townsend's demonstration that the "Pennsylvania" examples are largely concentrated towards the eastern part of the state and along the Delaware River. In reviewing the evidence from the Waverly area, along the New York-Pennsylvania border, we have considered data from excavations in the area of Tocks Island in the upper Delaware River Valley (Kraft 1975). No birdstones and no bannerstones, or fragments thereof, were located during Kraft's research, or have been reported from anywhere in the general area of the upper Delaware Valley. While small numbers of bannerstones have been recovered to the east of the Delaware Valley, birdstones appear almost entirely absent. This suggests that the cultural boundary for the use of these stone objects may lie to the west of, or along the Delaware Valley.

On the eastern side of the Delaware Valley, in New Jersey, the archaeological data is particularly good; yet birdstones are almost absent from the archaeological record. A review of the literature and some related information on the very rare finds of birdstones in New Jersey appears elsewhere (Becker 2009).

Although birdstones are relatively rare in Pennsylvania and New Jersey, some occur along the shores of Chesapeake Bay and in Delaware which may relate to the cluster known from the Waverly, New York region. Before examining Lowery's (2007) data, note should be made that only three birdstones are known from Virginia and three from West Virginia (Townsend 1959:674-5; McCary 1968). Michael F. Johnson (personal communication, November 11, 2008) reports that he is unaware of any recent finds made in

Virginia. Townsend reported only four examples from North Carolina (1959:564-565), and 3 from Maryland (1959:436).

Although birdstones are rare in Maryland, they are *not* absent as Becker (2009) incorrectly reported. Darrin L. Lowery (2007:distribution map) identifies the find spots for birdstones (whole or fragmentary) from Delaware (3) and Maryland (13) and notes that 3 other fragments are known from this region. These may include 2 fragments at the National Museum of Natural History. Curry (2010) addresses questions regarding the distribution of the birdstones now known from Maryland. A total of 19 examples now are known from that region, with 2 from along the lowest portion of the Susquehanna River and 8 from sites directly adjacent to the upper portion of Chesapeake Bay. All but 1 of these 8 is on the eastern side. These locations, as well as two others near the Atlantic coast of Maryland, lead one to ask why these sites are so clearly related to the coasts. Lowery, who at present (2009) is working with colleagues on a paper relating to marine transgression and impacts on archaeological sites, may produce answers to this and related questions concerning distributions.

Discussion

What birdstones were used for, and why they may have traveled or been traded, remains speculative. The distribution of birdstones is somewhat distorted by their monetary value to collectors and a focus on their artistic merits, not provenance. Collectors sometimes attempt to trace provenance back to an original finder in order to verify a history and avoid the purchase of one of the many forgeries. Terms such as "bought" or "sold" are avoided in discussions where birdstones are said to have been "collected" or that they "traveled to" a new owner. Only artifacts excavated from controlled and well documented situations can provide the wealth of archaeological information that furthers our understanding of the past. Reliable surface collections, from specific and well documented locations, provide a much more limited amount of information but still can help contribute to our understanding of cultural borders and early trade.

The belief that birdstones date from the Archaic period derives from limited documented archaeological evidence and, more rarely, their apparent association with bannerstones. Birdstones seem strongly associated with bannerstones in some areas (Bowen 1994, 2009). They often are made from the same types of stone and both appear to have been made during the same period of time. Many believe bannerstones to have been atlatl weights and some people also consider birdstones as a type of atlatl weight. Various forms of bannerstones are distributed over much if not all of the Americas, but the distribution of specific "types" remains to be determined.

Recent finds of birdstones are rare, and none derive from controlled excavations. Surface finds, however, continue to be reported. Darrin Lowery notes that three fragmentary specimens have come to his attention in the Delmarva area since he presented his 2007 paper (see also Mickey 2009). Lowery (2007) associates the birdstones found along the eastern shore of Maryland, with one exception, with artifact assemblages diagnostic of the Meadowood and Glacial Kame cultures of c. 1000-600 B.C.E. (personal communication, December 2009). This would place them before the Adena culture, which may be generally dated to c. 800 B.C.E. to 100 C.E. (Ritchie and Dragoo 1960; Ford 1976). Lowery's survey indicates that the short, squat type with bulging eyes may be Adena-related, or possibly associated with early Hopewell. A number of authors place birdstones of all types into the Early Woodland period, although they vary in the dates assigned (Spence and Fox 1986, Beld 1991, Stothers and Abel 1993, Lowery 2007) (cf. Becker 2010).

The peoples of the Late Archaic and Early Woodland periods have become much better known in recent years, with research in New York being particularly fruitful (cf. Versaggi 2008, Rieth and Horton 2008). Other phases of the long Archaic period are slowly being identified and dated, with no finds of birdstones reported before the Late Archaic (Curtin 2009, cf. Coppock 2009). Bird effigies or bird figures, however, are common throughout the Archaic period and later. In the northeast they extend as far as Newfoundland where several objects with bird representations were recovered in 1968 at a Maritime Archaic cemetery (c. 2000-1700 B.C.E.) in Port au Choix along with bird bone tubes or whistles (Tuck 1971: 348-349). Most if not all of the c. 100 burials at this site had red ochre covering the bones, tying them to the widespread "red paint" tradition that sometimes is related to finds of birdstones. Whether these representations of birds from the Port au Choix site are parallels or precursors to the "birdstones" discussed here remains to be determined.

Efforts are now being made to recognize cultural variability, specific to defined areas, during the Late Archaic period. The construction of better models of land use and better cultural chronologies for all of the Northeast are one specific goal (Versaggi and Miroff 2009). Related to land use and boundary issues is Thomas Brunton's examination of evidence from the area of southwestern New York during the late prehistoric period in search of a possible cultural border. He notes that the perception of this area as a boundary may be a construction of research modes. Brunton concludes that this zone was part of a broad frontier between what is recognized as Mississippian and Iroquoian influences (Brunton 1998: 42, 2009: 18). Brunton turns to the work of Bernard Means (2007) on the Late Woodland period Anderson Site in Chautauqua County to provide evidence

for a frontier, thus extending the date of this division line back into the prehistoric period (cf. Skinner 1919). Evidence from the distribution of birdstones in that region suggests that this postulated cultural boundary may have even greater antiquity. The reasons for this divide could be largely ecological. While researching this paper I noticed a publication relating to fossil pollen assemblages in eastern North America. Some of the distribution maps reflecting novel plant communities during the Pleistocene resembled the distribution of birdstones (see Gill et al. 2009: 1101). Ohio appears to be the center of an ecosystem that extends into western New York, and this ecosystem may provide the basis for a foraging pattern shared by the peoples making and using birdstones.

The distribution of birdstone finds across North America is telling us something, but what remains hidden in the past. Bowen (1994: 13, Fig. 11, also 2009) noted that bar-type birdstones are concentrated in northwestern Ohio and adjacent areas, somewhat matching the distribution of notched butterfly bannerstones (Brown 1909). Bowen points out that many bar-type birdstones, however, derive from graves (Converse 1978, Stothers 1992, Stothers and Abel 1993) (see also Parker 1917; Bello and Dillian 2005). Bannerstones were not found in the same burial contexts.

No relationship has been suggested between birdstones and Woodland period carved stone platform pipes ornamented with birds or other animal figures. The platform pipe tradition appears totally unrelated to birdstones, but does reinforce the suggestion that birdstones may have been associated with flutes. Since the makers of birdstones carved only "birds" and not other types of animals when making these objects, one might suggest that something specific about birds was essential to the product. I suggest that they may have been a culturally specific form of ornament, commonly used on flutes.

Townsend's remarkable compendium of birdstone data focuses on intact examples, but the numbers of broken examples in various collections may be as large as the numbers of complete specimens. Townsend does provide a brief section on broken pieces, most of which had been drilled for use as pendants. I suspect that broken examples commonly were turned into pendants, thus leaving very few unworked fragments. Townsend (1959: 56-57) also offers useful data on a few of the unfinished examples that are known, and cites Cassell (1942) as being the first to note that perhaps 5% of identified birdstones were unfinished. Cassell (1942) also pointed out that the drilled holes of a substantial percentage of the known examples are broken or pulled out, which renders them unsuitable for mounting or for suspension. Cassell's role as a "collector" (see Townsend 1959: 562) should be noted. In an editorial note accompanying Cassell's 1943 paper, he is said to be "recognized nationally as having the second largest private collection of Birdstones [sic] in this country."

G. Lattanzi (personal communication, November 2008) makes an extremely important observation that leads me to offer another note on the rarity of birdstones in New Jersey (see Becker 2009). Lattanzi specifically states that the 50 or more bannerstones in the collections of the New Jersey State Museum are in all stages of the manufacturing process (see also Cresthull 1972). The difficult task of carving and drilling stone of any types has led to the presence of large numbers of unfinished examples appearing in collections. On the other hand, when broken birdstones are noted they invariably appear to derive from pieces that had been completed. The considerably more complex forms used in fashioning birdstones might be expected to yield proportionally more incomplete examples than the high percentage known for bannerstones. The rarity of what may be called "incomplete" birdstone once again leads me to wonder what percentage of known "examples" in this category are modern fabrications.

Information relating to a cluster of birdstones found in the area around Waverly (Tioga County), New York serves as the focus for this paper. The total number reported is only seven, but this information describes a node of considerable interest. Examining all of the data on birdstones from New York State we find that only two or at most three other examples may be from the three county New York area that includes Chemung, Tioga and Broome. Townsend's compendium includes only one example from Broome County (listed below as Townsend's "g"). The original of a cast of a birdstone in the Smithsonian Institution (Cat. no. 58522; now listed as A58522-0) is said to have come from Broome or Tioga County, but a photograph of this cast is needed to determine if it is a copy of one of the seven pieces described here. Finally, the New York State Museum holds an example (Bx 31778) said to be similar to one reported from the town of Newark Valley in Tioga County. Unfortunately no example from Tioga County is held in the NYSM collections. Where this Tioga Valley look-alike piece may be held is not known. In 2008 the NYSM held approximately 19 birdstones in its collections, of which about half "are from Onondaga County" (personal communication, Rataul to D. Twigg, November 2008). Onondaga County, New York lies due north of Waverly, in the eastern part of the Fingers Lakes zone. Whether these numbers reflect a relatively heavy concentration, or simply a large number of examples being donated to the NYSM through the generosity of people living in and around the Syracuse area, cannot now be determined.

When considering the Waverly Area examples and the birdstone data from further south along the Susquehanna River, one can imagine a transit route for these items. They seem to derive from, or have come through, an area to the

north in which they are abundant. While birdstones are almost unknown from along the Susquehanna where it passes through Pennsylvania, two birdstones were recovered from sites close to its mouth and many others are documented nearby, from the upper zone of the Chesapeake Bay. Lowery (personal communication, December 2009) also points out that a few others appear to have crossed the narrow part of the peninsula and moved up along the Delaware Bay and River. While most finds are from nearshore locations, "three fragmentary specimens were found in the interior of the Delmarva near the drainage divide" (Lowery, personal communication, 2009), for a total of 19 in the area (13 in Maryland; see also Curry 2010, who reports on 9 of these). That drainage divide is exactly where I place the Late Woodland period cultural boundary between the Sikonese and the peoples to their west. Lowery notes that "Wyandot turkey-tail blades" and other Meadowood-like materials seem to follow the same route. The southernmost location for these materials along the Chesapeake is an extraordinarily rich but as yet unpublished "Meadowood" related site where Lowery excavated two birdstones. Bowen's (2009) artifact distribution maps reveal "trade" in other items down the Susquehanna, with the Sandy Hill Site (18 DO 30) in Dorchester County, Maryland as a terminus. Lowery (personal communication, December 2009) notes that two pieces of what he believes to be a single birdstone are known from the Sandy Hill Site. He suggests a probable association with "Glacial Kame" like material derived from this extensively looted site. Marine shell is the most likely resource sent north, and then west, from the Chesapeake area where these birdstones were found.

Since so few birdstones have been recovered from excavations, little can be inferred about their functions from archaeological contexts. Regardless of their actual functions, surface finds of birdstones offer a means of studying regional differences in this artifact type and possible cultural borders during the period of their use. Lowery (2007) suggested that the few birdstones found in the Chesapeake Bay region reveal the extent of trade goods associated with the Meadowood artifact assemblage. His association of most birdstones with the Meadowood and Glacial Kame cultures of c. 1000-600 B.C.E. offers clues regarding the time of their appearance and their evolution at the end of the "Archaic" and into the Early Woodland period.

Conclusion

The finds of seven birdstones clustered in the area of Waverly, New York, within an extensive area from which no other examples are known, suggests the presence of special activities at or around that location. These finds may reveal an important transit point in a Susquehanna River trade route from central New York down to the Chesapeake Bay during the Late Archaic to Early Woodland period.

APPENDIX 1: Examples of New York Birdstones; a preliminary listing by collection.

The numerous examples of birdstones from New York listed by Moorehead (1917) and Townsend (1959) provide an important indication of the incidence and distribution within the state. Townsend listed them by "type" while the listing here is by museum, or collection in which they are held. Among the types of birdstone found in New York is one that William Ritchie (1944:187) called "ridged-base." This type of birdstone, also called footed, has a ridge running down the spine of the "bird." These are relatively common in Ontario, Canada. While modern state boundaries generally yield poor indications of the distribution of prehistoric artifacts, they do enable us to begin a survey. In the case of birdstones in New York, the eastern and southern boundary lines provide surprisingly good demarcators of this cultural trait.

The materials from which these items are fashioned are not indicated here because the evaluation of stone type often is subjective. In most cases the categories established by Townsend for these items appear equally subjective. Features such as ridges down the back or the wide variety of "eyed" forms render categorization quite difficult. Computerization of information will facilitate manipulation of data sets for future students. The data in the following listing provides some access to Townsend's information, some of which appears in surprising locations within his opus.

The numbers of birdstones found in New York but now located outside the state cannot be estimated. Museums and private collections in nearby locations should be the first to be surveyed. Canadian collections, of course, may have many examples found in New York that crossed the border at some time. How many birdstones exist in European collections, if any, is not known. At least six bannerstones are in Florence, Italy (Bushnell 1905, see Becker 2001:64), but no birdstones have been noted by the author in any European collections.

American Museum of Natural History (AMNH)

Townsend (1959) suggests that a total of only 10 birdstones were at the AMNH, but Moorehead (1917:226) says that the huge Ander E. Douglass Collection in the AMNH alone held a total of 38 "Bird Amulets" of which 16 were from New York. Williamson of the AMNH reports that the Douglass Collection, said to include 23,000 American Indian objects (see Douglass 1901), holds 35 "bird amulets" of stone, although their specific identity as birdstones is not confirmed (Williamson, personal communication, January, 2010). The 12 listed here include 11 from Townsend's records. The AMNH computer listing reveals that most arrived in their collections between 1891 and 1917. The catalogue numbers listed by Townsend vary in some cases from the modern computerized listing.

M/1193 (Townsend 1959:544, Pl. 220B). Found on shore of Lake Keuka, Penn Yan, Yates County.

M-1661 (Townsend 1959:538, Pl. 217D) Green slate, dark bands, Very large button eyes, from Steuben County.

N/102 (Townsend 1959:540, Pl. 218F) Green slate. Ridged "base" example fromWashington County.

N/102 [bis] (Townsend 1959:540, Pl. 218H, I) Two views of a piece from Washington County acquired in 1888, and assigned the same catalogue number as the item above.

N/580 (Townsend 1959:552, Pl. 224A) Plowed up in the summer of 1858 near Tyre, Seneca County. Part of the Andrew E. Douglas Collection.

T-289 (Townsend 1959:562, Pl. 229I, also Moorehead 1899:Fig. 22) Found near the Seneca River at Balwinsville. Onondaga County.

T-2729 (Townsend 1959:554, Pl. 225I) From Delphi, Onondaga County. Green slate.

T/2730 Example from Belleville (Jefferson County), New York (Williamson, personal communication January, 2010).

20.1/999 Townsend 1959:562, Pl. 229F) Found on Dutcher Farm, c. 3 mi north of Seneca Falls, Seneca County (before 1917?).

20.1/3689 (Townsend 1959:552, Pl. 224C) Found at Fort Hill, Geneseo, Livingston County. Green slate.

20.1/5837 (Townsend 1959:556, Pl. 226H) Found at Victor, Ontario County in 1878. A cast of this is at the Smithsonian (as Cat. No. 32289).

20.1/5840 (Townsend 1959:548, Pl. 222D). Highland Fruit Farm, Seneca County.

Buffalo and Erie County Historical Society

In 1862 Millard Fillmore and colleagues founded the Buffalo Historical Society. In 1901 the "New York State Pavilion" was erected for the Pan-American Exposition, which was transferred to the Buffalo Historical Society at the end of that year. Later know as the Pan-American Building, it held the museum collections among which are

the 10 examples of birdstones that are all from New York. Most had no catalogue numbers when reviewed by Townsend.

No. 26	(Townsend 1959:534-535, Pl. 215B) Bust, Allegheny County.
No #	Pop-eyed, ridge base. Green slate with black bands (Townsend 1959:538, Pl. 217C) From near Prattsburg in Steuben County.
No #	(Townsend 1959:542, Pl. 219C) This pop-eyed, banded slate example has a long pointed beak. From Oswego County.
No #	(Townsend 1959:552, Pl. 224B) County unknown, but provenience given as "Buffalo 'K'".
No #	(Townsend 1959:554, Pl. 225A) County unknown, and material unknown. Tall base resembles a pipestone (?) example from Ohio (see Townsend 1959:Pl. 257C).
No #	(Townsend 1959:554, Pl. 225D) Oswego County.
No #	(Townsend 1959:554, Pl. 225F). Cattaraugus County. Green slate, black bands.
No #	(Townsend 1959:554, Pl. 225G) Erie County. Dark green slate.
No #	(Townsend 1959:554, Pl. 225H). Allegheny County. Extensively reworked.
No #	(Townsend 1959:562, Pl. 229C) Said to be from western New York, but no county is known.

Moorehead (1917:200) had reported a small example in these collections as from Town Line, Erie County, similar to New York SM Bx-31778. Not known which one this is.

Buffalo Museum of Science Formerly the Buffalo Society of Natural Sciences

This organization traces its roots to the Young Men's Association founded in 1836, which formed the Buffalo Society of Natural Sciences in 1861. In 1929 the Society moved to the present facility located at 1020 Humbolt Parkway as the Buffalo Museum of Science. When Moorehead visited prior to 1917 it had the earlier name. Moorehead (1917:200) reports on one birdstone in this collection from Springfield, Cattaraugus County. Others may have entered the collections since them.

Hartwick College (see Yager Museum)

Heye Foundation, Museum of the American Indian (see under National Museum of the American Indian –Smithsonian Institution)

Indiana Historical Society Collections, Indianapolis, Indiana

10/8	(Townsend 1959:560, Pl. 228B) Ohio pipestone. Damaged. New York County of unknown name.
10/10	(Townsend 1959:558, Pl. 227B) Found near Silver Creek, Hanover Township, Chatauqua County. Reworked.

Jefferson County Historical Society, Watertown, New York

583	(Townsend 1959:546, Pl. 221H) This extremely large example from Jefferson County was illustrated by Beauchamp (1897:Fig 135). Moorehead (1899:Fig. 15) suspected that this "reconstructed" example was fraudulent. Townsend also suspected that parts or all of it are fraudulent, but Tim Abel, a past director of the Society, believes that this is a real example and notes that it is the largest that he has ever seen (personal communication, January, 2010). Although Townsend gives the provenance as Jefferson County, Abel indicates that he knows of no known provenance for this reconstructed piece
No #	(Townsend 1959:562, Pl. 229B) Townsend believes that this example was found at Point Salubrious, Jefferson County. Abel notes that the snout had broken off and the piece was then reworked. Abel also notes that he recalls no known provenance for this example.

National Museum of Natural History – Smithsonian Institution (NMNH)

Note that these collections are distinct from the recently secured Heye Foundation collections at the National Museum of the American Indian. The on line catalogue of the NMNH indicates that they hold a mix of original birdstones and casts from other collections, the total being 78. Of these 78 items there are 5 real birdstones from New York, plus 6 plaster casts of examples from New York. Catalogue listings for all 78 examples may be examined by visiting the following website:
http://collections.nmnh.si.edu/anth/pages/nmnh/anth/Display.php?irn=8303558&QueryPage=%2Fanth%2Fpages%2Fnmnh%2Fanth%2FDtlQuery.php

A sampling of these real and plaster examples from New York is as follows:

A32289-0 Plaster cast of AMNH item 20.1/5837 (see Townsend 1959:556, Pl. 226H) From Baldwinsville, Onondaga County.

32291 Plaster cast of NYSM item 31772 (see Townsend 1959:546, Pl. 221D).

A58522-0 Cast only (Townsend 1959:536-537, Pl. 216D) Townsend says that the original was from Tioga or Broome County, New York, but the NMNH catalogue gives only Broome County. The donor was F. Roulet (1881). Accession no. 010398.

64141 (Townsend 1959:534-535, Pl. 215D) Bust type made from white quartz, but not finished. Possibly from Randolph in Cataraugus County.

97128 (Townsend 1959:542, Pl. 219B) Found in 1884 in area west of Madison Barracks. Sackets Harbor in Jefferson County on Lake Ontario.

382255 (Townsend 1959:560, Pl. 228A) "Ohio pipestone" from a hill west of Chautauqua in Ellington Township, Chautauqua County. Donors John William Fenton and William N. Fenton (April 3, 1941). Accession no. 159125.

Note also should be made that the NMNH also holds a plaster cast of a "bust-type" birdstone from the famous Swanton Site ("Middlesex Culture") in Vermont (NMNH A030036-0). Mounier points out that this appears to be related to the Meadowood culture in Maryland (see also Loring 1985).

National Museum of the American Indian - Smithsonian Institution

Now including collections from the Heye Foundation, Museum of the American Indian

At least 133 birdstones are known among the approximately 280,000 items that came with the Heye Foundation collections in New York City (Ann McMullen, personal communication December 2009). Both collections provide information for this listing of the 18 examples known from New York, plus 2 others that had been on loan to the Heye and had been returned. Taken from the Heye Foundation catalogue cards as well as Townsend's 1959 opus.

014639.000 Heye Foundation 1/4639 (Townsend 1959:550, Pl. 223E). Erie/Cattaraugus County? "Collected by Mark R. Harrington on the Cattaraugus Reservation in 1907." This is not the only birdstone that appears to have been found and held by Native peoples, perhaps a thousand or more years after being lost or buried.

054385.000 Heye Foundation 5/4385 (Townsend 1959:538, Pl. 217B). Watertown in Jefferson County. Green slate with bands. Collected in 1916 by E. M. Jackson.

074409.000 Heye Foundation 7/4409 (Townsend 1959:560, Pl. 228D). Porphyry. From Schenectady in Schenectady County. See also Moorehead (1917:Fig. 158:4) who states that it was from Plattsburg where many unique specimens have been found.

082963.000 Heye Foundation 8/2963 (Townsend 1959:536-537, Pl. 216E). Lewisohn farm in Ardsley in Westchester County. Presented by Rev. William R. Blackie, 1918.

086231.000 Heye Foundation 8/6231 (Townsend 1959:546, Pl. 221B). Pleasant Valley in Dutchess County. By exchange. "Prior to 1918 it was in The American Museum of Natural History."

088348.000 Heye Foundation 8/8348 (Townsend 1959:544, Pl. 220A). Found in 1842 at the George Green Farm in Royalton in Niagara County. Presented by Williiam J. Mackay in 1918.

088349.000 Backus farm (Indian Falls) 2 mi east of Lockport, Niagara County. Presented in 1918 by William J. Mackay.

103797.000 Heye Foundation 10/3797 Presented 1921 (see Townsend 1959:538, Pl. 217E). Erie County, Light green slate, striped.

107059.000 Dutchess County. Gift of Long Island Historical Society 1921.

112250.000 Staten Island. From H. A. Allen, 1922.

188360.000 Heye Foundation 18/8360 Kingston, Ulster County. 1935

197238.000 Heye Foundation 19/7238 Museum purchase 1937 (Townsend 1959:538, Pl. 217A) Centerville, Allegheny County. Green slate, dark bands.

198005.000 Heye Foundation 19/8005 (Townsend 1959:562, Pl. 229H) Claimed to have been found at Poundridge, Westchester County. Museum purchase. Appears fraudulent to MJB.

206517.000 (Loan to Heye 20/6517) (Townsend 1959:562, Pl. 229G). Seneca County.

206518.000 (Loan to Heye 20/6518) (Townsend

1959:548, Pl. 222B). Seneca County.

Both of these examples were "on loan from Palma Hope Lewis" in 1944, and noted as from the Dr. William H. Lewis Collection. Subsequently both were returned to Miss Lewis, and their present locations remain unknown.

220278.000 Heye Foundation 22/278 (Townsend 1959:542, Pl. 219A), from near South Bay, Washington County in east-central New York, close to the Vermont border. Presented in 1952 by Dr. Edgar Burke, Mrs. R. H. Schwab, and Mrs. F. S. Lee.

22/278 (Townsend 1959:542, Pl. 219A). Found near South Bay in Washington County, close to the Vermont border.

231657.000 Sag Harbor, Suffolk County, Long Island. By exchange from the William Wallace Tooker Collection, 1962.

234916.000 Unknown part of New York. Presented by Marjorie E. and Maynard Allen Cramer, 1964.

236602.000 Schoharie County. Presented by Evelyn W. and Warren William King, 1966.

New York State Museum, Albany

Rataul (2008) identifies 17 intact specimens, plus 2 fragments. A complete inventory of the NYSM collections is in process. Moorehead (1917:196) noted that the State Museum had "more than a dozen specimens" when he reviewed the collection. Several more appear to have been added to the NYSM collections by 1959 when Townsend published his study suggesting that the NYSM held c. 18 examples, most of them complete. Few if any have entered the collections since then. Items in the Otis M. Bigelow donation at the NYSM bear the prefix "Bx". The recent study by Rataul (2006) offers important insights into the materials from which these artifacts were fashioned. Townsend also listed one birdstone as being at the NYSM, but with a catalogue number that indicates that it was actually part of the American Museum of Natural History collections.

15369 (Townsend 1959:546, Pl. 221E). Exact find spot unknown, but Townsend says near LeRoy in Genesee County prior to 1890.

15890 (Townsend 1959:534-5, Pl. 215A) Bust type, location of finding unknown.

16005 (Townsend (1959:Pl. 77G) depicts this fragment. Find spot unknown.

Bx 28545 (Townsend 1959:556, Pl. 226D). Townsend relates this one to specimens known from Ontario (Townsend Plates 117 and 118).

Bx 30889 (Townsend 1959:558, Pl. 227D). First illustrated by Moorehead (1917:Fig. 158:1). Warren County.

Bx 31764 (Moorehead 1917:197-198, Fig. 158 No 6; (Townsend 1959:558, Pl. 227A). Found prior to 1900 at Lysander, Onondaga County

31768 (Townsend 1959:546, Pl. 221C). Onondaga County.

31772 (Townsend 1959:546, Pl. 221D). Found near Elbridge, Onondaga County in 1878 (see Beauchamp 1897:Fig. 142, Moorehead 1917:Fig. 62) (Drooker and Hamell 2007:8-9). A cast of this specimen is in the Smithsonian Institution as Cat. No. 32291. Drooker and Hamell (2007:9) identify this item as "A-31776" and state that it was acquired "as part of the Otis M. Bigelow Collection."

Bx 31775 (Moorehead 1917:197-198, Fig. 158 No 2). Van Buren, Onondaga County.

Bx 31776 (Moorehead 1917:198, 200, Fig. 156 [?]; Townsend 1959:536-537, Pl. 216A, B) . Lysander, Onondaga County

Bx 31777 (Townsend 1959:554, Pl. 225B). Geddes, Onondaga County.

Bx 31778 (Moorehead 1917: 200, Fig. 1; Townsend 1959:536-537, Pl. 216F, G). From Montezuma, Cayuga County, with ridge "base", similar to one reported from Newark Valley, Tioga County.

Bx 31779 (Beauchamp 1897:Fig. 139; Moorehead 1899:Fig. 3, 1917:197-198, Fig. 158 No "2"; Townsend 1959:556, Pl. 226E). Near Seneca River at Van Buren, Onondaga County. Approx. 6 cm long.

Bx 31779 [bis]. This number is repeated by Townsend (1959:556), with the latter example listed as Pl. 226F. Townsend says this example "appears as "3" in Moorehead 1917, Fig. 158. Approx 10 cm. long.

Bx 31780 (Townsend 1959:562, Pl. 229E). Found at Elbridge, Onondaga County.

Bx 31783 (Townsend 1959:540, Pl. 218E). Found in Onondaga County, made of banded slate.

T-1124 (Townsend 1959:548, Pl. 222E). Clinton County. Illustrated by Beauchamp 1897:Fig 140, Moorehead 1899:Fig. 18.

20.1/ 5838 Townsend (1959:554, Pl. 225E) lists this piece from near West Rush, Monroe County

as in the collections of the NYSM, but I have placed it with the AMNH).

No # County unknown. (Townsend 1959:540, Pl. 218C). Green gray slate. Also, see Moorehead (1917:200, Fig. 1, second item). Origin uncertain.

Townsend (1959) includes a brief reference to a piece of a birdstone at the NYSM, that may refer to No. 16005, listed above, or yet another fragment included in the above listing, or it may be an additional example. This appears to be in addition to these 18 clearly identified by Townsend. What is of interest is that the number "19" provided by Rataul is in agreement with the number culled from Townsend's summary. The possibility exists that no new examples have been added to the collections of the NYSM since 1959. How many of the birdstones now in the NYSM collection actually were found outside the state is not noted.

Robert S. Peabody Museum of Archaeology (Phillips Academy, Andover Massachusetts)

One of 11 birdstones in their collections is from New York. Cat. No, 29526: Port Chester, Westchester County. Donated by F. Hillman in 1908.

Rochester Museum & Science Center (N=11)

AR 9081 (Townsend 1959:540, Pl. 218B) Near Phelps in Ontario County.

AR19634 (Townsend 1959:556, Pl. 226C). Mendon, Monroe County.

AR19636 Townsend 1959:562, Pl. 229D). Oneida County.

AR 19638 (Townsend 1959:556, Pl. 226A). West Henrietta, Monroe County

AR 19639 (Townsend 1959:558, Pl. 227E). Dark gray porphyry. From near outlet of Canandaigua Lake in Hopewell, Ontario County.

AR 19640 (Townsend 1959:554, Pl. 225C) Wayne County.

AR 19644 (Townsend 1959:548, Pl. 222A) Found near Hillsdale, Columbia County. "Apparently unfinished, ...".

AR 29990 (Townsend 1959:536-537, Pl. 216C). West Barrie, Genesee County, New York.

AR 32617 (Townsend 1959:131-137, 540, Plates 40, 77J, 218D) This example from Burial 6 is one of two excavated at Brewerton Site by William Ritchie (1938) and is well documented (see text, above).

AR 32642 (Townsend 1959:131-137, 540, Plate 41). This "unfinished sandstone" example from Burial 14 at the Brewerton Site is the second excavated by Ritchie at this site in Oswego County (see text, above).

AR 34404 (Townsend 1959:540, Pl. 218G). Livingston or Monroe County.

Smithsonian Institution (see under National Museum of the American Indian –Smithsonian Institution)

Waverly, New York Area (incl. Susquehannah River Archaeological Center (SRAC) (N=7) of which two are owned by SRAC (A, G), one is missing, and four others are in three different private collections. These seven examples are listed and described in the above text. Item "B" listed below also appears in the private collection listing below. That Townsend may have owned two of the birdstones known from the Waverly area (B and possibly F) is of some interest. More significant is the finding that none of the many birdstones from New York known in other collections are reported to have been from Tioga County.

A. Susquehanna River Archaeological Center (SRAC), Waverly, New York. Headless birdstone (see Becker 2008a:4, Fig.) recovered from the Park Farm and described by Murray as Site 21, situated across the river from the site from which the Wolcott Collection was recovered.

B. Townsend Collection (in 2005? See Townsend 1959:548, Pl. 222C). Also listed below under Private Collections, Townsend "d." This pop eyed birdstone from a Tioga County site "at Nichols was first reported and illustrated by Murray (1921:284-285, Fig. 59; see Townsend 1959:548, Pl. 222C; Becker 2008a:2, right fig.).

C. Present location unknown! SRAC Logo Birdstone, From Shepard Hills Country Club, Waverly, New York. This pop eyed (eared?) birdstone was illustrated by Murray (1921:293, 294 Fig. 65, see also figure at upper right in Becker 2008a:1). The present location of this example is unknown.

D. Private Collection of Donald Hunt as of 2009. From Litchfield Station, near Nichols, Tioga County, New York.

E & F. Private Collection (2009). The L. Kouterick Collection. Example "E" is a typical birdstone with a sloping saddle and short tail

(Becker 2008a:2, rear of left fig). When the second birdstone (F) was found is not known (cf. Coppock 2009). Birdstone "F" appears "dumpy" to me and is quite distinct from almost all the other known birdstones, but is so similar to one published by Townsend (1959:Pl. V) as to merit special note as a possible copy. This example, possibly owned by Townsend (1959:236), measures 108 mm long (4.25 in), and has the same type of serration along the anterior aspect, or muzzle, from the top of the head down to the tip of the "nose" as the intact example reported from the Waverly area; here listed as item "F."

G. SRAC collections. Head only of a pop eye birdstone (Becker 2008:3, Fig.), later drilled to make an amulet. This example was found in the area of Waverly, New York.

The University Museum of the University of Pennsylvania (2 of 4 are from New York)

2520 (Townsend 1959:546-547, Pl. 221H). Oneida County, donated by Francis C. Macauley in 1890.

12715 Not listed by Townsend, presumably because it was originally among gifts that Francis C. Macauley gave to the Academy of Natural Sciences in Philadelphia. This New York example and one other birdstone were transferred to The University Museum after 1959 and had not been known to Townsend.

Yager Museum of Hartwick College

4538 (Townsend 1959:546, Pl. 221A). Head and neck portion only. Otsego County.

Private Collections (10 collections with 21 examples, see also 2 of the 3 private collections noted under SRAC, above)

1. Gilbert W. Dilley Collection, Akron, Ohio. (Townsend 1959:550, Pl. 223C). Appears to be unfinished (or severely eroded). Unique knobbed tail. Richmond Mills, Ontario County. Noted by Moorehead (1917:198). Townsend states that "fakers have copied it, doubtless from Moorehead's illustration." This is a rare note relating to the many suspected fakes seen by Townsend in the course of his study.

2. Robert R. Hill (PRRH) (Townsend 1959:137-139, 534-535, Pls. 42 and 215C). Bust, near Cuylerville in Livingston County. See text for important excavation data. Hill's collection was dispersed after his death and the present location is unknown.

3. Ladow Johnson Collection, Toledo Ohio. (Townsend 1959:544, Pl. 220C). From Chenango County, but in the A. W. Pendergast Collection (Fairbury, IL) before being purchased by L. Johnston.

4. Moseley Collection (Moorehead 1917:197-198, Fig. 158 No 5):Richmond Mills, Ontario County.

5. E. K. Petrie Collection, Burlington, Wisconsin
a. Townsend (1959:562, Pl. 229A) describes this piece and traces its history from "Onondaga County" but does not have a more specific "find spot."
b. Townsend 1959:562, Pl. 229J). Western New York, county unknown.

6. Edward H Rogers Collection, Devon, Connecticut (PEHR). Townsend (1959:53-55, 98, 550-551, Plates 10 and V) describes this elaborately incised example, from near Hempstead, Long Island in Queens County, New York

7. B. W. Stephens Collection, Quincy, Illinois.
a. (Townsend 1959:546, Pl. 221G). Found in Ontario County in 1850. Townsend traces its history to Illinois.
b. (Townsend 1959:556, Pl. 226B). Lacona area (?), Ontario County.
c. (Townsend 1959:560, Pl. 228C). Ohio pipestone. Seneca County.

8. D. H. Thompson (Moorehead 1917:196-198, Fig 158:1). From Hague, New York.

9. Earl C. Townsend, Jr.
a. "Collected by Joseph J. Quinlan of Dansville, New York, prior to 1938, it passed into the A. B. Cassell Collections at Minneapolis" (Townsend 1959:540, Pl. 218A). No number. Livingston County. Green slate.
b. From Newark Valley region of Wayne County (Townsend 1959:544, Pl. 220D).
c. (Townsend 1959:546, Pl. 221F). South of Phoenix in Onondaga County.
d. (Townsend 1959:548, Pl. 222C). Found at Nichols, 10 mi east of Waverly at the mouth

of the Wappasening." Tioga County (see text under Waverly Area, Item B).
e. (Townsend 1959:550, Plates V [facing p. 98] and 223A). Found prior to 1890 near Emmons, Otsego County (see Moorehead 1917:Fig. 216). Reddish-brown slate, similar to stone of a fragment found in the Bronx (see Lopez 1957, Townsend 1959:236, Pl. 68). See item "F" in the text under New York (above) for an identical example, or a copy. The present location of the Lopez find is not known (see below).
f. (Townsend 1959:550, Pl. 223B). Found at Brewerton, Oswego County (Beauchamp 1897:Fig. 145, Moorehead 1899:18, Fig. 24). Townsend (1959:550) notes Beauchamp's observation that "many birdstones were found at Brewerton." He does not cite Ritchie's (1937, 1938) work at Brewerton, which may have been stimulated by looting at the important Archaic period site there.
g. (Townsend 1959:550, Pl. 223D) Found in 1889 on the farm of Edgar Paddleford of North Colesville, Broome County. Much damage, but considerable wear after damage suggests continued use.
h. (Townsend 1959:552, Pl. 224D). Plowed up prior to 1900 on the Siliman Farm near Colliers Station (Colliersville), Otsego County.
i. (Townsend 1959:558, Pl. 227C) Livingston County. Much traveled piece.

10. Dr. T. Hugh Young Collection, Nashville, Tennessee. Cat. No. 401. (Townsend 1959:556, Pl. 226G). From western New York, but county unknown. Townsend traces its genealogy from New York.

11. Dr. William H. Lewis Collection (see under NMAI-SI).

Present Locations Unknown

a. Moorehead (1917:197-198, Fig. 158 No 4): "from Plattsburgh, where many unique specimens have been picked up."

b. The Lopez Find (Townsend 1959:236, Pl. 68). Fragment found in the Bronx (see Lopez 1957).

c. Townsend (1959:137), in discussing the date of the excavated birdstone now at the Rochester Museum (AR 32617) and excavations in Jefferson County, New York, makes the following statement:"An elongated birdstone has been reported as a surface find on a related site (Muskalonge Lake) and may have been eroded from a burial." Nothing further is noted.

d. Two examples from the Dr. William H. Lewis Collection that were loaned to the Heye Foundation c. 1944, then returned to Palma Hope Lewis (see under National Museum of the American Indian).

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The Bird Rock Site and Other Glacial Erratics in Pelham Bay Park, Bronx County, New York

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A substantial body of archaeological data has been collected from glacial erratic sites, rock outcroppings and adjacent shell middens located in Pelham Bay Park, Bronx County, New York, testifying to their use as focal points of prehistoric Amerind activity and occupation. Archaeological discoveries at these sites, both large and small have added substantially to the interpretation of the Middle Woodland and Late Woodland periods of occupation of the western coastal New York region.

Introduction

The Pelham Bay Park area of Bronx County, New York, contains the typical Wisconsin geological milieu of coastal New York's western littoral. Evidence of glaciation is common throughout the park in the form of undulations in bed rock exposures, evidence of Paleozoic metamorphism, pot-holed, water worn and striated metamorphosed bedrock outcroppings and a scatter of glacial erratics several of which were surveyed archaeologically by the writer (Figure 1).

Remains of aboriginal shell middens and artifacts washed from storm eroded beach embankments are among the heterogeneous collection of unsorted water worn drift cobbles spread along the waters edge. Shoreline bedrock outcroppings and scattered glacial erratics in particular, have proven to be focal points of prehistoric Amerind activity, their occupation encompassing the Archaic to Late Woodland periods. Documented historical and archaeological references cast light on boulders linked to the area's Colonial period and prehistoric Amerind occupation within the parkland's 2,700 acres and along its 13 mi of shoreline.

Split Rock Site

Most unique is the boulder known as Split Rock (Figure 1-1, Figure 2), located at the northern extremity of the park. As a child, the writer and playmates thought the great rock was broken in two by a tree that once grew between the boulder's halves, demonstrating to us the infinite power and majesty of nature. A spring once flowed a few yards from the boulder and weathered mollusk valves littered the ground surface. Although not tested by me, the shell remains and blackened earth surface inferred either a prehistoric or historic period of the site's use. Historically, the rock is reputed to have served as the place of refuge for the religious refugee Ann Hutchinson and her daughter during the Kieft War of 1643 (Jenkins 1912:310 - 312). An early 1900 exploration of the Split Rock area produced a Grenadiers cross-belt ornament and uniform button of the Third Guards, doubtless, British relics of the October 18, 1776 battle of Pells Point. Also recovered at the site, was a lead bale seal bearing the merchant's name, Emanuel Elim of Leeds. Such seals identified packages of woven fabric bearing the shipping mark or name of the merchant who furnished the goods (Calver 1950:173, 266).

Mishow Site

Reputed to have been used as a ritual site by the Sewanoy who occupied the Pelham Bay Park area during the early Historic period, the rock known as Mishow (Figure 1-2; Figure 3) rests on exposed bedrock at the water's edge at the northeast tip of Hunter Island.

Gray Mare Rock Site

Gray Mare Rock (Figure 1-3; Figure 4) also thought to have served some aboriginal spiritual purpose in prehistory, is situated at Orchard Beach's north entrance to the Pelham Bay Park's, Kazimiroff Nature Trail. Whether Grey Mare and Mishow had an altar-like significance or simply marked a gathering place is unknown. Surface- scattered mollusk fragments, stone chips and sporadic projectile point finds in close proximity to the boulders, attest to the area's use in prehistory.

Pelham Boulder Site

The Pelham Boulder Site (Figure 1- 4; Figure 5), one of a pair of glacial erratics located at the intersection of Park Drive and Old City Island Road, was the first stratigraphically investigated archaeological site in western coastal New York (Lopez 1956). The site excavation afforded the opportunity to test and build upon a newly formulated Woodland period ceramic seriation and an Archaic period concept proposed for coastal New York (Smith 1950:43, 2).

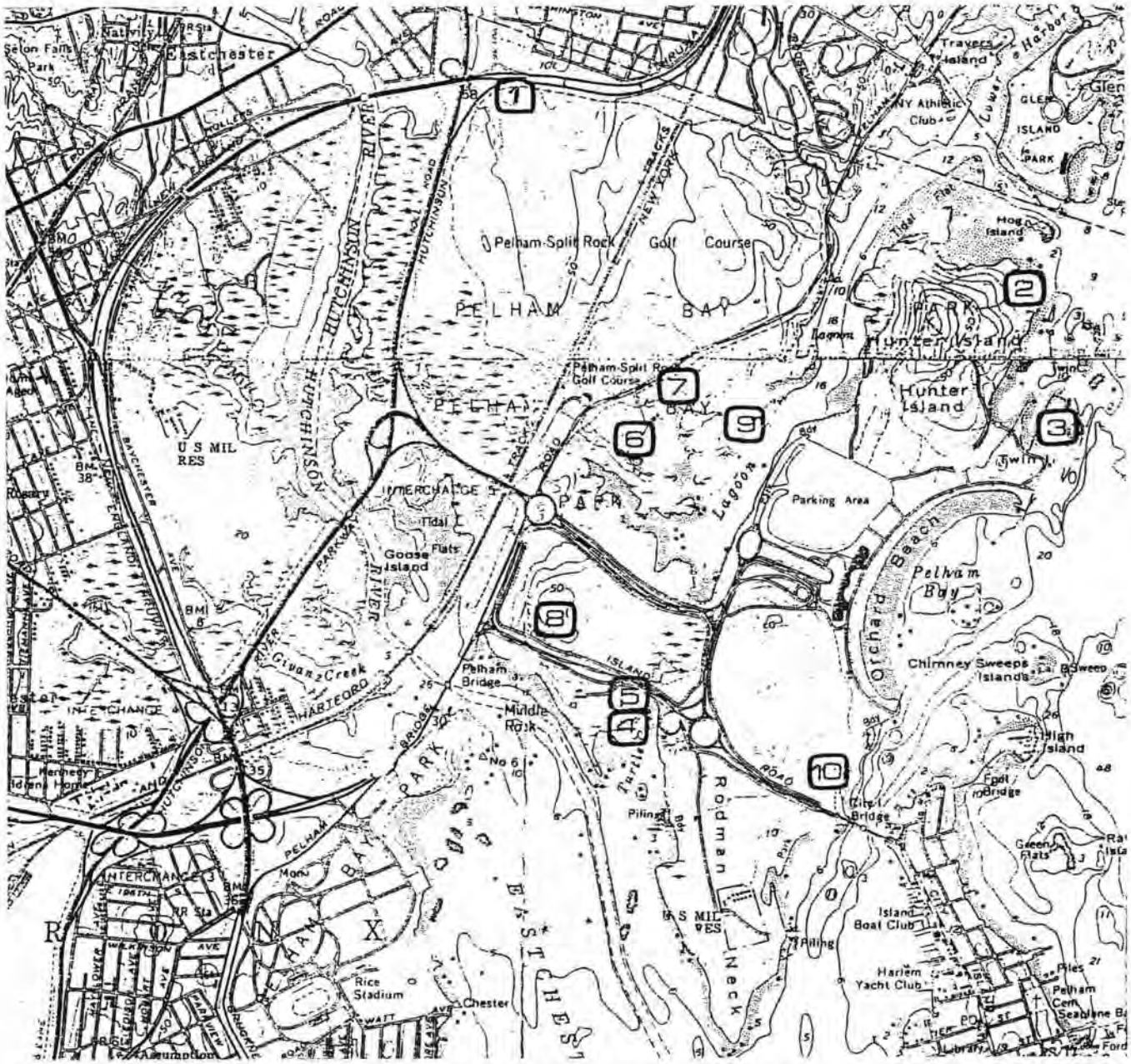


Figure 1. Map locations of glacial erratic and rock outcropping sites within Pelham Bay Park, Bronx County, New York. 7.5 Min. Series, Topographic. Site Key: **1.** Split Rock; **2.** Mishow; **3.** Gray Mare; **4.** Pelham Boulder; **5.** Glovers Rock; **6.** Milo Rock; **7.** Cherry Orchard Rock; **8.** pot-Holed Knoll; **9.** Archery Range; **10.** Bird Rock.

Glovers Rock Site

Glovers Rock (Figure 1- 5; Figure 6), positioned 40 ft from the boulder marking the Pelham Boulder Site, bears a bronze plaque commemorating the American Revolutionary War battle of Pell's Point. In this 1776 action, a Continental Army force of 550 men under the command of the famous Colonel John Glover, engaged a British force of 4,000 British and Hessian chasseurs, grenadiers, light infantry and seven pieces of artillery on October 18, 1776. Suffering light casualties, Glover's troops held the British long enough to enable General George Washington's army to escape to White Plains where the first stand for freedom was made (Abbott 1901:3-23; Wilcox 1954:49-51). A single iron, possible grapeshot, was recovered during the Pelham Boulder Site excavation.

Milo Rock Site

Cherry Orchard Rock Site

Figure 2. The "Split Rock" Boulder on the prospect of Hill Road, Pelham Bay Park (after *The Story Of The Bronx From The Purchase Made By The Dutch From The Indians In 1639 To The Present Day* by Stephen Jenkins, p. 310. The Knickerbocker Press, G. P. Putnams Sons, New York and London.

Figure 3. "Mishow." The person at right touches the boulder (Photo courtesy Prof. Ralph Solecki).

Figure 4. "Gray Mare." Deposited by receding glacier, northeast tip of Hunter Island.

Figure 5. Right foreground, the Pelham Boulder Site. Left background, Glovers Rock. Pelham Bay Park, Bronx County, New York.

Figure 6. Glovers Rock, Pelham Bay Park, Bronx County, New York.

The Milo Rock Site (Figure 1-6); no photo (Lopez 1958:127-142) and the Cherry Orchard Rock Site (Kaeser 1965:10-19) (Figure 1-7; Figure 7), disclosed glacial erratics utilized as focal points of occupation during the East River culture, Late Woodland period (Bowmans Brook and Clasons Point phases). The two erratics are located in the vicinity of the Bartow- Pell Mansion, headquarters for the International Garden Club.

Pot-Holed Knoll Site

The Pot-Holed Knoll Site (Figure 1- 8; Figure 8), a small, surviving lenticular, shell midden deposit, produced Middle Woodland period Windsor Cord Marked ware. In addition to the clustered glacially-produced potholes ground into the bed rock exposure, four, double-pitted cobble mortars were recovered at the site, inferring the site's use as a possible food grinding station. It is near certain that centuries of storm driven high tides swept the sloping rock outcrop clean

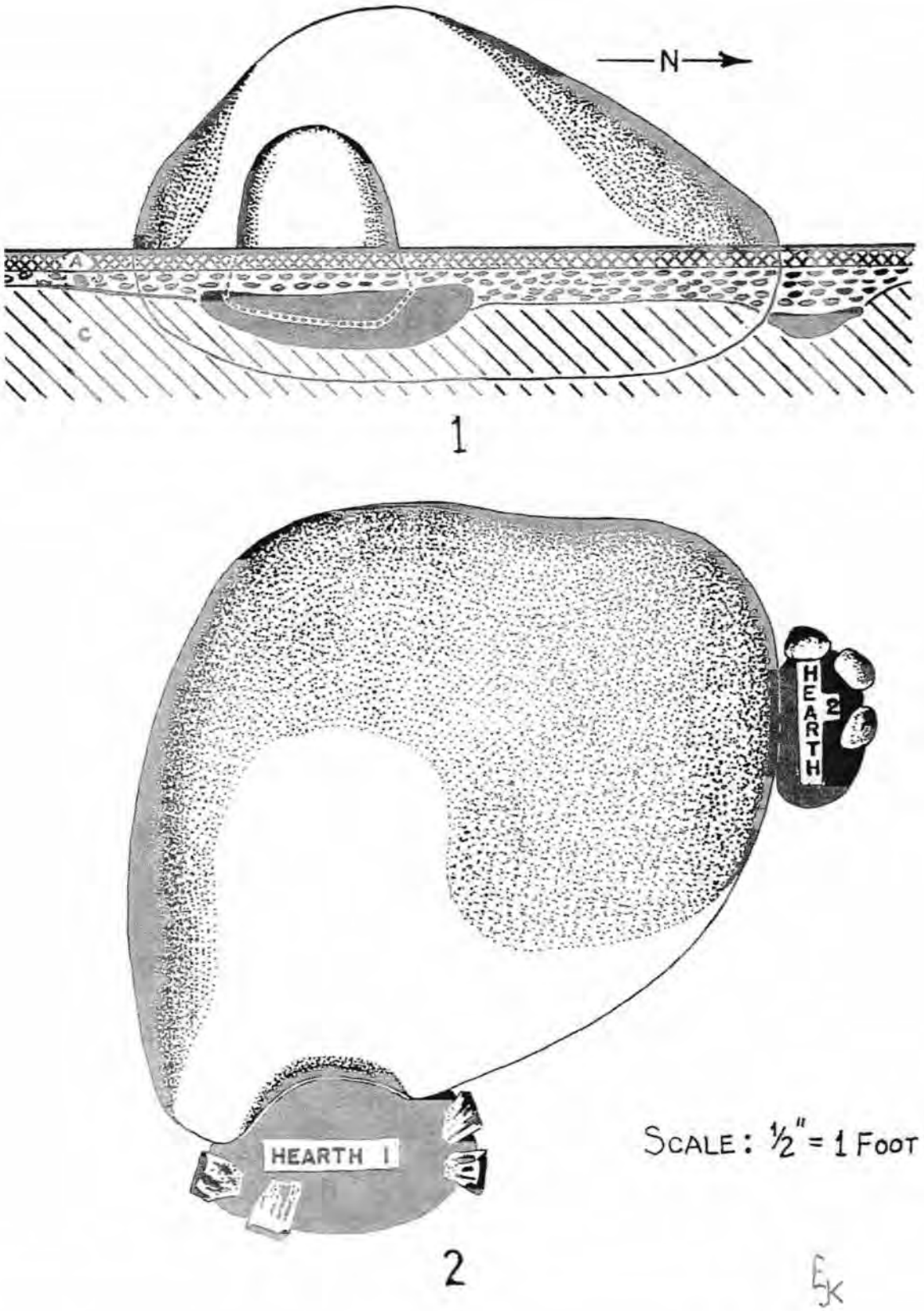
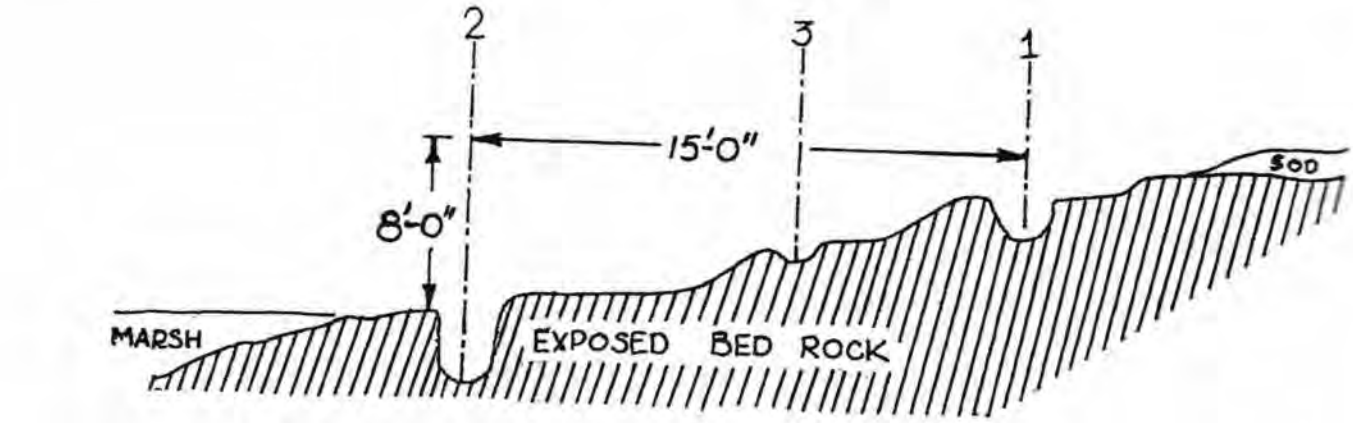


Figure 7. The Cherry Orchard Rock Site. Pelham Bay Park, Bronx County, New York. Field sketch, (1) elevation, (2) plan.



Rock slope profile, showing pot-hole location. East, west axis.

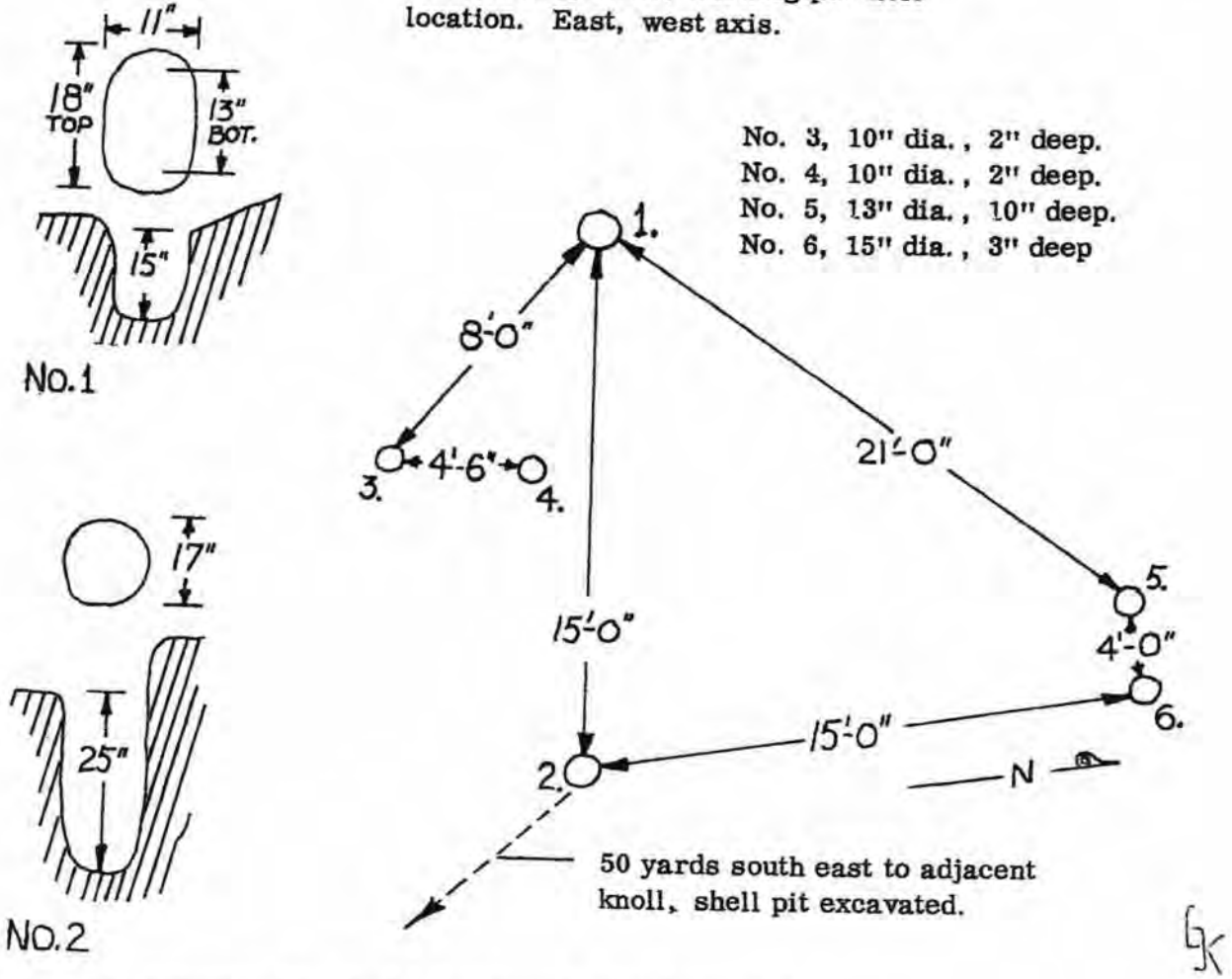


Figure 8. Pot Holed Knoll Site. Pelham Bay Park, Bronx County, New York. Field sketch, plan and elevations.

of cultural remains, leaving the clustered midden remains trapped in a hollow at the highest elevation (Kaeser 1964:25-29).

Archery Range Site

The Archery Range Site (Figure 1- 9; Figure 9), situated on a shoreline bedrock exposure, brought to light evidence of

Figure 9. Archery Range Site, Pelham Bay Park, Bronx County, New York. Rocky knoll. Top of knoll left and far right, rock exposures.

multiple, short-term occupations, utilized mainly as a place of ceremonial interment of the dead, ranging temporally from the Transitional Archaic-Early Woodland to the Late Woodland periods. Besides individual human and dog burials, the site disclosed the largest communal burial (ossuary) found in coastal New York; it is attributed to the East River culture (Kaeser 1962:4-7; 1970 9-34).

The foregoing references prompted the writer in 1973 to investigate another glacial erratic situated in the park which, if predictable, might contribute additional data bearing on some group who occupied western coastal New York during its long span of Amerind prehistory.

Bird Rock Site

The boulder, named by the writer, "Bird Rock" (Figure 1-10; Figure 10), lies approximately 500 yards southeast of the Pelham Boulder Site on a gentle slope which, at its highest elevation, overlooks Orchard Beach and the inshore islands of Pelham Bay. Glacially smoothed, the weather blackened schistose boulder resembles a surfacing whale. The boulder's greatest exposed length, oriented northeast, southwest, measured 25 ft. Its east-west width is 10 ft. What could be considered the north or tail end sloped below ground level to an undetermined depth. The south or head end of the boulder rose 7 ft above ground level. This elevation, supposedly battered during its glacial journey, displayed a cavity measuring approximately 5 ft in width. The hollowed area presented a ready-made location for a hearth, protected from the prevailing northeast wind out of Long Island Sound. The rock's 7 ft elevation might have provided the headroom to allow the construction of some type of lean-to shelter enclosing a hearth area. Ten inches above ground surface level, at the left of the boulder's battered south elevation, a flat, 24 in wide, bench-like projection protruding 18 in outward from the rock surface. This projection served as a convenient seat during excavation, its probable ancient use as a warm spot to sit while tending a fire. Aside from fragments of tin cans exposed in the surface humus, no modern or prehistoric disturbance was observed in close proximity to the boulder. The cans are thought to be discards of the army-like group of Works Progress Administration (WPA)

Figure 10. Bird Rock Site. Pelham Bay Park, Bronx County, New York.

personnel who were employed in the 1930s building playgrounds, golf courses, foot paths and a broad system of swamp drainage ditches in this northern portion of Bronx county.

Excavation Methods

Eleven 1 ft by 1 ft shovel test holes were dug around the boulder's periphery to search for evidence of an Amerind midden. The surface of a midden deposit was disclosed below the forest duff where it was most expected, in proximity to the boulder's southwest battered cavity, within test holes (1) (2) and (11). Three 5 ft by 5 ft squares (1) (2) and (3) were laid out across the boulder's southern end and the surface deadwood, leaf and weed overburden removed (Figure 11).

A dark brown humus-stained topsoil stratum was removed (3 to 4 in in depth). Below the topsoil, a lenticular midden deposit was encountered, clearly marked by charcoal blackened, granular earth containing a few whole and fragmented oyster and clam valves, and crumbling spalls apparently deriving from the damaged lower face of the parent rock. Level-stripped by trowel, squares (4) (5) (6) were added to investigate signs of a possible extension of the midden within these squares. When completely excavated, the lens-shaped midden deposit measured approximately 10 ft at its broadest east-west axis and 7 ft measured southward from the rock face concavity. The deposit's greatest thickness in central profile measured 5 to 7 in (Figure 11, Sec. A), feathering to a trace within Squares (2) (3) and (6). The feature consisted entirely of the black midden fill intruding into the orange-colored subsoil. The midden-subsoil junction, thought to represent the original ground surface at the time of aboriginal occupation, was stained a mottled brown by root penetration and water percolation through the charcoal-charged midden and humus overburden. The 2 to 3 in sub-midden discoloration blended downward gradually to clear orange, sterile, sandy subsoil. The subsoil in all grid squares was excavated an additional 10 in below the lowest level of the midden deposit stain to insure the disclosure of intrusive material or a possible buried work surface. No subsurface alignment of hearth stones, fire pit or burned

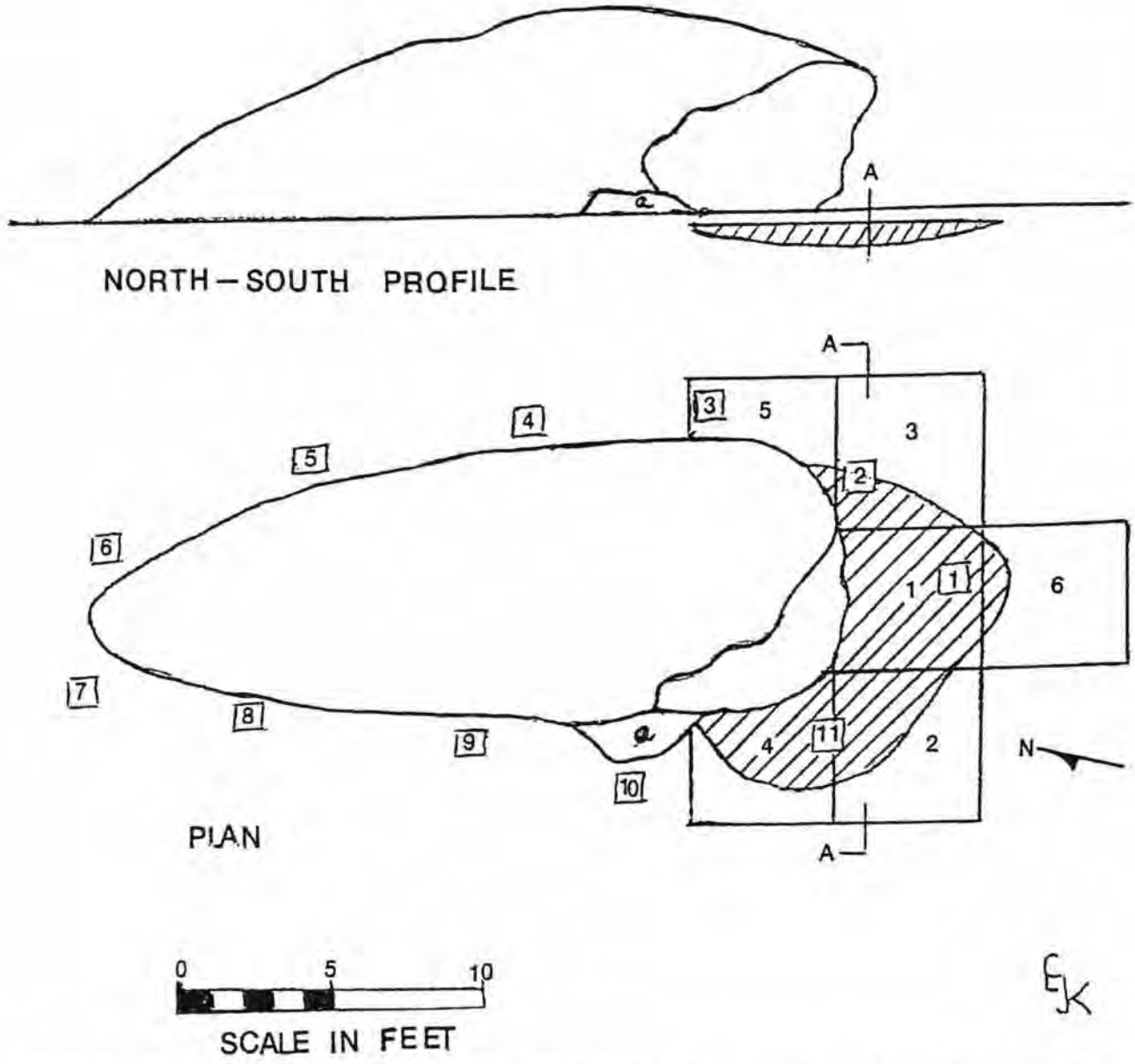


Figure 11. Bird Rock Site, Pelham Bay Park, Bronx County, New York. Field sketch, profile and plan showing midden deposit and flat projection (A).

earth stain was apparent to show that an actual hearth had existed within the area excavated. Evidently, cooking or heating fires were built against the boulder's southern face utilizing it as a heat retention or reflecting surface. The sudden quenching of a fire built against the boulder's face by the site's occupants or the occurrence of a rain storm while the rock was hot, could account for some of the post-glacial rock face shattering. Moisture filled, thermally induced fissures could also cause surface spalling during periods of freezing temperatures.

Vertical and lateral measurements of strata and artifacts *in situ* were made from the periphery of the boulder's face at ground level. It was suspected that contiguous deposits existed beyond the excavated grid area. Shovel, metal probe and trowel tests failed to demonstrate this.

Artifacts Recovered

Ceramics

- Six Abbott Zoned Dentate, near rimsherds (Figure 12).
- Sixty-five Abbott Zoned Dentate vessel body and bottom sherds.

The upper body, near rimsherds are decorated with zoned platts of dentate impressions aligned in a slight curvilinear pattern on a smooth exterior surface. The vessel's restored

Figure 12. Bird Rock Site, Pelham Bay Park, Bronx County, New York, Abbott Zoned Dentate sherds.

basal portion shows partially smoothed, cord-wrapped paddle malleation and random dentate impressions. Sherd surfaces and cross sections disclosed the use of crushed quartz and plates of muscovite mica as the aplastic. These ceramics are orange-tan in surface color, coil constructed, and ¼ in in thickness. Interiors are smoothed with possible grass wad.

Stone bifaces

- One basal portion, Cony Stemmed projectile point made of purple argillite. It is bifacially percussion flaked, the surface showing no evidence of pressure flaking or retouch of edges (Figure 13 a).
- One Cony Isosceles triangular knife with squared base and made of purple argillite. One blade edge is convex, the opposite edge straight. Bifacially percussion flaked, its convex edge is trimmed by pressure flaking (Figure 13b) (Kaeser 2002:56-59).
- One willow-leaf shaped point, bifacially percussion flaked with a squared base and made of purple argillite. Edges are trimmed by some pressure flaking (Figure 13c).
- One lanceolate cache-like broad, leaf shaped blade expands from the point to one-half way down the blade's edges, then tapers to a squared base. Bifacially percussion flaked, it shows little evidence of edge trimming by pressure flaking; made of grey argillite (Figure 13d). The lanceolate-shaped blade is similar to 127 specimens recovered in a cache at the Abbott Farm Site. (Cache Number 8, Excavation 9) :(Cross 1956:68, Plate 14b).

It seems quite certain that the isosceles trianguloid knife and willow-shaped biface are finished artifacts and not preforms of projectile points.

Figure 13. Bird Rock Site. Pelham Bay Park, Bronx County. New York: **a.** Cony Stemmed projectile point, basal fragment, argillite; **b.** Cony Isosceles trianguloid knife, argillite; **c.** willow-leaf shaped biface; possible Green point, argillite; **d.** lanceolate cache-like blade, argillite.

Miscellaneous stone

- One worked core-oblong fragment of rose quartz, triangular in cross section, 2¾ in in length and 1⅛ in wide on all sides.

Food Bone and Shell

- Two box turtle carapace fragments (*Terrapene carolina*).
- One channeled whelk columella (*Busycon canaliculatum*).
- Eight hard-shelled clam valves (*Venus mercenaria*).

Interpretations

The Bird Rock Site lithic and ceramic artifacts were not found in an intentionally deposited cache-like grouping. The Cony Stemmed point base was recovered 2 in below the topsoil-midden junction in Square 2, almost in contact with the boulder's southern face. The trianguloid Cony knife and leaf-shaped biface lay 2 ft apart at a depth of 4 in in the midden deposit of Squares 1 and 6. The cache-like blade was recovered near the center of Square 1, at the junction of the midden deposit and subsoil stratum. The Abbott Zoned Dentate sherds were laterally spread among the scatter of rock fragments and mollusk valves within Squares 1, 2 and 4, where it is assumed a cooking or warming fire had been laid, its embers and fire stained earth weather-washed away. Although no postmold pattern was found, it is possible that the southern elevation of the boulder, where a hearth prob-

ably existed, and where the cultural material clustered, was enclosed by a simple lean-to type of shelter which would not necessarily require the insertion of below-ground stabilizing posts for its construction. The confined, scant deposit of occupation debris and artifacts suggests either a single visit to the site or the possibility that several short camping episodes took place. Other than cooking, and possibly a place of shelter, the occupants' activity remains unknown. Except for the rose quartz core, no primary or secondary stone flakes were found which might indicate a lithic reduction process at the site. There was no evidence to even guess how many individuals composed the band that utilized the site. The few bits of turtle and conch shell, and unusually small number of clam and oyster valves recovered, hint at a short, warm weather period sojourn.

Advancing inference further, it can be assumed that at least one woman was present by the recovery of the diagnostically significant Abbott vessel sherds. The associated lithic bifaces justify that a distinct, single cultural component or closed site milieu is represented by the clustered cultural material remains discovered in this small deposit.

Ceramic and projectile point typology recorded at the nearby Pelham Boulder Site in the 1950s proved invaluable, providing the prime data distinguishing vestiges of sequential Archaic to Late Woodland period visitations to the site. The ceramic assemblage revealed stylistic components attributable to the recognized cultural phases of western coastal New York's Early to Late Woodland periods. Mixed within a homogeneous midden stratum were Vinette 1 sherds considered to be the earliest Woodland period pottery type to appear in the area. The Middle Woodland period Windsor ceramic tradition was identified by Modified Vinette, Windsor Brushed, North Beach Net Marked, and Clearview Stamped. The Late Woodland period of occupancy was recognized by the ceramic types Bowmans Brook Stamped, Bowmans Brook Incised and Clasons Point Stamped ware (Smith 1950:193-197). Also found within this homogeneous appearing midden stratum was an aberrant group of zone decorated sherds displaying a much higher technological and aesthetic quality of manufacture and a large collection of untyped stemmed and lanceolate bifaces made of exotic argillite. Similar bifaces of stemmed and lanceolate form were, at that time, named "Steubenville" and dated as early Archaic period, Panhandle elements in the upper Ohio valley (Mayer-Oakes 1955:90). Because of the New York specimens morphological similarities, the name "Steubenville or Steubenville-like," was provisionally adopted in the coastal New York area and established the name in print.

The apparently intrusive zone-decorated sherds and argillite bifaces were proposed at that time to be the result of culture contact rather than a stylistic developmental situation and were expeditiously explained as possible products of trade. Research was stimulated in an effort to determine the areal distribution and chronological position of the zone-decorated sherds, most of which were collected in unconfirmed stratigraphic context with Middle Woodland. Windsor wares. A search followed for the source of the exotic lithic material of the stemmed and lanceolate "Steubenville-like" bifaces. The writer's investigations at coastal New York sites showed few argillite cortex flakes or parent cores. The few exceptionally small flakes of this material, when recovered, can be considered as alteration waste struck from broken points to produce hafted drills and scrapers. Evidently, the bifaces were manufactured elsewhere, presumably near a Delaware Valley source indicated by a physicochemical test of argillite specimens collected in close proximity to the Oakland lake site, Queens County, New York (Venuto 1967:21-29) . Eventually, the zone-decorated sherds were found to correspond typologically with Abbott Farm Site vessel types recovered two miles south of Trenton in Hamilton Township, Mercer County, New Jersey (Cross 1956:136-149). Surveys of private and museum collections demonstrated that the areal distribution of Abbott ceramics and the easily recognized argillite lanceolate and stemmed "Steubenville-like" projectile points was much broader than formerly thought. The projectile points in particular were traced over all of coastal New York, sporadically into coastal Connecticut, and as far north as Massachusetts (Kaeser 1972:11-15). Unfortunately, the majority of the unique points surveyed were collected during an era when private collectors and museum personnel did not consider precise provenience or contextual data to be of much consequence.

The survey that linked Abbott ceramics and the "Steubenville-like" points appeared so widespread as to mask their immediate point of entry into the coastal New York area or direction of their entry. The physicochemical test, however, helped at least inferentially, to answer the latter question.

Also adjacent to a glacial boulder, the Oakland Lake Site, Queens County, New York (Kaeser 1974:1-29), was excavated by the Metropolitan Chapter, New York State Archaeological Association. This stratified site again revealed the contextual association of Abbott tradition pottery and argillite bifaces within a midden stratum containing Middle Woodland period, Windsor tradition potsherds. The site's stratified sequence of cultural material enabled the writer to formulate a more rigid scheme of culture stages for Coastal New York ranging from the Archaic transition to the Late Woodland periods, and to document the contemporaneous use of Abbott Zoned

ceramic wares and Cony projectile points during the Middle Woodland period.

Of special note, in a survey of western coastal New York ceramic collections, although readily available, shell temper was found to be a minor ceramic aplastic in all Woodland period culture phases. Of equal significance was the recognition that mollusks gathered as a food source or shell remains, if utilized as a temper material, had to be carried into the Abbott Farm Site from a considerable distance. Yet, crushed shell was a favored constituent in the paste of most Abbott ceramic wares. It has not been established if the shellfish remains used as an aggregate in the ceramics was of salt or fresh water derivation.

Abbott Zoned Dentate decorated sherds recovered at Bird Rock resemble the type recovered at Abbot Farm in decorative style, and are tempered with crushed quartz and muscovite mica. The only source of muscovite mica known to the author is in Pennsylvania. As yet, there is no absolute evidence to support a hypothesis that a direct relationship between coastal New York and Delaware Valley-Abbott ceramic tradition potters existed. It is, however, a near certainty that the zone-decorated wares recovered at Bird Rock and elsewhere in western coastal New York were manufactures of potters who carried their characteristic ceramic traits into the area and continued vessel production while in occupancy.

The typological elements that distinguish Abbott zoned decorated ware did not develop as a Windsor sub-stage within Coastal New York's Middle Woodland period. At the Oakland Lake and Pelham Boulder Sites, while Windsor and Abbott groups might have become partially acculturated, there is no evidence of ceramic typological intergrade.

In the search for ceramic and lithic stylistic trait similarities or differences, it has not been demonstrated that there was any antecedent ceramic or lithic tradition observable in coastal New York from which Abbott zone decorated ceramics or Cony points could have developed, nor is there any such evidence known to the writer from northern New York State or southern New England.

The rarely recovered vessel type, Clearview Stamped, found in association with Middle Woodland period Windsor pottery, has been an enigma since its earliest identification in the coastal New York area (Smith 1950:195, Plate 13, Fig. 21, 22). Vague stylistic similarities between the Clearview Stamped, some Abbott zone decorated pottery and samples of Hopewell culture impressed and zone decorated wares have been suspected as products of inland inspiration, showing possible continued influence from the interior, west of the New Jersey, Delaware Valley region.

> By 500 A.D., classic Hopewell had ended. Influence from Ohio and Illinois Hopewell had spread to surrounding areas to people not part of Hopewell culture who accepted many Hopewell practices and traits that were to survive into late prehistoric times [Dragoo 1963:293].

Conclusions

With the data collected from the Bird Rock Site deposit, along with tentative conclusions based on museum and private collection surveys, and gleaned from Woodland period sites within three counties of coastal New York, somewhat more assurance is voiced regarding the validity of a contextual Cony projectile point/Abbott Zone Decorated and net impressed vessel tradition (Kaeser 1968:8-26). No obvious close relationships in the area are indicated by the comparison of the two groups' lithic and ceramic traits. In this framework, it is possible to evaluate what is known of the Woodland period complexes seen in the western coastal New York region.

Recognizing that a reconstruction must remain circumstantial pending absolute evidence, it is assumed that coastal New York was co-inhabited during the Middle Woodland period by both the resident Windsor people and members of a transplanted or transient Delaware Valley group who entered the region. Displacing no one, they perpetuated the exploitation of the coastal area resources. Whatever the total character of the newcomer's material culture baggage, it traveled with them from their original home. Whether it was numerical pressure or ethnic incompatibility which might have persisted between the Windsor and Abbott tradition carriers, some event forced their dislocation from coastal New York. Assuming that some type of rivalry occurred between the indigenous Windsor people and a migrant Abbott group, or the Late Woodland period entry of the East River culture into the area, presumably also from the south, an exodus is suspected.

For unknown reasons, it appears that the Windsor and Abbott people abandoned coastal New York and were replaced by the East River complex who carried their distinctive ceramic vessel tradition with them. The newly arrived East River people occupied many of the shellfish collecting stations formerly used by the Windsor people, interred their dead in individual graves and ossuaries (Kaeser 1970:9- 34), and established collecting camp sites along the bay shores well into the historic period. The cultural material recoveries from the Bird Rock Site, although limited in number of specimens, afford another opportunity to isolate specific ceramic and lithic traits that corroborate the identity of a recognizable culture group (the Abbott Complex) linking these people of the Delaware

Valley region and the indigenous coastal New York, Windsor Complex in the Middle Woodland period.

Acknowledgements

Bird Rock is named in memory of the late Dr. Junius Bird, Department of Anthropology, American Museum of Natural History. Widely respected for his accomplishments and expertise, he was the authority relied upon by museum curators, writers, and private collectors to provenance and authenticate South America's pre-Colombian artifacts. During the comparatively primitive early years of museum-sponsored archaeological research, some of Dr. Bird's adventures would have left the intrepid Indiana Jones of the movies in awe. Dr. Bird was unfailingly gracious to me. With his support, I obtained the Bronx County Park Department permit to pursue many years of fruitful archaeological research in Pelham Bay Park, Bronx County, New York. While Dr. Bird's professional interest was focused on the exquisite textiles and ceramics of the prehistoric cultures of Peru, he continued to be genuinely concerned with the recording and preservation of all aspects of coastal New York prehistory. He actively encouraged my efforts and those of others who brought him their problems and news of exciting discoveries. Dr. Bird's enthusiasm was contagious and by his example, I developed a passion for the discipline.

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Hansen Rockshelter: A "Black Dirt" Area Archaeological Preserve

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On the edge of the huge "Black Dirt" wetlands lays Hansen Rockshelter. In 1982, the Incorporated Orange County Chapter NYSAA excavated the small cave and the talus slope in front. The talus slope was rich in artifacts and faunal remains. They unearthed stone tools, a lot of Native American ceramics, and bones of 28 different animal species. This site report documents 5,000 years of life on the "Black Dirt." The Hansen Rockshelter is located within an approved housing development. A Cultural Resource Management Plan, adopted by the Town and administered through the Town Museum, will both protect the site and allow for controlled access by researchers and the community.

Introduction

On the west side of the huge "Black Dirt" wetlands in the Town of Minisink, Orange County, New York lays Hansen Rockshelter (NYSM 6160, OPRHP A07110.000012) (USGS 1969). In the 1980s, in cooperation with Dr. Robert E. Funk of the New York State Museum, the Incorporated Orange County Chapter of the New York State Archaeological Association (IOCC-NYSAA) excavated the small cave (Figure 1). They also excavated the talus slope in front of it (Figure 2). The talus slope proved to be particularly rich in artifacts and faunal remains. The IOCC unearthed a variety of stone tools, an unusually large amount of Native American pottery, and bones of 28 different animals. This preliminary report documents 5,000 years of life on the "Black Dirt"

Figure 1. State Archaeologist Dr. Robert E. Funk with long-time NYSAA-IOCC member William F. Ehlers Jr. at Hansen Rockshelter in 1982.

Figure 2. Avocational archaeologists Laurence Hansen and Alfred Selmes investigate the area below Hansen Rockshelter.

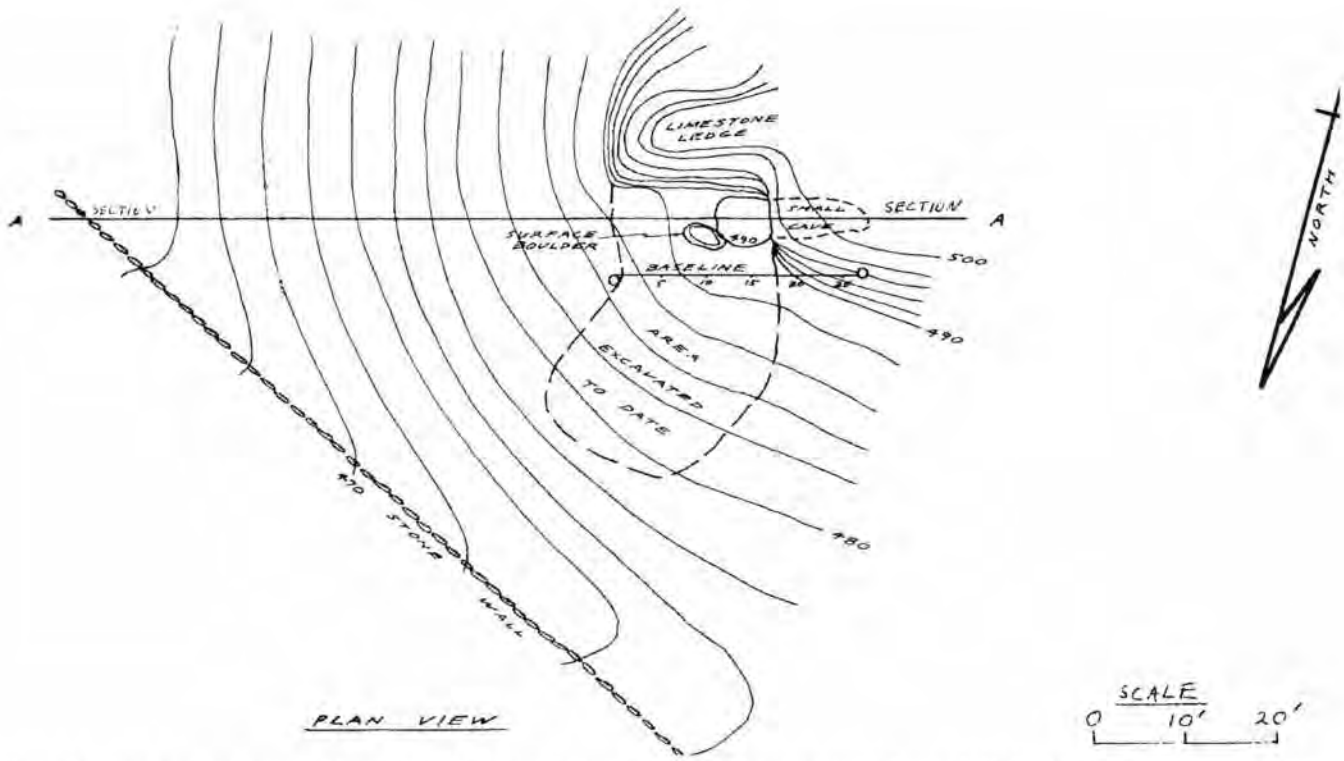

Figure 3a. Plan, from The Hansen Rockshelter, Lands of Kurt Wasserman, Town of Minisink, Orange, County, N.Y., April 16, 1983 by Thomas F. Brannan, P.E. and L.S. (from Brannan 1983).

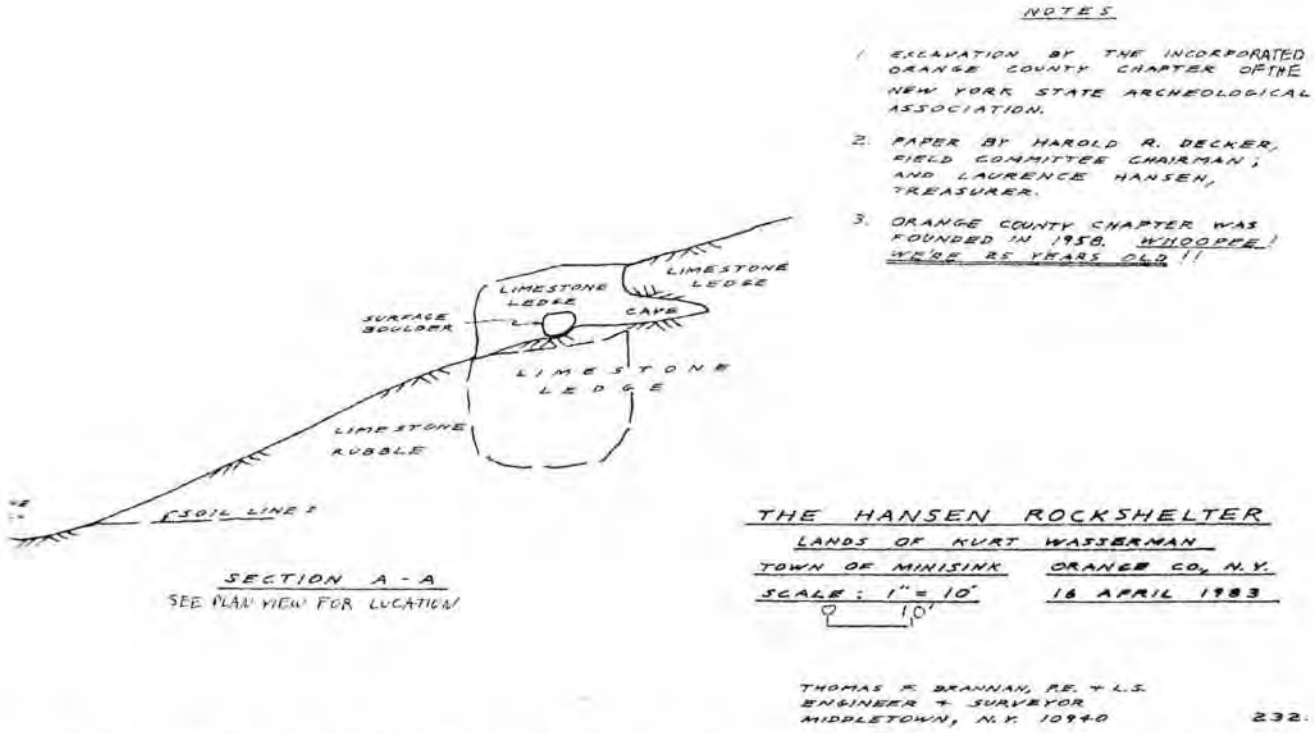

Figure 3b. Profile, from The Hansen Rockshelter, Lands of Kurt Wasserman, Town of Minisink, Orange, County, N.Y., April 16, 1983 by Thomas F. Brannan, P.E. and L.S. (from Brannan 1983).

wetlands. It incorporates two often overlooked sources of archaeological data—the collections of a small town museum and those of long-time members of the IOCC-NYSAA.

The "Black Dirt" Region

It appears that the rich and diverse array of fish, animals, and plants in the Wallkill River Valley, particularly the "Black Dirt" area, were a tremendous attraction to Native Americans over a long period of time. The Wallkill River is one of the few rivers in the region that flows north, makes it particularly attractive for Native American travel and settlements (Decker and Hansen n.d.). The site inventories of the Towns of Chester, Goshen, Minisink, Wawayanda, and Warwick in New York, and Vernon, New Jersey show large numbers of sites on high ground near the Wallkill River and the "Black Dirt" wetlands.

In recent years, Cultural Resource Management (CRM) studies of proposed developments have greatly expanded our understanding of Minisink archaeological sites. These studies help place the Hansen Rockshelter finds in a Town-wide perspective. Within a short walk from Hansen Rockshelter is the Wallkill River and large sites like the multi-component E. Watch Farm Site (NYSM 6161), which has produced artifacts that span at least the last 7,000 years. Small sites like the Board Site (A07110.000053) and the Historian Site (A07110.000054) are located in upland settings along a Wallkill River tributary. The Historian Site had features that were radiocarbon dated to 1630 ±60 B.P., 1630 ±70 B.P., and 1520 ±60 B.P. The Historian Site held various lithics, including a spearpoint, charred seeds, pottery, and beads made from fossil crinoids (BTK 2006; Sandy 2006).

In the 1960s the IOCC sought guidance from Dr. Robert E. Funk, the legendary New York State archaeologist. He suggested that they direct efforts to caves and rockshelter sites. The IOCC went on to make great discoveries at Dutchess Quarry Caves (A07106.000002, A07106.000089 and A07106.000090). These discoveries brought national attention to the chapter and the region. They proved the presence of very early man (dating back approximately 12,000 years) in the region, and recovered a complete local sequence of projectile points (Funk and Steadman 1994). The Dutchess Quarry Caves are located on Mt. Lookout in Goshen, approximately 10 mi from Hansen Rockshelter. Hansen Rockshelter and Dutchess Quarry Caves overlook opposite sides of the "Black Dirt" wetlands.

Investigations of Hansen Rockshelter

The importance of their discoveries at Dutchess Quarry Caves led the IOCC to do further exploration and site registration of caves and rockshelters. Hansen Rockshelter was originally registered with New York State as Lone Mink Rockshelter in 1975 by Elizabeth Dumont, Lewis Dumont, and Carol Schrier on behalf of the IOCC-NYSAA. The 1975 site registration form states that local residents had long referred to the rockshelter as an "Indian cave." They noted some debitage at the front of the cave, and evidence of a hearth or campfire (Dumont, Dumont, and Schrier 1975).

In 1982, Laurence "Larry" Hansen, a Minisink resident and avocational archaeologist, brought the IOCC's attention back to the "Indian cave" in Westtown. Vandals were threatening the site, prompting a major investigation. The Chapter decided to excavate the talus slope lying below the cave, as well as the rockshelter. They renamed the site Hansen Rockshelter in Larry's honor. Hansen Rockshelter lies about 100 ft above the "Black Dirt". The opening is approximately 10 ft deep, 5 ft wide, and about 4 ft high. There is also a stone "porch" about 3 ft wide in front of the actual cave (Bicentennial Commission1988; Brannan 1983, n.d.; Decker and Hansen n.d.; Figures 3a and 3b). The following is an excerpt from the Decker and Hansen report:

> Excavations were begun in July, 1982. A line was painted on the wall of the shelter at the soil line, and also at the soil line out on the talus. A center line was also painted inside the shelter. Later work on the talus made it necessary to establish a base line by suspending a wire from two trees, with flags at 5' intervals. In this manner, squares could be maintained by suspending a plumb bob from the wire to re-establish our position at any time. The steepness of the slope and the loosely packed soil made stratigraphic work very difficult. The necessary movement of one large rock, sometimes by sledgehammer, caused earth and rock to tumble down. All of this strata containing loose soil and broken rock was considered one strata. Underlying this very thin layer of densely packed, black greasy soil occurs for a depth of no more than 1" over a small part of the area. This strata contained a stemmed point which was recovered by Dr. Robt. Funk who visited the site with his assistant Beth Wellman. Under this strata is a brownish soil containing water borne material such as small pebbles and clay This strata has not been penetrated at this time (c. 1983). It seems to resemble the sterile strata underlying Dutchess Quarry.
>
> The interior of the shelter was excavated completely down to bedrock and was culturally sterile except for modern refuse. The soil was only 10" to 12" deep. Three 5' squares were excavated out on the talus. A possible fireplace was observed on the ledge in front of the opening, evidenced by discol-

oration of the bedrock and greasy soil No artifacts or bone were found in this feature (Figures 4 and 5).

Strata 1

Very loose windborne dark humus and leafmold containing large angular blocks of limestone. This strata contained sherds from 4 ceramic vessels, assigned to the Middle Woodland complex by Dr. Funk. Lithic artifacts included 2 equilateral triangles, 1 isosceles triangle, 1 Orient Fishtail type, 1 Brewerton Like Point, 1 untyped stemmed point and 4 blades. 750 fragments of bone were recovered, and fragments of a green glass bottle were encountered throughout the strata. A small iron key was also recovered. One fragment of mica was also found.

Strata 2

A thin lens of greasy soil no more than 1" thick over a small portion of the site. This strata was not immediately recognized due to rain and the compaction of the soil by removal of the rocks in the strata above. 1 untyped stemmed point was recovered and one Snook Kill Like point was in or at the junction with the strata above. No pottery was assigned to this strata.

Strata 3

Yellowish brown soil containing water borne material such as clay and pebbles. This strata has not yet been penetrated. It resembles the sterile strata at Dutchess Quarry [Decker and Hansen n.d.:2-3].

Excavating in front of the rockshelter proved to be a daunting task, requiring the careful removal of large boulders (Figure 6). Chapter members even used tractors to remove huge boulders so that excavations could continue (Figures 7 and 8); however, a careful excavation of this area is critical to the understanding of any rockshelter site (Weigand 1982) and the talus slope was productive.

While the cave itself had been "pot hunted," no looter had gone through the massive effort to discover what might lie on the talus slope. The IOCC members documented what they believed to be an ancient "kitchen midden—just a bone's throw away" from the rockshelter (Decker and Hansen n.d.). Twenty-five years after the dig, Minisink Town Historian Carol Van Buren and Minisink Museum Curator/IOCC member Laurence Hansen helped gather photos, information and materials from the 1980s investigations, some of which are discussed in this publication. These records, materials, soil samples, and the artifacts themselves are now in the collection of the Town of Minisink Museum.

Figure 4. Interior of Hansen Rockshelter before excavation. White line indicates soil level before it was vandalized.

Figure 5. Interior of Hansen's Rockshelter following the removal of 8 to 10 in of soil.

Figure 6. Harold R. Decker and Helen Tolosky excavate in the area below Hansen's Rockshelter.

Lithic Artifacts

Projectile points included three Late Woodland era triangular-shaped Madison and Levanna points (see HRS #15A, #10, and #13 in Figure 8 and Table 1). These arrowheads

Figure 7. Minisink farmer/archaeologist Laurence Hansen uses tractor and chain to move a large boulder at Hansen Rockshelter.

would have been used between A.D. 500 and A.D 1500 (Ritchie 1971:31-34). Late Archaic spear points were also found at Hansen Rockshelter. These included Lamoka, Bare Island (HRS#4 & #9 on Figure 8 and Table 1), Snook Kill, and Perkiomen spearpoints (HRS#12 on Figure 8 and Table 1). These points would have been used between 3,000 B.C. and A.D 700 (Fogelman 1988; Ritchie 1971).

Pottery

An unusually large amount of pottery, nearly 500 sherds, was also uncovered at Hansen Rockshelter. At least five pottery vessels are represented; they were made using the coil method. Three of the vessels display partially smoothed-over cordmarking on the exterior surface. They are moderately thick in size and grit-tempered. They were marked with a cord design on the exterior and then partially smoothed over; the interiors are plain and smooth. Clusters of sherds relating to the three similar, moderately thick vessels are grit tempered, with particle size being about two or more mm in diameter. The paste is friable and crumbly Their rims are straight with two vessels having notched lips (Figure 8).

The pottery appears to correspond to Stewart's (1998:90-91) Ware Group X, particularly Type XA, which dates to c. A.D. 800 or later (Late Middle Woodland to early Late Woodland period), but potentially also may be associated with earlier Middle Woodland contexts (A.D. 200-800). Such a date range (A.D. 200-800 or later) would indicate that the pottery is associated with a Point Peninsula Tradition, Kipp Island to Burnt Hill phase occupation at Hansen Rockshelter.

Two other vessels have smoothed plain exteriors and are similar in appearance. The exterior and interior are carefully and evenly smoothed. These are slightly thinner in size than the ceramics described above. Sherd paste is fairly dense and smooth with moderate amounts of finely crushed rock temper. The temper particles within the sherds appear to be about 1 mm in size. The exterior and interior surfaces of the sherds are carefully and evenly smoothed with no decorations except for one sherd. Likely an upper bodysherd, it contains a stamped pattern of parallel rows of small, square to rectangular shaped dentates on a smoothed exterior surface (Brannan n.d.). The sherd's interior surface also is smoothed. The few rims and lips noted in the clusters suggest that the rim shape is generally straight with flat to rounded lips. Decoration was not noted on the rims. These non-cordmarked sherds from the Hansen Rockshelter bear a resemblance to Stewart's (1998:109-110) Ware Group XIII, particularly Type XIIIC, which he associates with Abbott Zoned Dentate ceramics for the Delaware Valley region. Stewart's Ware Type XIIIC is thought to date to the Middle to Late Woodland periods. Such a period of occupation for the similarly appearing sherds recovered from the Hansen Rockshelter is consistent with the presence of the smoothed over cordmarked pottery mentioned above, and the Levanna style projectile points. These artifacts suggest a late Middle Woodland component, specifically a Point Peninsula Tradition, Kipp Island to Burnt Hill Phase occupation at the Hansen Rockshelter (Boesch, personal communication 2006).

Fauna

One major reason State Archaeologist Robert E. Funk directed the efforts of the Orange County Chapter to cave sites like Hansen Rockshelter was that these sites often have excellent preservation of bone and other organic remains. A total of 759 bones, teeth, and bone fragments from Hansen Rockshelter Site are now at the New York State Museum in Albany and have been analyzed and classified (Steadman

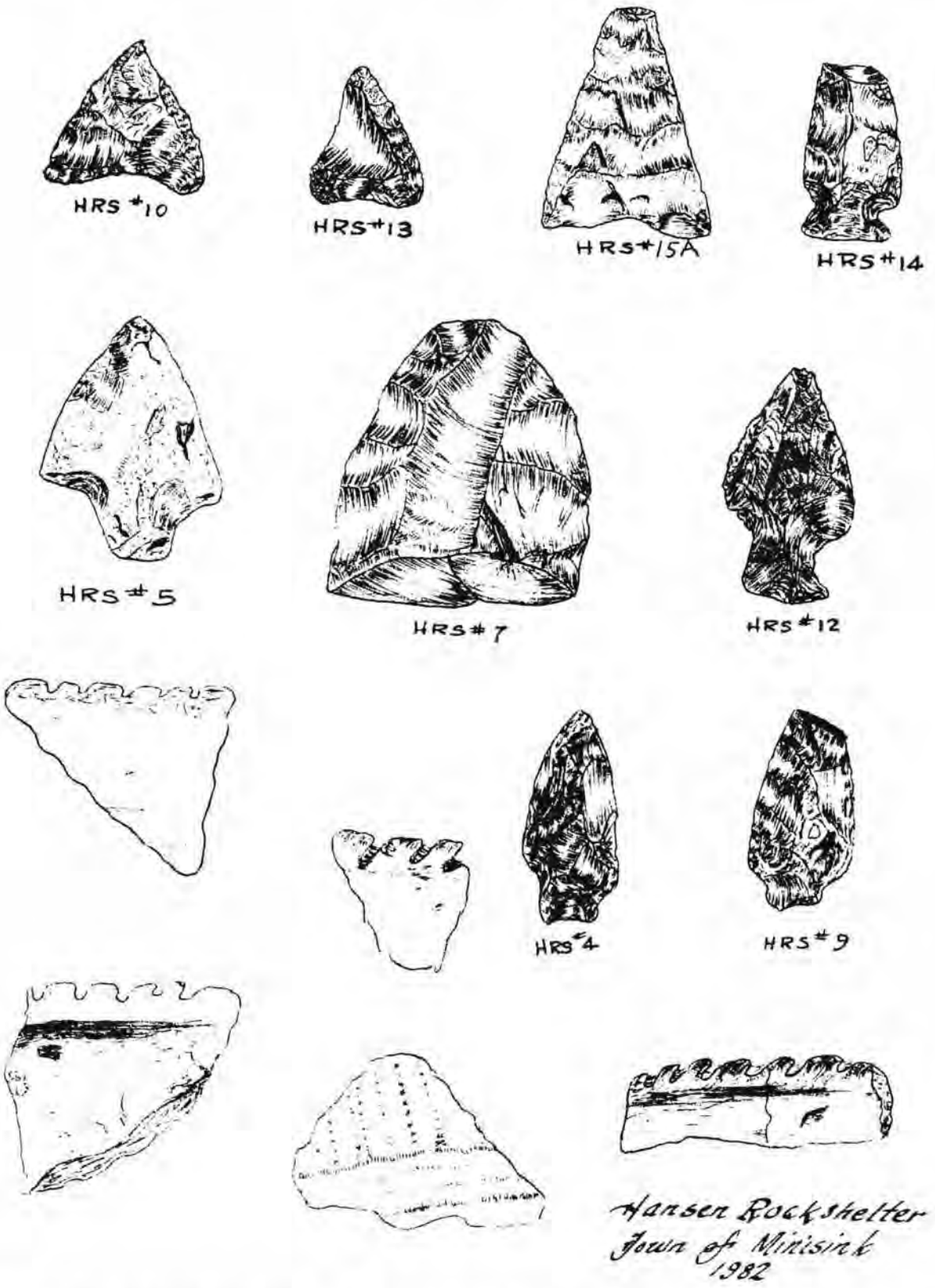

Figure 8. Drawing of select artifacts from Hansen Rockshelter, 1982 by William F. Ehlers.

Table 1. Projectile Points from the Hansen Rockshelter in the Minisink Museum.

Type	HRS# *	#	Time Period	Age	Reference
Lamoka–Bare Island	4 & 9	2	Late Archaic – Middle Woodland	3500 BC – 600 AD	Fogelman 1988:178; Ritchie 1971: 14, 15, 29, 30, 62, 82
Lamoka	21A & 26A	2	Late Archaic – Middle Woodland	3500 BC – 600 AD	Fogelman 1988:83; Ritchie 1971:14, 15, 29, 30, 62, 82
Levanna	10	1	Late Woodland	700 – 1350 AD	Ritchie 1971:31-32
Madison	13 & 15A	2	Late Woodland	500 – 1500 AD	Ritchie 1971:33 -34
Perkiomen Broadpoint	12	1	Terminal Archaic	1720 – 1500 BC	Fogelman 1988:148
Snook Kill	15	4	Terminal Archaic	1850 – 1470 BC	Fogelman 1988:149
Untyped	5 & 14	2			
TOTAL		**14**			

* see Figure 8

Table 2. A Preliminary List of Vertebrates from the Hansen Rockshelter Archaeological Site (based on Steadman 1986).

Amphibians
Rana sp., frog

Reptiles
Emydidae sp., turtle
Serpentes sp., snake

Birds
Anatidae sp., duck
Buteo lineatus, Red-shouldered Hawk
Bonasa umbellus, Ruffed Grouse
Meleagris gallopavo, Wild Turkey
Scolopax minor, Woodcock
Ectopistes migratorius, Passenger Pigeon
Strix varia, Barred Owl
Cyanocitta cristata, Blue Jay
Corvus brachyrhynchos, Common Crow

Mammals
Didelphis virginianus, Oppossum
Procyon lotor, Raccoon
Mephitis mephitis, Striped Skunk
Urocyon cinereoangenteus, Gray Fox
Lynx rufus, Bobcat
Marmota monax, Woodchuck
Scirus sp., Squirrel
Tamiasciurus hudsonicus, Red Squirrel
Castor canadensis, Beaver
Neotoma floridana, Eastern Woodrat
Microtus pennsilvanicus, Meadow Vole
Onodatra zibethicus, Muskrat
Erethizon dorsatum, Porcupine
Sylvilagus sp., Cottontail
Cervus canadensis, Elk
Odocoileus virginianus, White-tailed deer

1986). The 28 species of animals identified by Steadman are listed in Table 2. Brannan (n.d.) reported many fish bones; however, fish do not appear on Steadman's inventory. Two pieces of antler showed evidence for use as tools (Brannan n.d). This collection indicates the wide diversity of animals that were found in the Wallkill Valley marshlands. Most are still around today. Elk lived in Orange County until they were hunted out in the 1800s. Passenger pigeons were once common in huge flocks; extinct in the 1800s, their bones are common in New York caves and rockshelter sites.

Recently, the New York State Museum got two Accelerator Mass Spectrometry (AMS) radiocarbon dates from bone collagen samples. A raccoon (*Procyon lotor*) ulna from Square 8, Stratum A dated to 410 ±15 B.P. A raccoon metacarpal from Square 2, Stratum A dated to 2050 ±30 B.P. (Feranec and Kozlowski 2010:206). These Late Woodland and Early Woodland dates are consistent with the artifacts from Hansen Rockshelter.

Flora

The only reference to plants from the Hansen Rockshelter records comes from the Field Catalog, which includes unspecified nuts, 1 acorn, 1 butternut, 1 hickory nut, and

charcoal. However, flotation which recovers small seeds, fish scales, and beads was not used. Soil samples in storage at the Town Museum can be subjected to archaeological flotation; hopefully plant remains and other small finds will someday be recovered and identified.

Historic Artifacts

Green bottle glass was found throughout the top strata within Hansen Rockshelter. A small iron key was another historic find. A few nails, staples, and iron fragments are in the preliminary inventory (Decker and Hansen n.d.).

Conclusions

The extensive work done by the IOCC-NYSAA in the 1980s has revealed considerable information about the people who visited Hansen Rockshelter. Preservation of organic remains around this limestone cave was excellent. Hansen Rockshelter has produced hundreds of bones representing the rich animal life in the Wallkill drainage; they are in permanent storage at the New York State Museum. The richest assemblage of pottery from any rockshelter site in Orange County and projectile points spanning over 5,000 years are on display at the Town of Minisink Museum. Hansen Rockshelter was consistently valued and used over time; it has provided significant information about life in the Wallkill Valley. Hopefully more important data will be derived in the future. The IOCC dug only a part of the Hansen Rockshelter Site, leaving behind one of the Town of Minisink's most important cultural resources. This site is now protected by an easement that gives students the ability to visit this landmark, and permits investigations by qualified archaeologists (based on Cammisa 2008).

This is a preliminary site report; an expanded, more comprehensive report on this site is needed. It should be modeled after the report on the comprehensive Dutchess Quarry Cave book (Funk and Steadman 1994). From soil samples in the Museum, it may be possible to recover seeds, beads, or other small items using flotation. Future research analyzing the lithics, flora, and fauna excavated in the 1980s could result in future chapters in a final Hansen Rockshelter report.

More than 25 years after the Incorporated Orange County Chapter of NYSAA concluded its investigations at Hansen Rockshelter, the IOCC is still making a contribution to New York history. The chapter is documenting and preserving the archaeology of key "Black Dirt" area sites as part of their new Occasional Papers series (Scott 2006; Sandy 2009). So too, this Hansen Rockshelter report is part of a series of chapter investigations from previous decades, thus expanding our understanding of the rich archaeology of the Orange County "Black Dirt" area.

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Mohawk Archaeology and the Swart Collection

Wayne Lenig, Van Epps-Hartley Chapter NYSAA

Inventory of the Swart Collection, acquired by the New York State Museum in 2002, yielded cultural materials from 140 previously unregistered Late Woodland Mohawk Valley archaeological components. Preliminary analysis of temporal and settlement pattern data derived from these "new" sites suggests our contemporary understanding of Mohawk cultural evolution may be based upon a number of inaccurate assumptions relating to the timing and development of sedentary villages. The newly enriched site inventory also suggests the need for a serious re-evaluation of current Mohawk demographic estimates.

The Swart Collection

In 2002, through the kindness of the surviving children of John and Hazel Swart, the New York State Museum acquired an important new collection of upstate New York archaeological materials (Figure 1). The Swart collection is the product of 100 years of archaeological activity by three generations of family members. It was begun by Joel Swart around the turn of the twentieth century, continued by his son John from the 1930s through the 1960s, and further augmented by John's son Jan from the 1960s until his death in 2001.

Beginning in January of 2002 my involvement with the collection has entailed transcription, editing and computerization of the archaeological notes and journals that accompany the artifacts. To date more than 70% of the handwritten records have been transcribed, edited, and entered into MS Word, resulting in 1,366 pages of computerized transcripts (Figure 2). A relational database is also under construction with information on each of the sites represented in the Swart collection, collecting activities, and detailed data relating to individual artifacts. The "Sites Table" is complete at this time and contains information on 368 sites in 9 upstate New York counties.

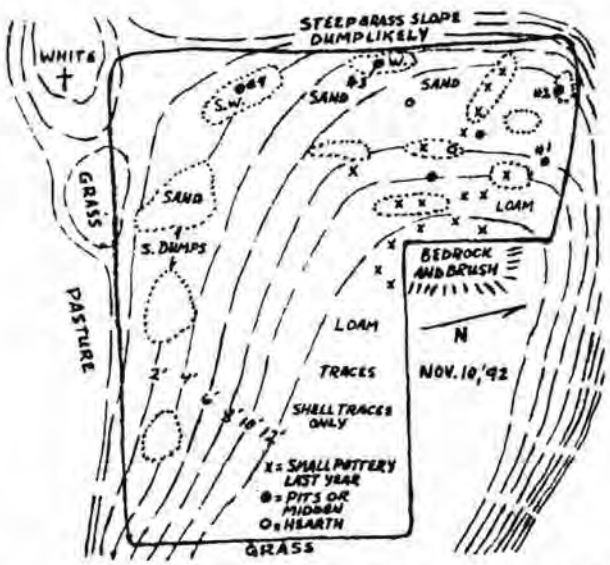
Geographical site distribution (Table 1) indicates that 90% of the sites are located within the traditional Mohawk homeland. Of the 368 sites, 145 or 39% are previously recorded locations that have been registered in one or more of three statewide archaeological databases, but a staggering 223 of the Swart collection sites (61%) were generally unknown and not registered in any official database. These 223 sites represent important new sources of information that have never been integrated into the public archaeological record.

Detailed analysis of the collection continues, and it is anticipated that a future publication on the development of Mohawk communities will incorporate the results. In the meantime, this report will present a preview of the Swart collection and all of those previously unknown sites. It is a survey of what have we have already learned from the written information accompanying the collection and an attempt to outline some of the issues that will be impacted by this new data. Before beginning the discussion, a note of caution is in order. The project is still incomplete; thus all analytical results must be considered preliminary.

Mohawk Components

The use of the term "site" refers to the specific physical location or locus that an artifact came from, but location is only part of an artifact's context. Many of the sites in the Swart collection provide evidence of multiple components—periodic episodes of reoccupation at a single location. Since the majority of artifacts were collected from the plowed surface of sites, the contexts generally lack vertical stratification, so

Figure 1. Nancy (Swart) Van Patten and Dr. Penelope Drooker packing the collection for transport to its new home at the New York State Museum.



frag[ment]s: 1 Rice Diagonal with no diagonal unless very faint; 1 Wagner Inc[ised] with no lip notches; 1 near-blank ½" cast[elation] frag[ment] with punctuates for outer lip notches, lip flat and channeled; 2 rim base frag[ments] with base notches, parallel oblique incised to the right; 1 mid-section with broad oblique lines angled left, nearly vertical & far apart. 2 whole finely made concave based triangles of dark lustrous W[estern] O[nondaga] chert, 1 quite small; 2 other bases of W. chert; a crude, thick scraper or [triangular – symbol] blank 1 ¾ x 1 ¾; end of a "punch"-like antler tool smooth at convex finished end, 7/8" x 3/8" diam[eter]; and 12 p[ie]c[e]s refuse bone of which 2 are calcined, one carbonized, most venison; 1 bird longbone, 1 of rodent skull. Pottery, this and most other, is quite hard – harder than normal. Child's toothbrush didn't erode it – because of alkaline soil?

From "Spot #1" on map: 3 small smooth body; a rimsherd midsection with broad lines widely spaced, oblique upward to the right; 2 flint chips; 1 pc. of calcined bone; & 20 pcs of char & partly burned wood – pine or hemlock – together volume of a walnut.

From #2: 1 small smooth body, a thin crude triangle base and 3 W. chert flakes; a wolf or dog canine with root tip gone and a perforation begun 1/8" from this end; 3 mussel frags; 9 pcs of pine or hemlock char not completely burned – together smaller than a walnut.

From #3: 11 smooth body from 2 ½" to 3/8" square; 4 neck-shoulder sherds; an expanded lip rim with lip rounded and one crudely incised horizontal line at its top. On either side of line is a horizontal row of 3/32 diam. hemispherical punctuates – 9 across 1 ½" on outer lip, looks like Castle Creek holdover; toy pot rim with grit, 7/16" high collar with 2 hor[izontal] lines & 3 fine base notches; rim top frag with no lip notches and very faint dec[oration]; fine 11 lines across lip and 3

Figure 2. A page of Jan's field notes dated November 10, 1992, after editing by Wayne Lenig. The computer searchable MS Word files are on file at the New York State Museum.

Table 1. Location of sites represented in the Swart Collection by County.

Greene County	1
Albany County	1
Saratoga County	2
Schenectady County	34
Montgomery County	313
Scoharie County	4
Otsego County	1
Herkimer County	8
Fulton County	4

it is not always easy to detect multi-component situations. However, based upon the distribution of diagnostic pottery types, lithics, and European artifacts, it is clear that at least 101 or 27% of the Swart collection sites are multi-component locations. For the remaining portion of this paper the focus will be upon discrete components rather than sites.

Baseline: Components in Prior Mohawk Research

Completed in the 1940s, Richard S. MacNeish's pioneer study of Iroquoian ceramics utilized data from 10 components to construct a Mohawk site sequence (MacNeish 1952:70-80). In a closely related study William A. Ritchie defined the Chance Phase of Mohawk development on the basis of ceramics found at four additional components (Ritchie 1952.) During the 1950s Donald Lenig collected data from 17 Mohawk components which led to the formulation of a sequence that spanned the period from the late fourteenth century through the middle of the seventeenth century A.D. (Lenig 1965). Most recently Dean Snow has published a catalog of all the known and registered Mohawk sites. He found 131 Mohawk components from both prehistoric and historic times (Snow 1995).

The sites in the Swart collection represent minimally 498 individual components; 246 of them relate to the Owasco-Mohawk tradition. Of those, more than one-half or 140 are previously unregistered components spanning early Late Woodland through late historic times—the same period represented by the 131 registered components cataloged by Dean Snow. Thus in a single stroke, the Swart collection has increased the number of known Mohawk archaeological components by 107%, or a little more than double (Table 2).

Since it is likely that this newly enriched site inventory will have an impact upon our understanding of Mohawk chronology, settlement patterns, demography, and social organization, it should be enlightening to take a closer look at the 140 "new" Mohawk components. At this time the actual artifacts in the collection are still being inventoried, catalogued, and conserved, but from the limited data available in written notes and documentation, it is possible to isolate four component-level variables for closer analysis.

Examination of Component-level Variables

1. Environmental and Geographic Setting
   a. Floodplain
   b. River terrace
   c. Backcountry-rolling hills
   d. Backcountry-precipitous slopes

2. Chronological estimation from artifact distribution: pottery, lithic tool types, and European manufactured goods from Protohistoric times on.
   a. A.D. 1000-1350: Owasco Tradition—preponderance of Owasco pottery types and Levanna projectile points.
   b. A.D. 1350-1400: Oak Hill Horizon—presence of collared pottery decorated by corded and

Table 2. Unregistered Late Woodland and Historic components represented in the Swart Collection, grouped by geographic setting and site size.

				Mohawk floodplain	Mohawk River terrace	Uplands rolling hills	Uplands steep precipice	Tributary terrace	Scoharie floodplain	Scoharie Creek terrace	Total
Owasco	Owasco (Levanna Point)	size:	small	–	2	–	–	–	–	–	2
		Total		–	2	–	–	–	–	–	2
	12th c. - Carpenter Brook	size:	small	–	1	–	–	–	–	–	1
		Total		–	1	–	–	–	–	–	1
	13th c. - Snell Focus	size:	small	3	–	–	–	–	–	–	3
		Total		3	–	–	–	–	–	–	3
	14th c. - Castle Creek	size:	medium	2	–	–	–	–	–	–	2
			small	5	2	–	–	–	–	–	7
			unk	–	–	–	–	–	–	1	1
		Total		7	2	–	–	–	–	1	10
	Owasco Totals			10	5	–	–	–	–	1	16
Oak Hill	14th c. - Castle Creek/Oak Hill	size:	small	2	–	1	–	–	–	–	3
		Total		2	–	1	–	–	–	–	3
	14th c. - Oak Hill	size:	medium	–	1	–	–	–	–	–	1
			small	6	4	5	–	–	–	–	15
			unk	–	1	–	–	–	–	–	1
		Total		6	6	5	–	–	–	–	17
	Oak Hill Totals			8	6	6	–	–	–	–	20
Chance	15th c. - Oak Hill/Chance	size:	medium	1	–	–	–	–	–	–	1
			small	9	2	3	–	–	–	–	14
		Total		10	2	3	–	–	–	–	15
	15th c. - Chance (undifferentiated)	size:	medium	–	–	–	1	–	–	–	1
			small	18	5	9	–	1	1	1	35
			unk	–	1	1	–	–	–	–	2
		Total		18	6	10	1	1	1	1	38
	15th c. - Classic Chance	size:	medium	–	–	1	–	–	–	–	1
			small	1	–	3	–	–	–	–	4
		Total		1	–	4	–	–	–	–	5
	16th c. - Late Chance	size:	medium	–	–	2	–	–	–	–	2
			small	7	1	4	1	–	–	–	13
		Total		7	1	6	1	–	–	–	15
	Chance Totals			36	9	23	2	1	1	1	73
Garoga & Protohistoric	16th c. - Early Garoga Phase	size:	unk	1	–	–	–	–	–	–	1
		Total		1	–	–	–	–	–	–	1
	16th c. - Early Protohistoric	size:	large	–	–	–	1	1	–	–	2
			small	2	–	–	–	–	–	–	2
			unk	–	1	1	–	–	–	–	1
		Total		2	1	1	1	1	–	–	6
	17th c. - Late Protohistoric	size:	large	–	2	–	–	–	–	–	2
			small	1	–	1	–	–	–	–	2
		Total		1	2	1	–	–	–	–	4
	Garoga/Protohistoric Totals			4	3	2	1	1	–	–	11
17th Cent. Historic	17th c. - Early Historic	size:	small	–	–	–	1	–	–	–	1
			unk	–	1	1	–	–	–	–	2
		Total		–	1	1	1	–	–	–	3
	17th c. - Middle Historic	size:	large	–	1	–	1	–	–	–	2
			medium	–	1	1	–	–	–	–	2
			small	1	3	2	–	–	–	–	6
			unk	–	2	–	–	–	–	–	2
		Total		1	7	3	1	–	–	–	12
	17th c. Totals			1	8	4	2	–	–	–	15
18th Cent.	18th c. - Late Historic	size:	medium	–	1	–	–	–	–	–	1
			small	1	2	–	–	–	1	–	4
		Total		1	3	–	–	–	1	–	5
	18th c. Totals			1	3	–	–	–	1	–	5

interrupted-linear techniques, mix of Levanna and Madison points.

c. A.D. 1400-1525: Chance Horizon—preponderance of collared pottery decorated by stamped and impressed linear techniques, Madison projectile points, no evidence of European contact.

d. A.D. 1525-1610: Garoga Horizon and Protohistoric Period—preponderance of incised-decorated collared pottery with heavy basal notches, as well as small quantities of European materials, which have frequently been modified into more traditional tools and ornaments.

e. A.D. 1610-1700: Seventeenth-Century Historic Period—quantity of native-manufactured goods and materials decreasing, abundance of datable European goods.

f. A.D. 1700-1778: Eighteenth-Century Historic Period—native-made goods and materials practically disappeared, wire-wound glass beads and pipestone beads present, eighteenth-century European ceramics.

3. Component size determined based on observation of the distribution of artifacts and features on the cultivated site surface. Divisions are somewhat arbitrary, but their distribution in space and time suggests a measure of validity.

a. small - under an acre.

b. medium - one to two acres.

c. large - greater than two acres.

4. Artifact density represents a crude measure of the intensity of site use based upon recurrent surface collecting activities and in a few cases the contents of excavated features.

a. diffuse - artifacts are rare and only occasionally encountered.

b. common - artifacts are always present in moderate quantities.

c. concentrated - artifacts are always present in substantial quantities.

Comparisons and Contrasts: Mohawk Culture History

Owasco Tradition

The lithic and ceramic assemblages conventionally identified as "Owasco" have been consistently ^{14}C dated between the eleventh and mid-fourteenth centuries (A.D. 1000-1350). While there may be some disagreement regarding earlier cultural assemblages, nearly all Northeastern archaeologists are in general agreement that the clusters of "Owasco" sites in the general areas of later Five-Nations Iroquois homelands represent ancestral Five-Nations Iroquois populations.

At this level, Dean Snow (1995: 49-75) reported 10 Schoharie Valley and 27 Mohawk Valley components. Only two of Snow's identified "Owasco" sites were located in the uplands, and it can be argued that both of those sites were erroneously or optimistically identified as "Owasco." All of the other listed sites of this horizon are located on the Mohawk or Schoharie floodplain or immediately adjacent low terraces.

Snow's summary of the conventional view follows: "Owasco" settlements are "compact longhouse villages" built on the "tops of bluffs." Most settlements housed only about 100 people, although even that was larger than the preceding Middle Woodland communities. Swidden agriculture combined with small community populations (under 200 people) allowed for settlements to remain in one location for several decades. There is evidence of limited movement of people from the main communities to smaller "special resource" components to take advantage of seasonally available foods and raw materials. Riverside "fishing camps" are specifically mentioned. Snow believes that the total "Owasco" population in the Schoharie-Mohawk region did not exceed 1,000 individuals at any given point in time (Snow 1995:49-75).

The Swart collection unregistered site sample includes 16 "Owasco" components, one in the Schoharie and 15 in the Mohawk Valley. All of the components are located on the Mohawk floodplain or on adjacent low terraces of the Mohawk River or Schoharie Creek. Over half of the newly identified "Owasco" components appear to date to the end of the period or Castle Creek ceramic horizon, which has been generally dated c. A.D. 1250-1350. Eighty-eight percent of the Swart sample are small in size, or under an acre. Medium-sized components, most likely main or base settlements, do not appear until late "Owasco" or Castle Creek times. None of the components exhibit concentrations of cultural materials generally associated with sedentary settlements, although artifacts are commonly found on 56% of the components.

Owasco Tradition Conclusions

If there really are some sedentary Owasco villages on the tops of bluffs in the Mohawk Valley, it seems we should be able to point one out by now. The closest we can come is the Snell Site which was located on a glacial outwash terrace

remnant at the edge of the floodplain. The Swart collection data suggests that floodplain and adjacent terrace settlements may be the norm, and the largest identified settlements are located directly on the floodplain. Conventional wisdom maintains that these components were only seasonally utilized, due to frequent flooding, but the truth is that we know very little about the history of Mohawk water levels, particularly in prehistoric time, before large-scale deforestation and canalization of the river. Given the evidence at hand, the "Owasco" settlement pattern in the Mohawk Valley may have been marked by a continuation of seasonally restricted wandering similar to Late Archaic lifeways. A similar phenomenon seems to have existed in much of New England, where horticulture was simply adapted into a non-sedentary lifestyle. Alternatively, some of the floodplain and low terrace sites may represent semi-sedentary hamlets—not special resource "fishing camps," particularly the larger Castle Creek phase components. In either case, there does not appear to be much evidence for those long established communities that hypothetically existed for several decades, as none of the identified sites exhibit artifact concentrations that would be consistent with such a pattern. The addition of 16 previously unrecognized "Owasco" sites should also cause us to reconsider the extent of the total population in the Mohawk Valley during those times.

Oak Hill Horizon

Most of what we know about the Oak Hill horizon still comes from Donald Lenig's classic study, written over forty years ago. There are still too few ^{14}C assays, but the general consensus seems to be that these sites probably all dated within the second half of the fourteenth century (A.D. 1350-1400).

Dean Snow lists 15 registered Oak Hill sites in the Mohawk Valley. According to him this stage of Mohawk development was marked by a relatively large number of small sedentary settlements located on "bluffs" or back-country rolling hills. Like their Owasco predecessors, these people reportedly practiced swidden agriculture and lived in hamlets that were stationary for several decades. Communities generally numbered fewer than 100 souls (Snow 1995:76-83).

The Swart collection adds 20 "new" Oak Hill horizon components. In a single stroke we have more than doubled the sample. While 30% of the new Oak Hill components are located in the uplands on rolling hills, 70% are located on the Mohawk floodplain and adjacent terraces—a continuation of the "Owasco" settlement pattern. There are no large components and only one that that exceeds an acre. Most (88%) are under an acre in size. On several of these components, Jan Swart noted that pottery seemed to be distributed in one or two linear patterns within a larger site-wide general distribution of chert debitage. Despite many years of plowing, he believed that this pattern reflected periodic lodge floor cleanings swept under the longhouse bunk lines. To him this suggested the presence of several longhouses at these sites. Interestingly, in a paper presented at the Iroquois Conference in 2002, Dean Snow reported a similar pattern of artifact distribution from the carefully excavated longhouse which his crews uncovered at the Otstungo Site. None of the new Oak Hill horizon sites produce the concentration of artifacts usually associated with semi-sedentary sixteenth- and seventeenth-century sites, but cultural materials were common on 45% of the components and sparse on 40%, while 15% of the components must await more detailed artifact analysis because the artifact density could not be determined from the notes.

Oak Hill Horizon Conclusions

We are again confronted with evidence that does not seem to be in accordance with the conventional view. Donald Lenig mentioned only one Oak Hill component that was located on the floodplain, and no floodplain locations were noted by Snow; yet 40% of the new Oak Hill components from the Swart collection were located on the Mohawk floodplain and another 30% were on contiguous terraces. The distribution of site size and artifact density also continues to mirror earlier "Owasco" patterns. From the evidence at hand, it seems that the alternatives mentioned for "Owasco" settlement patterns are equally valid here. There is very little evidence to support sedentary settlements in the Mohawk homeland during the Oak Hill phase. Artifact densities at these components remain overwhelmingly low, suggesting short stays and small communities. However, all things remaining equal, a 133% increase in the number of known components must certainly signal a somewhat larger population than what was hypothesized by Snow.

Chance Horizon

Accepted calendrical estimates for this ceramic horizon range from c. A.D. 1400-1525. Dean Snow reports 25 identified Chance components in the Schoharie and Mohawk Valleys. He theorizes that nine small villages with populations between 100 and 200 people coexisted in the upland rolling hills, within a mile or two, but not overlooking the river. The small number of sites, as compared to later phases, leads Snow to hypothesize long periods of village occupancy—up to 50 years or longer in one place. By the turn of the sixteenth century he maintains that village size was

beginning to increase dramatically due to nucleation of smaller communities (Snow 1995:85-142).

The Swart collection includes artifacts from 73 previously unknown Chance components. These components are located in a wider variety of environmental settings than any other period of Mohawk development. Of the "new" components, 36% are located in the uplands, usually on open rolling hills. However, 50% are still found on the Mohawk and Schoharie floodplains, and another 14% are sited on contiguous low terraces. As with earlier developmental phases, there are no large Chance components, although the number of medium-sized components (between one and two acres), are becoming more common. There are five in the sample, but 90% of the components are still under an acre in size. Artifacts are common on 62% of the sites and scarce on 27% of the sites.

Chance Horizon Conclusions

The traditional picture of small hamlets on upland rolling hills during the Chance Horizon seems to have some validity, even taking into account our new sample. Nevertheless, there are clearly many more riverside Chance contexts than anyone has ever reported in the past. Again, relatively low artifact densities raise questions regarding current assumptions that any of these components could have been utilized for much longer than a decade. The medium-sized sites seem to be fairly evenly distributed throughout early and late Chance times. Fewer components characterized by scarce artifact distribution may be an indication of increased sedentism. Certainly, based on evidence from prior excavations at the Second Woods, Getman, and Elwood Sites, we know that small- and medium-sized semi-sedentary hamlets and villages existed in the middle and end of this period. Some of the newly catalogued small floodplain components probably served as seasonally utilized fishing sites, populated at intervals by people with permanent abodes in the upcountry hamlets, but it is also possible that some of the river flats components, especially the earliest of them, may represent a continuation of seasonally-restricted wandering settlement patterns from "Owasco" and Oak Hill horizon times. The newly recorded Chance components in the Swart collection increase the number known by nearly 300%. There can be little doubt that previous Mohawk population estimates for this period must be increased.

Garoga Horizon and Protohistoric Period

Dean Snow lists 13 registered components dating to this period between A.D. 1525 and 1610. At the early end, he notes that large villages were established on high, steep hilltops several miles from the Mohawk River. Settlements also became more compact, that is larger numbers of people were concentrated in a relatively smaller living space. According to his calculations, these villages numbered 500 to 1500 residents. Snow sees only two major Mohawk village sequences during the first half of this period: one in the Caroga Creek drainage and another in the Cayadutta Creek Valley. By late proto-historic times (c. A.D. 1580-1610) he envisions as many as five co-existing villages—each with about 1,000 residents. This sudden population explosion is explained in part as an influx of people from outlying Mohawk communities in the Schoharie and upper Mohawk Valley, as well as a postulated in-migration of St. Lawrence Iroquoian people (Snow 1995:143-238).

The Swart collection contains artifacts from 11 unregistered Garoga horizon/Proto-historic components dating c. A.D. 1525-1610. Of these, 36% are Mohawk floodplain locations, 27% are located on adjacent river terraces and 36% are more remote back country sites. 36% are larger than two acres, 45% are under one acre and 19% are of undetermined size. Artifact density is concentrated on 18% of these components, common on 6% and only scarce on 18%.

Garoga Horizon and Protohistoric Period Conclusions

It is clear that there is a sudden proliferation of large villages during Garoga and Proto-historic times. It is also clear that there is a continued preference for locations that are somewhat removed from the Mohawk River, although by late Proto-historic times (c. A.D. 1580-1610) settlements are moving back towards the inner valley. As Snow has also observed, some small hamlets and/or special resource sites remained on the floodplain and adjacent terraces throughout the sixteenth century. The Swart collection components have increased the sixteenth century site inventory by 85%, once again suggesting strongly that Snow's demographic estimates need to be rethought.

Seventeenth-Century Historic Period

Dean Snow (1995) lists 29 registered components that date between A.D. 1615 and 1695; Don Rumrill (1985) lists 34. Snow's summary notes that during this period most Mohawk villages were located on broad open hilltops on Mohawk River terraces. Village size was quite variable, ranging from medium-sized villages with a population he estimates at 750, to large towns which he believes sheltered 3,000 residents. According to Snow, during this period Mohawk settlements re-located more frequently than ever before, he thinks about every 15 to 20 years. After 1670, when many Mohawks left

the valley for the Catholic Missions in the St. Lawrence Valley, both the number of villages and size of Mohawk Valley settlements decreased (Snow 1995:239-448).

There are 15 unregistered seventeenth century sites in the Swart collection sample. In terms of size, 13% are larger than 2 acres, 13% are between one and two acres, 58% are under an acre and 27% are of undetermined size. A total of 8 (53%) are located on Mohawk River terraces, 40% are in upcountry locales, a bit more removed from the river, and one component (7% of the sample) was located on the Mohawk floodplain. Artifacts are common on 60% of the sites and only sparse on 7%, but the artifact density on 33% of the seventeenth-century components could not be determined from the notes.

Seventeenth-Century Historic Period Conclusions

The conventional view of seventeenth-century Mohawk development, as presented by Don Rumrill and Dean Snow, seems to be supported by our data. However, the increased number of components that must be integrated with the postulated site sequence will undoubtedly affect estimates of both site duration and population size. It is a near certainty that many of the seventeenth-century sites were occupied for shorter periods than have been postulated; an average village stay was likely as brief as ten years.

Eighteenth-Century Historic Period

Don Rumrill (1985) lists 8 eighteenth century components and Dean Snow (1995) mentions 14. David Guldenzopf (1984) and Dean Snow (1995) have both summarized the period. Both note a reduction in population which resulted in even fewer Mohawk Valley settlements by the beginning of the eighteenth century. An eastern "castle" at Fort Hunter and an upper "castle" near present-day Indian Castle became the two population nodes. According to conventional wisdom, the "castles" became centralized European-style fortifications on the river flats with dispersed family farmsteads surrounding, very much in the European style. By 1779 all of the Mohawks had either left their homes to join the British or had been removed to other areas by the Americans (Snow 1995:449-495).

The Swart collection includes artifacts from five unregistered eighteenth century Mohawk components. All of the locations are on the Mohawk floodplain or immediately adjacent terraces. Twenty percent of these eighteenth century components are between one and two acres in size and the remaining 80% are under one acre. Artifacts are common on 60% of the components and scarce on 40%.

Eighteenth-Century Historic Period Conclusions

The new data is supportive of the conventional view. The medium-sized, previously unregistered component is clearly the site of one of the eighteenth century "castles" or main settlement at Fort Hunter, the easternmost Mohawk Valley community, while the four small components probably all represent scattered farmsteads of the post 1730 era.

Summary

The Swart collection is a unique and valuable resource for Mohawk archaeological research. The number of previously unrecorded sites represented is surprising and somewhat overwhelming, and confirms the perils of assuming that the majority of Mohawk village sites have already been discovered. Even a cursory examination of a few component variables suggests that there is much new insight to be gained. Many of the components that can now only be assigned to undifferentiated horizons will be more closely dateable when ceramics and European trade materials are carefully analyzed. Several ^{14}C samples in the collection offer additional chronometric potential. Eventually all of this information will enable detection of micro-sequences which will hopefully lead to a far more detailed understanding of Mohawk chronology and demographics. Ecofacts and organic materials provide data that will enhance our understanding of environmental relationships. The research potential is great and there is little doubt that this important collection will be mined for information for many years to come.

Acknowledgements

I would like to thank Nancy Van Patten and Susan Mychajlonka for the dedication and foresight to preserve this collection by donating it to the New York State Museum and Penelope Drooker for finding creative ways to get the artifacts processed and accessible to researchers in a time when museum budgets, particularly government operated museums, are very tight.

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Book Review

The Edge of the Woods, Iroquoia 1534-1701
by Jon Parmenter,
Cornell University, Department of History

Michigan State University Press, East Lansing, 2010. 529 pp. Black and White Illustrations, Maps, Notes, Bibliography and Index. $49.95.
ISBN 978-0-87013-985-7

This book is a recent and very significant contribution to the ever increasing interpretation of Iroquois culture in New York State, Canada, New England, the Midwest, Pennsylvania, Virginia, and Maryland from A.D. 1534-1701. Of particular value is the content related to the past, and current efforts of members of the New York State Archaeological Association, as well as many other educational institutions and researchers within the state. The author is an Associate Professor of History at Cornell University.

Perhaps one of the most important aspects is Jon Parmenter's approach to Iroquois cultural development from the point of view of spatial distribution over time and the realization that there was continual trade, mixture, adoption, and changing populations depending to a great extent upon Iroquois relations with the French, Dutch, English, and many other Native American groups. The relationship of the Iroquois Condolence ceremony is also very carefully investigated in relation to spatial phenomena. It should be pointed out, and some may not agree, that the author stresses that previous investigations and interpretations by archaeologists, ethnohistorians, and ethnologists should not remain isolated from other disciplines. As a result the volume has a very large number of archival and published references from multiple academic disciplines, government records, and journals of early explorers. In general the chapter notes, the references, and the index are comprehensive and can easily point a researcher in many valuable directions.

Several interesting and valuable aspects of the book are the relatively in-depth discussions and charts associating archaeological sites with aspects of spatial analysis and changing politics in the Northeast. Examples are taken from major publications by researchers, past and present, from the New York State Museum, Rochester Museum & Science Center, the New York State Archaeological Association, the State University of New York, and many other institutions involved in regional research, both in New York State and in other parts of the Northeast. Although there are, understandably, no detailed archaeological site descriptions, lists of sites and their suggested dates are particularly helpful in understanding the time frames and constant mobility of the Iroquois.

This volume has important implications for material culture studies in the future as related to interdisciplinary research in general and especially in history. In addition, physical anthropologists may be able to contribute through DNA analysis to a better understanding of the extensive accounts, for example, of Iroquois adoption, marriage, warfare, and population movement in relation to overall Native American populations today.

Charles F. Hayes III
Editor, *The Bulletin*, NYSAA

Book Announcement

Archaeology of the Iroquois
by Jordan E. Kerber
Colgate University, Colgate Longyear Museum of Anthropology

Syracuse University Press, 2007. 557 pp. ISBN 978-0-8150-3139

For all those interested in Iroquois research, this recent publication contains a wide range of previously published papers from the 1980s. Readers will have access to such topics as Iroquois origins, settlement patterns, material culture research, Pre-Columbian contacts, repatriation, and a variety of other contemporary issues. The volume also includes useful research resources, references cited, and a brief background of each of the various authors. Of particular value is the Foreward by Dean Snow who provides an informative review of the status of Iroquois archaeology today in relation to the assembled papers. This publication provides members of the New York State Archaeological Association with a review of research undertaken by many of its own members throughout many years of archaeological research and contacts with the Iroquois of New York State and Canada.

Charles F. Hayes III
Editor, *The Bulletin*, NYSAA

Theodore Whitney Commendation Awards Presented at 2010 NYSAA Annual Meeting

William E. Engelbrecht, Houghton Chapter

Bill Engelbrecht has been a prominent figure in New York archaeology for more than 30 years. He has published numerous journal articles, contributed many chapters to edited volumes (including the chapter on the Cayuga in the seminal *Handbook of North American Indians*), and written the monograph *Iroquoia: The Development of a Native World* published by Syracuse University Press. Bill's career also includes several decades of service at Buffalo State College, where he trained a generation of archaeologists in western New York and conducted 17 field schools at the Eaton Site in the town of West Seneca. He continually and selflessly encouraged his students to publish papers and give presentations about Eaton. Also while at Buffalo State, Bill served as outside reader on numerous committees for doctoral dissertations (primarily at the University at Buffalo). Despite "retiring" several years ago, Bill continues his work with Eaton and has served several terms as president and publications chairman of the NYSAA. Throughout his career, he has been a fixture at myriad meetings of archaeological and anthropological societies, both at the national and state levels. He also has the rare quality of deservedly possessing the respect of both professional and avocational archaeologists. Finally, Bill has always played a positive and encouraging role in the careers and lives of those fortunate enough to have known and worked with him.

Bill has wide-ranging research interests and has published on topics that include prehistoric Iroquoian pottery, prehistoric Native American ethnogenesis in the New York State area, demography, and Paleoindian watercraft, among many others. Bill has served as president of the NYSAA, and has also worked as its publications chairman. During his tenure as the latter, he oversaw the monumental task of converting back issues of *The Bulletin* into digital editions in PDF format and making the resulting entire electronic run of the journal available on a searchable CD. Bill is of exceptional intellectual stature and a wondrous person who is treasured by all who know him.

NYSAA Awards Committee
Peter Pratt Chair

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Ralph Solecki, Metropolitan Chapter

Although we tend to associate Ralph Solecki with the excavations at Shanidar Cave in Iraq, in fact he began his career as an archaeologist as a teenager when he dug on Long Island three quarters of a century ago, in the 1930s, one year after I was born. His interest in the study of Coastal New York has persisted and he has made enormous contributions to its study. This year (2010), he (along with Stanley Wisniewski, his childhood friend and colleague) is publishing a volume on the Maspeth Site, that they dug 76 years ago, in the Researches and Transactions Series of the New York State Archaeological Association (Vol. XVIII). It is for his work in Coastal New York that he has been nominated for the Theodore Whitney Commendation.

The Maspeth volume combined with his earlier ones on Fort Corchaug and Fort Massapeag make him not only the leading authority on the seventeenth century encounters between Algonquian peoples and Europeans on Long Island, but also make his work indispensable for any archaeologist or historian trying to understand the seventeenth century not only in coastal New York but throughout the Northeast. Furthermore, as his bibliography attests, his contributions to the archaeology of New York State are not limited to the seventeenth century. Moreover, the contributions that he has made throughout his lifetime—over the last three quarters of a century—are of the finest caliber.

Native forts, like Corchaug and Massapeag, were new phenomena along the coast and lasted but a brief time. Much of what any colonial specialist working in the eastern United States knows about these important centers for trade and alliance-making comes from the pioneering work of Ralph Solecki. Some of us vividly remember that Ralph's work in the state began three-quarters of a century ago, at a time when there was no professional archaeology in New York City itself and no one in a university to help him. He and his school friends tried to save threatened archaeological sites (like Maspeth, North Beach, Clearview, or Corchaug) that were being destroyed by urbanization. After serving in the military in World War II, Solecki returned to school, studying at Columbia University under Duncan Strong. His Master's thesis was based on field work he did at Fort Corchaug, which he began in 1936 and continued, off and on, to 1948. Recently, the thesis on Corchaug, first published in 1950, was republished in *Native Forts of the Long Island Sound Area*. It was accompanied by a lengthy Epilogue written specifically for that volume. The epilogue incorporates data from subsequent excavations in Connecticut and Long Island. His work on Fort Massapeag is also in that volume. Each of these publications is the equivalent of a monograph.

Many things make these volumes extraordinary. The sites themselves represent a unique, short lived response to European incursions by Algonquian peoples and open a window into the complexities of that period. Both sites were dug in Solecki's younger years, when he worked to save them from destruction. The Epilogue to Corchaug and the work on Fort Massapeag were written years after the sites were dug and are masterful documents. Solecki brought to these later publications a close reading of the colonial documents, a comparative viewpoint based on sites since dug in southern New England, and a great level of outreach to local collectors, local historians, and townspeople. He tracked down artifacts from these sites in private collections and queried everyone on what they remembered about the sites. As such, these are among the most thorough treatments of such contact sites available. They are major contributions to the field and are fundamental to any understanding of those times. We, ourselves, have referred to them over and over again and they have been and will continue to be mentioned in countless dissertations and articles.

After his first publication on Corchaug, Solecki went on to work for the River Basin Surveys and then as a curator at the Smithsonian Institution. He also did major field work in Iraq, notably Shanidar Cave, Syria, Egypt, and the North Slope of Alaska. But, through those decades, he never forgot

New York archaeology and when he returned to Columbia as a professor, he trained archaeologists to work in the New York area. He also continued publishing on New York's archaeology of various time periods as the attached bibliography details. He has recently published an analysis of sites that he dug in the 1930s.

Ralph Solecki's field work covers a broad geographic swath of the Old and New Worlds (coastal New York, the Midwest river basins, the North Slope of Alaska, Iraq, Iran, Syria, Egypt, France, Turkey, and Lebanon) as well as a broad swath of the temporal past, starting with Neanderthal and Early Paleolithic sites in Iraq and Syria (Shanidar Cave and Yabroud) to the more recent colonial past in coastal New York. He is a pioneer in aerial photography, techniques he developed while working in the Zagros.

Solecki has been active in excavating sites in coastal New York since he was a teenager over 70 years ago, frequently rescuing information from them before they were destroyed by bulldozers. As an advocate for archaeological sites, Solecki has been frequently consulted as an expert on New York archaeology, by government bodies such as the New York City Landmarks Preservation Commission when it was considering taking archaeology into account as part of the preservation process. Solecki's arguments for the importance of archaeology were persuasive and the large-scale study of the archaeology of New York began. Further, his field work and careful monitoring of sites inspired many graduate students to make their careers in local archaeology. Furthermore, it should be noted that he shows a professional responsibility to sites that he has excavated that not every archaeologist, alas, has. Since his retirement, he has re-analyzed and published the results of his early field work. In fact, this professionalism has led to his three masterly publications on contact coastal New York.

Finally, it must be added that Ralph Solecki was the first President of the Metropolitan Chapter of NYSAA. The chapter celebrates its 50th anniversary next year and Ralph has been an active member throughout the chapter's history. He was also the first president of PANYC (The Professional Archaeologists of New York City) and has remained active in that organization for thirty years. Perhaps one of his greatest services has been the training of distinguished archaeologists who work there. Even when he was working in Iraq, Solecki continued to teach local archaeology and train students in it. In fact, his first graduate student was Bob Funk. Following Funk were Bert Salwen, Jerry Jacobson, Joan Geismar, Sydney Marshall, Lucy Lewis Johnson, Kathryn Browning-Hoffman, Allan Gilbert, John S. Kopper, Peter Rose, Pamela Crabtree, James Taylor, Donna Taylor, Steven Saunders, and Alfred Cammisa, to name but a few.

One could say so much more.... This is another outstanding scholar, who we want to honor, but can't emulate, because the resources are gone. But we can strive to preserve and record those which are yet there. In honor of what Ralph has accomplished and plans to do with corresponding superb achievements, the Awards Committee offers its praise to an exemplary person.

NYSAA Awards Committee
Peter Pratt Chair

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2006 The Archaeology of Fort Neck and Vicinity, Massapeag, Long Island, New York. In *Native Forts of the Long Island Sound Area*, edited by Gaynell Stone. Readings in Long Island Archaeology and Ethnohistory, Vol. VIII, pp. 143-240. With contributions by James Burggraf, Anagnostis Agelarakin, Robert Grumet, Carlyle Smith and William Claude.

2006 The Archaeological Position of Fort Corchaug and Its Relation to Contemporary Forts. In *Native Forts of the Long Island Sound Area*, edited by Gaynell Strong. Readings in Long Island Archaeology and Ethnohistory, Vol. VIII, pp. 9-34.

2006 Epilogue to Historic Fort Corchaug. In *Native Forts of the Long Island Sound Area*, edited by Gaynell Strong. Readings in Long Island Archaeology and Ethnohistory, Vol. VIII, pp.35-86.

Wisniewski, Stanley and Ralph S. Solecki

2010 *The Archaeology of Maspeth, Long Island, New York and Vicinity*. Researches and Transactions of New York State Archaeological Association XVIII (1). New York State Archaeological Association, Rochester New York

Carolyn Weatherwax, Auringer-Seelye Chapter

This award honors the memory of Theodore Whitney for his lifetime of outstanding support of the furtherance of New York State archaeology. Individuals recognized by this Commendation will share with Ted a lifetime of dedication and service to New York State archaeology.

Carolyn's dedication and service to New York State archaeology are exemplified by the following:

- For her years of services to the NYSAA as Treasurer and member of the Executive Committee.
- For her service to the Auringer-Seelye Chapter both as Treasurer and for her dedication to the Chapter.
- For her on-going work documenting the "Saratoga Graphite Mine Historic and Archaeological Site" in Greenfield/Wilton Towns, Saratoga County, NY consisting of, but not limited to: a) archival and archaeological research on this industrial complex; b) initial publication; c) success in obtaining National and State Registers of Historic Preservation eligibility determinations from the NYS Historic Preservation Office; and, d) other efforts aimed at the long term preservation of the site.
- For her archaeological and historic preservation service contributions to the community of the Clarksville Historic Society, Albany County, NY: for example – a) current officer; b) research for signage and inventory of local sites, including archaeological remains of lime kilns; c) research, restoration and conservation of the Houghtelling family cemetery; and, d) listing of the Clarksville school on the National Register of Historic Preservation.

Carolyn, in her field work has organized, coordinated and documented fieldwork for the Saratoga Graphite Mine complex: to name only a few of the volunteers—members of the Northern and Southern New England Chapters of the Society for Industrial Archaeology (Carolyn is an officer of the Northern New England Chapter); Gordon and Barbara DeAngelo, survey; Matt Kierstead, industrial archaeologist and historian. Carolyn also arranged for and coordinated others of with various specialties, such as photography, historic preservation National Register expertise, in recording the physical remains of the complex. Carolyn continues to volunteer in archaeological field work— again, to name only a few places: at the Mabee Farm Historic Site, owned and operated by the Schenectady County Historical Society she volunteered under the supervision of Schenectady County Community College-Community Archaeology Program; at the West Point Foundry Site, Cold Spring, Putnam County, NY. She worked under the supervision of the Michigan Technological University's Industrial

Archaeology Program.

Carolyn has also initiated and organized the transfer of the Saratoga County Snook Kill Archaic type site collection from private ownership to public repository. This process involved lengthy discussions with the owner to reach a mutually satisfactory arrangement for temporary transfer to the NYSAA VanEpps-Hartley Chapter and final acquisition by the NYS Museum.

As for academic certificates, Carolyn has successfully completed two sequential certificates from the Schenectady County Community College-Community Archaeology Program. Furthermore, Carolyn has satisfactorily completed a basic Certificate in Proficiency in Community Archaeology that consists of 6 basic courses: Historical Archaeology, Pre-Colonial Archaeology, Documents, Lab practices, Data and museum studies, and field work, plus 60 hours of supervised field and lab work (30 hours each). Carolyn also earned an Advanced Certificate that consists of 6 courses in specialized studies that enhance the basic education obtained. Carolyn's publication of the Graphite Mine (cited above) fulfilled the requirement for an individual report on archaeology.

In sum, here is an exceptional contributor to our New York State archaeology. Carolyn has spent a lifetime of dedication to archaeology, especially in industrial and preservation realms.

The NYSAA welcomes with profound enthusiasm this remarkable, unassuming, low-keyed, and exceptionally hard-working person in realizing frightfully difficult goals.

The NYSAA deeply thanks her for her efforts and excellence in realizing exceptional goals in preservation or our heritage.

NYSAA Awards Committee
Peter Pratt Chair

In Memoriam

Gordon C. DeAngelo (1931-2010)

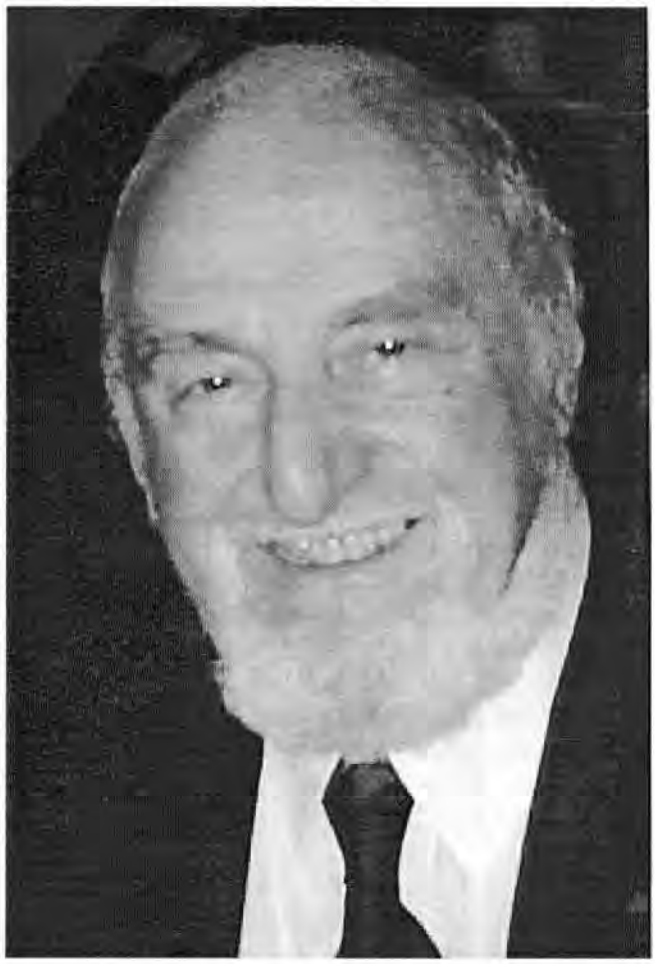

Photo courtesy of Barbara DeAngelo

In Gordon's 1994 Northeastern Archaeology Association article, "Archaeology in the Future, the Role of the Avocational," Gordon wrote "There are several benefits to being old and retired. One is to be able to take advantage of the phenomenal visual acuity of hindsight." Another is the ability to "tell it like it is—or at least how you perceive it is—with no fear of monetary retribution." Gordon made a point of consistently doing just that. As with everything else, Gordon spoke out for excellence, with prominent examples of how it could be achieved. Gordon was a master at inducing others to do as he did. With his consummate leadership abilities, he believed that achievement was to be realized with education, grace, humility, and dedication, coupled with hard work... whatever Gordon tackled, he achieved. He was esteemed beyond measure as a guardian of not only our past, but of our present and our future.

On Sunday, September 5, 2010, this cherished coordinator between avocational and professional archaeologists, this treasure to nature lovers of every walk of life, died of a massive heart attack. But in his "other life" as a landscape architect (NYSDOT), Gordon strived to sensitize that agency to the importance of archaeology and cultural resources, and to our appreciation of our heritage. Gordon is survived by his loving wife Barbara, four children: Charles (now a land surveyor), Lynn (a special education assistant), Caryl (a talented artist), and Patrick (a law enforcement officer), and his former wife Darothy.

Gordon was born in New York City to Edith and Carlo DeAngelo. His childhood was largely spent in Orange County where his parents had bought a dairy farm. The previous owner, Eric Knoll, who stayed on the place as a hired hand, was very important to Gordon's upbringing. Eric taught the young boy how to manage the farm, with instructions to, "Spend 20 minutes learning what you need to do. Then do it." Gordon treasured those words as guides to his life.

Gordon's school days were a delight to him. At Storm King High School, near Goshen, Gordon excelled. He became an exquisite writer and editor of his school newspaper. Striking pieces of his scholarship are listed in the attached bibliography. Gordon excelled in football, wrestling, and track. It was in his senior year at Washingtonville High School that he courted Darothy, a fellow thespian and the woman who was to be his first wife. Gordon commenced his university training at SUNY College of Forestry at Syracuse University. There he led the class. He became friends with Dr. Mildred Faust, an outstanding botanist and distinguished scholar, who enchanted her students and friends, and, even in advanced years, could easily outpace sturdy graduate students in the field. At the beginning of his sophomore year, Gordon came down with polio and spent the rest of that year in a rehabilitation hospital. With physical therapy and his indomitable spirit, Gordon managed to recover. He graduated from the College of Forestry as a landscape architect. In 1954, Gordon took a post as a landscape architect with the New York State Department of Transportation in Poughkeepsie and in Syracuse, eventually becoming head of the Landscape Department. While in that capacity Gordon worked tirelessly and most successfully to sensitize that agency to the importance of archaeology and cultural resources. In 1988 Gordon retired from his post with DOT. Both pre and post retirement, he was actively engaged in archaeological pursuits for more than 50 years.

During those formative years, Gordon and Darothy took the children to Cranberry Lake on various camping trips where they existed on non-canned food and fresh fish. Every

such outing took weeks of planning and preparation and were treasured events in the wild. Gordon and Darothy were also active in amateur theater. Gordon's role as Big Daddy in *Cat on a Hot Tin Roof* was especially lauded. The two starred for several years in Cazenovia Players as well as the Summer Showcase Series at Toggenburg and Syracuse Little Theater.

Gordon was a member of the Pompey, New York Planning Board. He also conducted 4H summer athletic programs for children, including ball teams and swimming programs. Gordon also convened a group of people in the Syracuse area who were interested in archaeology, leading to the founding of the Beauchamp Chapter of the New York State Archaeological Association in 1974. Within ten years Gordon served as president of the New York State Archaeological Association. He also became the first male member of the Syracuse Botanical Club, an organization formed in 1879 for women only.

Gordon taught evening courses in archaeology at Syracuse University's University College. There he met Barbara, who was to become his wife and collaborator in research for the rest of his life. For several years, Gordon wrote a gardening column for the Cazenovia, New York, *Eagle Bulletin*. Gordon's interest in nature led him to a part of the committee, which created Beaver Lake Nature Center. This became a popular park in the Liverpool, New York, area. Together with Barbara and others, Gordon also reestablished The Rock Ridge Nature Trail in Thousand Islands Park, New York. Then both Barbara and Gordon contributed to the writing of a booklet on the park, which Gordon cleverly and enticingly illustrated.

Together, Barbara, Gordon, and Vicky Jayne volunteered an entire summer at Colgate University's Longyear Museum of Archaeology providing a photographic record of the entire Oneida Iroquois archaeological pottery vessel collection. The two of them also conducted extensive field and laboratory research at the Chittenango Canal Museum. There, over several years, they devoted extensive restoration at the site and conducted analysis of the thousands of artifacts recovered. This huge undertaking was concluded and the artifacts turned over to the New York State Museum, shortly before Gordon's death.

In the 1990s and continuing until his death, Gordon and Barbara worked extensively with David Starbuck first at Fort Edward, then at Fort William Henry and Mount Independence and, finally, in Scotland. They were involved with surveying and mapping, teaching surveying to the students, ceramic analysis and botanical recording. In 1998, Gordon received the highest award one can achieve in the NYSAA, the Theodore Whitney Commendation. This recognition is detailed in the article entitled "Theodore Whitney Commendation for Gordon C. DeAngelo, Annual Meeting NYSAA 1998." *The Bulletin*, New York State Archaeological Association, No. 115, 1999.

Gordon also received the NYSAA Fellow Award; the Jesse R. Foley Educational Award for Service to the Community in the Study and Presentation of Its Archaeological Heritage; and the Society for Historical Archaeology Award of Merit for outstanding contributions to the historical archaeology.

Gordon will be ever remembered as a distinguished scholar and beloved mentor, and a very dear friend.

Peter P. Pratt

Selected List of Publications

Gordon was a prolific site surveyor and researcher as seen by his published articles, brochures, maps, co-authorships, etc. The following selected list gives an idea of the range of his work.

1978 Occupation of the Town of Van Buren, Onondaga County. *Bulletin of the William M. Beauchamp Chapter, New York State Archaeological Association* 3(1), 48 pages.

1979 A Planner's Outline Guide to Cultural Resource Data Collection. New York State Department of Transportation document, 35 pages.

1984 Indian Hill: The Bottom Line???. *Bulletin of the William M. Beauchamp Chapter, New State Archaeological Association* 4(1), 13 pages.

1985 A Guide to Dating Historical Artifacts from Surface Finds. *Bulletin of the William M. Beauchamp Chapter, New State Archaeological Association*, brochure, 3 pages.

1992 Avocational Archaeology in New York State. *The Bulletin*, Journal of the New York State Archaeological Association 104: 28-30.

1996 Archaeology in the Future: The Role of the Avocational. In *A Golden Chronograph for Robert E. Funk*, edited by Chris Lindner and Edward V. Curtin, pp. 45-48. Occasional Publications In Northeastern Anthropology, No. 15, Bethlehem, Connecticut.

2001 An Outline of Brickmaking in New York. *Bulletin of the William M. Beauchamp Chapter New York State Archaeological Association* 8(1) :51-66.

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 Concurrent General Business Meeting
And Executive Committee Meeting
NYSAA 94th Annual Meeting
Honor's Haven Resort & Spa, NY
April 23, 2010

Opening:

NYSAA President Bill Engelbrecht called to order the regular meeting of the General Business meeting at 7:12 pm on April 23, 2010 with opening remarks and thanks to the hosting chapter.

Present:

Officers Present:

President, Bill Engelbrecht; *Treasurer*, Carolyn Weatherwax, *Corresponding Secretary*, Bill Bouchard, and *Recording Secretary*, Lori Blair.

Chapter Roll Call:

Present: Adirondack, Auringer-Seelye, William M. Beauchamp, Chenango, Frederick M. Houghton, Finger Lakes, Long Island, Lewis Henry Morgan, Metropolitan, Mid-Hudson, Incorporated Orange County, Incorporated Upper Susquehanna, Triple Cities, and Van Epps-Hartley.

Absent: Lower Hudson and Thousand Islands.

A. Reports of the Officers

President: Bill Engelbrecht – report on file.

- Executive Committee Meeting was held November 14, 2009 in Syracuse.

Vice-President: Sissie Pipes – no report.

Treasurer: Report – on file

Corresponding Secretary: Bill Bouchard – Report on File.

- Current membership is 666, 82 over 2008.
- Handbook will be out in a few weeks; waiting for results of the election.
- Bill will work with Abbey, his successor to allow for a smooth transition.

Recording Secretary: Lori Blair – Report on file.

- The minutes of the April 2009 General Business meeting were reviewed and approved with minor revisions at the November 2009 Executive Committee Meeting.
- The minutes of the November 2009 Executive Committee Meeting were reviewed.

➢**Motion made by Lisa Anselmi to accept the minutes as written, 2nd by Bill Bouchard. Passed.**

B. Report of the Committees

Chapters and Membership – Sherene Baugher, Chair

- There have been inquiries from high school students about getting involved with archeology and so there is a need for guidance: problems arise with training – investigation – looting.
- Christina Reith is on the committee and has been working on guidelines for schools. Once

everyone on the board reviews it – it will be posted on our website.
- Guidelines area close to being done. Any comments or suggestions should be brought to Christina.
- A draft of the marketing survey prepared by Mary Ann Niemczycki was distributed; comments/suggestions should be submitted to Sherene.
- It's anticipated that the survey could be completed on-line via email invitation, if capable. Options for distribution will be discussed with the chapter secretaries.
- There was a suggestion to distribute the survey to non-members who attend chapter meetings.
- Bill Englebrecht stated that there are 170 fans on NYSAA's facebook page – only ½ of which are members.

Publications – presented by Bill Englebrecht – report on file
- *Bulletin* 2008 (No. 124) has been distributed.
- *Bulletin* 2009 (No. 125) is in last stages of editing should be out later in 2010.
- *Bulletin* 2010 (No. 126); several possible submissions.
- Research and Transactions report is on file.
- The final layout has been completed by Martha Sempowski and Gian Cervone.
- Discussion of costs: preliminary $15 for members and $25 for non-members.

Finance – Fred Stevens – Report is on file
- Financially we are in good state.
- Gain of $447 on cds.
- Budget is a little off, reflecting a budget of $7,000 for Research and Transactions with an actual cost of about $10,000.
- Any questions should be brought to Fred.

Legislative – Doug Mackey – No report

Library – Long Island Chapter.
- No report but Dave Elliston states that it is being taken care of. There is a report in the newsletter with updates.

Archives – Bill Bouchard
- Not much has happened. Fran McCashion has tapes and minutes from John McCashion.
- Need to determine what each chapter has and what they consider appropriate for archiving.
- The New York State Library will be approached as a repository.
- The Rochester Museum and Science Center has all the NYSAA records from the first 20-30 years; Sissie Pipes expressed a concern regarding access to these materials once the current registrar retires.

Public Service Award – Bill Engelbrecht
- The Public Service Award allows NYSAA a mechanism to recognize public officials or developers.
- The current officers comprise the committee so nominations should be sent to the President.

Program for 2011- Wayne Lenig
- The 95th NYSAA annual meeting will be hosted by the Van Epps-Hartley Chapter. The meeting will take place April 15-17th at the Johnstown Holiday Inn, located about 30 miles west of Albany. Flyers announcing the meetings are available at the registration desk.

Program for 2012 is open

Special Appointees

ESAF Liaison – Tim Abel
- No report (Tim not present).

NYAC Liaison – presented by Sissie Pipes
- Sissie is the new NYAC president.
- Copies of the NY Archaeology Season Poster are available.
- Chapters are encouraged to distribute the posters locally to libraries, schools, historical societies, etc.
- Hartgen Archeological Associates wants to submit bill to NYAC (250) and NYSAA (300); HAA tax deduction for the rest.
- Newsletters will be on the website.
- Upcoming joint NYAC/PANYC meeting In NYC in September or October.
- NYAC contributed $600 toward Funk Foundation.

Funk Foundation – Wayne Lenig
- Ed Curtin is now President of the Funk Foundation Board and NYAC Representative.
- Other members include John Lathrop of the NYSM; Patterson Shackney – at large; Wayne

Lenig of NYSAA; and final is a member of the Funk family.

- Richard Wakeman (Upper Sus. Chapter) – small grant related to Benke Farm Site.
- The foundation is very successful which means funds are low. This "monetary crisis" means there is a moratorium on grants; they are looking for ways to increase funds – ie. "making money that makes money."
- Discussion on proposed changes to the by-laws that would need to be approved by NYSAA, NYAC and the NYSM.
  - The first proposed change would allow the board the ability to add another at-large board member.
  - The second would be a change to Article 5, Section 6 of by-laws related to Officers and Duties which currently reads "All officers shall be voting members of the governing council. Officers shall serve for a term of 2 years and may be re-elected to office for ***up to three consecutive terms***." Proposal would change highlighted text to "***one or more terms***."

➢**Motion by Jim Bradley to allow the Funk Foundation board to add another at-large board member, 2nd by Lisa Anselmi. Carried with two abstentions.**

- Discussion: Ann Morton discussed reasons why NYAC did not endorse either proposal. They tabled it for now; asking for clarifications.

➢**Motion by Bill Bouchard for proposed change #2 (change in terms of Funk Foundation officers), 2nd by Jim Bradley. Following discussion; Motion did not pass.**

Society for Pennsylvania Archaeology – Fred Assmus

- The meeting was held two weeks ago; a new president was elected.
- Next year's meeting will be in Morgantown area. They are aware of NYSAA's dates for 2011 meeting and there is a commitment by SPA to avoid conflict of meetings.

ASPI- Ann Morton –

- Ann encouraged distribution of the brochure and archaeology season posters .

PANYC – Diana Wall

- Diana stated that there is a public program tomorrow and so many PANYC members not at this meeting. She stated that with this new relationship, will try and avoid conflicts in scheduling.

OLD BUSINESS - none

NEW BUSINESS

➢ **Motion by Diana Wall, 2nd by Lisa Anselmi for NYSAA to contribute $300 to each – The Funk Foundation, the Fisher Fund and to Archaeology Season. Voted, accepted and passed.**

SPECIAL PRESENTATION was made to Carolyn Weatherwax for her service to NYSAA as Treasurer for 34 years. Thank you Carolyn.

ELECTION RESULTS – Presented by Fred Stevens

- Election ballots were counted by Dale Knapp and Fred Stevens.
- The results:

  President: Sherene Baugher
  Vice-President: Sissie Pipes
  Corresponding Secretary: Abigail Herlihy
  Recording Secretary: Lori Blair
  Treasurer: Fred Assmus

- A good-bye and thank you to out-going officers.

➢ **Motion by Diana Wall to adjourn, 2nd by Ann Morton. Passed.**

The meeting adjourned at 8:40 pm.

Respectfully submitted,

Lori J. Blair
NYSAA Recording Secretary

Minutes of the Executive Committee Meeting
Saint Marie among the Iroquois, Liverpool, NY
November 13, 2010

Opening:
NYSAA President Sherene Baugher opened the meeting at 1:00 P.M. and thanked the Beauchamp Chapter for hosting the meeting.

Present:

Officers Present:	President Sherene Baugher	
	Vice-President Sissie Pipes	
	Treasurer Fred Assmus	
	Corresponding Secretary Abigail Herlihy	
Officer Absent:	Recording Secretary Lori Blair	
Chapter Roll Call:	Adirondack:	Abigail Herlihy
	Beauchamp:	Barbara De Angelo, Vicky Jayne, Marjorie Pratt, Peter Pratt, Greg Sohrweide, Tyree Tanner
	Chenango:	Peter Pratt, Tyree Tanner
	Finger Lakes:	Sherene Baugher, Laura Johnson-Kelly
	Houghton:	Bill Engelbrecht, Mary Ann Niemczycki
	Morgan:	Sissie Pipes
	Orange Co.:	Fred Assmus, Sharon Assmus
Absent:	Auringer-Seelye, Inc. Long Island, Lower Hudson, Metropolitan, Mid-Hudson, Thousand Islands, Triple Cities, Upper Susquehanna, Van-Epps Hartley.	

Reports of the Officers

President: Sherene Baugher
Flint Mine Hill- The executive committee discussed the recent trespassing and ATV damages and alleged deer baiting on the Flint Mine Hill Site. A Mr. Post contacted NYSAA about the damages and offered to be a local point person and act as the 'eyes and ears' on the ground for the property. The Site is owned by the Long Island Chapter and Mr. Post will now be responsible for placing signed posted signs around the property and he will have the authority to act as the contact man for the local DEC. Hopefully this will better protect the property from further damages.
➢ Movement to Accept: Vicky Jayne; 2nd: Greg Sohrweide; All in favor.

Vice-President: Sissie Pipes
Sissie Pipes reported on the newsletter- she is continually looking for items. She will handle all the NYAC correspondence. A discussion of seemingly odd hiring practices was introduced as it appears several area colleges are allowing untrained professors to run field schools. NYAC and Christina Reith of the NYSM will look further into this. Should NYAC be requested to create General Field School Standards? Also, Chapters should check their personal libraries and make note of any missing Bulletins. A list should be sent to Sissie and she will distribute extra copies.
➢ Movement to accept: Tyree Tanner; 2nd: Fred Assmus; All in Favor.

Treasurer: Fred Assmus
The NYSAA accounts have now been moved to bank more local to Fred. There is approximately $46k in savings and $23k in the Berkshire Bank in Goshen, NY. Fred would like to remind everyone how important it is to mail in their receipts.
➢ Movement to accept: Abigail Herlihy; 2nd: Bill Englebrecht; All in Favor.

Corresponding Secretary: Abigail Herlihy
Chapters have not been sending in dues as many people seem to have not renewed for 2010. Statistically we have dropped from 606 members in 2009 to 476 members in 2010. A membership audit will be conducted so all chapters will know when the last time members have renewed. A universal membership card format will be developed.

The first call for papers has been received and the mass mailing will go out before Christmas. Abigail is working on transferring materials between Bill Bouchard's workstation at Hartgen to her home. This may cause a little delay in some instances but should be finished before the new year.
➢ Movement to accept: Fred Assmus; 2nd: Laura Johnson-Kelly; All in Favor.

Recording Secretary: Lori Blair
Copies of the minutes of the April 2010 General Business meeting were sent by email to the executive committee. These were reviewed and accepted with minor revisions such as date corrections.
➢ Movement to accept: Bill Englebrecht; 2nd: Fred Assmus; All in Favor

Reports of the Committees

Publications:
Charles Hayes reported by email that the Bulletin 125 (2009) is currently in the last stages of being edited and should be out later in 2010 or early 2011. No. 126 (2010) has excellent submissions and is being worked on at this time. The NYSAA Researches and Transactions Vol. 18, No. 1, "The Archaeology of Maspeth, Long Island, New

York and Vicinity" by Stanley H. Wisniewski and Ralph S. Solecki was published in October of 2010 and is being sold by Dr. William Englebrecht former NYSAA President. Initial reactions indicate that this publication will be popular and important because of the great amount of information gathered from as far back as the 1930s and relevant today to New York City archaeology. Appreciation is expressed to all those involved with these NYSAA publication efforts.

Chapters and Membership:
Mary Ann Niemczycki stated that while members are returning the survey, we are still waiting for most chapters to respond. The majority of responses are reflecting computer savvy individuals and that the Bulletin is an important factor in member renewal. A deadline for the survey has been marked for January 15, 2011 and a reminder will be sent out with the December Call for Papers.

Finance:
See the Treasurer's Report above.

Liaisons:

ESAF:	Tim Abel (Absent) – No report.
NYAC:	Sissy Pipes – The Funk Award endowment has diminished so there will be no research funded for a year or two.
SPA:	Fred Assmus – The SPA's 2011 meeting is in Morgantown, PA the weekend before the NYSAA conference (April 8-10), so there is no conflict.
ASPI:	Ann Morton (Absent) – No report.
PANYC:	Diana Wall (Absent) – No report.

New Business

1. A Motion was made by Sissie Pipes, seconded by Laura Johnson-Kelly, to divorce the year of the Bulletin publication from the Volume number. The information will still appear on the Bulletin, but the year will not determine the volume number, nor vice versa. All volume numbers will remain in consecutive order and the year will now reflect "real time" publication. All in favor, Motion passed.

2. A request was made by Peter Pratt to include a symposium for Gordon DeAngelo at the upcoming annual meeting. The symposium would reflect Gordon's work and papers on the important role of the avocational archeologist. The executive committee agreed that while this was a wonderful idea, it was not a matter that could be voted upon, but should be a request directed toward the host chapter of the annual meeting. Peter will follow up.

3. A request was made to consider rearranging the awards placement at the annual meeting. Could some awards, such as those presented by the chapters, be given at the general meeting on Friday night, while the presentations that require the awards committee vote remain on Saturday evening at the banquet? The concern is that the banquet is extending too late into the evening for guests to comfortably remain through the dinner, speaker, and awards ceremony.

4. A request for financial help in maintaining the library was made by the Long Island Chapter. It costs approximately $500/year to maintain the facility in which the state association library is housed. In addition, a new copier was required this year ($350), as the old one finally broke down. The request included a call for financial aid for the annual library costs and for reimbursement of half the cost of the copier. As membership dues for the state organization had dropped for 2010, a Motion was made by Abigail Herlihy (Seconded by Greg Sohrweide) to donate a box of 40 R&T books to be sold in the museum along with the requested $175 for the printer. The books would net the chapter between $400 and $600 if sold at a cost of $10 to NYSAA members and $15 to non-members. All Passed. Additional concerns about the library were raised such as how many visitors does the library receive each year and should the library contents be digitized for ease of access?

5. It was mentioned that members are not familiar with the amenities offered by the NYSAA organization—i.e. list-serve, the library, etc. It would be beneficial to have a handout detailing the services we offer and instructions on how to use them. This could be distributed at the annual conference and in future mass mailings.

6. As a note, a new portal for hosting the *Bulletin* is available on the NYSAA website.

Future Meetings
1. The 2011 meeting is scheduled for April 15-17, 2011 in Johnstown, NY and will be hosted by the Van Epps-Hartley Chapter. The first Call for Papers has been delivered to the corresponding secretary and will be mailed out in December.

2. The Orange County Chapter has requested to host the 2012 meeting. Motion made by William Engelbrecht, Seconded by Abigail Herlihy, All passed.

Meeting Adjourned (4:30 P.M.)
The motion to adjourn was by Fred Assmus, seconded by Greg Sohrweide. Passed.

Respectfully submitted, Abigail Herlihy
NYSAA Corresponding Secretary

Guidelines for Manuscript Submissions

General

The Bulletin is a journal devoted to the dissemination of scholarly articles relating to the archaeology of New York State and its environs. It is published annually by the New York State Archaeological Association. Authors should submit an original and two copies of each article, including an abstract and a complete list of references cited in the text, to the editor, Charles F. Hayes III, 246 Commodore Parkway, Rochester, NY 14625-2032. The editor may reject or return an article to the author for revisions, on the basis of either content or style. Authors may request peer rreview of their article. Upon acceptance, authors are asked to submit their article in electronic format—either Windows or Macintosh format. Most current word processing programs can be accommodated. Please see section on *Figures*, below for requirements for electronic submission of images.

Manuscript Organization

Please organize your manuscript as follows:

- Title, author, institutional or chapter affiliation
- Abstract - a single paragraph of 100 to 150 words
- Text
- Acknowledgements
- References cited
- Tables (with captions)
- Figures (with captions listed on a separate page)

Manuscripts should be written as clearly and succinctly as possible. They should be unjustified and double-spaced, on one side of 8 1/2" x 11" paper. Only one space should follow periods and pages should be numbered in the upper right hand corner. Endnotes are to be used instead of footnotes, but they should be used sparingly.

Headings

Primary headings should be flush left, bolded, and at the same font size as the text, with only the first letter of each word capitalized. Secondary headings should be flush left, unbolded, and at the same font size as the text, with only the first letter of each word capitalized. Tertiary headings should be flush left, in italics, and at the same font size as the text, with only the first letter of each word capitalized.

Measurement Units

In order to avoid errors in translation, measurements may be in either English or metric units, as appropriate to the content of the article; however, for further clarification, one may wish to include conversions in parentheses. Commonly used units of measurement such as feet, yards, miles, meters, centimeters, kilometers, and hectares are abbreviated as follows (without periods):

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In-text reference citations should follow the simple *American Antiquity* style within parentheses immediately following the material to which the citation refers (for particulars, see *American Antiquity*, Volume 57, number 4, pp. 749-777). Simple citations should include author's last name and year of publication unseparated by a comma, and if appropriate, the page number(s) preceded by a colon (Smith 1978:222) or Smith (1978:222). Citations involving two authors should include both names; those involving three or more authors should use the first author's name followed by et al. (e.g., Brown et al. 1987). Where more than one publication is being referenced, they should be ordered alphabetically within the parentheses and separated by semi-colons (e.g., Barton 1986; Davis 1975; Wilson 1999). Where there are several references for the same author within a set of parentheses, these are separated by commas (e.g., Adams 1975, 1985; Brown 1988).

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If at all possible tables should be set up in the same word processing format as the text. They should be as simple as possible and include a short descriptive title above the table itself. Tables should be numbered consecutively as they will appear in text. All tables should be referenced in the text.

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1. Book with single author

Bradley, James W.

1987 *Evolution of the Onondaga Iroquois: Accommodating Change 1500-1655 A.D.* Syracuse University Press, Syracuse, New York.

2. Book with multiple authors

Burt, William H. and Richard P. Grossenheider

1976 *Peterson Field Guides: Mammals*. 3rd ed. Houghton Mifflin, Boston.

3. Edited book (author is editor)

Morris, William (editor)

1978 *The American Heritage Dictionary of the English Language*. Houghton Mifflin, Boston.

4. Translated book

van den Bogaert, Harmen Meyndertz

1988 *A Journey into Mohawk and Oneida Country 1634-35*. Translated and edited by Charles Gehring and William Starna. Syracuse University Press, Syracuse.

5. Reprinted book

Hale, Horatio E., editor

1963 *The Iroquois Book of Rites*. Reprinted with an Introduction by William N. Fenton, University of Toronto Press, Toronto. Originally published 1883, D.G. Brinton, Philadelphia.

6. Multivolume set

Thwaites, Reuben G., editor

1959 *The Jesuit Relations and Allied Documents: Travel and Explorations of the Jesuit Missionaries in New France, 1610-1791*. 73 vols. Reprinted, Pageant, New York. Originally published 1896-1901, Burrows Brothers, Cleveland.

7. Titled volume in a series

Wray, Charles F., Martha L. Sempowski, and Lorraine P. Saunders

1991 *Tram and Cameron: Two Early Contact Era Sites*. Charles F. Wray Series in Seneca Archaeology, Vol. II, edited by Charles F. Hayes III. Research Records No. 21. Rochester Museum & Science Center, Rochester, New York.

8. Article in an edited book

Wade, Mason

1988 French Indian Policies. In *History of Indian-White Relations*, edited by Wilcomb E. Washburn. Handbook of North American Indians, Vol. 4, William G. Sturtevant, general editor, pp. 20-28. Smithsonian Institution, Washington, D.C.

9. Article in a journal

Murray, Jean E.

1938 The Early Fur Trade in New France and New Netherland. *Canadian Historical Review* XIX:367.

10. Article in edited volume in a series

Noble, William C.

1992 Neutral Iroquois Smoking Pipes. In *Proceedings of the 1989 Smoking Pipe Conference*, edited by Charles F. Hayes III, Connie C. Bodner, and Martha L. Sempowski, pp. 41-49. Research Records No. 22. Rochester Museum & Science Center, Rochester, New York.

11. Presented paper

Ceci, Lynn

1985 Shell Bead Evidence from Archaeological Sites in the Seneca Region of New York State. Paper presented at the Annual Conference on Iroquois Research, Rensselaerville, New York.

12. Dissertation or thesis

Drooker, Penelope B.

1996 *The View from Madisonville: Continuity and Change in Late Prehistoric Protohistoric Western Fort Ancient Interaction Patterns*. Ph.D. dissertation, State University of New York, Albany. University Microfilms, Ann Arbor, Michigan.

13. Manuscript in press

Brown, William T.

2000 Early Days in Livingston County. New Horizons Press. In Press.

14. Unpublished manuscript

Wray, Charles F.

1978 Field notes: Fugle Site. MS on file, Rochester Museum & Science Center, Rochester, New York.

15. Web pages and electronic documents

Sharp, John

2008 *Washington District of Columbia Biographies: Louis Deblois*. Electronic document, http://genealogytrails.com/washdc/bio_deblois_1.html, accessed July 15, 2009.

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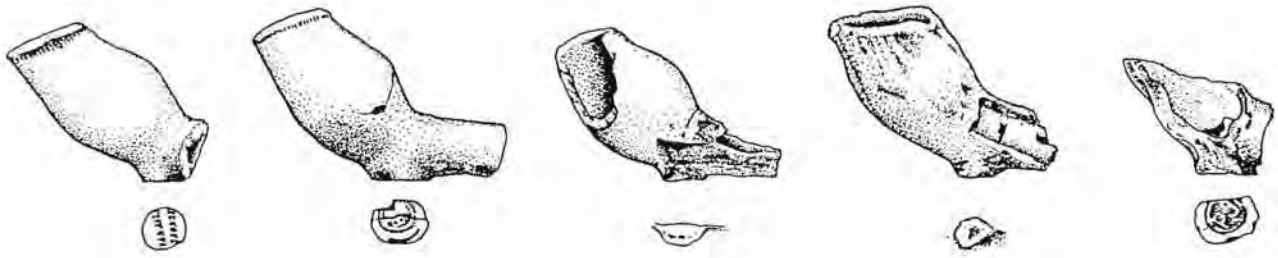
The New York State Archaeological Association is proud to announce the sale of its latest Researches and Transactions publication, Volume XVIII, Number 1. This issue is entitled *The Archaeology of Maspeth, Long Island, New York and Vicinity*, by Stanley H. Wisniewski and Ralph S. Solecki. 104 pages. 59 illustrations. The cost is $10 for NYSAA members, $15 for non-members, plus $2 shipping and handling. Make checks payable to NYSAA and mail to William Engelbrecht, 16 Atlantic Avenue, Buffalo, NY 14222.



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